EAST-WEST GATEWAY
Council of Governments

Creating Solutions Across Jurisdictional Boundaries

2018 Pedestrian Crash Analysis

The work that provided the basis of this publication was supported, in part, by a grant provided from the U.S. Department of Transportation through the Missouri Department of Transportation and the Illinois Department of Transportation. The opinions, findings, and conclusions expressed in this publication are those of the author and not necessarily those of the Missouri Highways and Transportation Commission, the Illinois Department of Transportation, the Federal Highway Administration, or the Federal Transit Administration.

Table of Contents

Introduction

The *2018 Pedestrian Crash Analysis* was developed by East-West Gateway Council of Governments (EWG) in response to the persistent rise in crashes involving pedestrians in the St. Louis region. Despite annual fluctuations, pedestrian crash and fatality rates continue to increase at a rate that outpaces motor vehicle crash and fatality rates, which have been on a mostly downward trend for the last several decades. This is a trend seen nationally as well as locally. Nationwide, people bicycling and walking account for more than 16 percent of crash fatalities, but only 11 percent of all trips.[1] This disproportionate representation in fatal crashes underscores pedestrian safety as an issue that needs to be brought to the forefront in the region's transportation planning discussions and efforts.

St. Louis is a Bicycle/Pedestrian Safety Focus City, as designated by the Federal Highway Administration's (FHWA) Safety Office. A Bicycle/Pedestrian Safety Focus City is designated as such if it falls within the top 20 cities with the highest number of bicycle and pedestrian fatalities over a three-year average from 2011-2013. Since bicycle and pedestrian crash types are more common in urban areas, any state that contains a Focus City is by default a Focus State. Currently, both Missouri and Illinois are designated Bicycle/Pedestrian Safety Focus States.

In addition, transportation law at the national level is also addressing pedestrian safety. The Fixing America's Surface Transportation (FAST) Act was signed into law in 2015 and guides how project planning and programming is conducted by state departments of transportation (DOTs) and metropolitan planning organizations (MPOs). The FAST Act continues the National Highway Performance Program (NHPP) established under the Moving Ahead for Progress in the 21st Century Act (MAP-21) which requires a performance-driven, outcome-based planning and programming process. A crucial element of the NHPP process is the establishment of performance measures and targets to achieve desired outcomes across the transportation system. Reducing the number of non-motorized fatalities and non-motorized serious injuries is one of five required safety performance measures. For 2018, EWG has established a target of reducing this number by 2 percent for the metropolitan planning area, equating to a combined total of no more than 205.3 non-motorized serious injuries and fatalities. This performance target is in line with current trends and funding availability, and takes into consideration the already established state (DOT) targets of 2 percent for Illinois, and 4 percent for Missouri.

The purpose of the *2018 Pedestrian Crash Analysis* is to examine the issue of pedestrian safety through regional crash data by tracking existing and emerging trends, analyzing data spatially to identify problem areas, and providing established safety countermeasures and strategies on how to reduce crashes and plan for safe walking facilities and environments. This document, along with the corresponding 2*018 Bicycle Crash Analysis* is intended to be an informational tool for our regional partners, local public agencies, and project sponsors to inform their decision-making and transportation planning processes, and ultimately, to improve the safety and mobility of people walking and bicycling.

1 http://www.pedbikeinfo.org/topics/completestreets.cfm

Data and Methodology

The EWG planning area is comprised of an eight-county region spanning Illinois and Missouri. It includes Madison, Monroe, and St. Clair counties in Illinois, and the city of St. Louis, St. Louis, St. Charles, Jefferson, and Franklin counties in Missouri. It is a diverse region, representing urban, suburban, and rural areas and presenting unique challenges to transportation planning.

EWG staff compiled and analyzed data for all reported crashes in the region involving a pedestrian over the five-year period from 2011 to 2015, with breakdown by county, crash severity, and a variety of other contributing factors and demographic indicators.

Crash data is derived from police reports, which has certain limitations. As a bi-state region, differences in reporting between Missouri and Illinois means that the data does not always align perfectly, resulting in slightly different figures for each state. To ensure accuracy, consistency, and fair comparison in this analysis, some data has been omitted, and will be noted as such.

Another limitation of the data is unreported crashes. Various sources, including the National Highway Traffic Safety Administration (NHTSA), estimate that close to half of all motor vehicle crashes are not reported to police.[2] Typically, unreported crashes are those that result in minor or insignificant property damage, not fatalities or serious injuries. Although this is a generic estimate for all types of motor vehicle crashes, it can be inferred that there are likely large numbers of minor, unreported crashes involving pedestrians as well.

Certain demographic data, such as race, is not included on crash reports, which limits socio-economic analysis. Historically, communities of color and low-income communities have struggled with disinvestment in transportation infrastructure, which is reflected in issues of access and safety. Environmental Justice was introduced as federal policy in 1994 as a means of addressing racial, ethnic, and socioeconomic equity, and is used in this analysis for the same purpose. As the term is used in this document, and as it is defined by EWG, environmental justice areas are those areas with a disproportionately high concentration of not only low-income and minority populations, but also zero-vehicle households, seniors, persons with disabilities, and those with limited English proficiency (LEP). Taking a closer look at these often underrepresented populations is helpful in examining issues of equity in the region, in regards to transportation safety and infrastructure.

In addition, results from EWG's 2017 Bicycling and Walking Survey have also been included to shed light on local perceptions of safety while walking. Relevant insights are highlighted where appropriate to illustrate how perceived safety also impacts pedestrian behavior and individual transportation choices.

2 M. Davis & Co. (2015, July). National telephone survey of reported and unreported motor vehicle crashes. (Findings Report. Report No. DOT HS 812 183). Washington, DC: National Highway Traffic Safety Administration.

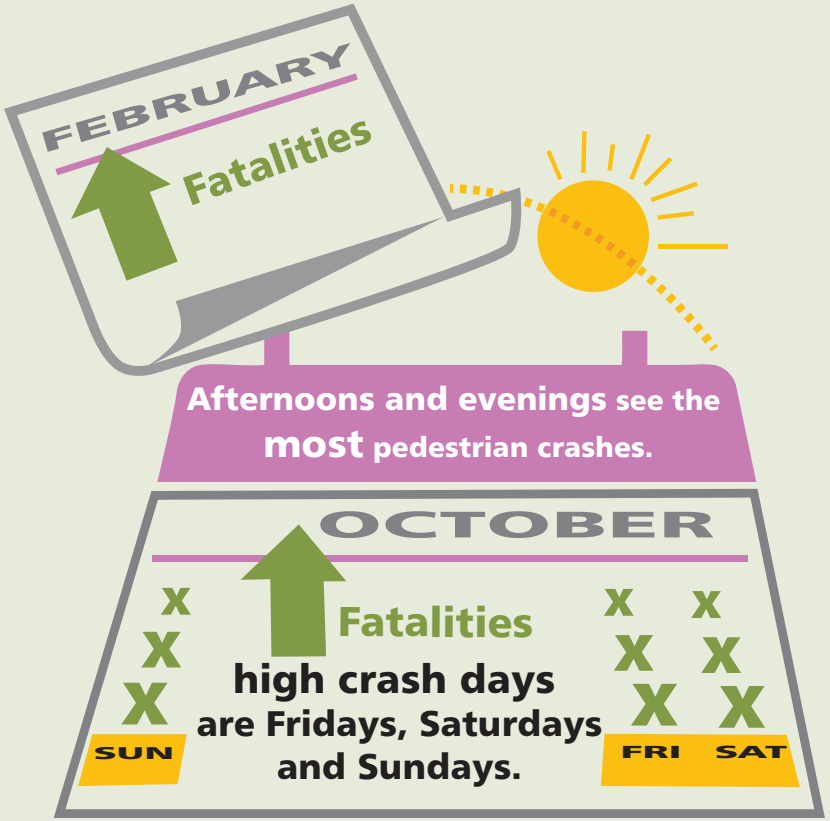
Key Findings

Over the five-year period from 2011 to 2015, the St. Louis region has seen an average of 756 pedestrian crashes annually. While the majority of the region's 3,782 pedestrian crashes are minor- or non-injury crashes, it is important to note that 23 percent of crashes resulted in a fatality or serious injury.

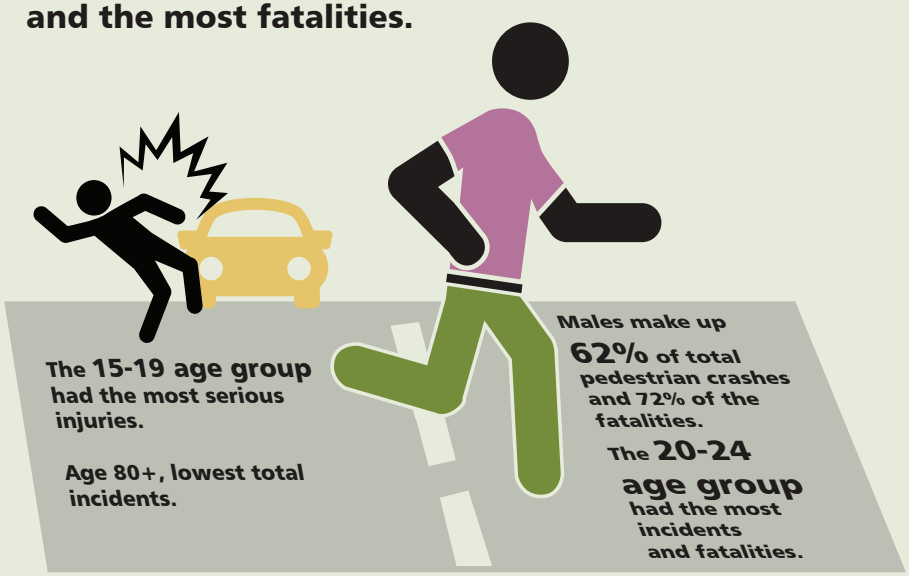
There is an overwhelming concentration of pedestrian crashes in the city of St. Louis and north St. Louis County, with clusters of crashes in many of the region's outlying cities.

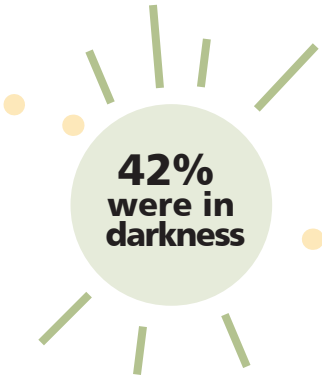
The highest density of pedestrian crashes occurs in the city of St. Louis. North St. Louis County, and the area within the I-270 loop see a larger number of pedestrian crashes as well.

Most pedestrian crashes happen on a ...



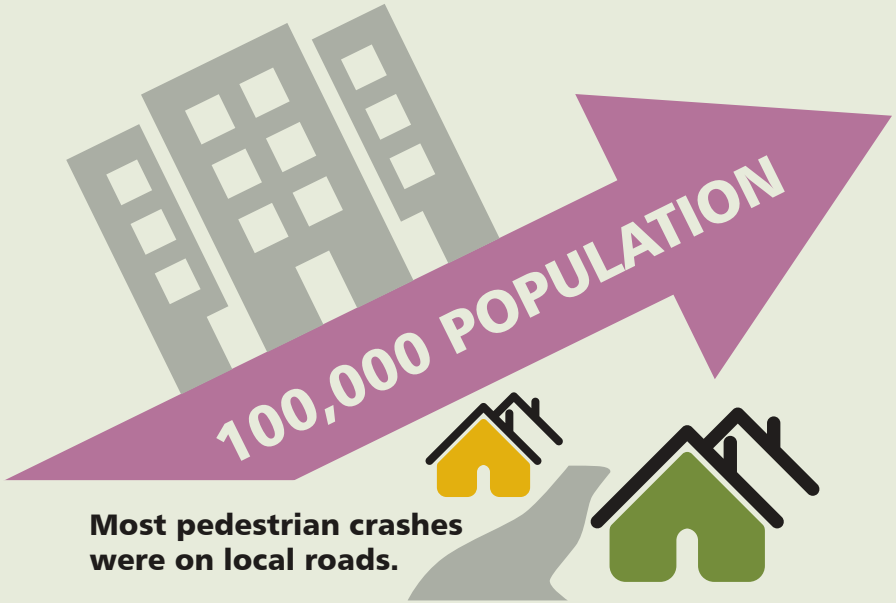
Pedestrians age 20-24 have the most crashes and the most fatalities.





The St. Louis region has an annual average of 756 pedestrian crashes

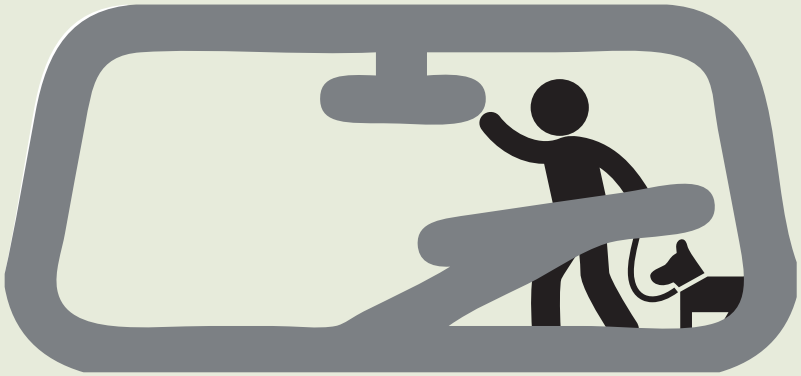
Cities with larger **populations** see the most pedestrian crashes and injury levels.



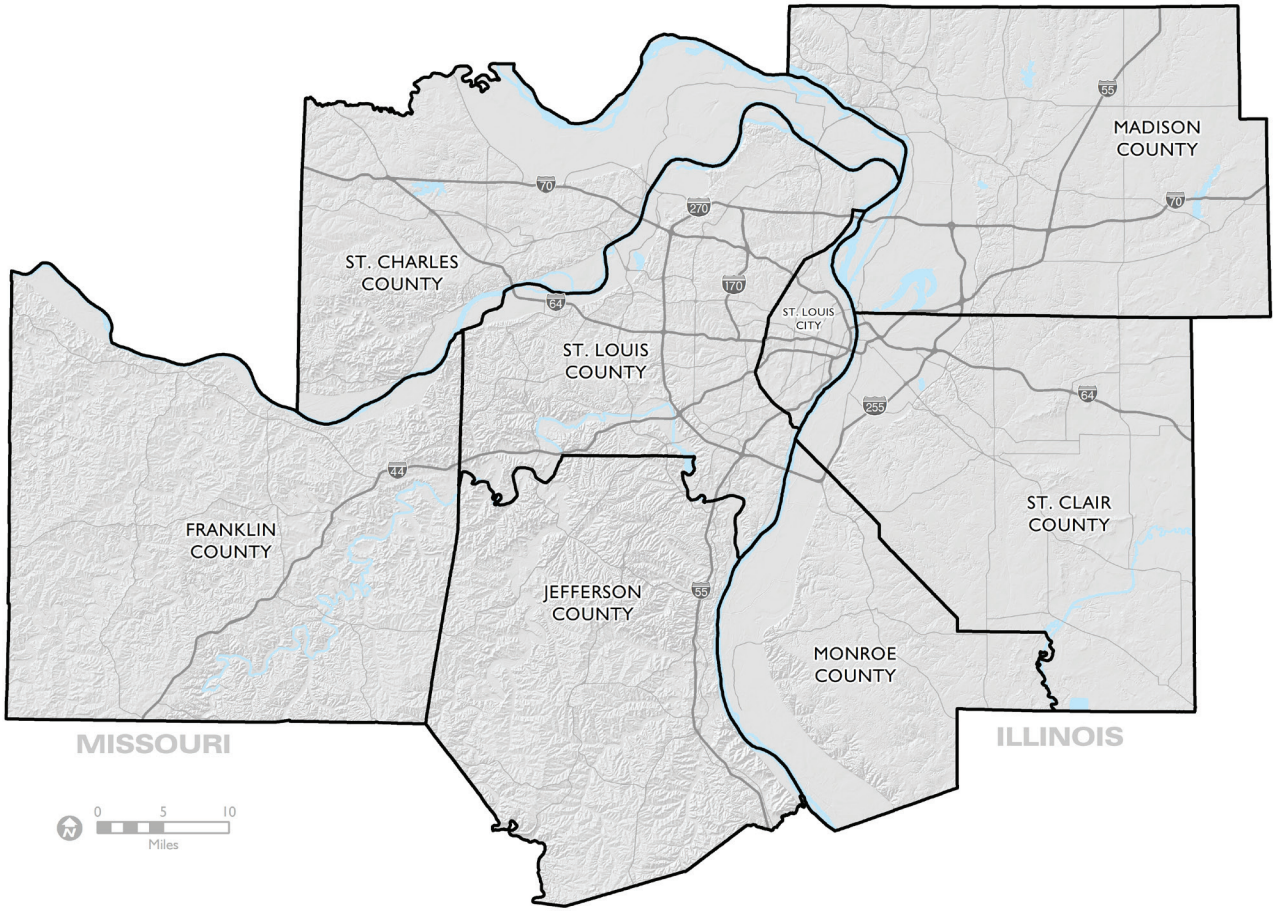
Most pedestrian crashes were on local roads.

The **top 2** known causes of pedestrian crashes:

1) Distracted or Inattentive Driving.
2) Failure to Yield.



East-West Gateway Region



Pedestrian Crash Trends

Over the five-year period from 2011 to 2015, the St. Louis region has seen an average of 756 pedestrian crashes annually. When comparing the St. Louis region to state and national numbers, the region is seeing a higher five year average of pedestrian crashes per 100,000 residents (29.3) than the state of Missouri (26.4) and the United States (23.4). The state of Illinois is ranking the highest out of the St. Louis region, Missouri and nationally with 37.8 pedestrian crashes per 100,000 residents.

Table 1: Pedestrian Crashes

Year	2011	2012	2013	2014	2015	Total	Average
Total	742	740	752	747	801	3,782	756

Figure 1: Pedestrian Crashes

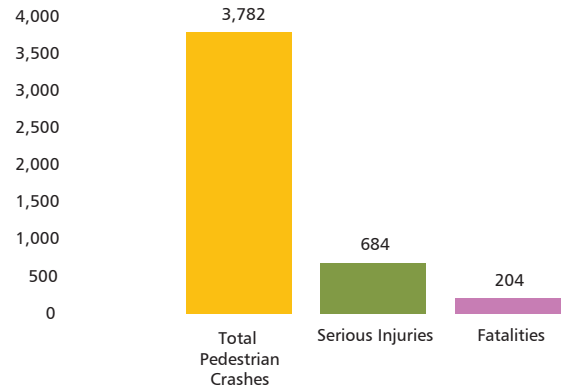


Figure 2: Fatalities as Percent of Total Pedestrian Crashes

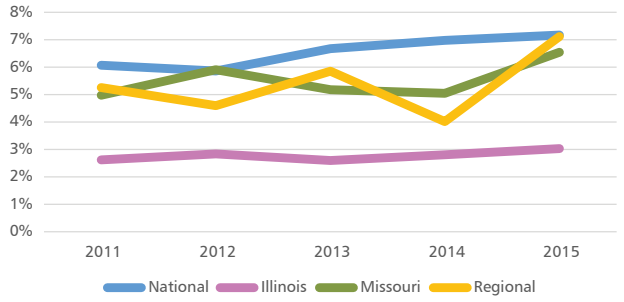


Figure 3: Serious Injury as Percent of Total Pedestrian Crashes

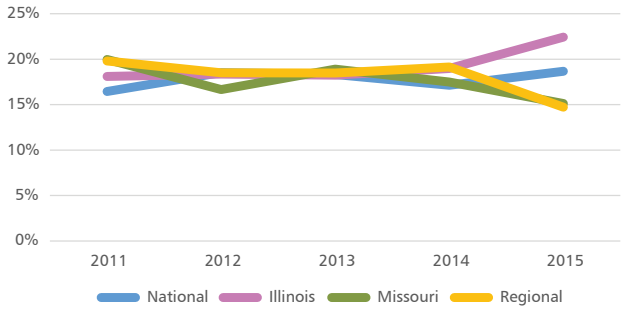
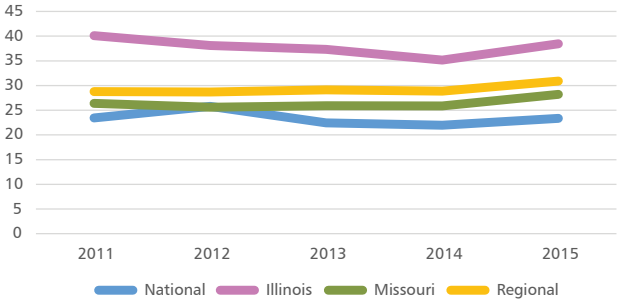
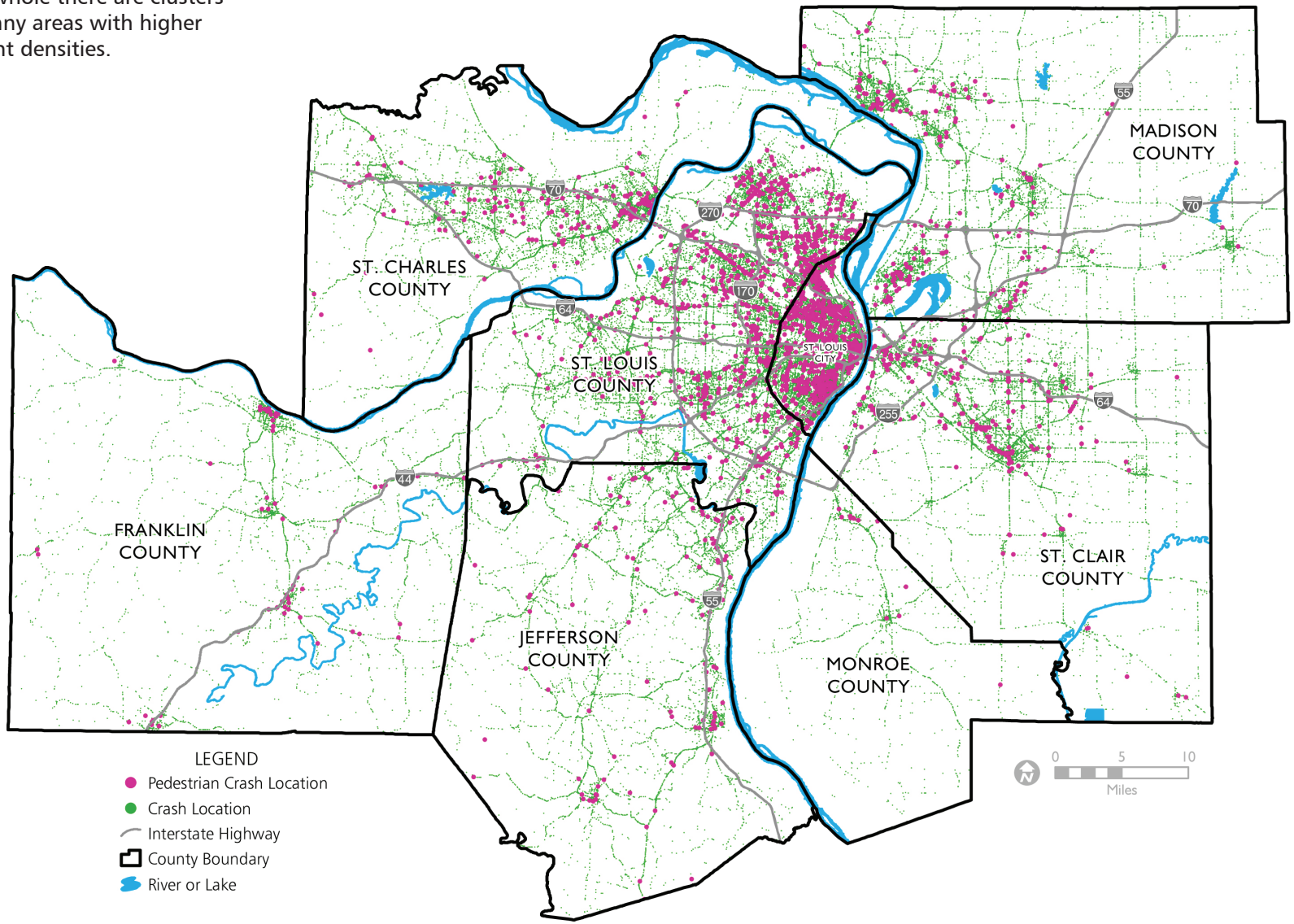


Figure 4: Pedestrian Crashes Per 100,000 Residents



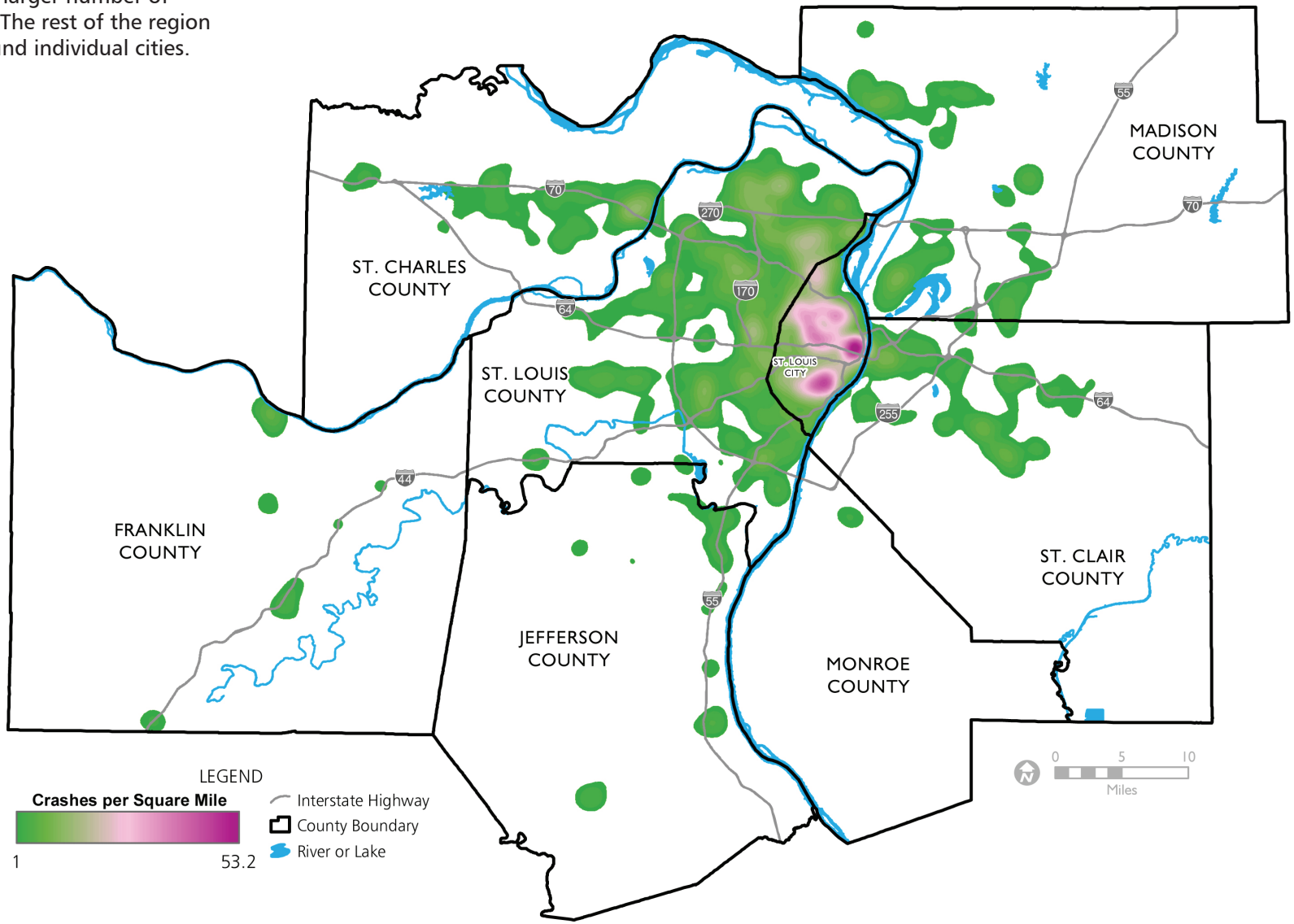
Pedestrian Crash Locations

This map shows an overwhelmingly high concentration of pedestrian crashes in the city of St. Louis and north St. Louis County. When looking at the region as a whole there are clusters of pedestrian crashes in many areas with higher population and employment densities.



Pedestrian Crashes per Square Mile

This map shows the highest density of pedestrian crashes happen in the city of St. Louis. North St. Louis County and the remainder of the area within the I-270 loop see a larger number of pedestrian crashes as well. The rest of the region has high density areas around individual cities.



Crashes by Time of Day

The highest number of pedestrian crashes occurred between 3:00-3:59 p.m., with a total of 333 crashes reported during this time period from 2011-2015. Generally, there are more pedestrian crashes between 3:00 p.m. and 9:59 p.m., with an uptick in the severity of crashes at this time and in the overnight hours.

Figure 5: Pedestrian Crashes by Time of Day

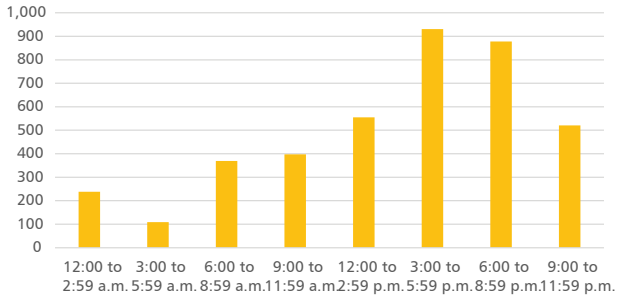


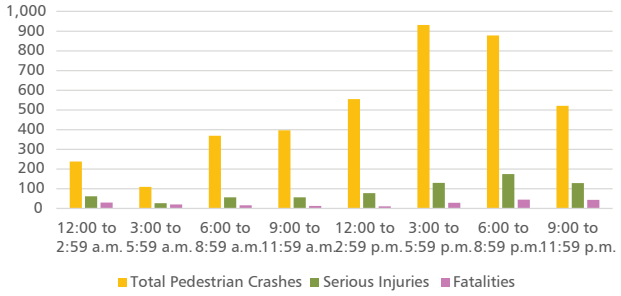
Table 2:

Time	2011	2012	2013	2014	2015	Total	Average
12:00 to 12:59 a.m.	27	14	20	16	14	91	18
1:00 to 1:59 a.m.	16	20	14	18	15	83	17
2:00 to 2:59 a.m.	13	12	14	14	11	64	13
3:00 to 3:59 a.m.	5	8	8	5	10	36	7
4:00 to 4:59 a.m.	6	2	5	4	6	23	5
5:00 to 5:59 a.m.	13	6	9	11	11	50	10
6:00 to 6:59 a.m.	21	15	16	21	21	94	19
7:00 to 7:59 a.m.	30	25	35	23	33	146	29
8:00 to 8:59 a.m.	33	26	25	21	24	129	26
9:00 to 9:59 a.m.	20	27	21	34	25	127	25
10:00 to 10:59 a.m.	17	28	17	25	26	113	23
11:00 to 11:59 a.m.	29	31	31	28	38	157	31
12:00 to 12:59 p.m.	44	31	38	39	51	203	41
1:00 to 1:59 p.m.	33	37	34	30	32	166	33
2:00 to 2:59 p.m.	41	39	38	35	33	186	37
3:00 to 3:59 p.m.	66	51	80	70	66	333	67
4:00 to 4:59 p.m.	52	45	58	54	67	276	55
5:00 to 5:59 p.m.	63	82	52	68	57	322	64
6:00 to 6:59 p.m.	70	69	63	53	75	330	66
7:00 to 7:59 p.m.	71	52	53	48	57	281	56
8:00 to 8:59 p.m.	44	41	68	55	59	267	53
9:00 to 9:59 p.m.	28	48	44	51	46	217	43
10:00 to 10:59 p.m.	31	36	26	29	42	164	33
11:00 to 11:59 p.m.	33	34	22	26	25	140	28

Table 3:

Time	Total Pedestrian Crashes	Minor and Non-Injuries	Serious Injuries	Fatalities
12:00 to 12:59 a.m.	91	58	23	10
1:00 to 1:59 a.m.	83	51	22	10
2:00 to 2:59 a.m.	64	37	17	10
3:00 to 3:59 a.m.	36	19	12	5
4:00 to 4:59 a.m.	23	13	7	3
5:00 to 5:59 a.m.	50	31	7	12
6:00 to 6:59 a.m.	94	70	14	10
7:00 to 7:59 a.m.	146	116	24	6
8:00 to 8:59 a.m.	129	111	18	0
9:00 to 9:59 a.m.	127	101	21	5
10:00 to 10:59 a.m.	113	91	18	4
11:00 to 11:59 a.m.	157	136	17	4
12:00 to 12:59 p.m.	203	169	29	5
1:00 to 1:59 p.m.	166	140	23	3
2:00 to 2:59 p.m.	186	159	25	2
3:00 to 3:59 p.m.	333	277	50	6
4:00 to 4:59 p.m.	276	236	35	5
5:00 to 5:59 p.m.	322	259	45	18
6:00 to 6:59 p.m.	330	256	61	13
7:00 to 7:59 p.m.	281	210	55	16
8:00 to 8:59 p.m.	267	193	58	16
9:00 to 9:59 p.m.	217	145	54	18
10:00 to 10:59 p.m.	164	122	30	12
11:00 to 11:59 p.m.	140	82	45	13

Figure 6: Pedestrian Crashes by Time of Day and Severity Level



Crashes by Day of Week

Pedestrian crashes are dispersed fairly evenly throughout the week, with the most crashes occurring on Fridays, the most serious injuries occurring on Saturdays, and the most fatalities on Sundays.

Figure 7: Pedestrian Crashes by Day of Week

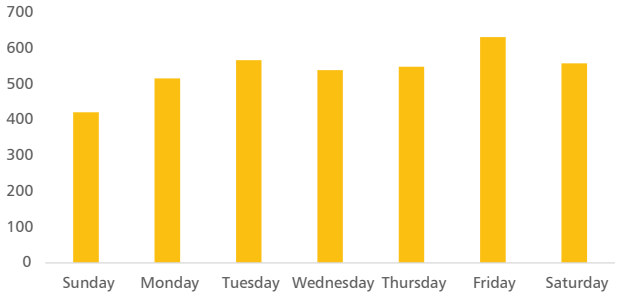


Table 4:

Day	2011	2012	2013	2014	2015	Total	Avg.
Sunday	79	99	87	98	89	452	90
Monday	142	91	101	105	109	548	110
Tuesday	112	118	115	115	141	601	120
Wednesday	130	107	113	110	100	560	112
Thursday	102	104	128	114	128	576	115
Friday	117	145	136	127	149	674	135
Saturday	124	115	111	109	128	587	117

Figure 8: Pedestrian Crashes by Day of Week and Severity Level

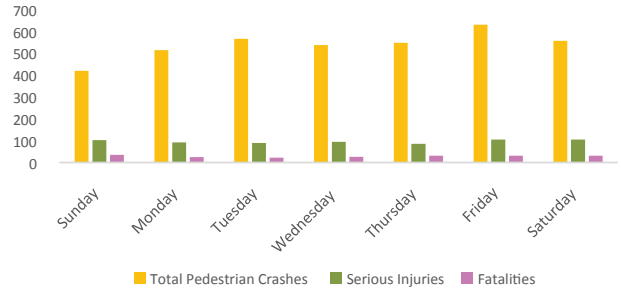


Table 5:

Day	Total Pedestrian Crashes	Minor and Non-Injuries	Serious Injuries	Fatalities
Sunday	452	307	109	36
Monday	548	427	96	25
Tuesday	601	480	98	23
Wednesday	560	435	99	26
Thursday	576	454	90	32
Friday	674	535	107	32
Saturday	587	444	111	32

When do you typically Walk?

Out of 671 survey respondents, the majority (78 %) reported walking on both weekdays and weekends. This is consistent with the crash data, which shows an even distribution of crashes involving pedestrians throughout the week.

Crashes by Month

The highest total amount of pedestrian crashes occurred in October. According to Streetsblog, Halloween is the single biggest night for child pedestrian fatalities, likely pushing up the average for October.[3] The highest months for pedestrian fatalities are February and October, and October was the highest month for serious injuries. The summer months, particularly June and July, see the lowest number of pedestrian fatalities.

Figure 9: Pedestrian Crashes by Month

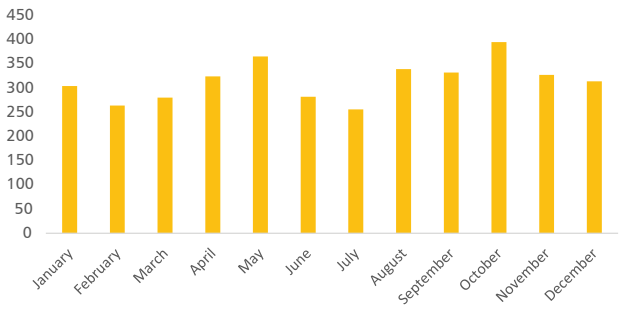


Figure 10: Pedestrian Crashes by Month and Severity

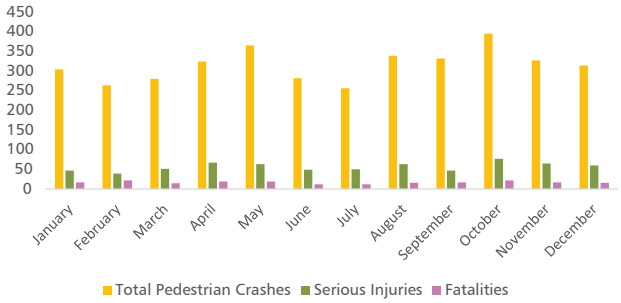


Table 6:

Month	2011	2012	2013	2014	2015	Total	Avg.
January	70	73	75	55	58	331	66
February	56	61	61	58	42	278	56
March	61	60	45	68	59	293	59
April	69	75	62	65	73	344	69
May	77	83	72	74	74	380	76
June	59	53	57	62	69	300	60
July	40	38	66	65	55	264	53
August	57	58	90	72	74	351	70
September	73	67	62	65	78	345	69
October	97	71	79	79	99	425	85
November	79	69	60	56	87	351	70
December	68	71	62	59	76	336	67

Table 7:

Month	Total Pedestrian Crashes	Minor and Non-Injuries	Serious Injuries	Fatalities
January	331	264	48	19
February	278	215	41	22
March	293	227	51	15
April	344	254	71	19
May	380	293	68	19
June	300	233	55	12
July	264	201	51	12
August	351	272	63	16
September	345	278	50	17
October	425	319	84	22
November	351	269	65	17
December	336	257	63	16

3 https://www.vox.com/science-and-health/2017/10/31/16582594/halloween-car-crashes

Crashes by Weather Conditions

Most crashes occurred under clear weather conditions, which is when there are higher pedestrian volumes to begin with. This is consistent with pavement condition, which shows most crashes occur on dry pavement. It is important to note that multiple weather conditions can apply to a single crash, increasing the total number of crashes in this category. For example, it can be cloudy with freezing temperatures. It's also expected that the St. Louis region experiences more days of clear, cloudy, or rainy weather each year than instances of snow, sleet, or hail.

Table 8:

Weather Conditions	2011	2012	2013	2014	2015	Total	Average
Clear	519	577	554	549	586	2,785	557
Cloudy	143	98	125	126	133	625	125
Rain	69	58	66	59	84	336	67
Snow	10	3	15	11	3	42	8
Sleet/Hail	2	1	2	3	1	9	2
Freezing (Temp)	11	5	14	25	9	64	13
Fog or Mist	5	4	4	3	4	20	4
All Other Categories	7	9	9	9	5	39	8

Table 9:

Weather Conditions	Total Pedestrian Crashes	Minor and Non-Injuries	Serious Injuries	Fatalities
Clear	2,785	2,142	500	143
Cloudy	625	481	101	43
Rain	336	254	64	18
Snow	42	32	9	1
Sleet/Hail	9	7	2	0
Freezing (Temp)	64	40	12	12
Fog or Mist	20	13	6	1
All Other Categories	39	28	9	2

Figure 11: Pedestrian Crashes by Weather Conditions

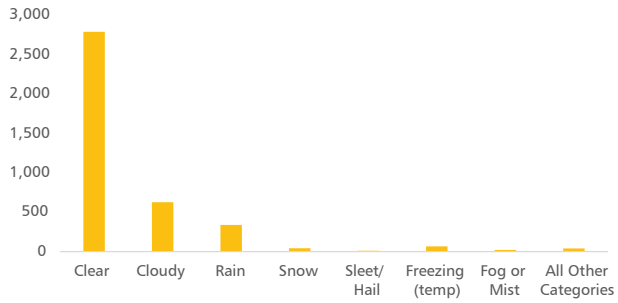
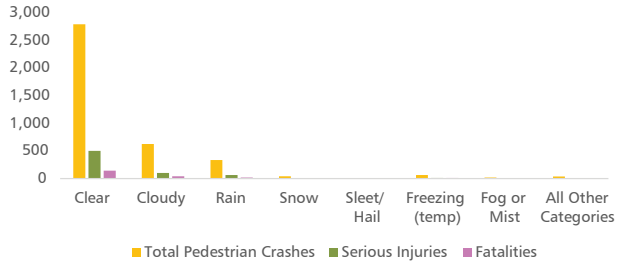


Figure 12: Pedestrian Crashes by Weather Conditions and Severity



What prevents you from walking more or at all?

According to survey results, bad weather ranked sixth in terms of what prevents people from walking more or at all, with 47 percent of respondents citing weather as minor reason and 24 percent citing it as a major reason. Bad weather ranked behind distance, lack of sidewalks, speed/number of cars, crossing busy roads, and lack of crosswalks, respectively.

Crashes by Pavement Conditions

When looking at the pavement conditions at the time of a pedestrian involved crash, the majority of pedestrian crashes (83 percent), as well as a majority of serious injuries (82 percent) and fatalities (82 percent), happened on dry pavement.

Table 10:

Pavement Conditions	2011	2012	2013	2014	2015	Total	Avg.
Dry	593	647	631	619	656	3,146	629
Wet	127	84	103	101	129	544	109
Snow/Ice/Frost/Slush	24	8	18	44	10	104	21
Other	7	6	8	8	14	43	9

Figure 13: Pedestrian Crashes by Pavement Conditions

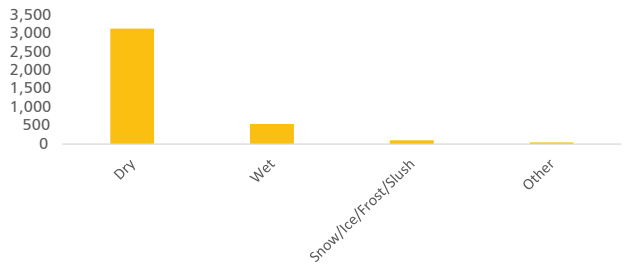
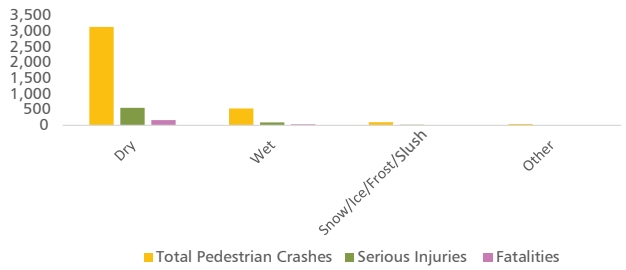


Table 11:

Pavement Conditions	Total Pedestrian Crashes	Minor and Non-Injuries	Serious Injuries	Fatalities
Dry	3,146	2,413	565	168
Wet	544	418	93	33
Snow/Ice/Frost/Slush	104	78	21	5
Other	43	33	9	1

Figure 14: Pedestrian Crashes by Pavement Conditions and Severity



Crashes by Lighting Conditions

The majority of pedestrian crashes (62 percent) occurred during daylight hours. The most fatalities (42 percent) occurred in darkness, on a lighted road.

Table 12:

Lighting Conditions	2011	2012	2013	2014	2015	Total	Average
Daylight	470	439	472	451	503	2,335	467
Darkness/Lighted Road	242	261	224	237	252	1,216	243
Darkness	80	77	89	85	88	419	84
All Other	14	2	6	5	1	28	6

Table 13:

Lighting Conditions	Total Pedestrian Crashes	Minor and Non-Injuries	Serious Injuries	Fatalities
Daylight	2,335	1,963	320	52
Darkness/Lighted Road	1,216	869	262	85
Darkness	419	231	123	65
All Other	28	19	5	4

Location of Crash

Local roads[4] see the highest numbers of pedestrian crashes, of all severity levels, across the board.

Pedestrians are not allowed on interstates, although it is important to note that someone getting out of their vehicle on an interstate due to car breakdown would be considered a pedestrian if they are outside the vehicle. Overall, the number of pedestrian crashes increased as city population increased, demonstrating a correlation between crash frequency and population density.

Crashes by Type of Roadway

Safer crossings at intersections was the most-desired improvement according to survey results, with almost two-thirds of respondents (65.6 percent) citing safer crossings as very important to supporting walking in the region.

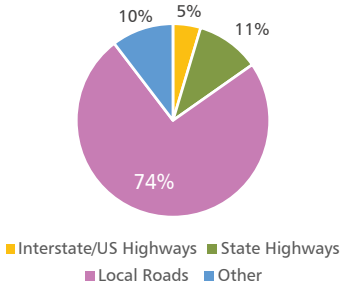
Table 14:

Type of Roadway	2011	2012	2013	2014	2015	Total	Average
Interstate/US Highways	38	28	43	37	39	185	37
State Highways	81	71	81	93	99	425	85
Local Roads	656	584	564	558	611	2,973	595
Other	31	96	103	90	95	415	83

Table 15:

Type of Roadway	Pedestrians	Minor and Non-Injuries	Serious Injuries	Fatalities
Interstate/US Highways	185	103	47	35
State Highways	425	255	120	50
Local Roads	2,973	2,365	494	114
Other	415	359	49	7

Figure 15: Pedestrian Crashes by Roadway Classification



4 Local roads are defined in crash report data being owned/maintained by a city or county.

Crashes by City Size

Table 16:

City Size	2011	2012	2013	2014	2015	Total	Average
Unincorporated	116	109	102	109	125	561	112
Less than 5,000	36	46	38	35	44	199	40
5,000 to 9,999	47	60	74	46	65	292	58
10,000 to 24,999	115	105	129	141	138	628	126
25,000 to 99,999	151	151	168	158	184	812	162
100,000 or more	341	308	280	289	288	1506	301

Figure 16: Pedestrian Crashes by City Size

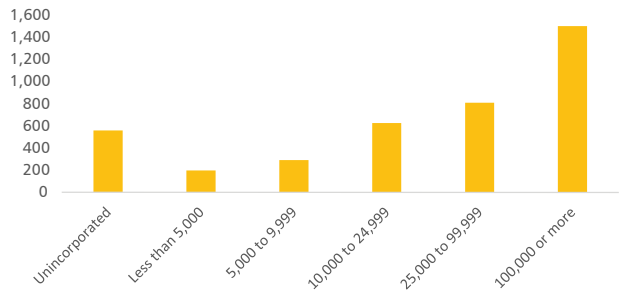
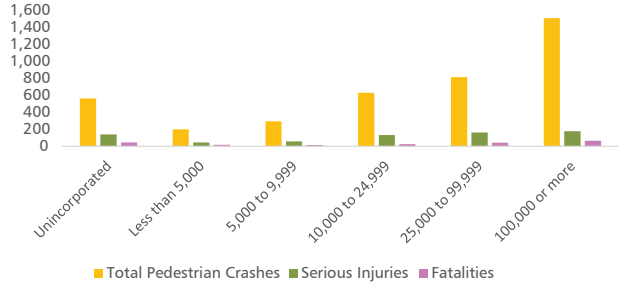


Table 17:

City Size	Total Pedestrian Crashes	Minor and Non-Injuries	Serious Injuries	Fatalities
Unincorporated	561	378	139	44
Less than 5,000	199	137	45	17
5,000 to 9,999	292	221	57	14
10,000 to 24,999	628	471	132	25
25,000 to 99,999	812	609	161	42
100,000 or more	1,506	1,266	176	64

Figure 17: Pedestrian Crashes by City Size and Severity



Crashes by Location on Roadway

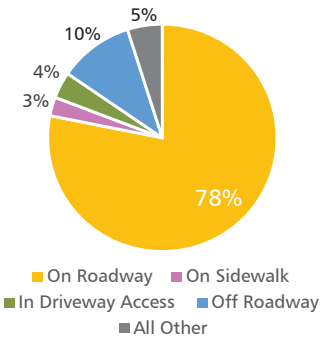
Table 18:

Crash Location on Roadway	2012	2013	2014	2015	Total	Average
On Roadway	588	616	631	659	2,494	624
On Sidewalk	29	18	12	26	85	21
In Driveway Access	26	34	26	34	120	30
Off Roadway	95	78	75	88	336	84
All Other	41	45	34	37	157	39

Table 19:

Crash Location on Roadway	Total Pedestrian Crashes	Minor and Non-Injuries	Serious Injuries	Fatalities
On Roadway	2,494	1,901	455	138
On Sidewalk	85	74	8	3
In Driveway Access	120	101	15	4
Off Roadway	336	277	44	15
All Other	157	121	30	6

Figure 18: Pedestrian Crash Locations



Cause of Crash

The two most common known causes of pedestrian crashes were distracted/inattentive drivers and failure to yield. It is difficult to pinpoint an accurate or conclusive trend regarding the causes of pedestrian crashes because the vast majority did not have a known cause. While it appears that distracted/inattentive driving saw a steep decline after 2011. This is likely due to administrative changes in the way that probable contributing circumstances are being reported by police on the new (2012) crash report form.

It is important to note that any crash can have more than one cause or vehicle movement, resulting in the number of driver actions depicted to exceed the total number of crashes.

Driver Actions

Table 20:

Driver Actions	2011	2012	2013	2014	2015	Total	Average
Distracted/Inattentive	195	86	90	82	90	543	109
Alcohol/Drugs	22	23	15	19	19	98	20
Driver Condition	7	4	7	4	7	29	6
Improper Backing	13	18	16	17	22	86	17
Improper Lane Change/Usage/ Passing/Wrong Way	24	15	20	18	23	100	20
Improper Turn/Signal	6	9	6	6	7	34	7
Improper Stoppage/Parking/ Starting/Riding	17	10	18	13	11	69	14
Failed to Yield	100	98	125	113	100	536	107
Speed Related	44	46	35	42	49	216	43
Vehicle Condition	13	6	6	6	11	42	8
Violation of Sign/Signal	17	12	12	7	6	54	11
Vision Obstructed	0	38	51	29	49	167	33
Other/Unknown	32	161	168	173	200	734	147
None	378	338	312	345	362	1735	347

Close to half of survey respondents (45 %) cited enforcement of traffic laws as a very important improvement to support walking in the St. Louis region, and roughly a third (34 %) cited enforcement as somewhat important.

Pedestrian Actions

Table 21:

Pedestrian Actions	2011	2012	2013	2014	2015	Total (2012-2015)	Average (2012-2015)*
Unknown/Blank/None/Other	108	443	362	348	380	1,533	383
Walking/Turning	61	238	259	249	261	1,007	252
Working/Standing in Roadway/ On Off Vehicle	111	90	81	77	87	335	84
Playing	24	14	24	22	26	86	22
Entering Vehicle/Area/Waiting	4	10	14	10	18	52	13
Crossing	549	117	134	130	142	523	131
Intoxicated	5	5	5	11	6	27	7

Driver and Pedestrian Actions

Table 22:

Under the Influence of Drugs/Alcohol	2011	2012	2013	2014	2015	Total	Average
Drivers	37	35	21	22	26	141	28
Pedestrians	35	42	54	55	60	246	49

Table 23:

Under the Influence of Drugs/Alcohol	Total Pedestrian Crashes	Minor and Non-Injuries	Serious Injuries	Fatalities
Drivers	141	74	52	15
Pedestrians	246	173	71	33

* 2011 data was omitted from this data set due to a change in reporting in Missouri which made 2011 data not comparable to data from 2012 and beyond.

Vehicle Movement

The top three most common vehicle movements prior to both non-fatal and fatal pedestrian crashes are going straight, starting/parked, and turning. These movements exclude the actual collision with the pedestrian.

Table 24:

Prior Movement of Vehicles Involved in Pedestrian Crashes	2011	2012	2013	2014	2015	Total	Average
Avoiding	2	2	0	6	5	15	3
Backing	41	34	37	23	52	187	37
Changing Lanes	2	0	0	7	2	11	2
Wrong Way	0	1	0	0	0	1	0
Entering Traffic/Merging	1	2	0	1	0	4	1
Crossing Center of Road/ Downhill Runaway	0	1	2	0	0	3	1
Slow/Stop	18	11	4	12	21	66	13
Turning	105	98	124	123	106	556	111
Skidding/Sliding	2	2	3	2	24	33	7
Starting/Parked	129	195	146	139	176	785	157
Passing/Overtaking	0	1	0	1	0	2	0
Going Straight	661	551	582	602	668	3,064	613
Ran Off Road/Struck by Object	1	3	0	2	0	6	1
Vehicle Failure	0	1	0	0	1	2	0
Other	3	0	0	2	0	5	1
Unknown	7	11	6	2	10	36	7

Table 25:

Prior Movement of Vehicles Involved in Pedestrian Crashes	Total Pedestrian Crashes	Minor and Non-Injuries	Serious Injuries	Fatalities
Going Straight	2,940	2,166	578	196
Starting/Parked	735	625	95	15
Turning	525	451	68	6
Backing	163	142	19	2
Slow/Stop	62	50	8	4
All Other (including unknown)	96	55	30	11

Crashes by Age of Pedestrian

Pedestrians in the 20-24 age group are involved in the highest total and average number of pedestrian crashes, as well as the highest number of fatalities. Those aged 15-19 saw the most serious injuries, and those age 80 and over saw the lowest number of crashes.

Figure 19: Pedestrian Crashes by Age

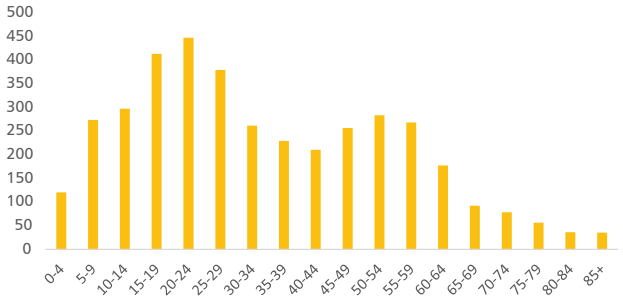


Figure 20: Pedestrian Crashes by Age and Severity

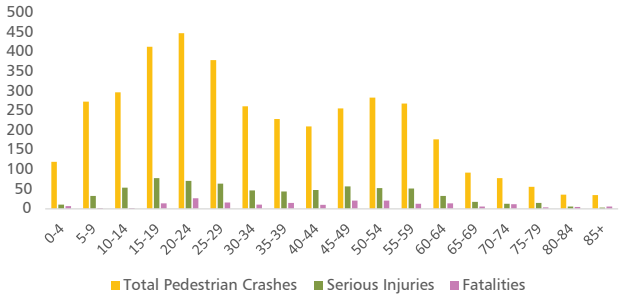


Table 26:

Age	2011	2012	2013	2014	2015	Total	Average
0-4	31	17	25	22	25	120	24
5-9	58	59	60	46	50	273	55
10-14	80	49	56	56	56	297	59
15-19	104	79	63	71	96	413	83
20-24	65	87	93	111	91	447	89
25-29	74	66	76	72	91	379	76
30-34	37	58	51	55	60	261	52
35-39	49	43	46	43	48	229	46
40-44	48	39	39	44	40	210	42
45-49	56	64	49	47	40	256	51
50-54	52	54	58	56	63	283	57
55-59	45	55	63	56	49	268	54
60-64	31	42	36	25	43	177	35
65-69	14	14	21	16	27	92	18
70-74	14	15	21	13	15	78	16
75-79	15	8	9	10	14	56	11
80-84	4	9	3	12	8	36	7
85+	7	6	7	6	9	35	7

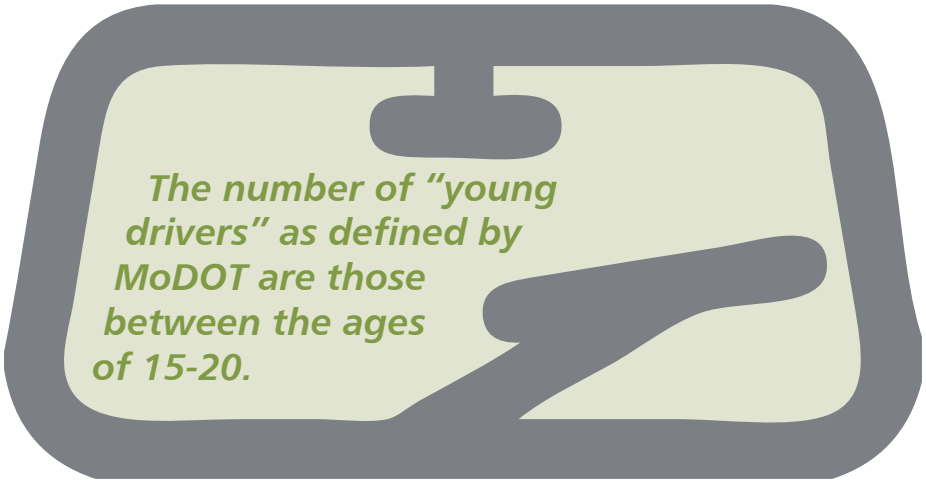
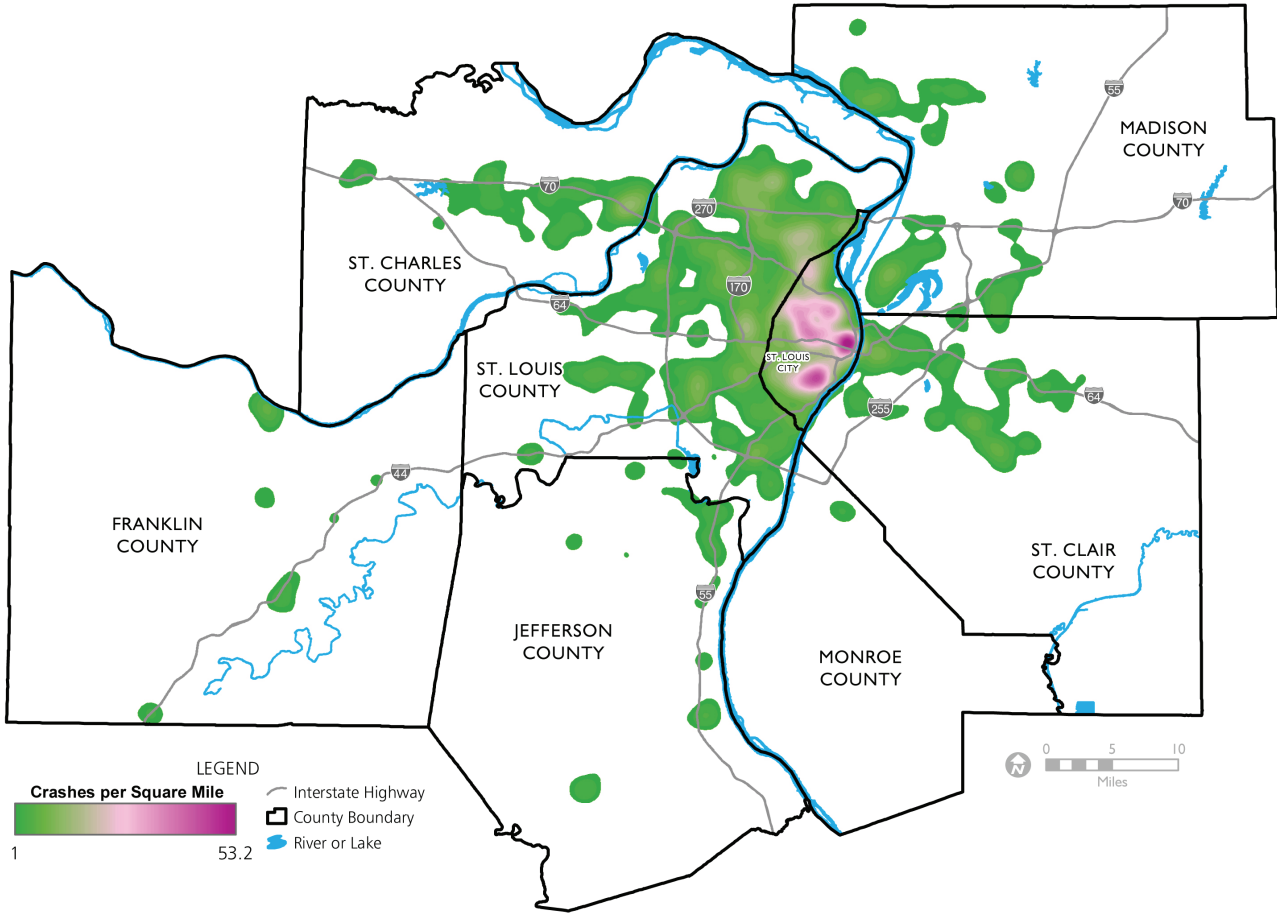


Table 27:

Age	Total Pedestrian Crashes	Minor and Non-Injuries	Serious Injuries	Fatalities
0-4	120	102	11	7
5-9	273	238	33	2
10-14	297	241	54	2
15-19	413	321	78	14
20-24	447	349	71	27
25-29	379	299	64	16
30-34	261	203	47	11
35-39	229	170	44	15
40-44	210	152	48	10
45-49	256	178	57	21
50-54	283	209	53	21
55-59	268	203	52	13
60-64	177	130	33	14
65-69	92	68	18	6
70-74	78	53	13	12
75-79	56	37	15	4
80-84	36	25	6	5
85+	35	26	3	6

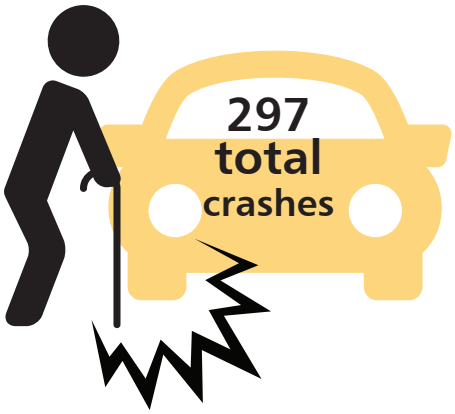
Pedestrian Crashes, Under 18 Years of Age per Square Mile

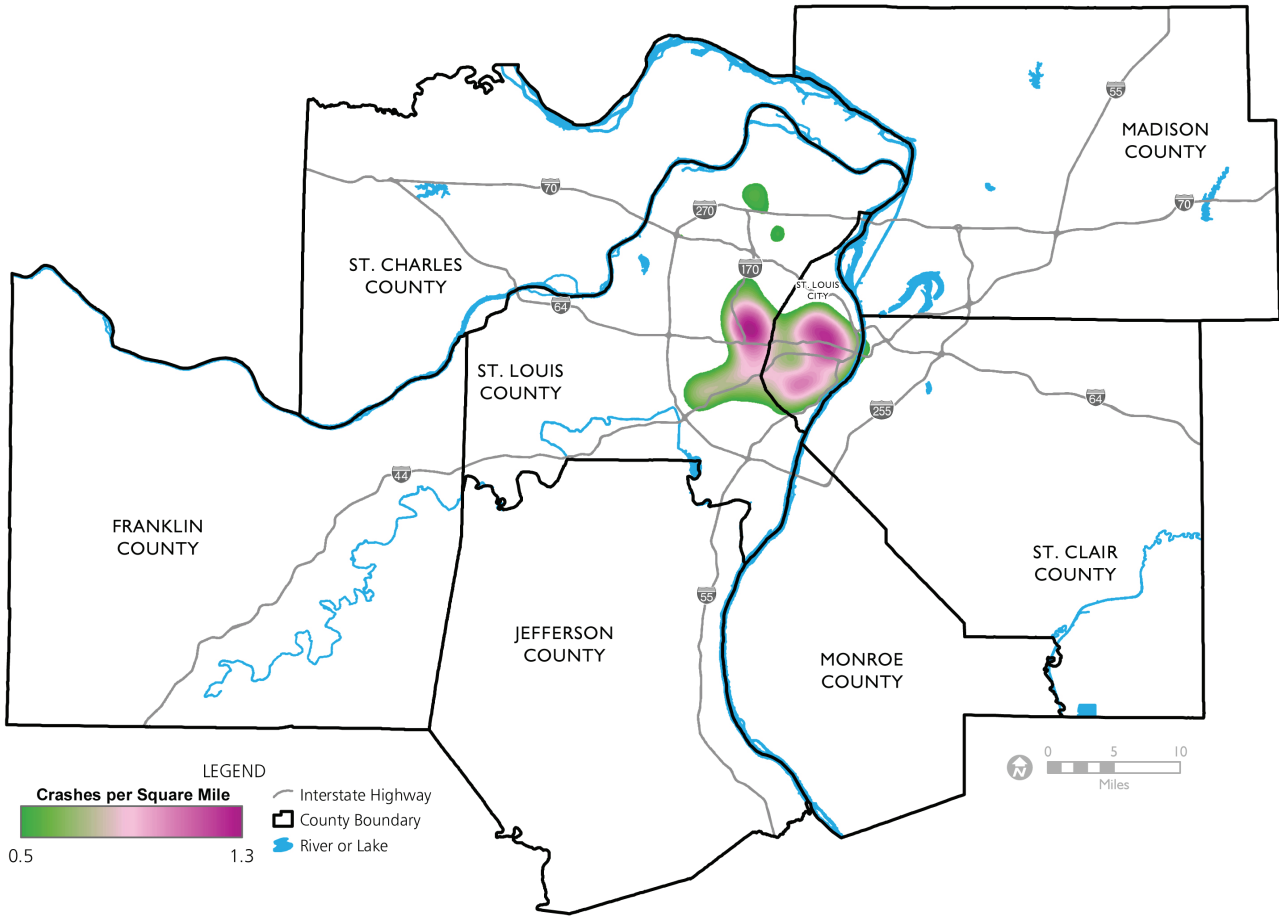
When looking at the age of the pedestrian involved in a crash, pedestrians under 18 years of age show a higher concentration of being involved in a crash in northern and southern portions of the city of St. Louis. There are clusters of pedestrian crashes involving this younger age group within the I-270 loop, as well.



Pedestrian Crashes, Over 65 Years of Age per Square Mile

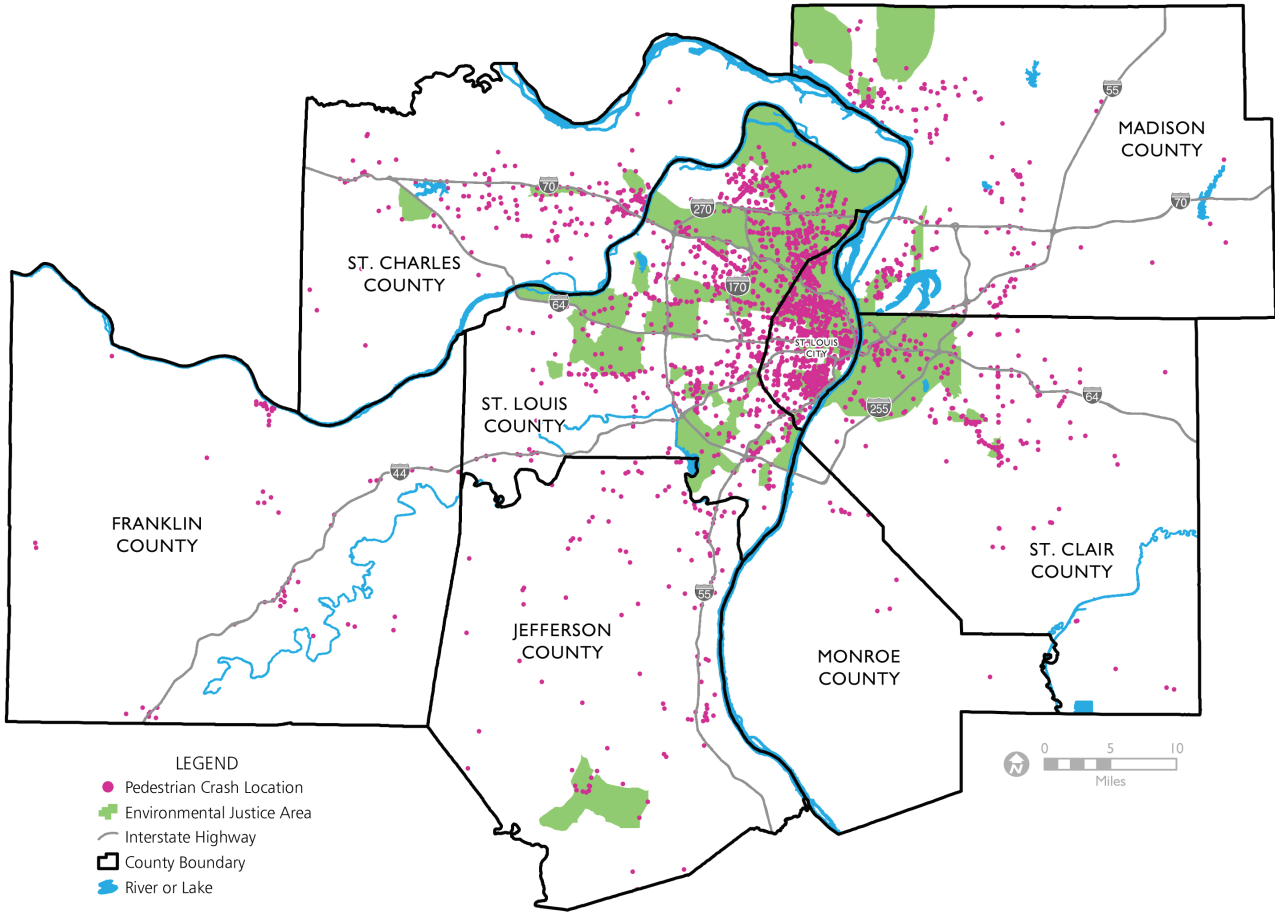
When looking at pedestrian crashes involving a pedestrian over the age of 65, it is almost strictly confined to the city of St. Louis and St. Louis County.





Pedestrian Crash Locations with Environmental Justice Areas

Many of the crashes happening in the northern portion of the city of St. Louis and north St. Louis County occur in Environmental Justice (EJ) areas. Much of the EJ tract within St. Louis County shows an overlap with pedestrian crashes. The EJ tract that stretches from the Mississippi River to the northern border of St. Clair County to the Fairview Heights and down to Cahokia shows a larger number of pedestrian crashes as well.



Crashes by Gender of Pedestrian

Table 28:

Gender	2011	2012	2013	2014	2015	Total	Average
Female	326	312	341	305	346	1,630	326
Male	479	461	447	470	489	2,346	469

Figure 21: Pedestrian Crashes by Gender

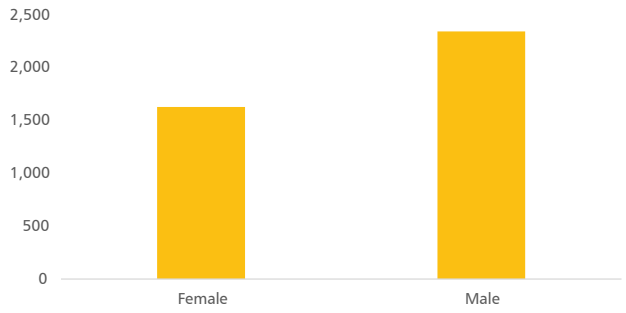
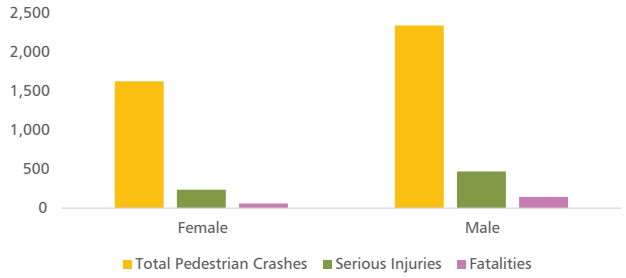


Table 29:

Gender	Total Pedestrian Crashes	Minor and Non-Injuries	Serious Injuries	Fatalities
Female	1,630	1,334	236	60
Male	2,346	1,727	473	146

Figure 22: Pedestrian Crashes by Gender and Severity Level



Strategies

The Federal Highway Administration, Missouri Department of Transportation and Illinois Department of Transportation have many proven and recommended strategies and countermeasures for sponsors to use to make roadways a safer place for pedestrians. When talking about roadway safety, the Four E's are usually discussed: education, emergency medical services, enforcement and engineering. In this document we have combined the emergency medical services and enforcement strategies. The strategies and countermeasures provided in this document are a summary of strategies listed in Illinois and Missouri's strategic highway safety plans, the city of St. Louis' Pedestrian Safety Action Plan and the Federal Highway Administration's website.

Education

These strategies focus on educating the general public and roadway users about traffic safety. Those who can help implement these strategies are advocacy groups, safety coalitions, community groups, educators, communication professionals, etc.

- Educate the public about the dangers of:
  - exiting and walking around a disabled vehicle or vehicles involved in an incident.
  - distracted pedestrians (e.g., texting, talking, listening to music, etc.).
- Educate pedestrians on the importance of:
  - being visible to motorists (e.g., establish eye contact with drivers, etc.).
  - utilizing crosswalks and obeying crosswalk signals.
- Educate drivers on the importance of:
  - being aware and alert of pedestrians on the roadway, especially in or near intersections and downtown areas.
  - obeying traffic laws, with emphasis on yielding to pedestrians.
- Conduct public outreach campaigns such as PSAs, safety fairs and partnering with transit agencies.
- Use social media and new technologies to provide information and promote pedestrian safety.
- Increase school programs that address pedestrian safety.
- Educate and encourage pedestrians to increase their visibility by wearing bright and reflective clothing.
- Promote awareness and increase enforcement of existing laws regarding pedestrians' right-of-way.
- Continue to improve driver's education by incorporating components into licensure, including for CDLs.

Emergency Medical Services(EMS)/Enforcement

These strategies focus on what first responders can do to help lower pedestrian crashes. Partners who can help implement these strategies include first responders, fire, rescue, paramedics and law enforcement.

- Increase enforcement of traffic laws to prevent pedestrian injuries and deaths (e.g., failure to use crosswalk, jaywalking, failure of drivers to yield, etc.).
- Increase enforcement for speeding and aggressive driving.
- Identify funding sources, opportunities and partnerships to implement enforcement strategies.
- Have first responders receive Traffic Incident Management (TIM) training. This training helps first responders gain the knowledge of the major principles of TIM and basic instruction methods for training first responders. This course trains first responders to set up a safe work environment for those attending to a traffic incident.

Engineering

These strategies include countermeasures that can be physically made to roadways, sidewalks, intersections, etc. Engineering partners include highway design, traffic, maintenance, operations, and planning professionals.

- Utilize best practices for Complete Streets design from AASHTO and NACTO sources.
- Promote systemic design solutions that reduce conflict points, minimize exposure at roadway crossings, separate modes and reduce speed when practical.
- Design with pedestrians in mind to reduce conflict points and improve safety at crossings.
- Enhance intersection and roadway design to be more pedestrian friendly, including refuge islands and traffic calming designs.
- Improve lighting in selected urban locations.
- Improve pedestrian signalization (e.g., countdown pedestrian signals, advanced walk phase, all-scramble walk phase, etc.).
- Install/improve pedestrian signs, road markings and devices.
- Upgrade sidewalks and curb ramps to ADA standards.
- Install crosswalk signs and pavement markings at all schools.
- Install pedestrian mid-block crossing signals.
- Restrict parking near intersections.
- Install curb extensions and bulb outs.
- Require appropriate apparel and traffic control devices for school crossing guards.
- Update inventory of sidewalk gaps and non-compliant ADA locations.
- Prioritize improvements based on various factors, including but limited to, crash data, activity and cost.
- Use high visibility crosswalk markings as appropriate.
- Remove unwarranted traffic control devices.
- Improve pedestrian accommodations in work zones.
- Evaluate and consider opportunities for access management or diverting vehicular traffic to nearby routes to avoid high pedestrian travel areas.
- Provide school route improvements.

Funding for Pedestrian Improvements

This section identifies possible state and federal funding sources that sponsors can use for implementing pedestrian safety strategies. It is important to note that this list is not an all-inclusive list and sponsors can use other funding such as local funds, grants, and donations.

Surface Transportation Block Grant Program – Suballocated (STP-S)

STP-S is a federally funded program that is administered by EWG. STP-S provides flexible funding that may be used by State and local governments for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals. This program is funded through the Surface Transportation Block Grant Program which was authorized by the current transportation law the FAST Act. Under this program, bicycle and pedestrian facilities may be constructed regardless of the roadway functional classification.

Transportation Alternatives Program (TAP)

TAP is a federally funded program that is administered by EWG. TAP provides funding for a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to storm water and habitat connectivity. This program is authorized by the current transportation law the FAST Act. TAP projects must have a direct relationship to surface transportation and funding may be used for any phase of the project, including preliminary engineering/design, environmental, right-of-way, or construction.

Congestion Mitigation and Air Quality Improvement (CMAQ) Program

CMAQ is a federally funded program that is administered by EWG. The CMAQ program provides a flexible funding source to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas, including the St. Louis region, that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for former non-attainment areas that are now in compliance (maintenance areas). This program is authorized by the current transportation law the FAST Act. Bicycle and pedestrian facilities are eligible activities under CMAQ.

Highway Safety Improvement Program (HSIP)

HSIP is a federally funded program that is administered by the state Department of Transportation. The goal of HSIP is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-state-owned public roads and roads on tribal lands. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance. This program is authorized by the current transportation law the FAST Act.

Illinois Transportation Enhancement Program (ITEP)

ITEP is a federally funded program that is administered by the Illinois Department of Transportation. ITEP provides funding for projects that expand travel choices and enhance the transportation experience by improving the cultural, historic, aesthetic and environmental aspects of our transportation infrastructure. The ITEP is designed to promote and develop alternative transportation options, including bike and pedestrian travel, along with streetscape beautification. The federal funds are awarded competitively, and projects must be related to surface transportation.

Eligible applicants include all entities that were previously eligible to apply for TAP funds, and include any local or state government with taxing authority. In addition, the FAST Act allows nonprofit entities responsible for the administration of local transportation safety programs to apply. Local matching funds are required.

Traffic Engineering Assistance Program (TEAP)

TEAP is administered by the Missouri Department of Transportation (MoDOT) with funds coming from MoDOT and the local public agencies (LPA). The Missouri Highway and Transportation Commission (MHTC) developed TEAP to provide Missouri LPAs with assistance to proficiently study traffic engineering problems. LPAs facing a traffic safety or operational problem can utilize the LPA On-Call Consultant List to perform a traffic study. Typical studies may include corridor safety and/or operational analysis, intersection(s) safety and/or operational analysis, speed limit review, sign inventory, pedestrian/bike route analysis, parking issues, and other traffic studies including elements necessary to develop an ADA transition plan.

Resources

Federal Highway Administration: Pedestrian Safety

https://safety.fhwa.dot.gov/ped_bike/

https://safety.fhwa.dot.gov/ped_bike/ped_focus/

https://safety.fhwa.dot.gov/ped_bike/ped_focus/focus_cities_states2015.cfm

http://pedbikesafe.org/

Illinois Strategic Highway Safety Plan

http://www.idot.illinois.gov/Assets/uploads/files/Transportation-System/Reports/Safety/SHSP/SHSP_2017.pdf

Missouri Strategic Highway Safety Plan

http://s3-us-west-2.amazonaws.com/modot-pdfs/Blueprint_2016-2020.pdf

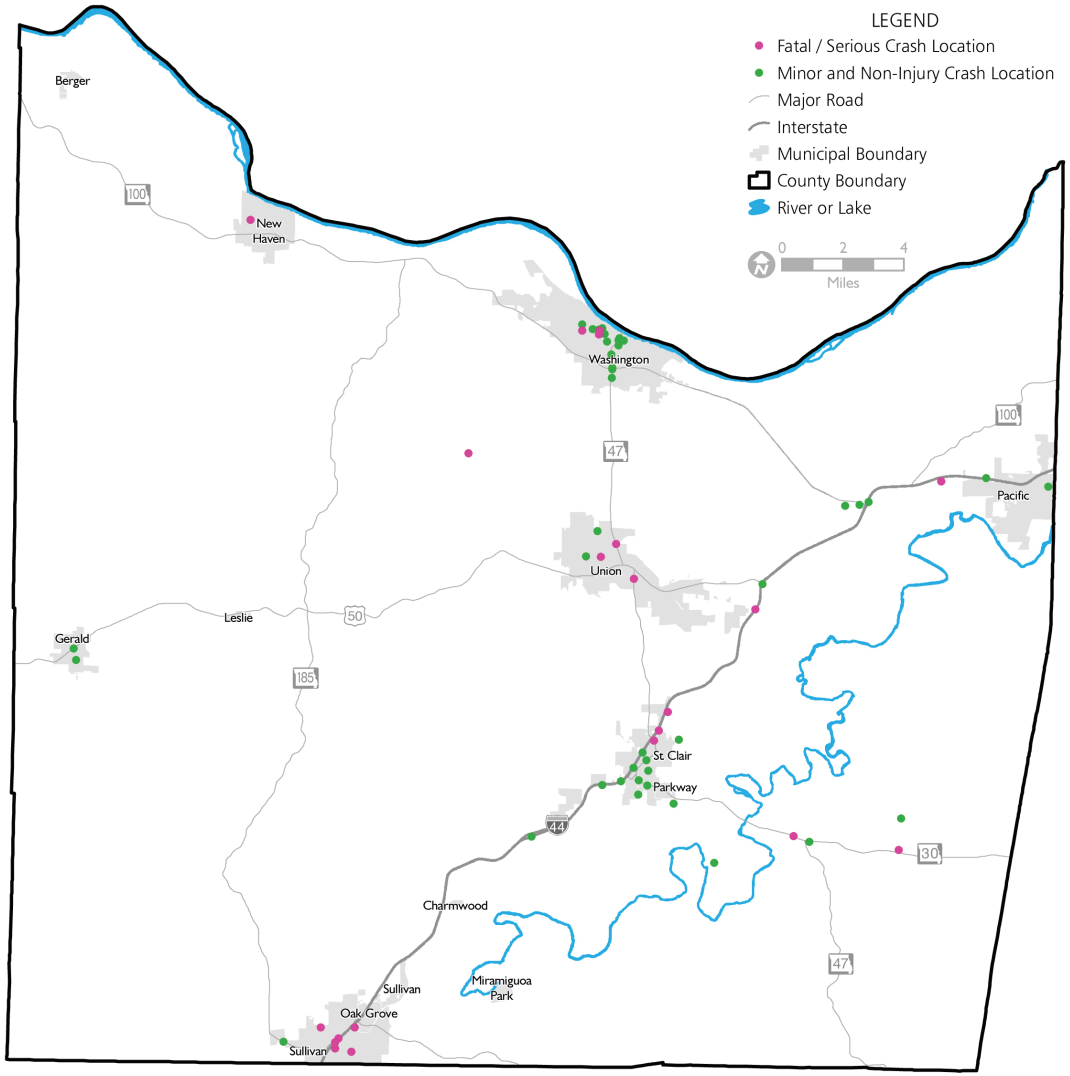
City of St. Louis Pedestrian Safety Action Plan

https://www.stlouis-mo.gov/government/departments/street/documents/pedestrian-safety.cfm

National Highway Traffic Safety Administration

https://www.nhtsa.gov/road-safety/pedestrian-safety

Map Appendix



Franklin County, Missouri

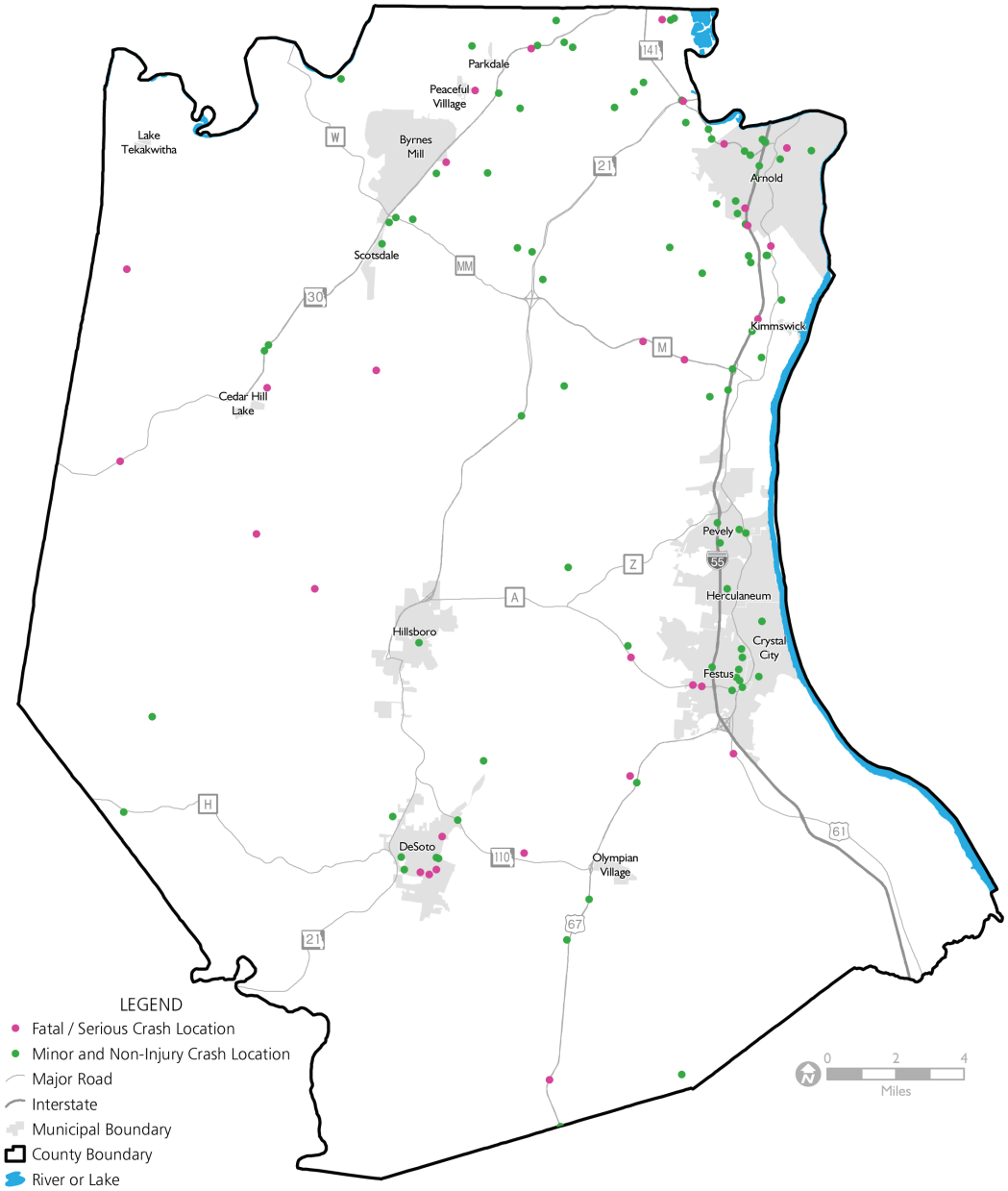
Pedestrian Crash Locations

2011-2015

Jefferson County, Missouri

Pedestrian Crash Locations

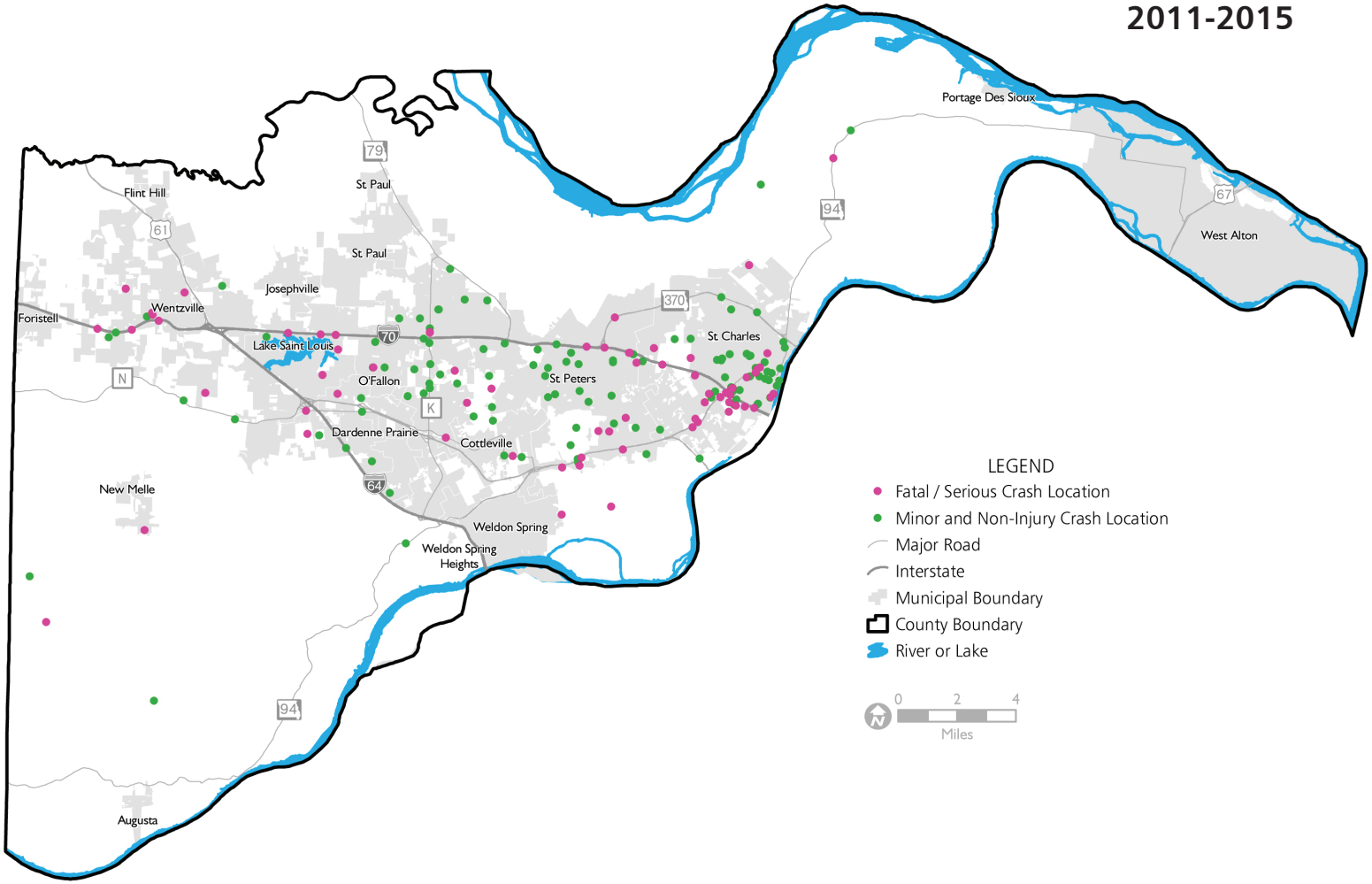
2011-2015



St. Charles County, Missouri

Pedestrian Crash Locations

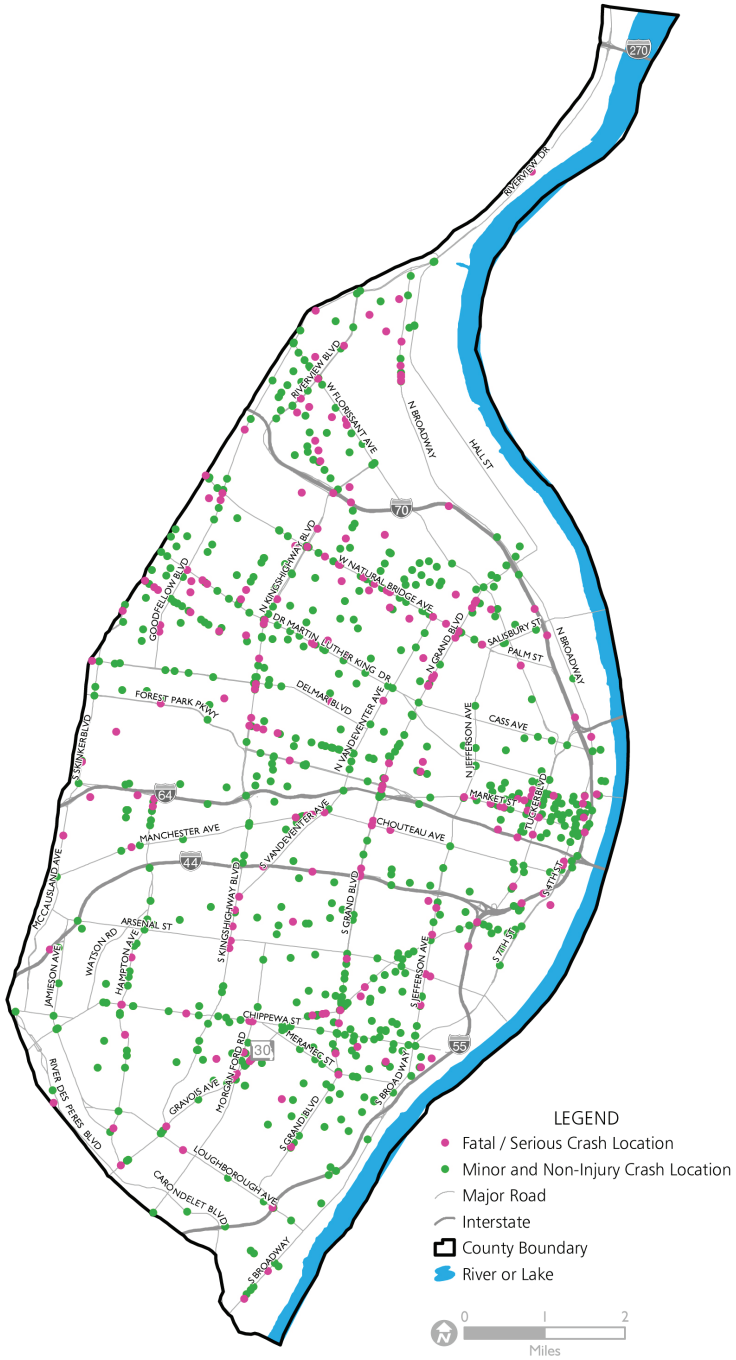
2011-2015

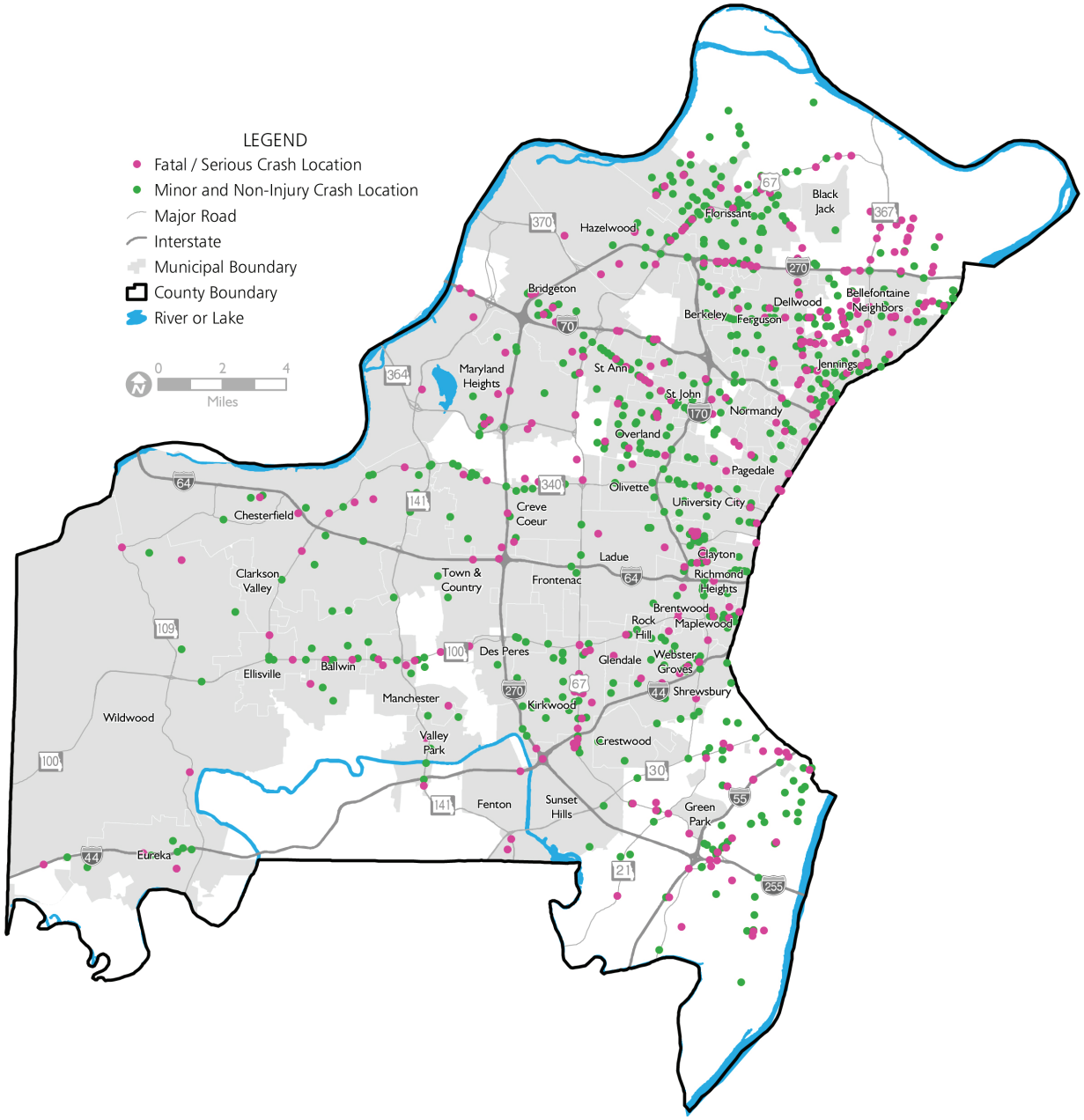


City of St. Louis, Missouri

Pedestrian Crash Locations

2011-2015





St. Louis County, Missouri

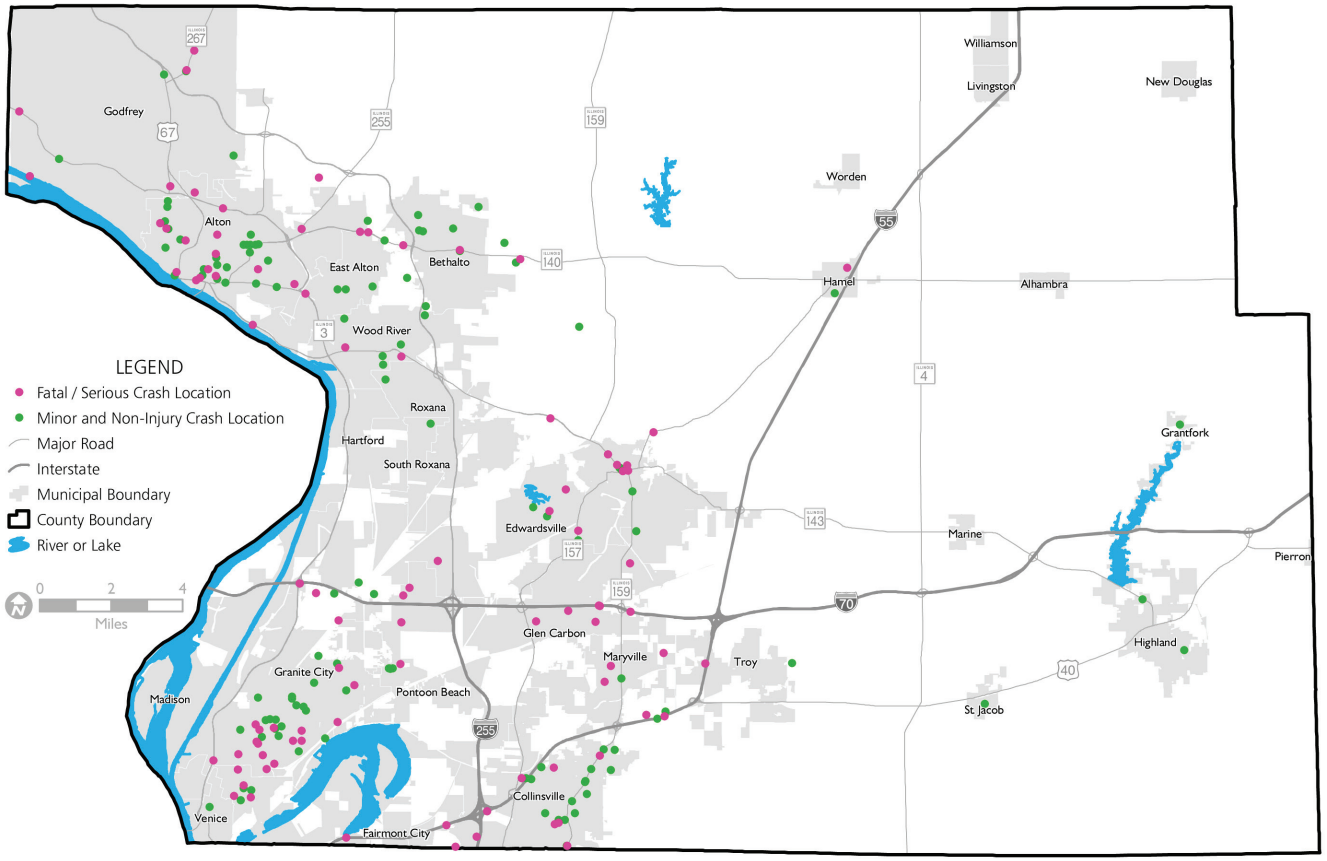
Pedestrian Crash Locations

2011-2015

Madison County, Illinois

Pedestrian Crash Locations

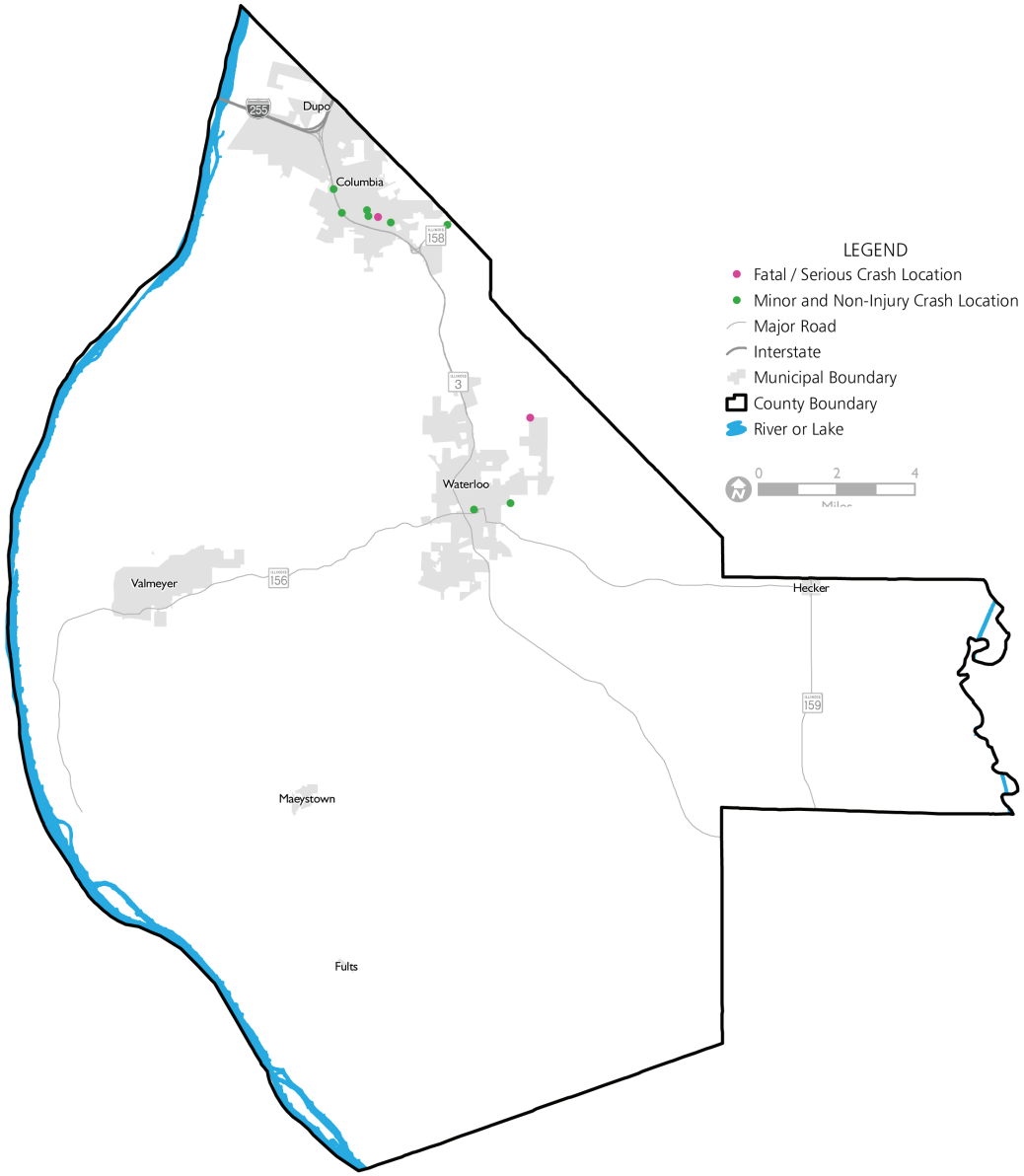
2011-2015



Monroe County, Illinois

Pedestrian Crash Locations

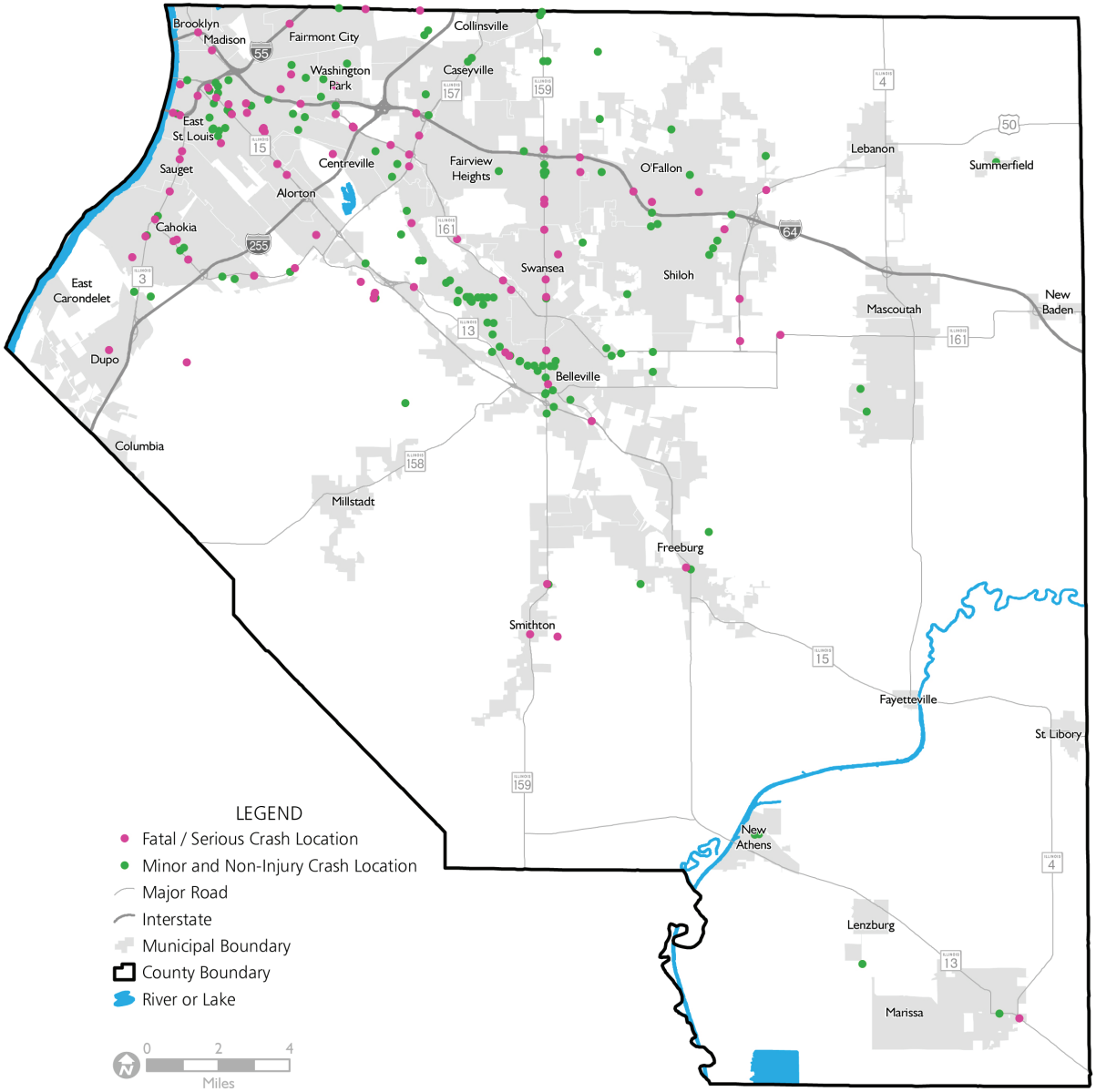
2011-2015

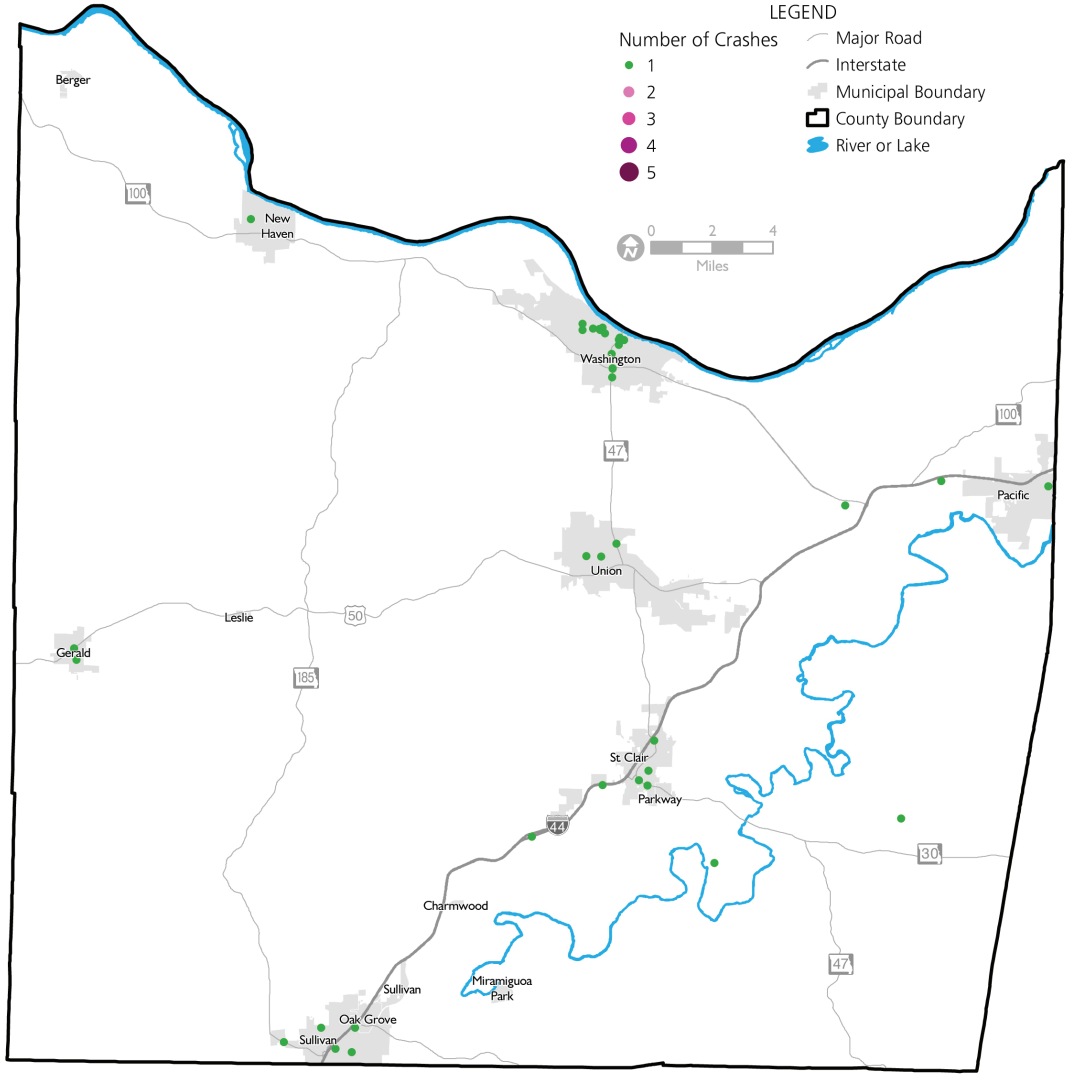


St. Clair County, Illinois

Pedestrian Crash Locations

2011-2015





Franklin County, Missouri

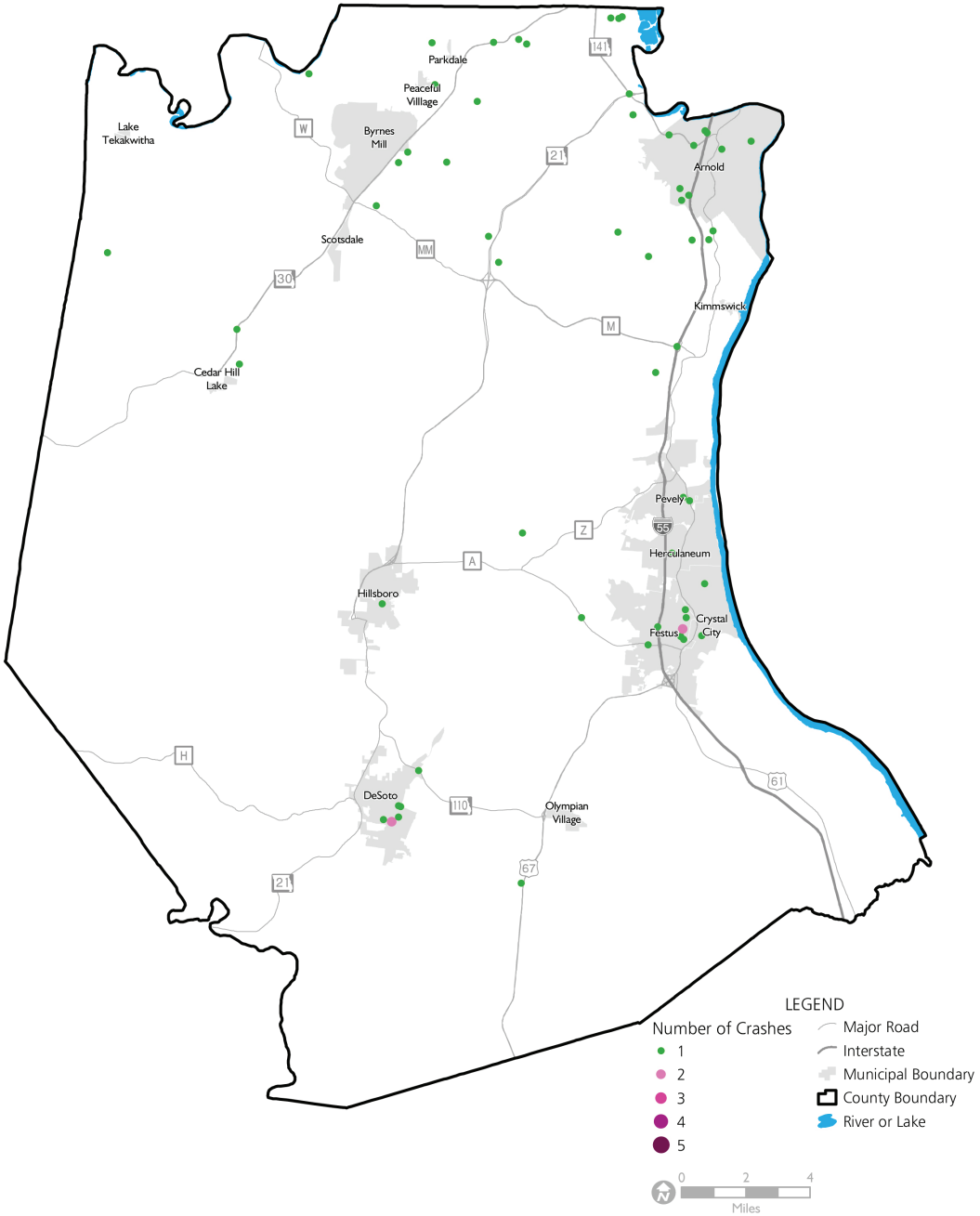
Pedestrian Crashes by Intersection

2011-2015

Jefferson County, Missouri

Pedestrian Crashes by Intersection

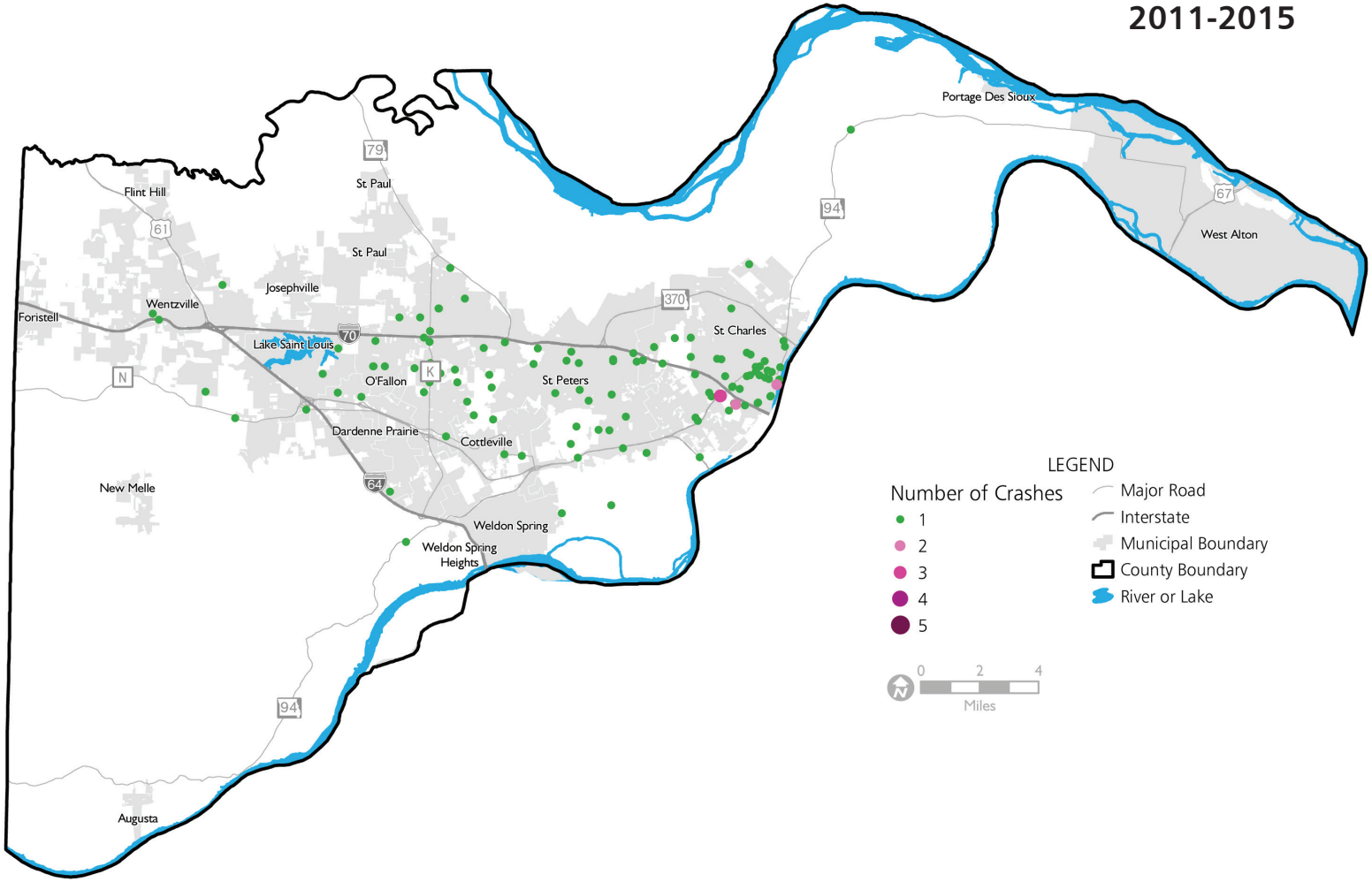
2011-2015



St. Charles County, Missouri

Pedestrian Crashes by Intersection

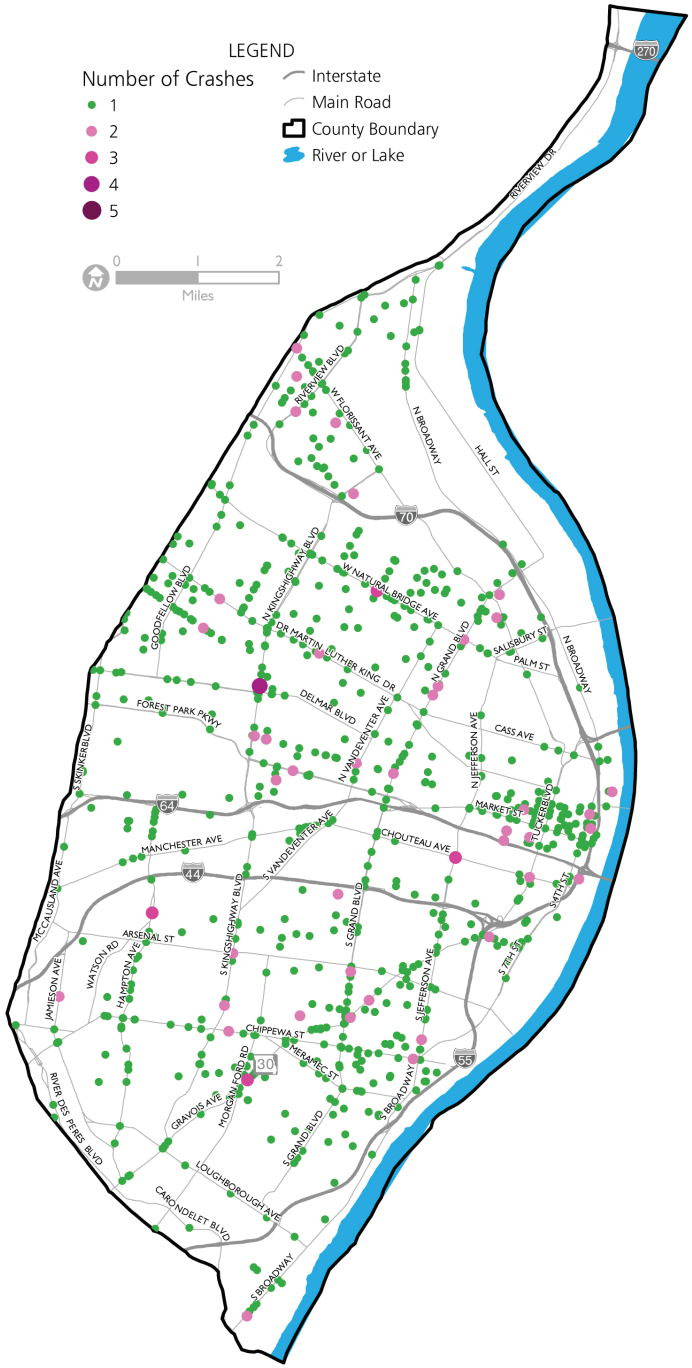
2011-2015

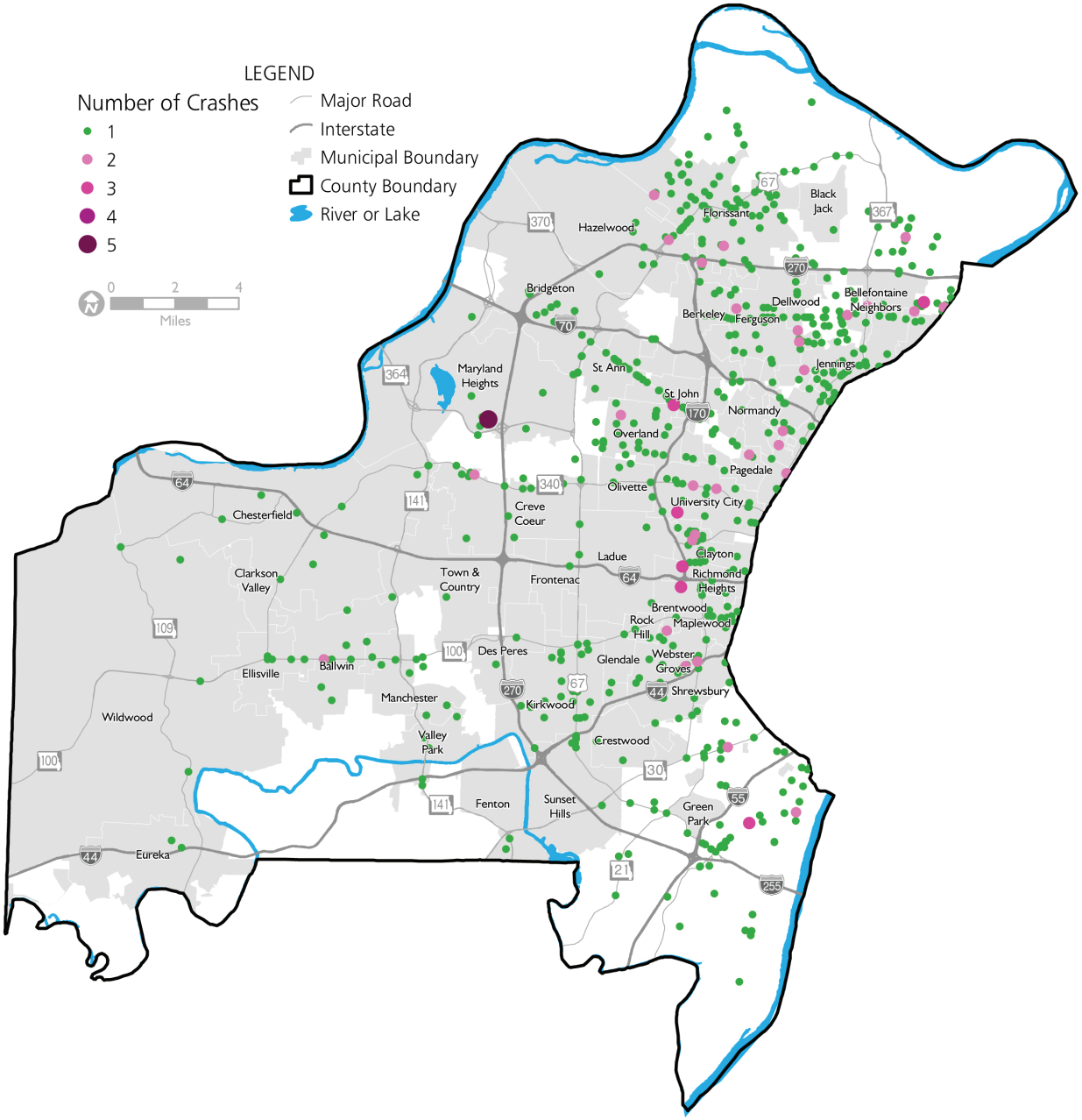


City of St. Louis, Missouri

Pedestrian Crashes by Intersection

2011-2015





St. Louis County, Missouri

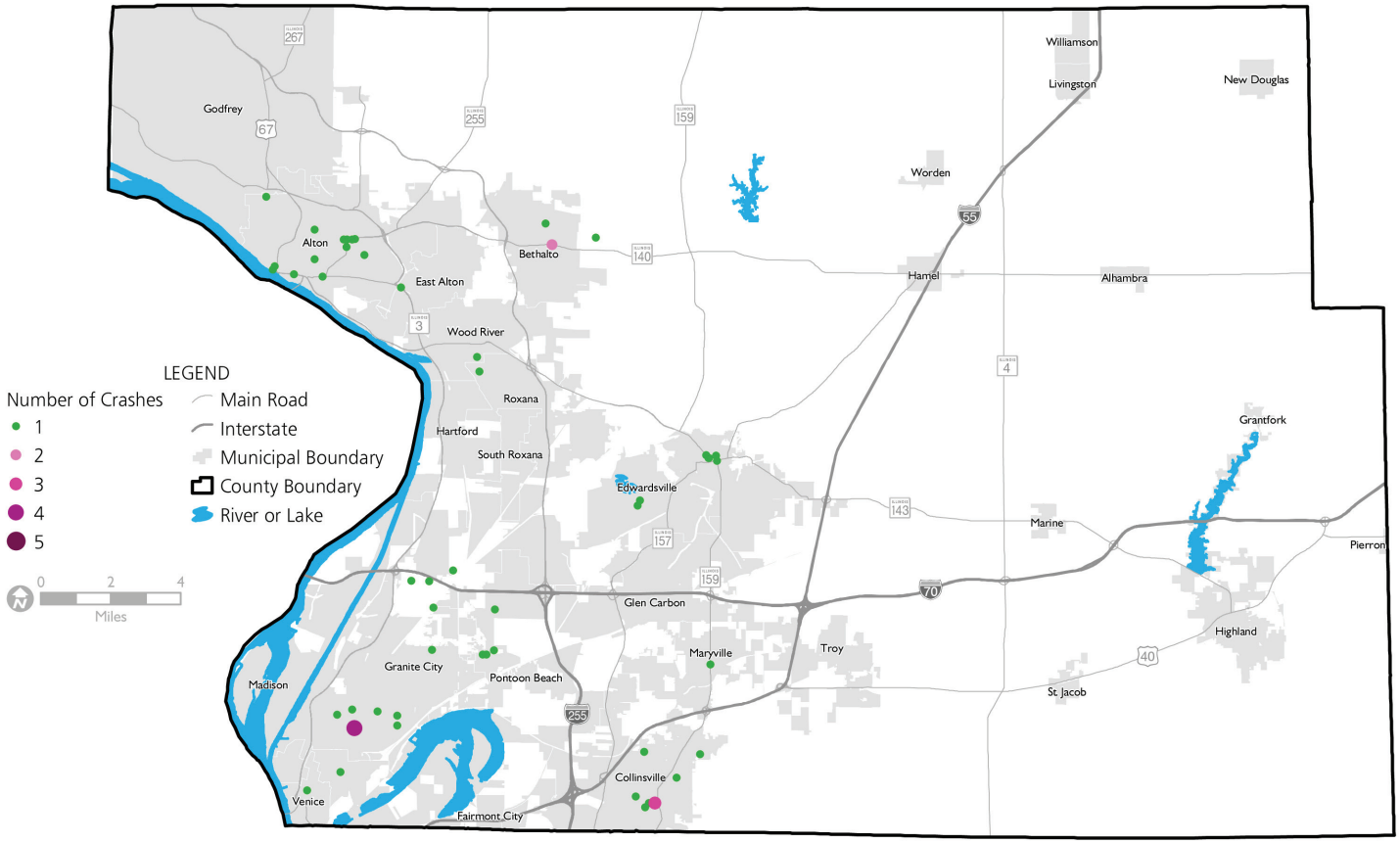
Pedestrian Crashes by Intersection

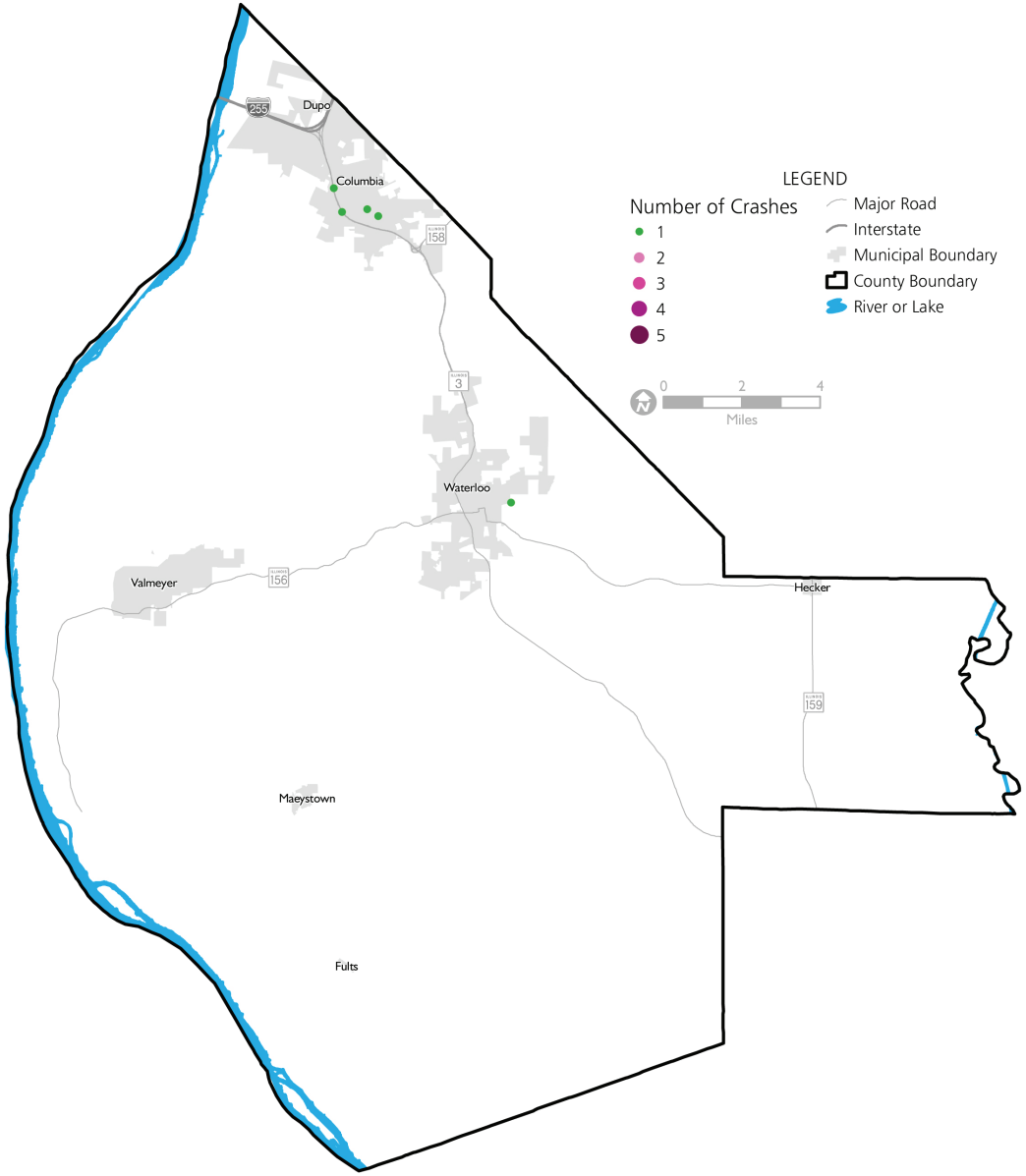
2011-2015

Madison County, Illinois

Pedestrian Crashes by Intersection

2011-2015





Monroe County, Illinois

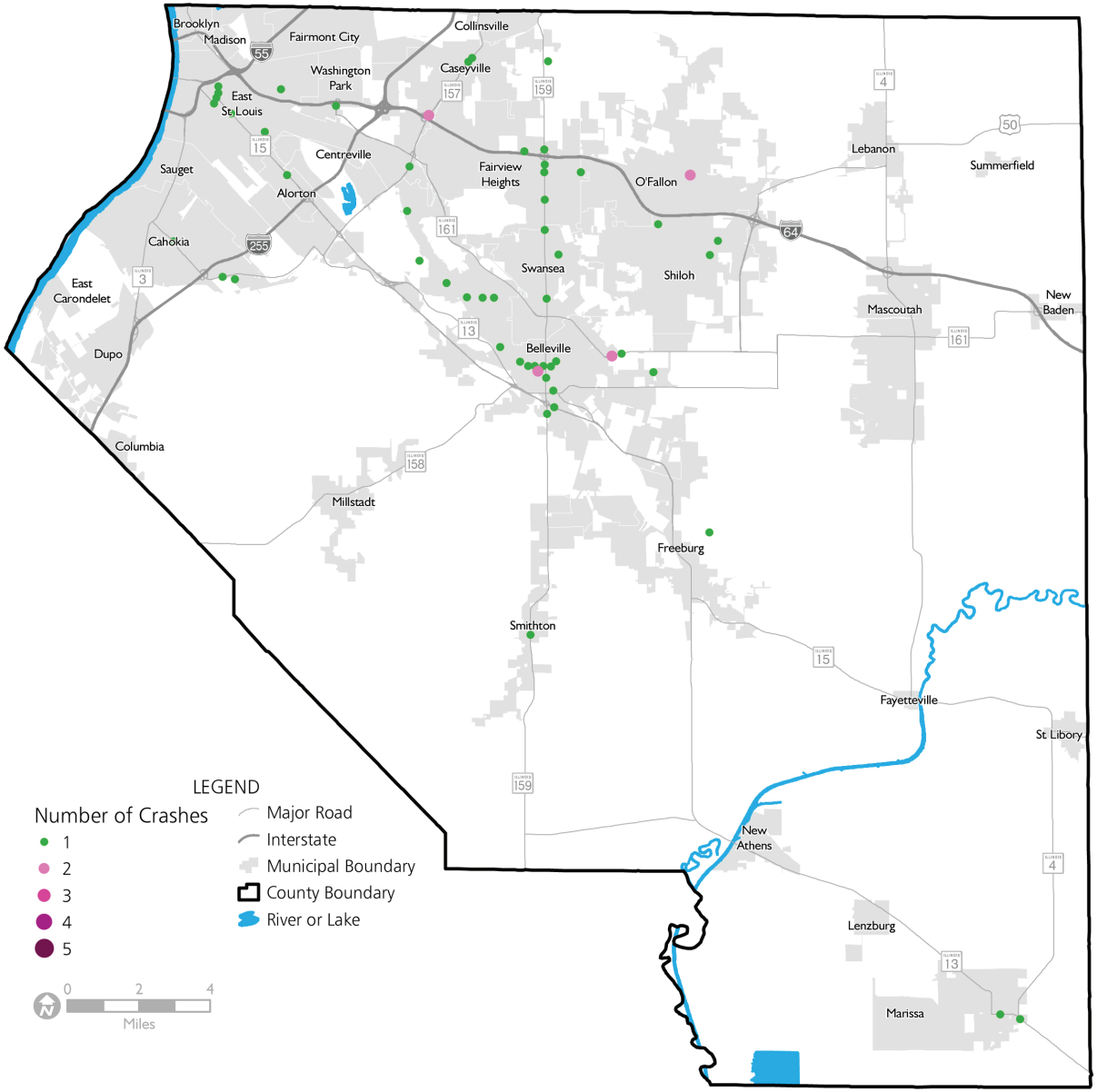
Pedestrian Crashes by Intersection

2011-2015

St. Clair County, Illinois

Pedestrian Crashes by Intersection

2011-2015



EAST-WEST GATEWAY
Council of Governments

Creating Solutions Across Jurisdictional Boundaries

Gateway Tower
One Memorial Drive, Suite 1600
St. Louis, Missouri 63102
ewgateway.org