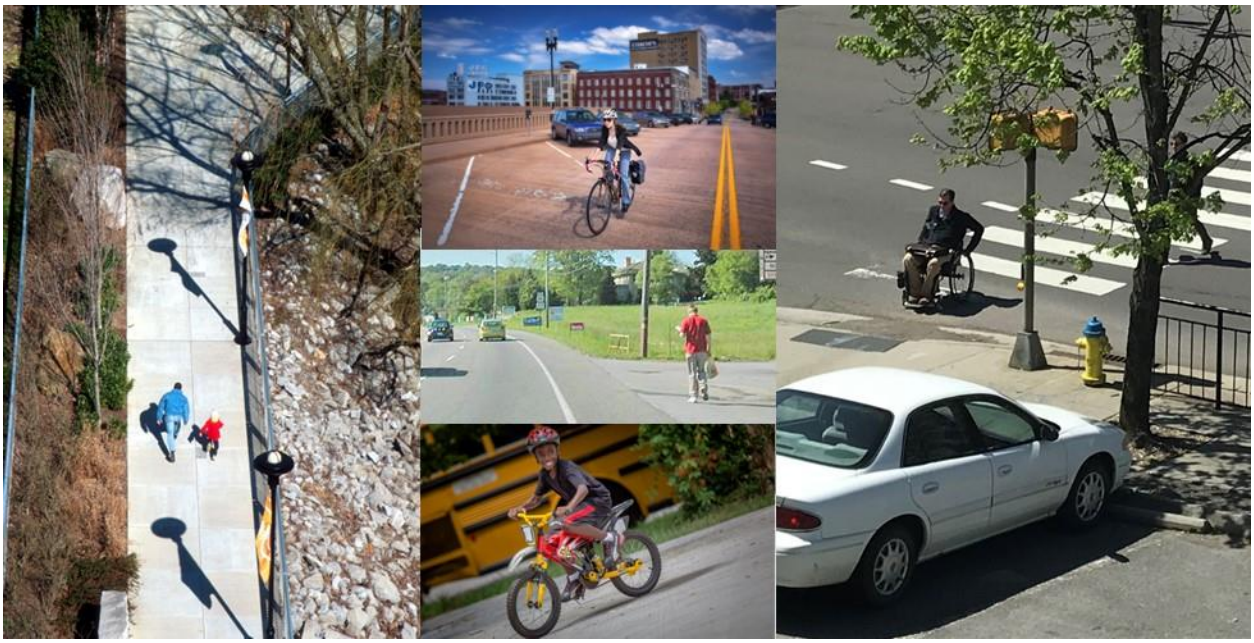
Pedestrian & Bike Crashes

City of Knoxville: January 2007 – June 2019

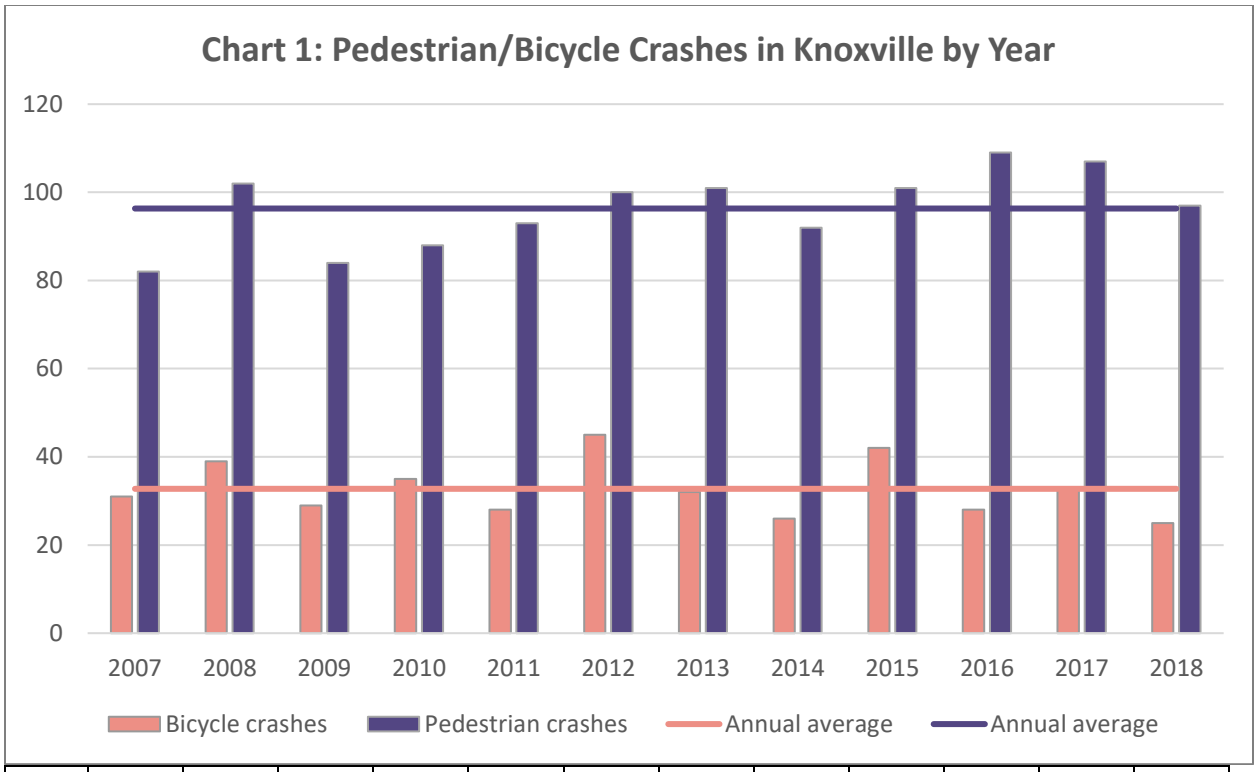


OVERVIEW

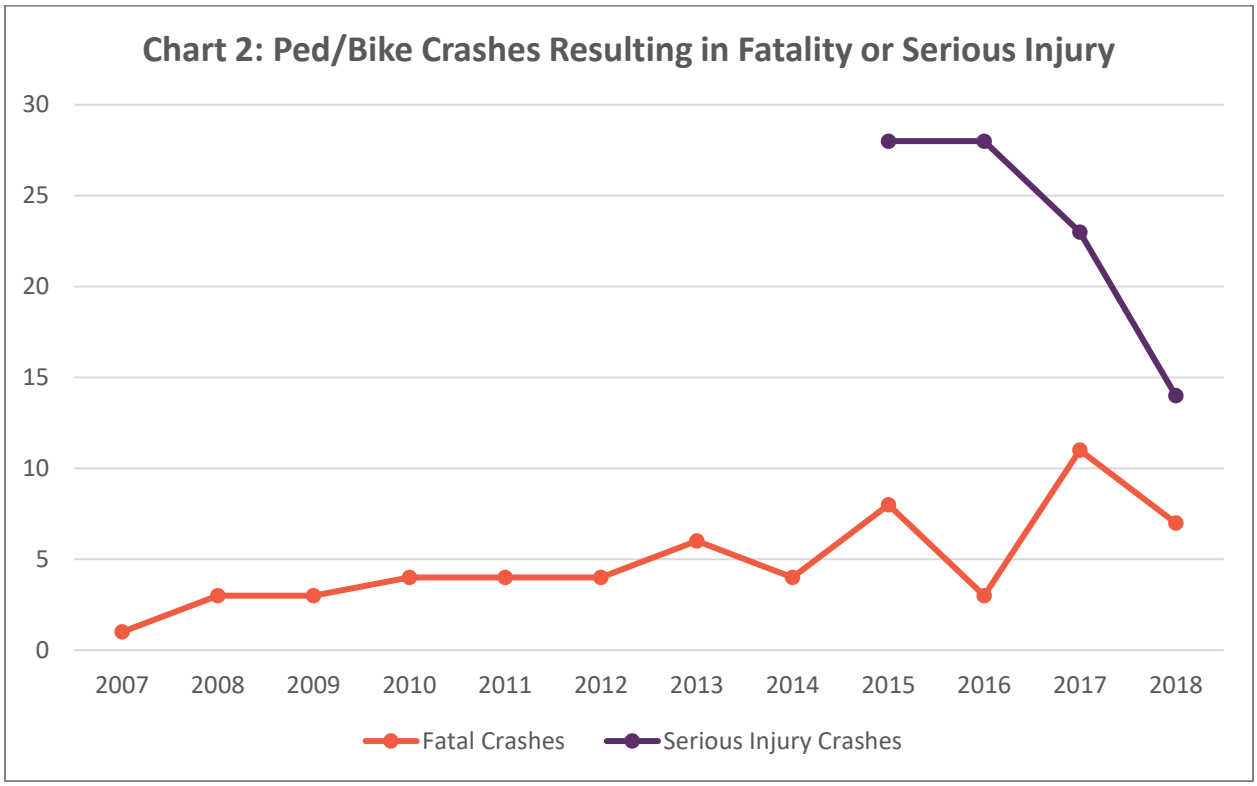
Between January of 2007 and June of 2019, there were 1,626 crashes involving either pedestrians or bicyclists. This results in a rate of 11 crashes per month, 130 crashes per year.

- 1,216 crashes (75 percent) involved pedestrians, 406 involved bicyclists, and 4 crashes involved both.
- Almost all of the crashes (1,498, or 92 percent) involved the injury or death of a person walking or bicycling.
    - 1,415 crashes involved injuries only, and another 65 involved a fatality. Two crashes resulted in two fatalities each, for a total of 67 people killed while walking or bicycling. Of the 67 total fatalities, 62 were killed while walking, the other 5 while bicycling. Of the 62 pedestrian fatalities, 12 of them occurred on an Interstate, in 11 separate crashes.
    - Between January 2015 and June 2019, 20 percent of injury-only crashes involved serious injuries.[1]
- **Chart 1** shows the number of crashes by year. **Chart 2** shows the number of fatal and serious injury crashes by year.

[1] Crash reports rank the severity of crashes as either fatal, suspected serious injury, suspected minor injury, possible injury, or no injury. Suspected serious injury crashes used to be reported as "incapacitating," and suspected minor injury crashes were reported as "non-incapacitating." For this report, suspected serious and incapacitating crashes are combined as "serious injury" crashes. Knoxville crash reports began to include reliable information about the severity of injuries in 2015.



Bike	31	39	29	35	28	46	32	26	42	28	33	25
Ped	82	102	84	88	93	100	101	92	101	109	107	97
Total	113	142	113	125	122	146	133	118	143	137	140	122



CRASH SEVERITY

Crashes in suburban and rural locations are less common, but tend to be more severe. This is likely due to higher travel speed of motor vehicles, compared with speeds in urban areas. For example, Cumberland Avenue in Knoxville has the most pedestrian/bicycle crashes per mile of any corridor in the Region, yet it hasn't seen any pedestrian/bicycle fatalities since 2007. By contrast, Oak Ridge Highway in Knox County saw only five pedestrian/bicycle crashes over eight years, but three of those crashes resulted in fatalities.

The graphic below illustrates the likelihood of a pedestrian being killed in a crash based on the speed of the motor vehicle.

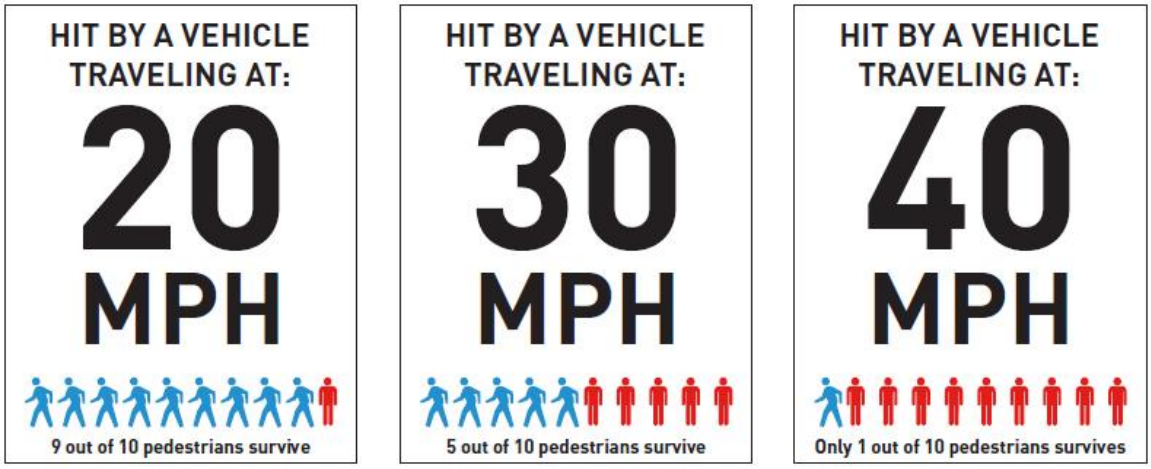
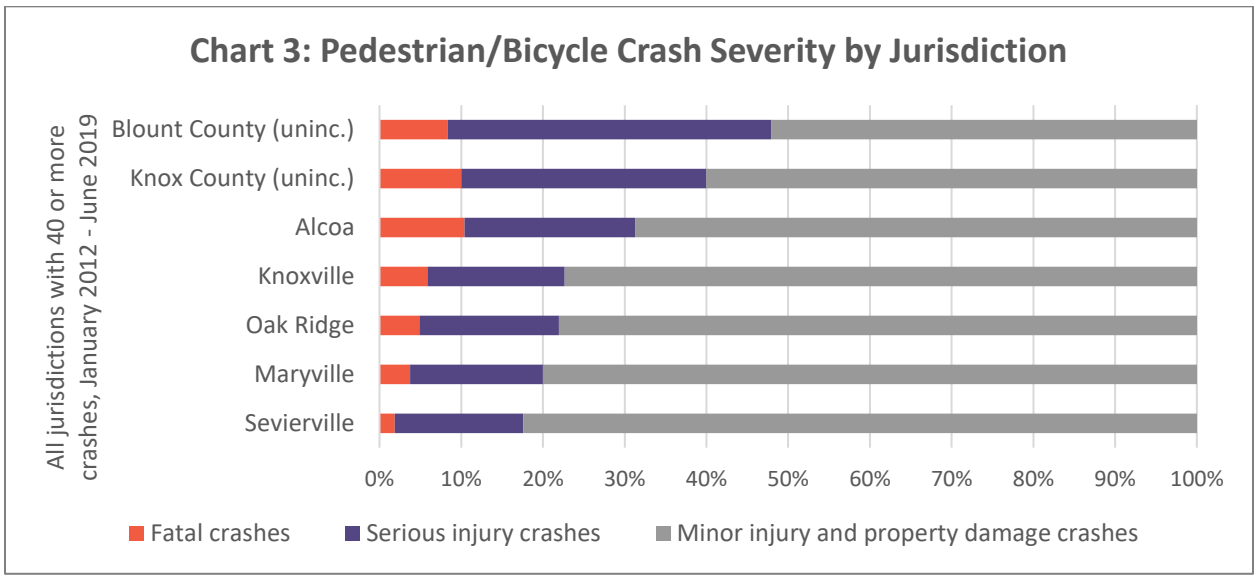


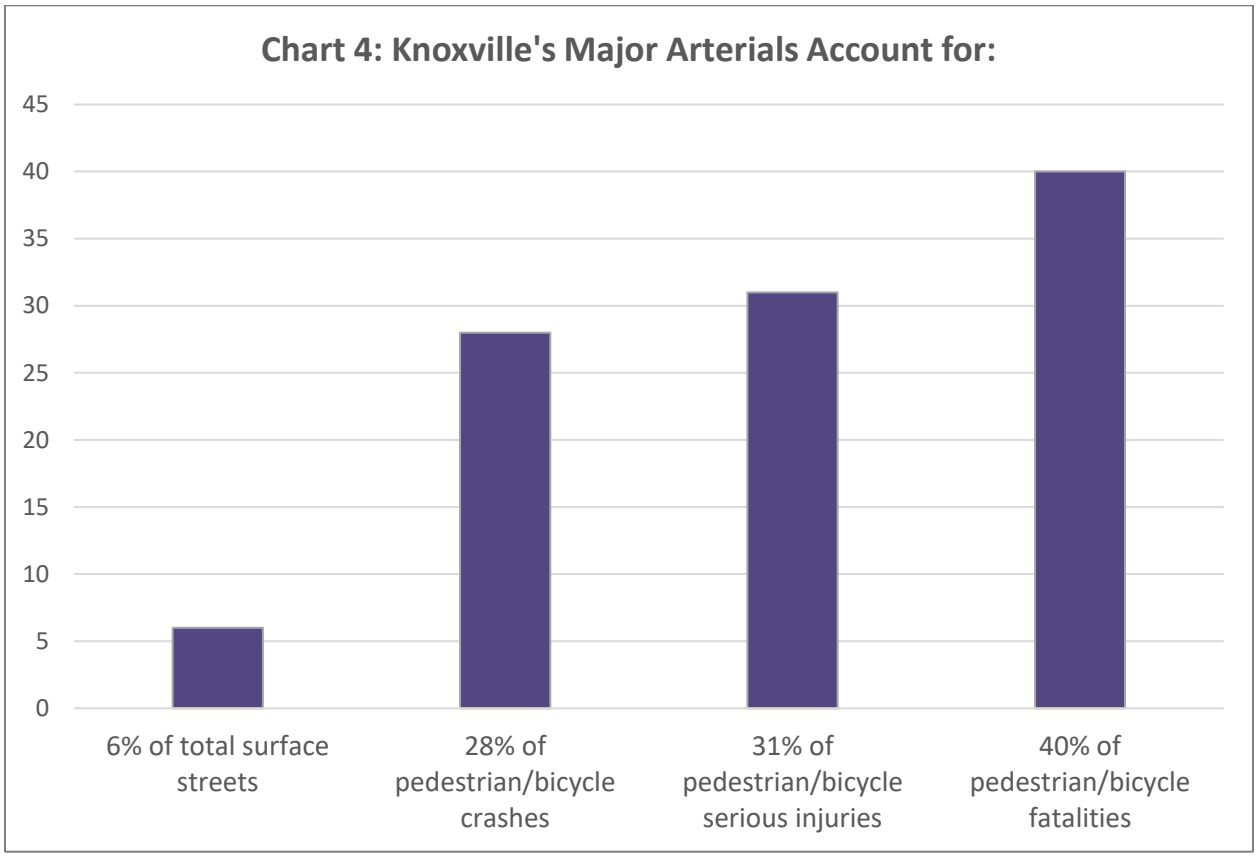
Chart 3 compares the prevalence of fatal and serious injuries in pedestrian/bicycle crashes among all jurisdictions with more than 40 pedestrian/bicycle crashes between January 2012 and June 2019.



The location of 49 crashes (3 percent) in Knoxville is uncertain because of incomplete information in the crash reports. Another 18 occurred on an Interstate highway. The remainder of this report focuses on the 1,559 crashes that occurred on surface streets (non-Interstates) where the location is certain.

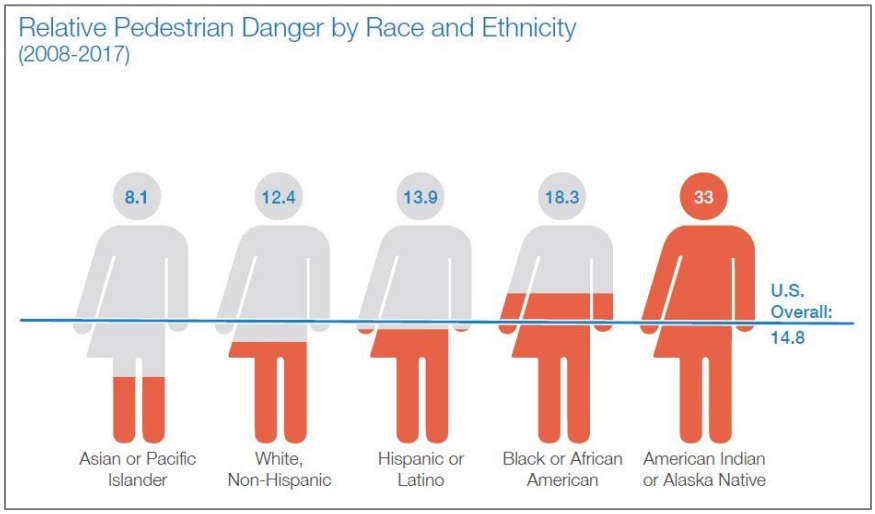
MAJOR ARTERIALS

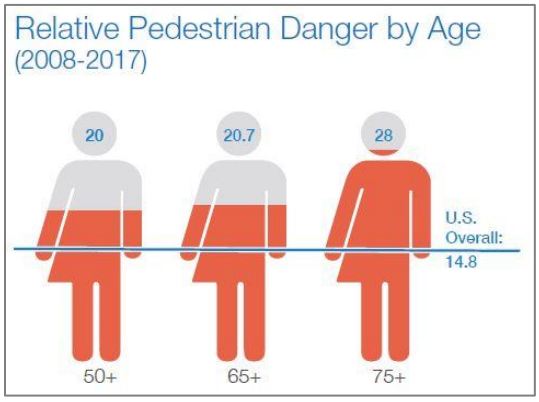
- Major arterials make up 6 percent of the surface street mileage within Knoxville. A disproportionate share of pedestrian/bicycle crashes, especially serious crashes, occur on major arterials (streets such as Broadway and Kingston Pike). **Chart 4** depicts this data.
    - 28 percent of crashes (439 crashes) occurred on major arterials. 89 percent (391) of the crashes on major arterials occurred on six streets: Broadway, Chapman Hwy, Cumberland Ave, Kingston Pike, Magnolia Ave, and Western Ave.
    - Since January 2015, crashes on major arterials resulted in 31 serious injuries, which is 31 percent of all serious injuries resulting from pedestrian/bicycle crashes during that time.
    - Crashes on major arterials resulted in 22 fatalities, which is 40 percent of all fatalities resulting from pedestrian/bicycle crashes.
    - For more information on crashes along major arterials, see the Appendix.



WHO'S GETTING HURT?

National studies have found that certain demographics are most at risk when it comes to pedestrian traffic crashes. People of color (including Black people, Latino/a people, and Indigenous people) are more likely to be killed in crashes, as are older Americans. The two graphics below from the 2019 Dangerous by Design[2] report show the disparity in national data.



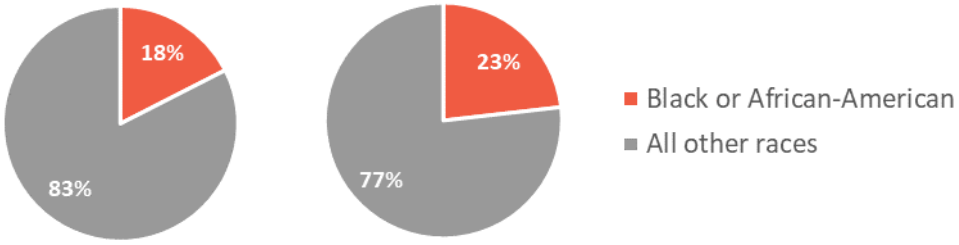


Some of these disparities occur in Knoxville too. See the graphic below for details.

[2] The Dangerous by Design report from Smart Growth American can be downloaded here: https://smartgrowthamerica.org/resources/dangerous-by-design-2019/

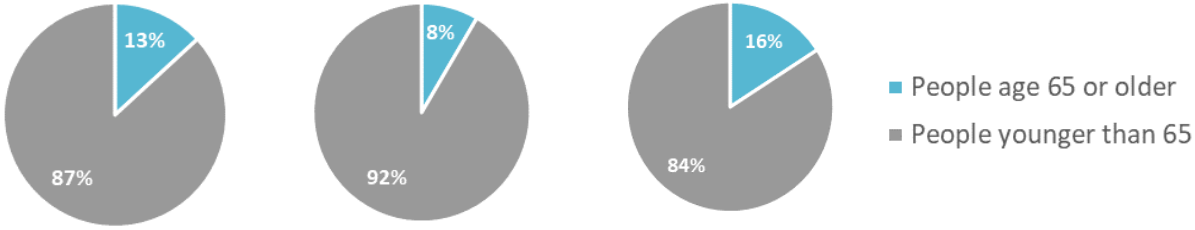
Disparities in Knoxville traffic crashes involving pedestrians

Black people represent a larger share of people hit by cars while walking, compared with their share of the Knoxville population.



Knoxville population **People hit while walking in Knoxville**

People age 65 and older are less likely to be hit as pedestrians, compared with their share of the population, but are more likely to be killed or seriously injured.

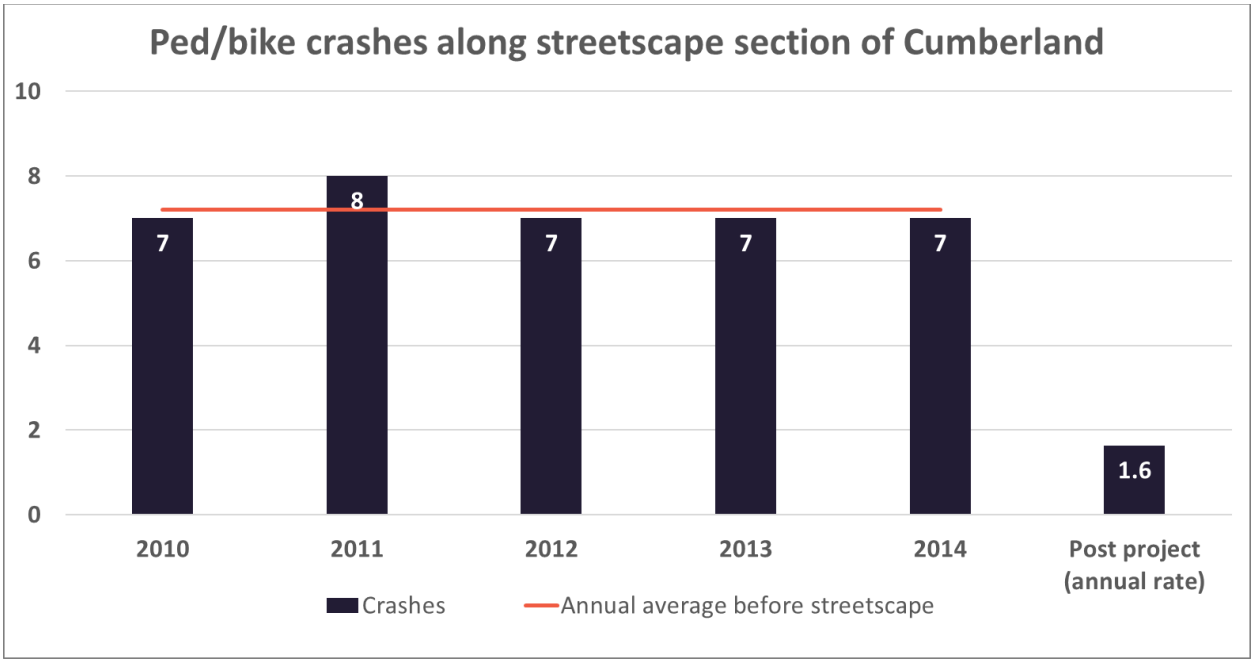


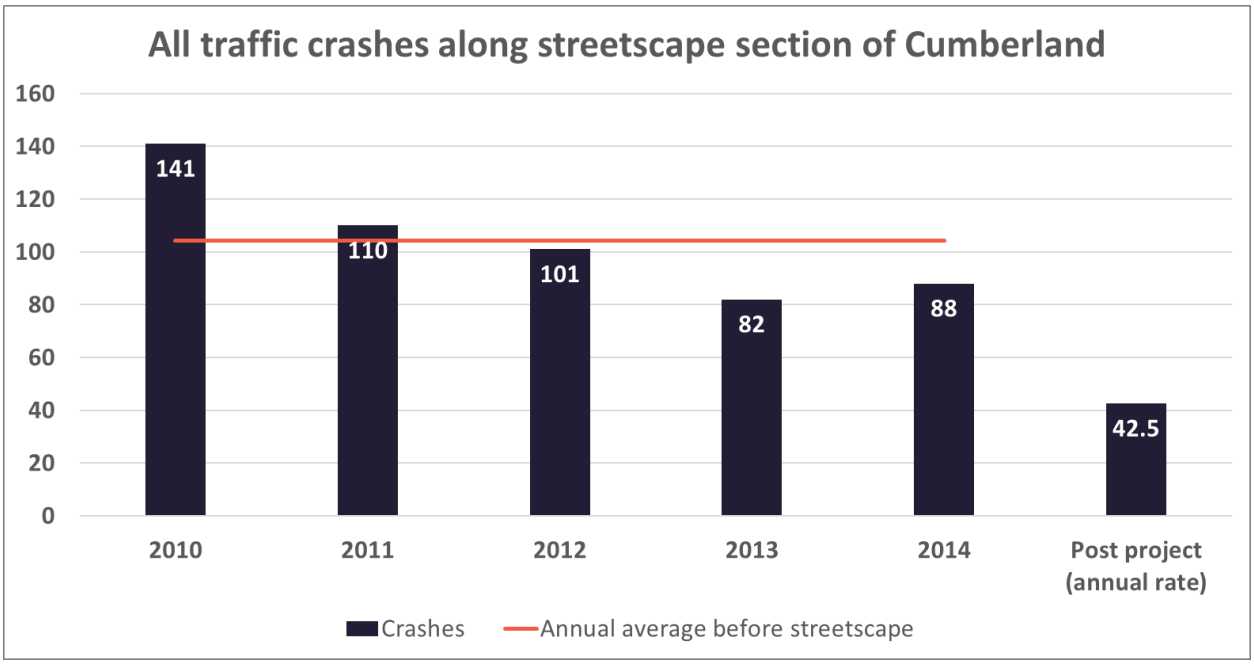
Knoxville population **People hit while walking in Knoxville** **Pedestrians killed or seriously injured**

A TRAFFIC SAFETY SUCCESS STORY

Between 2015 and 2017, Knoxville undertook a streetscape project that reconstructed Cumberland Avenue between 17th and 22nd streets as a two-lane street with a median and turning pockets at the intersections. (It had previously been a four-lane street.) A comparison of crash data from the timeframe before the project with the timeframe after shows a large decrease in traffic crashes afterward.

The average annual number of traffic crashes involving people walking or bicycling fell 77 percent (from 7.2 to 1.6). Traffic crashes of all types fell 59 percent (from 104 to 43).





TYPES OF CRASHES ANALYZED IN THIS REPORT

This report analyzes certain crash factors. It focuses on identifying locations and behaviors where interventions – in the form of design changes, education, or enforcement – may help to prevent future crashes. 665 (43 percent) of the 1,559 total crashes fit into one of these categories. Categories of crashes analyzed in this report are:

- **Drivers failing to yield while turning.** These are crashes where the report indicates that the pedestrian or bicyclist was behaving properly while traveling along or across a street, and the driver failed to yield while making a turn. These crashes suggest the need for changes to the geometry of the intersections and/or to the function of the traffic signals to prevent future crashes. Education and traffic enforcement can also help prevent these types of crashes.
- **People struck by cars while walking in locations without sidewalks.** These are crashes where the report indicates the pedestrian was walking along a street without sidewalks and was struck by a car. These crashes indicate the need for sidewalks to be installed.
- **Drivers failing to yield while going straight.** These are crashes where the report indicates that the pedestrian or cyclist was crossing the street in a legal crosswalk[3], either marked or unmarked, and was struck by a driver. These crashes indicate the need for better design of crossing locations, which may include reducing crossing distances and the addition of signs, beacons, or signals. Education and traffic enforcement can also help prevent this type of crash.
- **Bicyclists riding in locations without safe facilities.** This category encompasses two crash factors: crashes where a bicyclist was struck from behind, or was struck while riding on the sidewalk.[4] These crashes indicate the need for a safe bicycle facility along a corridor.
- **People struck by cars while crossing a street outside of an intersection or marked midblock crossing.** These are crashes where the report indicates a pedestrian was struck while crossing a street at a location other than an intersection or a marked midblock crossing. These crashes suggest the need for additional crossings, as the existing crossings may be dangerous or inconvenient. Education of pedestrians can also help prevent this type of crash.
- **Bicyclists riding in an unsafe manner or location.** This category encompasses two crash factors: crashes where the bicyclist was either riding on the street against traffic, or riding at night with no lights. These crashes suggest the need for education for bicyclists.

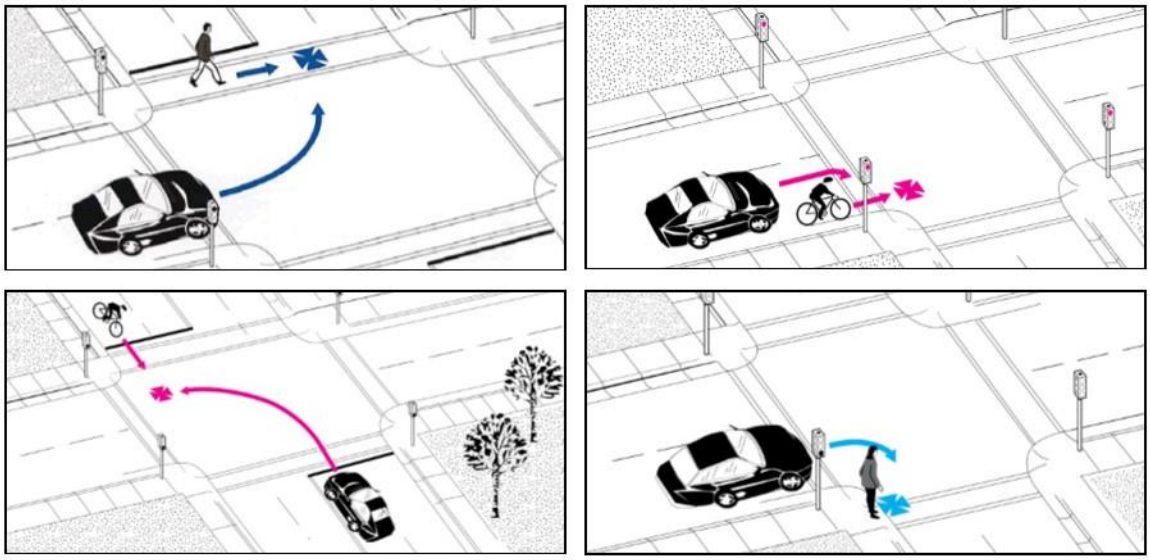
[3] Tennessee Code Annotated 55-8-101 (11) defines "crosswalk" as "(A) That part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs or, in the absence of curbs, from the edges of the traversable roadway; or (B) Any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface."

[4] Riding a bicycle on the sidewalk is legal. Bicycle safety educators generally warn against it, because of the danger from turning motor vehicles.

TABLE 1: Crash Factors		Number of Crashes			Percent of Crashes*
		Ped	Bike	Total	
1. Drivers failing to yield while turning (305 total crashes, 46% of crashes with crash factor)	Turning left	137	45	182	27
	Turning right (not right on red)	41	22	63	9
	Turning right on red light	38	8	46	7
	Direction of turn unclear	9	5	14	2
2. Pedestrian struck while walking along corridor without sidewalks		79	0	79	12
3. Driver failing to yield while going straight		75	10	85	13
4. Bicyclist riding on sidewalk		0	58	58	9
5. Pedestrian crossing street outside of an intersection or marked crosswalk		89	0	89	13
6. Bicyclist riding against traffic		0	19	19	3
7. Driver striking bicyclist from behind		0	21	21	3
8. Bicyclist riding at night with no lights		0	9	9	1

*Percentages may not total to 100 due to rounding

Crash Factor 1: Drivers failing to yield while turning



CF1: Examples of crash types where drivers fail to yield and strike pedestrians and bicyclists while turning.

Of the crashes where a crash factor has been identified, 305 (46 percent) involved a pedestrian or bicyclist hit by a car whose driver failed to yield properly when turning.[5]

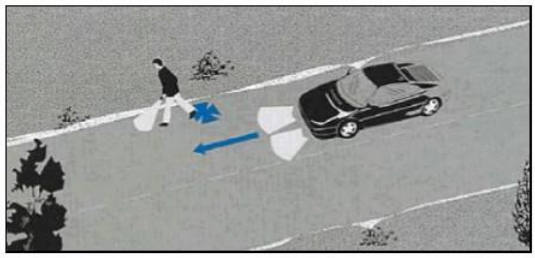
- Of these, 182 crashes involved drivers turning left; 63 involved a right turn (not on a red light); 46 involved a right turn on red; and in 14 the direction of the turn was unclear based on information in the crash report.
- 272 of these crashes involved injuries, and 1 additional crash was a fatality (a pedestrian killed at Kingston Pike and Forest Glen Drive).
- 225 of these cases involved pedestrians, and the remaining 80 involved bicyclists.
- 54 intersections experienced multiple instances of failure-to-yield crashes, accounting for a total of 143 crashes of this type. **Table 2** has more details about these intersections.

[5] This crash factor is identified only where the bicyclist or pedestrian involved was traveling safely and within the law and the driver failed to yield

TABLE 2: Intersections with multiple failure-to-yield crashes (Number in red indicates bicyclist involved)					
Intersection	**Left turns**	**Right turn (not on red)**	**Right turn on red**	**Turn direction unclear**	**Total crashes**
17th St & Dale Ave		1		1	2
17th St & Highland Ave	2		1		3
17th St & White Ave	1	1			2
Andy Holt & 20th	1,1				2
Brooks Ave & Biddle St	2				2
Broadway & 5th	1		1		2
Broadway & Cecil		1	1		2
Broadway & Highland Dr	2		1		3
Broadway & McCroskey Ave	2	1	1		4
Broadway & Northgate Shopping Center entrance	2	1		1	4
Broadway & Oglewood Ave	2				2
Broadway & Washington Pk	1		1		2
Broadway & Woodland Ave/Coker Ave			2	1	3
Cedar Bluff Rd & Sherrill Blvd	1	1			2
Central St & Jackson Ave	2				2
Central St & Summit Hill Dr	1		1		2
Chapman Hwy & Woodlawn Pk	2				2
Clinch Ave & 11th St	1		1		2
Clinch Ave & 16th St	2				2
Clinch Ave & 17th St	2				2
Clinch Ave & Henley St	1	2	1		4
Clinch Ave & Locust St	2	1	1		4
Clinch Ave & Walnut St	2				2
Clinch Ave & World's Fair Dr	1,1				2
Cumberland & 11th St/Estabrook Rd	1		1		2
Cumberland & 16th St/Volunteer Blvd	2	1			3
Cumberland & 17th St/Melrose Pl	3	1	6,1		11
Cumberland Ave & 18th St	1	1			2
Cumberland Ave & 19th St	1	1			2
Cumberland Ave & 21st St		2			2
Cumberland Ave & James Agee St	2	1			3
Downtown West & Ray Mears	2				2
Emory Rd & Heiskell Rd		1	1		2
Gay St & 5th Ave	2				2
Gay St & Cumberland Ave	3				3
Gay St & Hill Ave	1,1				2
Gay St & Main St	4		1		5
Gay St & Summit Hill Dr	2,1	1	1		5
Henley St & Main St			1,1		2
Kingston Pk & Alcoa Hwy off-ramp			2,2		4
Kingston Pk & Killarney Rd/Londonderry Rd		2			2

Martin Luther King Jr. Ave & Chestnut St	2				2
Melrose Pl & Lake Ave	1	1			2
Melrose Pl & Melrose Ave	1	1			2
Morrell Rd & Gleason Dr			2		2
Phillip Fulmer Way & Peyton Manning Pass	2				2
Sevier Ave & Jones St		4			4
Summit Hill Dr & Hall of Fame Dr	2				2
Summit Hill Dr & Walnut St	1		1		2
Sutherland Ave & Hollywood Rd	1		1		2
Volunteer Blvd & Pat Head Summitt St	4				4
Weisgarber Rd & Lonas Dr			1,1		2
Western Ave & Henley St	2				2
Western Ave & Middlebrook Pk	1		1		2

Crash Factor 2: People struck by cars while walking in locations without sidewalks



CF2: A frequent crash type in rural & suburban areas is pedestrians being struck while walking in locations lacking sidewalks.

In 79 crashes (12 percent), a person walking along a street without a sidewalk was hit by a driver.[6] 72 of these crashes involved injuries, and an additional 2 were fatalities. 13 corridors saw multiple crashes of this type, resulting in 34 total crashes. **Table 3** has more information about these corridors.

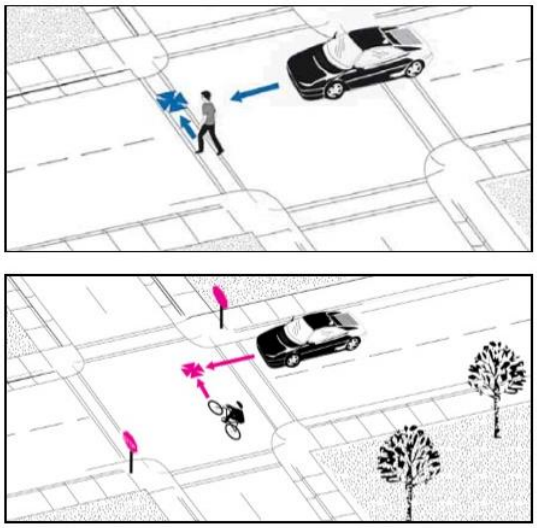
[6] This crash factor is identified only where the crash report finds that the pedestrian was walking along the side of the road when the crash happened, not cases where pedestrians entered the road to cross.

TABLE 3: Corridors with multiple people being struck while walking along streets without sidewalks	
Crash occurred on this street	**Crashes occurred in these locations**
Breda Dr	• West of The Hague • West of Bedrock Way
Bruhin Rd	• South of Almond Way • South of Breda Dr (fatal crash)
Central Avenue Pk	• South of Elyria Dr • North of Merchant Dr • South of Murray Dr • Near Naueda Dr
Chapman Hwy	• South of Gwinfield Dr • Near W Martin Mill Pk
Dutch Valley Dr	• East of Plummer Rd • Near Ridge Grove Ln
Gleason Dr	• East of Beaverton Rd • East of Danbury Rd • West of Forest Oak Dr
Heiskell Ave	• East of Huray Ln (2 crashes)
Inskip Dr	• West of Central Avenue Pk • West of Coster Rd • West of Hubbs Ln • West of Maple Rd • Near Schubert Rd (2 crashes)
Millertown Pk	• Near Brookwood Rd (2 crashes)
Overbrook Dr	• West of Chapman Hwy • Near Gayview Dr
Piney Grove Church Rd	• East of Glade Hill Dr (2 crashes) • North of Middlebrook Pk
Sanderson Rd	• North of Applewood Dr • West of Keith Ave
Valley View Dr	• East of Cross Valley Rd • East of Katey Springs Way

Crash Factor 3: Driver failing to yield while going straight

In 85 crashes (13 percent), drivers were going straight and failed to yield for a person walking or bicycling across the street in a legal crosswalk, either marked or unmarked, or who otherwise had the right of way.[7]

- 75 of these crashes involved pedestrians, while the remaining 10 involved bicyclists. 3 of these crashes were fatal, all of them involving people walking.
- In the 10 cases involving bicyclists, the drivers either failed to stop at stop signs, or pulled out from a stop sign, side street, or parking spot into the path of the bicyclist. Nine of these crashes occurred downtown or in Fort Sanders.
- **Table 4** has information about areas that have seen multiple crashes of this type involving pedestrians.

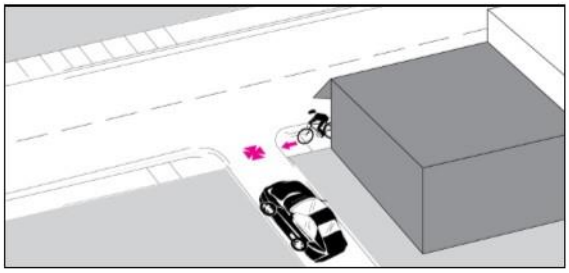


CF3: Examples of crash types where drivers fail to yield while going straight and strike a pedestrian or bicyclist.

TABLE 4: Areas with multiple pedestrians struck by drivers going straight and failing to yield	
Areas	**Number of crashes and location details**
Marked crosswalks on Broadway near Magnolia Ave	6 crashes at crosswalk north of Magnolia; 1 at crosswalk at Broadway/Magnolia
Intersections and driveways along Cumberland Ave	6 crashes between 17th and 21st streets
Marked crosswalks on Central St	1 crash at Willow Ave; 1 at Jackson Ave; 2 at crosswalk between Willow and Jackson
Marked crosswalks on Volunteer Blvd between Cumberland Ave and Melrose Ave	4 crashes
Marked crosswalk on Hall of Fame Dr north of Church Ave	2 crashes

[7] This crash factor is not identified where the crash report finds that the person walking or bicycling entered the street in a way that failed to give the driver sufficient time to yield the right of way.

Crash Factor 4: Bicyclist riding on sidewalk

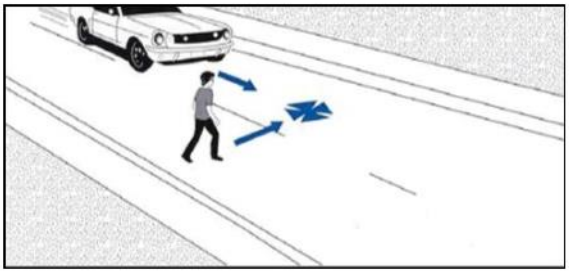


CF4: It's legal for bicyclists to ride on sidewalks. But it can put them in danger of being struck by a driver who does not expect to see them in that location.

58 crashes (9 percent) were associated with bicyclists riding on the sidewalk. 44 of these crashes involved injuries, and none were fatalities. **Table 5** has information about the 7 corridors that saw more than one of this crash type.

TABLE 5: Locations with multiple bicyclists being struck while riding on sidewalks	
Corridor	**Number of crashes and locations**
Cumberland Ave/Kingston Pk	11 crashes between 17th St & Alcoa Hwy
Broadway	8 crashes between Cecil Ave and Chickamauga Ave
Western Ave	7 crashes between 11th St & News Sentinel Dr
Chapman Hwy	4 crashes: 2 near Lippencott St, 2 near Mimosa Ave
Middlebrook Pk	2 crashes: 1 at Citico St, 1 at Proctor St
Central St	2 crashes: 1 at Oak Hill Ave, 1 at Hinton Ave
Lovell Rd	2 crashes north of Simmons Rd
Sutherland Ave	2 crashes: 1 at N Bellemeade Ave, 1 near Harry St

Crash Factor 5: Pedestrian crossing street outside of an intersection or marked crosswalk

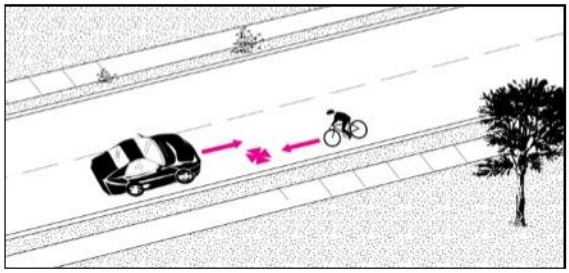


CF5: People crossing streets outside of designated crossing areas can be an indication that more and/or better crossing locations are needed.

In 89 crashes (13 percent), pedestrians were crossing the street outside of an intersection or marked crosswalk. 77 of these crashes involved injuries, and 7 others were fatalities. **Table 6** has information about the 12 corridors that saw multiple crashes of this type.

TABLE 6: Locations with multiple pedestrians being struck while crossing outside of crosswalks	
Corridor	**Number of crashes and locations**
Broadway	16 total crashes: • 6 near Magnolia Ave • 4 between McCroskey Ave and Edgewood Ave • 2 near Powers St • 1 near Northgate Shopping Center entrance • 2 north of Highland Dr • 1 north of Madonna Cir
Magnolia Ave	8 total crashes: • 3 crashes between Mary and Castle streets • 2 crashes near Hembree St • 1 east of Spruce St • 1 west of Kyle St (fatality) • 1 east of Bertrand St
Western Ave	5 total crashes: • 2 between Knoxville College Dr and University Ave • 1 between Texas Ave and Mynderse Ave • 1 east of McKamey Rd • 1 east of Sanderson Rd
Cumberland Ave/Kingston Pk	5 total crashes: • 2 between 21st St and 22nd St • 1 between 18th St and 19th St • 1 west of Wesley Rd (fatality) • 1 west of Cheshire Dr
Middlebrook Pk	4 total crashes: • 2 near Clyde St • 1 east of Sutherland Ave • 1 west of 21st St (fatality)
Chapman Hwy	3 total crashes: • 1 north of Lippencott St • 1 west of Lindy Dr • 1 north of Overbrook Dr
Cedar Bluff Rd	2 total crashes: • 1 between Cross Park Dr and Sherrill Blvd • 1 south of N Peters Rd
Clinch Ave	2 total crashes: • 1 west of Henley St • 1 east of 21st St
Merchant Dr/ Cedar Ln	2 total crashes: • 1 west of Marguerite Rd • 1 west of Rowan Rd
Rutledge Pk	2 total crashes: • 1 east of the I-40 interchange • 1 west of the I-40 interchange (fatality)
Summit Hill Dr	2 crashes east of Hall of Fame Dr, 1 fatality
Sutherland Ave	2 total crashes • 1 east of Longview Rd (fatality) • 1 east of Forest Heights Rd

Crash Factor 6: Bicyclist riding against traffic



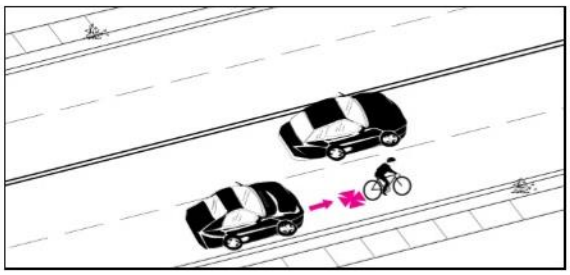
CF6: Some bicyclists ride against traffic in the mistaken belief that it's safer than riding in the same direction as other traffic.

19 bicyclists were struck while riding against traffic. 15 crashes involved injuries, with 1 fatality.

- There was a cluster of 3 of these crashes along Broadway near the off-ramp from westbound I-640. The rest were scattered around the City.

Crash Factor 7: Driver striking bicyclist from behind

21 bicyclists were struck from behind by drivers. The crashes were scattered around the City. 18 crashes involved injuries, and another 2 were fatalities. **Table 7** has information about the 2 corridors that saw multiple crashes of this type.



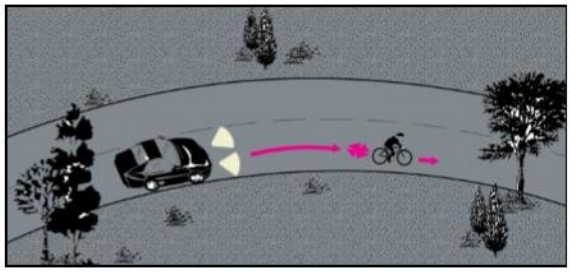
CF7: Drivers striking bicyclists from behind is a relatively uncommon but very dangerous crash type, accounting for 25% of fatal bicycle crashes across the U.S.

TABLE 7: Locations with multiple bicyclists being struck from behind

Corridor	Number of crashes and locations
Middlebrook Pk	2 total crashes: • 1 near Loraine St • 1 near Ed Shouse Dr
Papermill Dr	2 crashes near Westfield Dr, 1 fatality

Crash Factor 8: Bicyclist riding at night with no lights

9 bicyclists were struck while riding at night with no lights. These crashes were scattered around the City. 7 crashes involved injuries, with no fatalities.



CF8: Tennessee law requires bicyclists riding after dark to use a mounted headlight and rear reflectors. A rear red light is also recommended.

Methodology

Crash data were obtained directly from KPD (all crashes prior to June 2009) or downloaded from the TITAN database maintained by the State of Tennessee. Crashes were mapped in ArcMap GIS software based on latitude/longitude or closest intersection, where lat/long data were not available. TPO staff then reviewed the location of each crash to correct data errors. TPO staff assigned crash factors based on information obtained from individual crash reports, including crash narratives and information about citations issued.

Image credit

All crash type images are from the Pedestrian and Bicycle Crash Analysis Tool (PBCAT), which was developed by the Federal Highway Administration (FHWA), in cooperation with the National Highway Traffic Safety Administration (NHTSA). The purpose of the PBCAT is to assist with analysis of pedestrian/bicycle crashes with the goal of preventing them.

Appendix: Pedestrian/bicycle crashes on major arterials in the City of Knoxville

As described in the full report on pedestrian/bicycle crashes in Knoxville, a disproportionate share of crashes and fatalities occur on major arterials (streets such as Broadway and Kingston Pike).

This confluence of pedestrian/bicycle crashes along major arterials happens for several reasons. Major arterials tend to be wide streets with high volumes of fast-moving traffic. High speeds make drivers less able to detect people walking and bicycling, and less able to stop quickly to avoid a collision.

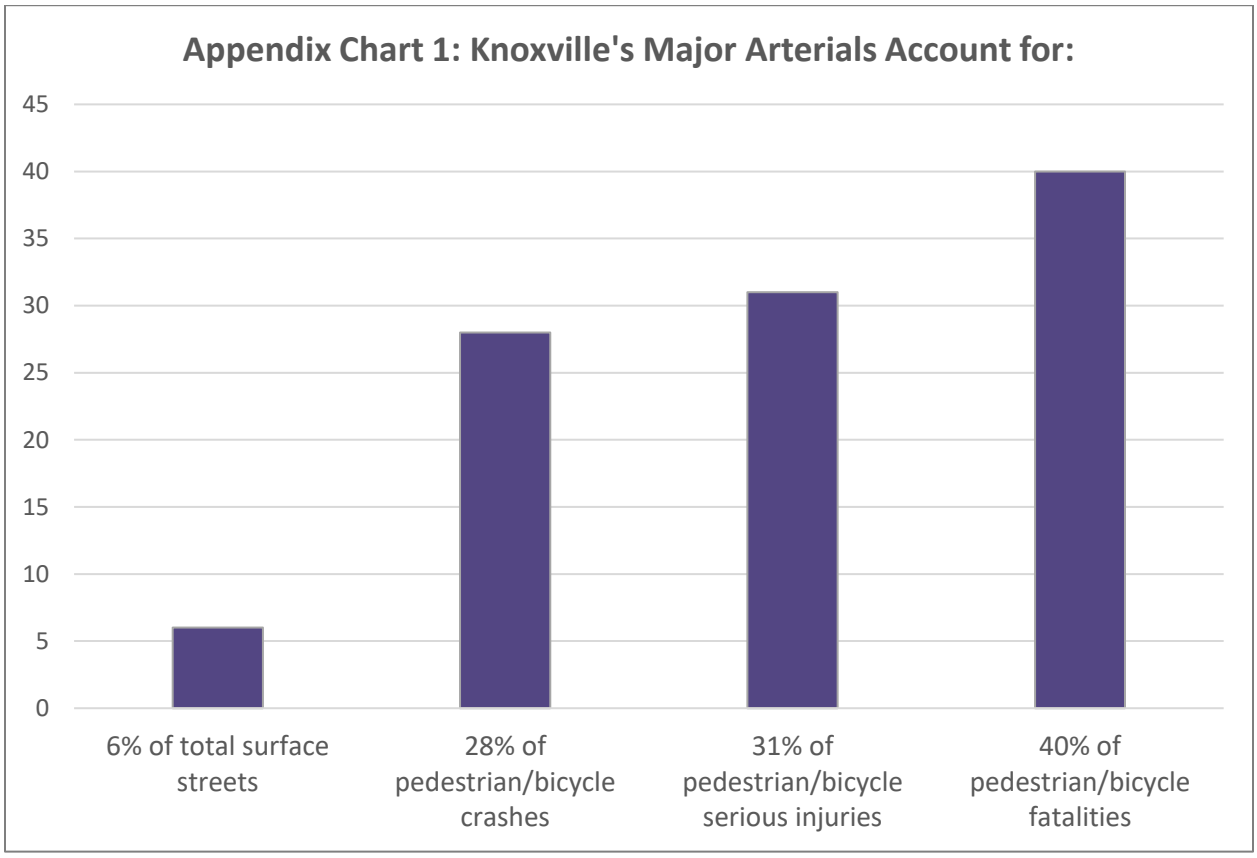
Major arterials also tend to feature transit routes and other frequent destinations for people walking and bicycling, resulting in a concentration of walkers and bicyclists on these streets.

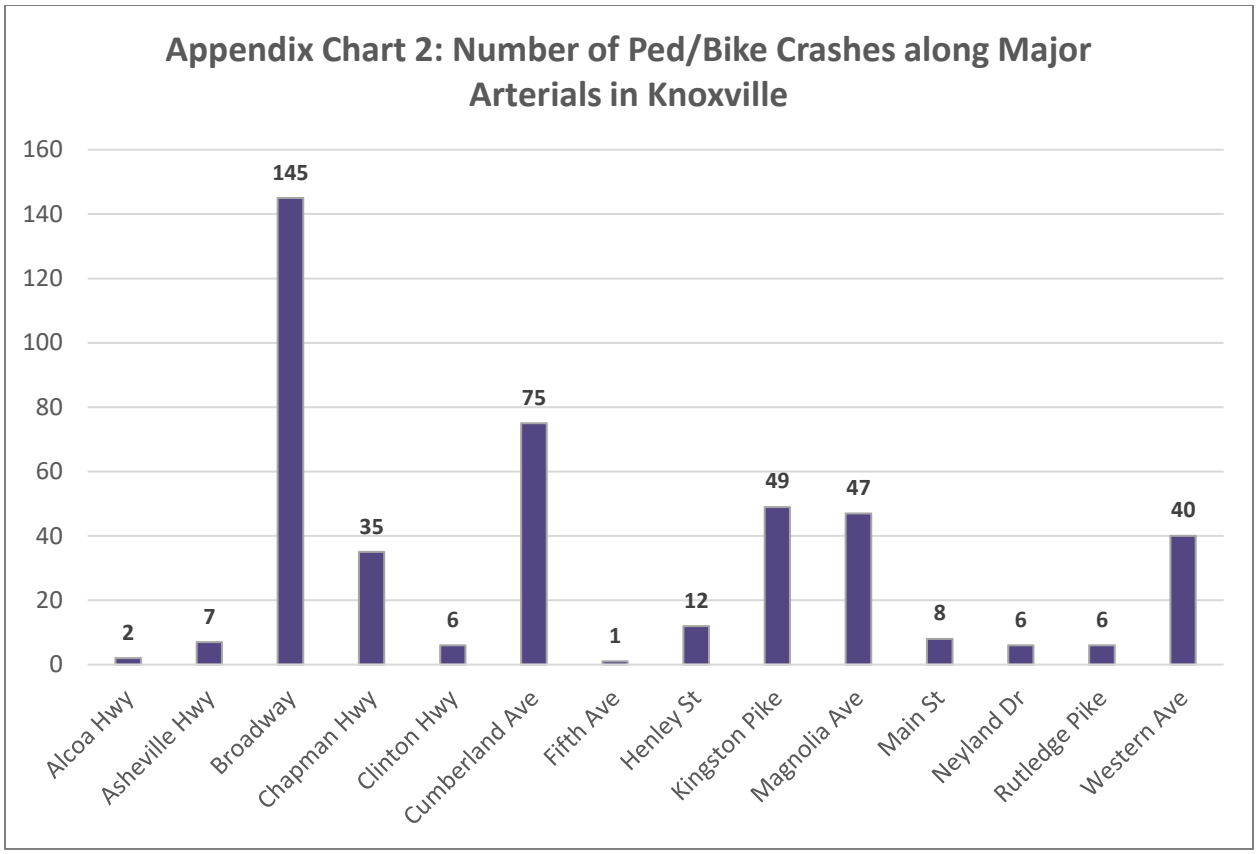
- Major arterials make up 6 percent of the surface street mileage within Knoxville.
- Of the crashes where locations are certain, 28 percent (439 crashes) occurred on major arterials. 89 percent (391) of the crashes on major arterials occurred on six streets: Broadway, Chapman Highway, Cumberland Avenue, Kingston Pike, Magnolia Avenue, and Western Avenue.
- Crashes on major arterials resulted in 22 fatalities, which is 40 percent of all fatalities resulting from pedestrian/bicycle crashes. Only 5 streets accounted for 19 of the 22 fatal crashes on major arterials: Broadway (6), Kingston Pike (4), Chapman Highway (3), Clinton Highway (3), and Rutledge Pike (2). Broadway had the most fatalities per mile.
- Since January 2015, crashes on major arterials resulted in 31 serious injuries[8], which is 31 percent of all serious injuries resulting from pedestrian/bicycle crashes during that time.
- The two major arterials with the most pedestrian/bicycle crashes were Broadway, with 145 crashes, and Cumberland Avenue, with 75 crashes. Cumberland has the most pedestrian/bicycle crashes per mile, followed by Broadway.
- Two major arterials had a relatively small number of crashes, but a high percentage of crashes resulting in fatalities. On Clinton Highway, 3 out of 6 crashes resulted in a fatality, and on Rutledge Pike, 2 out of 6 crashes were fatal. By contrast, Cumberland Avenue has 0 pedestrian or bicycle fatalities.
- 20 of the 22 fatalities on major arterials involved people walking. Of the two bicycle fatalities, one occurred on Western Avenue, the other on Broadway.
- Combining fatal and serious injury (F+SI) crashes, 4 streets accounted for 68 percent of these crashes: Broadway (17 F+SI crashes), Kingston Pike (7), and Magnolia Avenue (7), and Chapman Highway (5). Broadway has the most F+SI crashes per mile.
- Three major arterials had a relatively small number of crashes, but a high percentage of crashes resulting in F+SI: Alcoa Highway (100 percent), Rutledge Pike (67 percent), and Clinton Highway (50 percent).
- The most common crash factor (48 percent) in crashes along major arterials is drivers making a turning movement and failing to yield. Nearly half of these turning movement crashes are left turns.

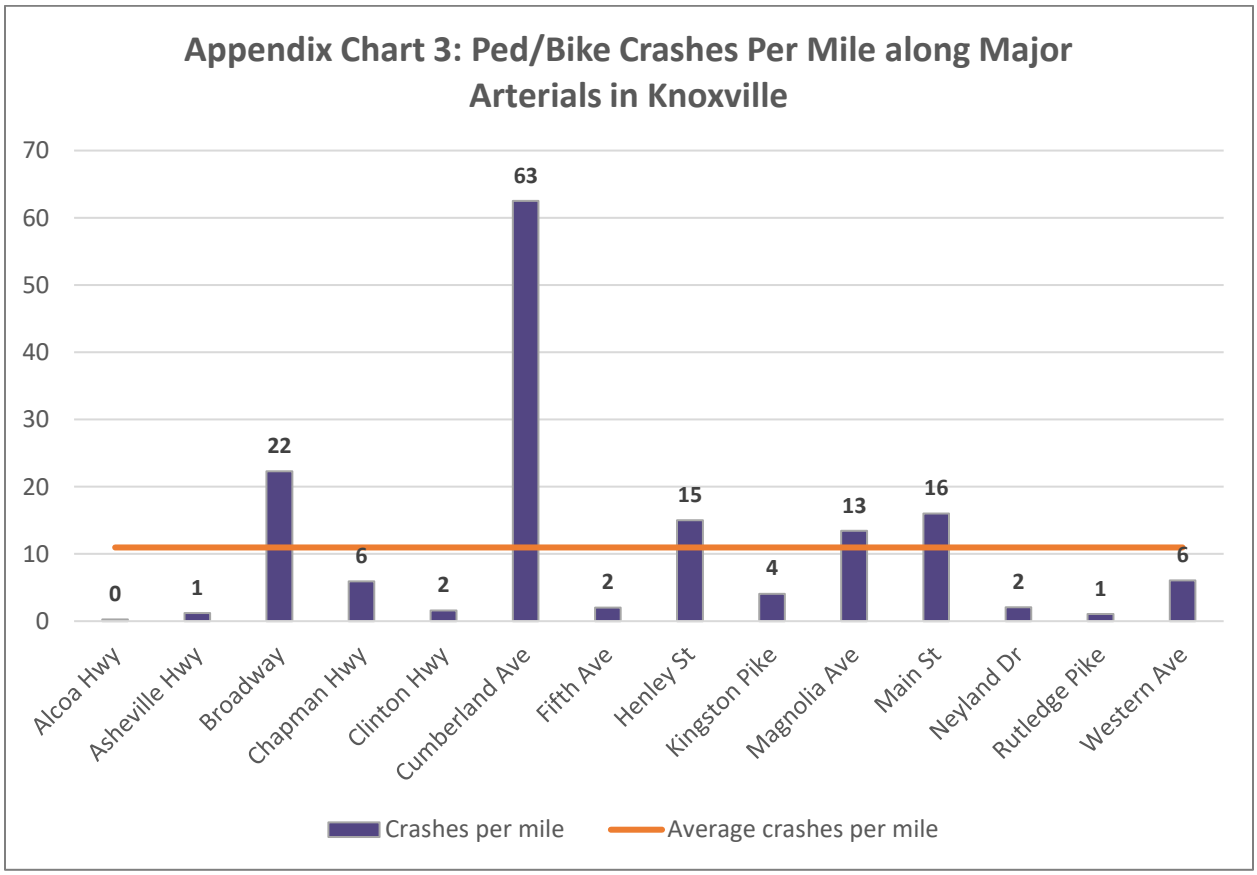
[8] Crash reports rank the severity of crashes as either fatal, suspected serious injury, suspected minor injury, possible injury, or no injury. Suspected serious injury crashes used to be reported as “incapacitating,” and suspected minor injury crashes were reported as “non-incapacitating.” For this report, suspected serious and incapacitating crashes are combined as “serious injury” crashes. Regional crash reports began to include reliable information about the severity of injuries in 2015.

- The most dangerous crashes on arterials – by crash factor – are:
    - "Pedestrian crossing the street outside of an intersection or marked crosswalk" (5 fatalities and 11 serious injuries on major arterials).
    - "Drivers failing to yield while turning" (1 fatality and 5 serious injuries on major arterials).

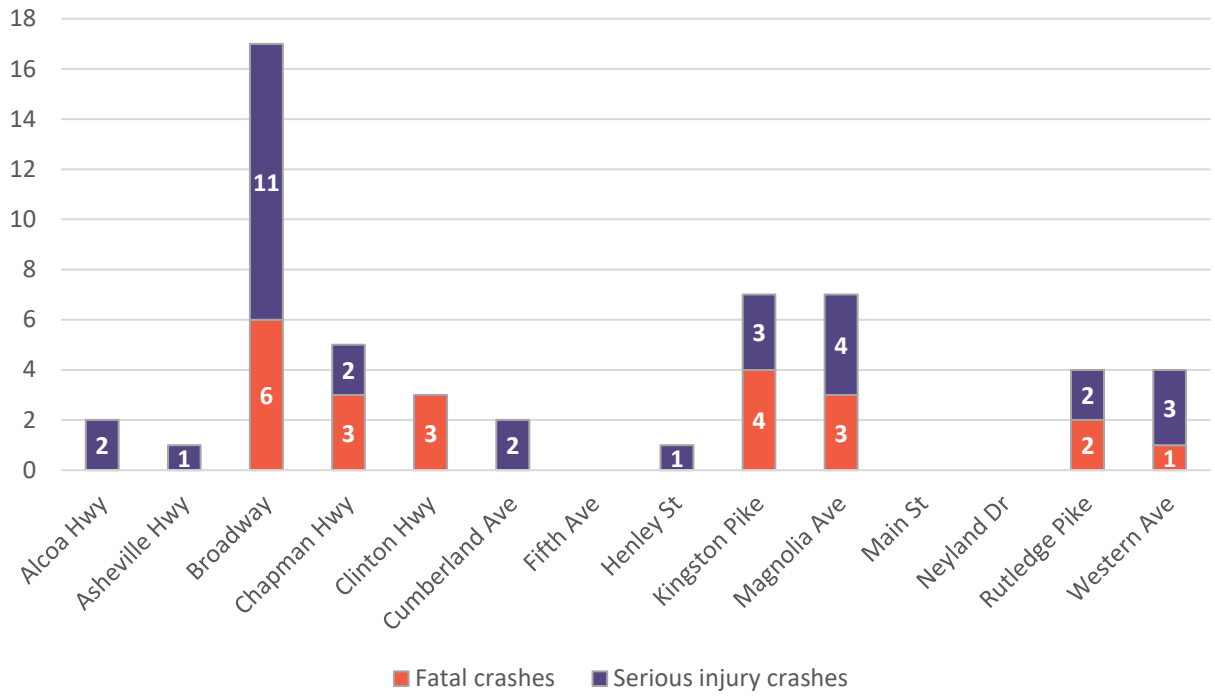
The charts and table that follow provide more data about crashes on major arterials.




Appendix Chart 2: Number of Ped/Bike Crashes along Major Arterials in Knoxville
160
140
120
100
80
60
40
20
0
2
7
145
35
6
75
1
12
49
47
8
6
6
40
Alcoa Hwy
Asheville Hwy
Broadway
Chapman Hwy
Clinton Hwy
Cumberland Ave
Fifth Ave
Henley St
Kingston Pike
Magnolia Ave
Main St
Neyland Dr
Rutledge Pike
Western Ave


Appendix Chart 3: Ped/Bike Crashes Per Mile along Major Arterials in Knoxville
70
60
50
40
30
20
10
0
0
1
22
6
2
63
2
15
4
13
16
2
1
6
Alcoa Hwy
Asheville Hwy
Broadway
Chapman Hwy
Clinton Hwy
Cumberland Ave
Fifth Ave
Henley St
Kingston Pike
Magnolia Ave
Main St
Neyland Dr
Rutledge Pike
Western Ave
Crashes per mile
Average crashes per mile

Appendix Chart 4: Number of Fatal & Serious Injury Ped/Bike Crashes along Major Arterials in Knoxville



Appendix Chart 5: Fatal & Serious Injury Crashes Per Mile along Major Arterials in Knoxville