

# DRAFT Appendix B: Detailed Crash Tables

## Contents

Crash and Injury Severity.....	B-2
Gender and Age.....	B-6
Ethnicity and/or Race .....	B-7
Helmet Use .....	B-8
Days of the Week .....	B-9
Lighting Conditions .....	B-10
Rural Versus Urban.....	B-11
Intersection and Mid-Block Crashes.....	B-12
Bicycle Crashes Relative to Schools .....	B-13
Fair Access Analysis .....	B-16

## Overview

This appendix provides an overview of the crash analysis completed for the Plan. Bicycle crash data was retrieved from the TxDOT CRIS database for the years 2019-2023. The following information includes tables, graphs, and key findings crash and injury severity, demographics, helmet usage, day of the week, lighting conditions, and locations of all reported bicycle crashes in the DFW region.

## Crash and Injury Severity Supporting Tables

Bicycle Crash Severity Levels in the MPA 2019-2023							
Year	Fatal	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	Not Injured	Unknown Injury	Total
2019	7	61	230	164	36	1	499
2020	12	66	193	155	39	1	466
2021	15	83	222	134	32	1	487
2022	22	64	253	111	31	1	482
2023	18	81	284	116	36	2	537
<b>Total</b>	<b>74</b>	<b>355</b>	<b>1,182</b>	<b>680</b>	<b>174</b>	<b>6</b>	<b>2,471</b>
<b>Average</b>	<b>15</b>	<b>71</b>	<b>236</b>	<b>136</b>	<b>35</b>	<b>1</b>	<b>494</b>

Fatal and Suspected Serious Injury Crashes in the MPA 2019-2023			
Year	Fatal	Suspected Serious Injury	Combined Total
2019	7	61	68
2020	12	66	78
2021	15	83	98
2022	22	64	86
2023	18	81	99
<b>Total</b>	<b>74</b>	<b>355</b>	<b>429</b>
<b>Average</b>	<b>15</b>	<b>71</b>	<b>86</b>

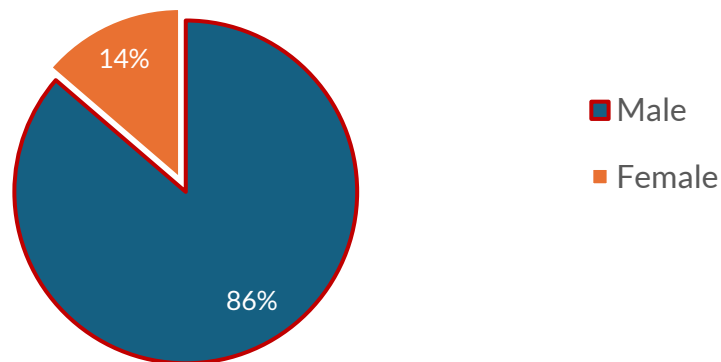
Injury Severity of Bicycle Crashes in the MPA 2019-2023	
Injury Severity Level	Bicyclists
Fatalities	73
Suspected Serious Injuries	360
Suspected Minor Injuries	1190
Possible Injuries	685
Not Injured	165
Unknown Severity	37
<b>Total</b>	<b>2510</b>

Fatalities and Suspected Serious Injuries in the MPA 2019-2023			
Year	Fatalities	Suspected Serious Injuries	Combined Total
2019	7	61	68
2020	12	68	80
2021	14	83	97
2022	22	65	87
2023	18	83	101
<b>Total</b>	<b>73</b>	<b>360</b>	<b>433</b>
<b>Average</b>	<b>15</b>	<b>72</b>	<b>87</b>

## Key Findings of the Demographic Analysis of Bicyclists Involved in Crashes

Males account for 86 percent of all reported bicyclist fatalities (see Figure B1). Males over the age of 55 had the highest percentage of fatalities and serious injuries (see Figure B2).

Figure B1: Bicycle Related Fatalities by Gender



Nearly one-third of all bicycle crashes involving females comprise of females under the age of 18. Females in this age cohort also had the highest percentage of serious injuries (see Figure B3). However, females in age groups over 35 had the highest percentage of fatalities.

The findings of the age demographics analysis emphasize the importance of the Plan goals. Youth and older adults are at higher risk for death or serious injury when involved in a bicycle crash. Bicycle facilities implemented should offer physical separation and barriers from vehicle traffic, so these vulnerable groups are protected and feel comfortable while bicycling. Safety education messaging should be targeted at this group to encourage safe bicycling behavior and to drivers, so they understand the importance of protecting this population.

Figure B2: Bicycle Related Crashes and Fatalities and Suspected Serious Injuries Involving Males by Age

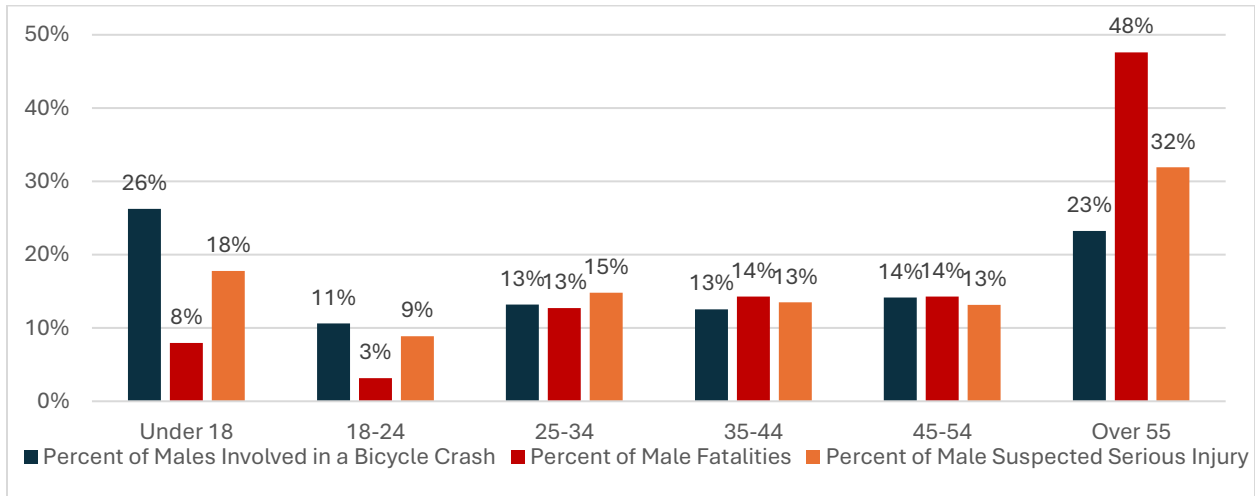
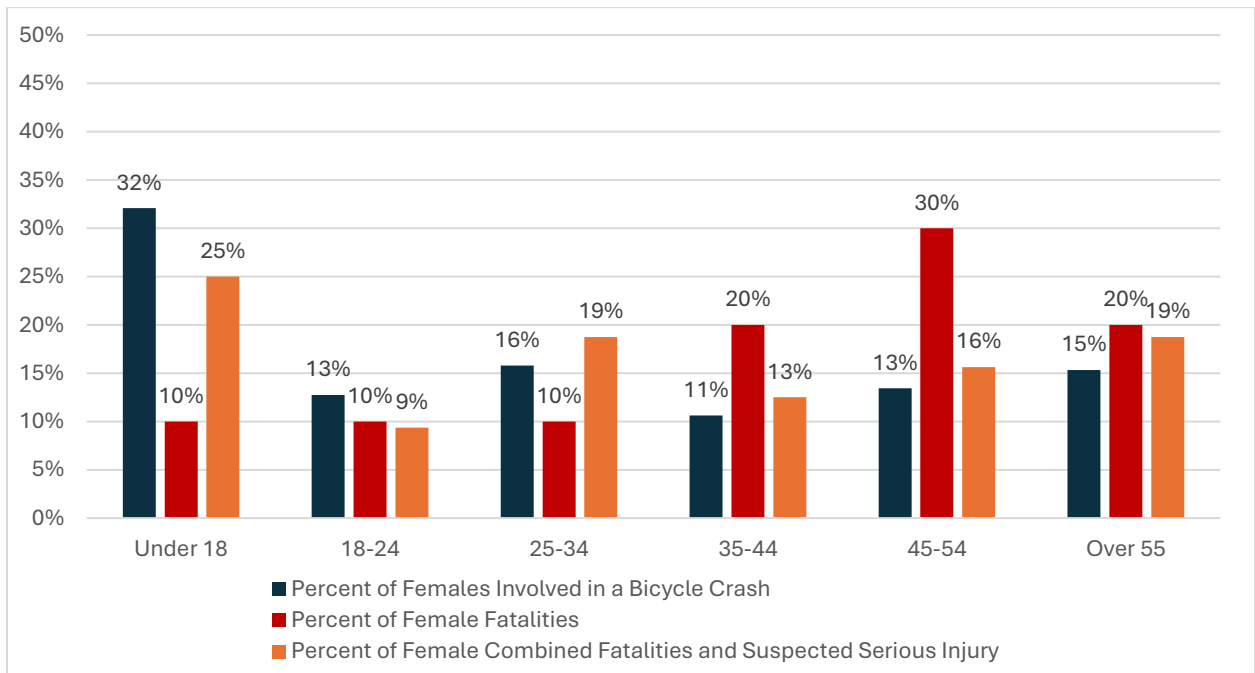
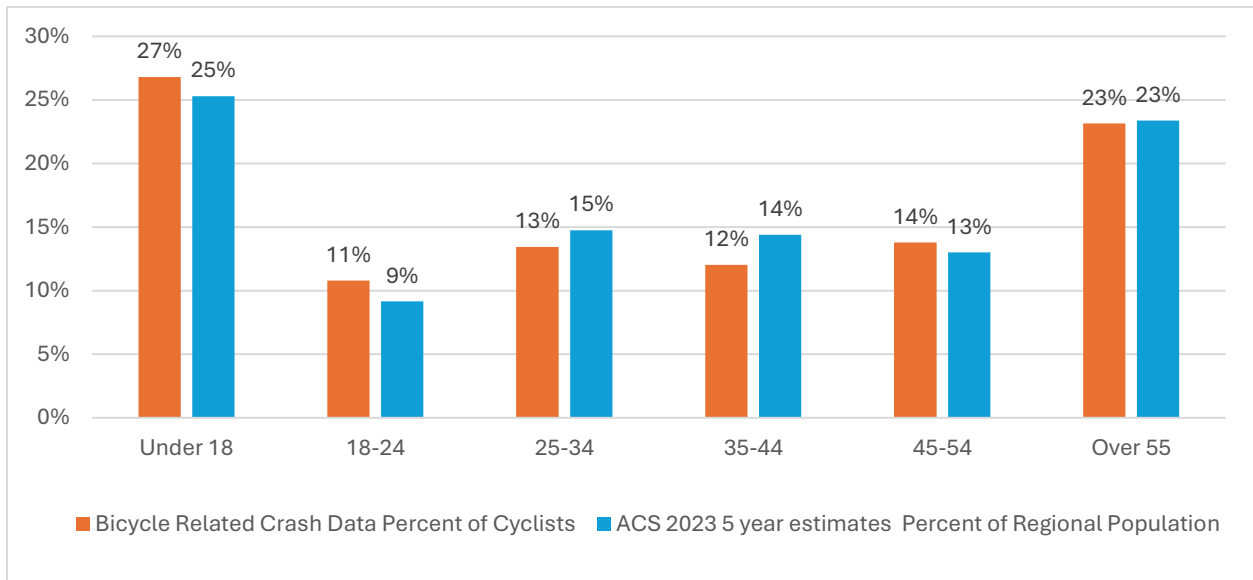


Figure B3: Bicycle Related Crashes and Fatalities and Suspected Serious Injuries Involving Females by Age



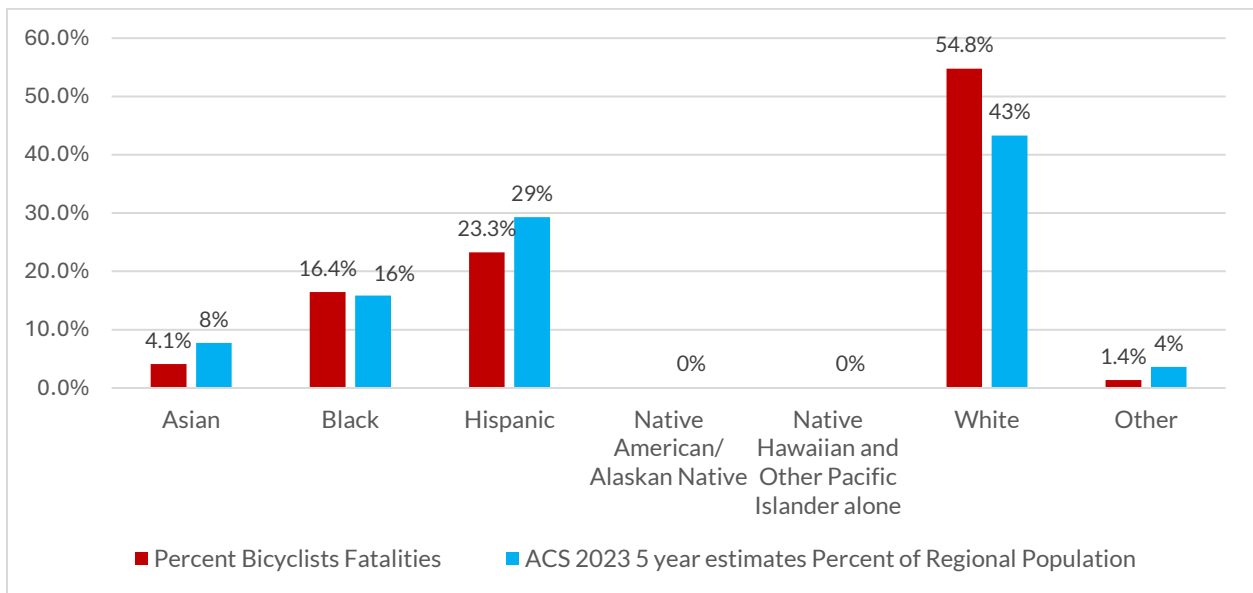
Youth under 18 and adults over 55 are the age cohorts most involved in bicycle crashes, as identified in Figure B4. The percentage of crashes is generally proportional to the percentage of the regional population in each age cohort, with a slight overrepresentation for the age cohorts under 25.

Figure B4: All Bicycle Related Crashes by Age



Bicyclists of Black and White race were overrepresented in bicyclist deaths as compared to the overall percentage of these groups within the regional population (see Figure B5).

Figure B5: Bicycle Related Fatalities by Ethnicity and Race



## Gender and Age of Bicyclists involved in Bicycle Crashes Supporting Tables

Bicycle Related Crash Data			ACS 2023 5-year estimates	
Age Group	Cyclists involved in a Crash	Percent of Cyclist Crashes	Regional Population	Percent of Regional Population
Under 18	673	27%	1,973,302	25%
18-24	271	11%	713,706	9%
25-34	337	13%	1,150,961	15%
35-44	302	12%	1,122,646	14%
45-54	346	14%	1,015,291	13%
Over 55	581	23%	1,823,488	23%
Total	2,510	100%	7,799,394	100%

Bicycle-Related Fatalities by Gender		
Gender	Fatalities	Percent
Male	63	86%
Female	10	14%
Total	73	100%

Bicycle Related Crashes, Fatalities and Serious Injuries Involving Men						
Age Group	No. of Males	Percent of Males Involved in a Bicycle Crash	No. of Male Fatalities	Percent of Male Fatalities	No. of Male Suspected Serious Injury	Percent of Male Suspected Serious Injury
Under 18	537	26%	5	8%	54	18%
18-24	217	11%	2	3%	27	9%
25-34	270	13%	8	13%	45	15%
35-44	257	13%	9	14%	41	13%
45-54	290	14%	9	14%	40	13%
Over 55	476	23%	30	48%	97	32%
Total Persons	2047	100%	63	100%	304	100%

## Ethnicity and/or Race of Bicyclists Involved in Bicycle Crashes Supporting Tables

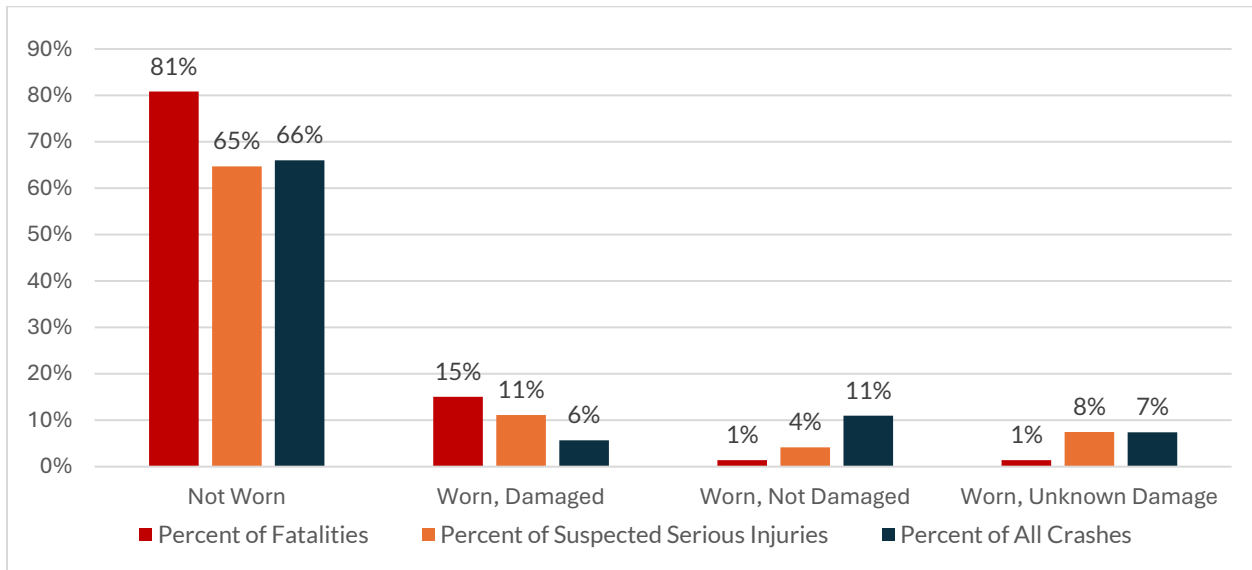
Ethnicity and/or Race	Fatalities	Percent Bicyclists Fatalities	Suspected Serious Injuries	Percent Suspected Serious Injuries	ACS 2019-2023	ACS 2023 5 year estimates Percent of Regional Population
Asian	3	4.1%	19	5.4%	606,961	8%
Black	12	16.4%	55	15.6%	1,247,275	16%
Hispanic	17	23.3%	82	23.2%	2,305,754	29%
White	40	54.8%	192	54.4%	3,408,652	43%
Native American/ Alaskan Native					12,985	0%
Native Hawaiian and Other Pacific Islander alone					7,481	0%
Other	1	1.4%	5	1.4%	282,645	4%
<b>Grand Total</b>	<b>73</b>	<b>100.0%</b>	<b>353</b>	<b>100.0%</b>	<b>7,871,753</b>	<b>100%</b>

Ethnicity and/or Race	Crashes	Percent of Bicycle Crashes	ACS 2019-2023	ACS 2023 5 year estimates Percent of Regional Population
Asian	128	5%	606,961	8%
Black	512	21%	1,247,275	16%
Hispanic	509	21%	2,305,754	29%
Native American/ Alaskan Native	6	0%	12,985	0%
Native Hawaiian and Other Pacific Islander alone			7,481	0%
White	1,287	52%	3,408,652	43%
Other	25	1%	282,645	4%
<b>Grand Total</b>	<b>2,467</b>	<b>100%</b>	<b>7,871,753</b>	<b>100%</b>

## Key Findings of Helmet Use Crash Analysis

At the time of the bicycle crash, most bicyclists were not wearing helmets. **Over 80 percent of bicyclists who were killed in a traffic crash were not wearing a helmet (see Figure B6).** As such the importance of wearing a helmet and a proper fit of a helmet is important safety-related messaging for bicyclists.

Figure B6: Helmet Usage at Time of Bicycle Crash



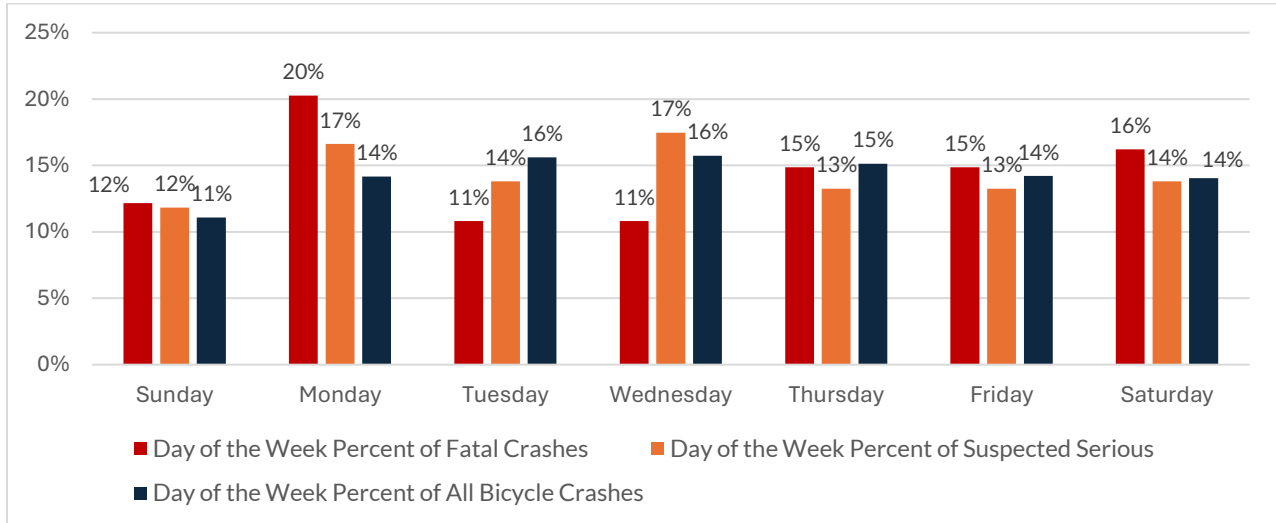
## Helmet Use of Persons involved in a Bicycle Crash Supporting Table

Helmet Use	Fatalities	Percent of Fatalities	Suspected Serious Injury	Percent of Suspected Serious Injuries	All Crashes	Percent of All Crashes
Not Worn	59	81%	233	65%	1657	66%
Worn, Damaged	11	16%	40	11%	142	6%
Worn, Not Damaged	1	1%	15	4%	275	11%
Worn, Unknown Damage	1	1%	27	8%	185	7%
Unknown If Worn	1	1%	45	13%	251	10%
<b>Total</b>	<b>73</b>	<b>100%</b>	<b>360</b>	<b>100%</b>	<b>2510</b>	<b>100%</b>

## Key Findings of Days of the Week of Bicycle Crash Analysis

Bicycle crashes occurred relatively consistently throughout the week. **The highest percentage of fatal crashes (20%) occurred on Mondays (see Figure B7).**

Figure B7: Days of the Week of Bicycle Crashes



## Days of the Week Bicycle Crashes Supporting Table

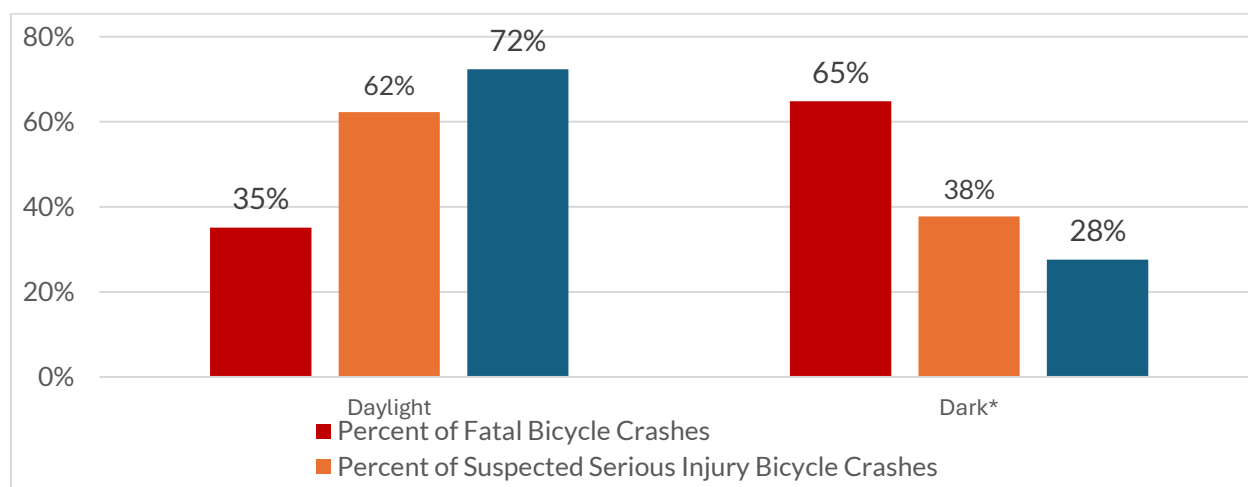
Day of the Week	Fatal Crashes	Percent of Fatal Crashes	Suspected Serious Injury Crashes	Percent of Suspected Serious	Bicycle Crashes	Percent of All Bicycle Crashes
Sunday	9	12%	42	12%	274	11%
Monday	15	20%	59	17%	350	14%
Tuesday	8	11%	49	14%	386	16%
Wednesday	8	11%	62	17%	389	16%
Thursday	11	15%	47	13%	374	15%
Friday	11	15%	47	13%	351	14%
Saturday	12	16%	49	14%	347	14%
Total	74	100%	355	100%	2471	100%

## Key Findings of Lighting Conditions Crash Analysis

While 72 percent of all bicycle crashes and 62 percent of all suspected serious injury crashes occurred during the daytime, fatal crashes were significantly higher in dark lighting conditions (see Figure B8). This could be correlated to visibility limitations of drivers when illumination of the road is low.

Bicycle safety education is essential to encourage and bring awareness to mounting a headlight and a rear reflector or rear red light to bicycles as required by State law and to wear reflective gear to be visible at night. Further, encouraging drivers to pay attention and avoid distractions, especially in dark conditions, since vulnerable road users may not be as visible.

Figure B8: Lighting Conditions of Bicycle Crashes



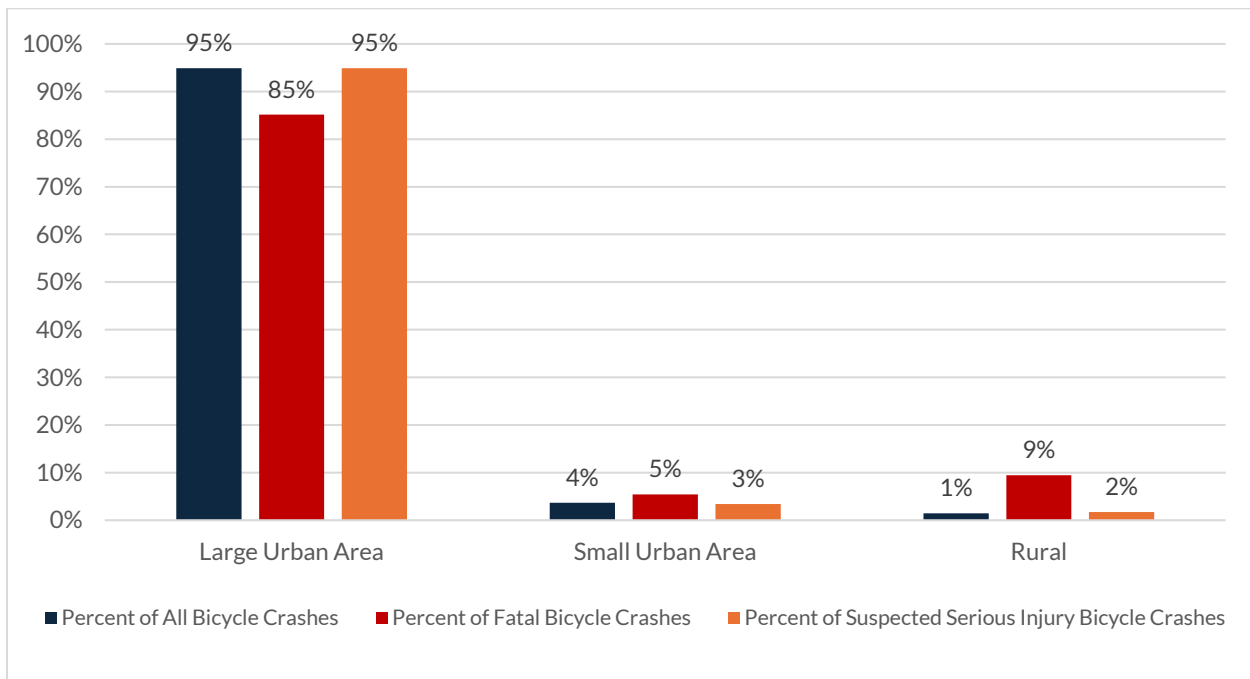
## Lighting Conditions at the time of a Bicycle Crash Supporting Table

Lighting Condition	Fatal	Percent of Fatal	Suspected Serious Injury	Percent of Suspected Serious Injury	Total	Percent of total
Daylight	26	35%	221	62%	1786	72%
Dark, Not Lighted	20	27%	46	13%	180	7%
Dark, Lighted	24	32%	72	20%	386	16%
Dark Unknown Lighting	0	0%	4	1%	21	1%
Dawn	2	3%	3	1%	30	1%
Dusk	2	3%	9	3%	64	3%
<b>Grand Total</b>	<b>74</b>	<b>100%</b>	<b>355</b>	<b>100%</b>	<b>2467</b>	<b>100%</b>

## Key Findings of Urban and Rural Context Crash Analysis

Most bicycle crashes (99 percent) occur in small and large urban areas accounting for 90 percent of all fatal crashes and 98 percent of suspected serious injury crashes (see Figure B9). However, this does not capture the full picture of bicycle safety. Without a measure of the volume of bicyclist riding in these areas, this can be an imperfect indicator of the highest risk of bicycle safety issues. Nevertheless, this data can be used to target safety strategies to improve bicycle safety based on regional crash history.

Figure B9: Urban v. Rural Location and Severity of Bicycle Crashes



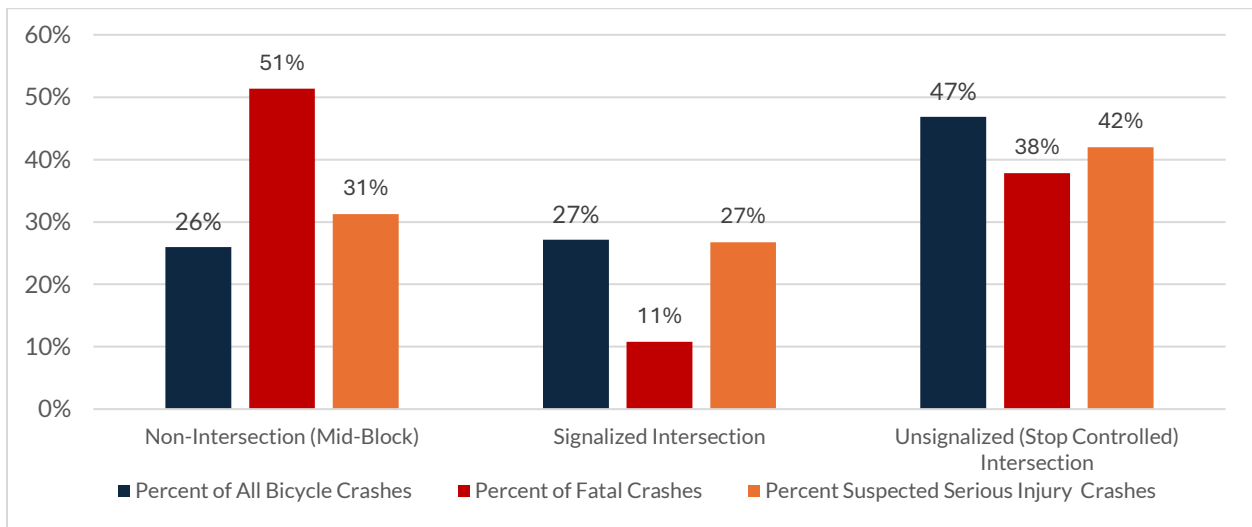
## Rural Versus Urban Location of a Bicycle Crash Supporting Table

Location	Bicycle Crashes	Percent of All Bicycle Crashes	Fatal Crashes	Percent of Fatal Bicycle Crashes	Suspected Serious Injury	Percent of Suspected Serious Injury Bicycle Crashes
Large Urban Area	2345	95%	63	85%	337	95%
Small Urban Area	91	4%	4	5%	12	3%
Rural	35	1%	7	9%	6	2%
<b>Grand Total</b>	<b>2471</b>	<b>100%</b>	<b>74</b>	<b>100%</b>	<b>355</b>	<b>100%</b>

## Key Findings of the Intersection Analysis

A spatial analysis was conducted to identify the magnitude of bicycle crashes occurring at or near intersections. Of all bicycle crashes in the region, 74 percent of the crashes occurred at or within 100 feet of an intersection location (27 percent at signalized intersections and 47 percent at unsignalized intersections, see Figure B10). The crashes occurring at intersections account for 65 percent of all fatal and suspected serious injury crashes.

Figure B10: Bicycle Crash Location (Intersection and Mid-Block)



## Intersection and Mid-Block Crashes Supporting Table

Location	Bicycle Crashes	Percent of All Bicycle Crashes	Fatal Crashes	Percent of Fatal Crashes	Suspected Serious Injury	Percent Suspected Serious Injury Crashes
Non-Intersection (Mid-Block)	642	26%	38	51%	111	31%
Signalized Intersection	671	27%	8	11%	95	27%
Unsignalized (Stop Controlled) Intersection	1158	47%	28	38%	149	42%
<b>Grand Total</b>	<b>2471</b>	<b>100%</b>	<b>74</b>	<b>100%</b>	<b>355</b>	<b>100%</b>

This Plan analysis builds off research conducted for TxDOT Research Project 0-6983, *North Texas Bicycle and Pedestrian Crash Analysis* (2020) which also concluded the majority of crashes occurred at intersections and intersection-related locations.

The five most common types of crashes occurring at intersections are the following:

1. Motorist failed to yield – sign-controlled intersection
2. Bicyclist failed to yield - signalized intersection
3. Bicyclist failed to yield – sign-controlled intersection
4. Motorist left-turn/merge
5. Motorist failed to yield – signalized intersection

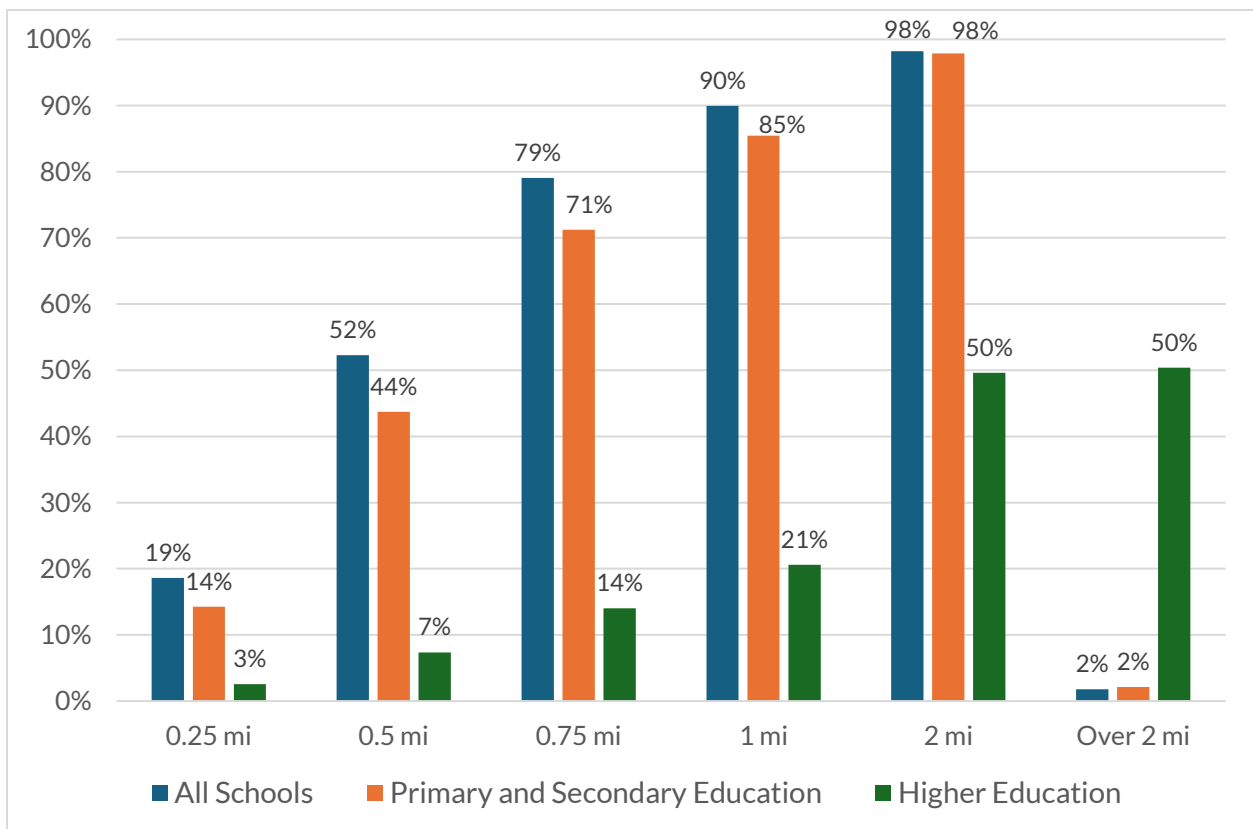
Failure to yield for both bicyclists and motorists at signalized locations suggests the need to separate bicyclist movements and driver movements physically and through time while both pass through the intersection. For signalized locations, there may be opportunity for education on right of way laws. The full report for [Project 0-6983](#).<sup>1</sup>

## Crashes in Proximity to Schools and Transit

A disproportionate number of crashes occur near schools and/or transit highlighting need for safe connections to these destinations.

Over half of the bicycle crashes in the region occur within a 0.5-mile radius of a school, with almost all crashes (98%) occurring within a 2-mile radius of a school as shown in Figure 11. 85% of crashes occur within 1-mile of primary and secondary schools (excluding private institutions). This may be related to the high percentage of crashes and serious injuries the under 18 age cohort represents. This analysis demonstrates the critical need for Safe Routes to School for this age group, considering students that reside within two miles of a primary or secondary campus are not eligible for busing services.

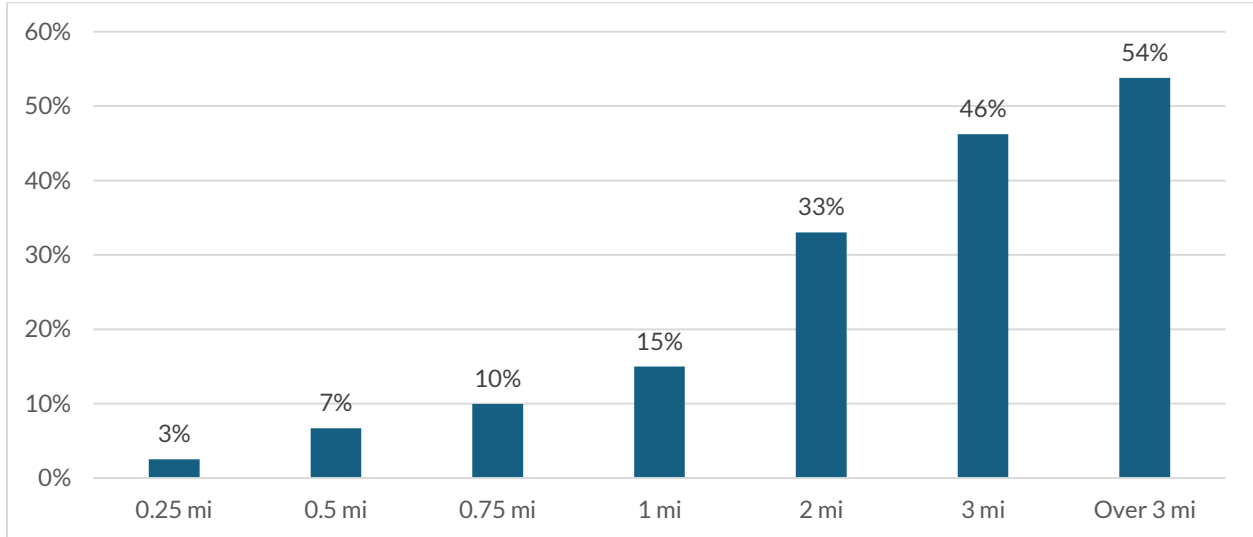
Figure 11: Percent of Crashes Relative to their Distance from a School



In the region, 15% of bicycle crashes occur within a 1-mile radius of a rail station and 46% of bicycle crashes occur within 3 miles of a station (see Figure 12). Since the median bicycle trips is approximately 3 miles, it is important that bicycle infrastructure supports safe bicycle trips to and from stations.<sup>2</sup> Transit trips typically involve some form of active transportation to complete the trip, such as walking or bicycling from home to the station.<sup>3</sup>

Thus it is essential to have safe and comfortable infrastructure for the first and last mile connections to transit stops and stations.

Figure 12: Percent of Crashes Relative to their Distance from a Rail Station



### Bicycle Crashes Related to Schools and Transit Supporting Tables

Distance to a School (mi)	Bicycle Crashes Near a School	Percent of Bicycle Crashes Near a School	Bicycle Crashes Near Primary and Secondary Education	Percent of Bicycle Crashes Near Primary and Secondary Education	Bicycle Crashes Near Higher Education	Percent of Bicycle Crashes Near Higher Education
0.25	460	19%	353	14%	63	3%
0.5	1,292	52%	1,080	44%	182	7%
0.75	1,953	79%	1,760	71%	347	14%
1	2,223	90%	2,111	85%	509	21%
2	2,427	98%	2,418	98%	1,226	50%
Over 2	44	2%	53	2%	1,245	50%

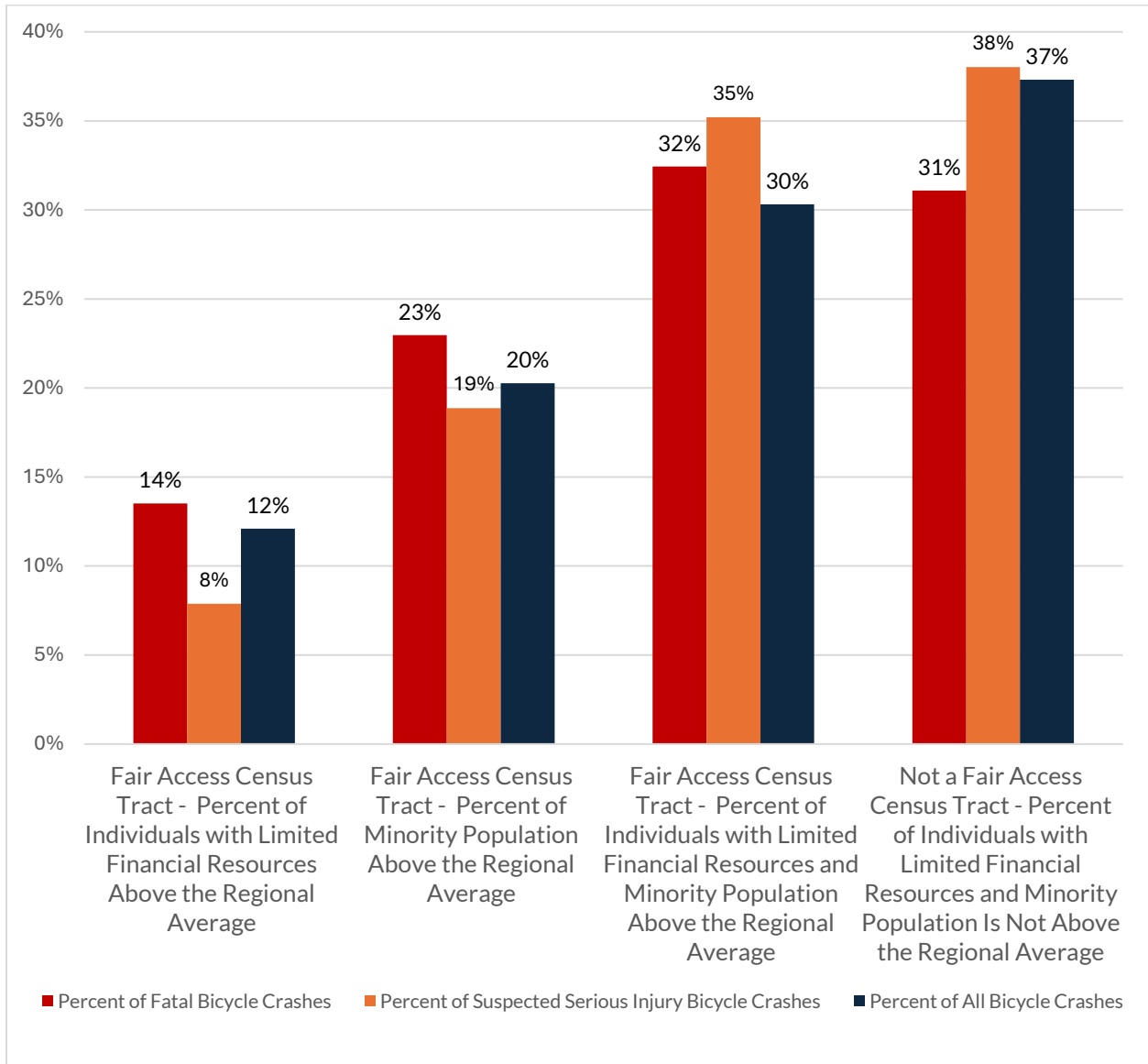
Distance to a Station (mi)	Bicycle Crashes Near a Station	Percent of Bicycle Crashes Near a Station
0.25	62	3%
0.5	165	7%
0.75	246	10%
1	370	15%
2	816	33%
3	1142	46%
Total	2471	100%

### Key Findings of Fair Access in Communities Analysis

The Fair Access in Communities Tool (FACT) was developed by NCTCOG to support analysis of community access to transportation and other opportunities across the region. FACT identifies Census block groups with protected populations to help ensure planning processes and outcomes do not result in discrimination, consistent with Title VI of the Civil Rights Act of 1964.

The highest percentage (32%) of fatal bicycle crashes occurred in census tracts identified as Fair Access Communities with individuals with limited financial resources and a minority population above the regional average. The next highest percentage of fatal bicycle crashes (31%) occurred within census tracts that are not considered Fair Access Communities where the population of individuals with limited financial resources and a minority population does not exceed the regional average (see Figure 13).

Figure 13: Bicycle Crash Locations Relative to Census Tracts with Minority and/or Low-Income Populations Above the Regional Average



## Fair Access Analysis Supporting Table

Location	Fatal Crashes	Percent of Fatal Bicycle Crashes	Suspected Serious Injury	Percent of Suspected Serious Injury Bicycle Crashes	Bicycle Crashes	Percent of All Bicycle Crashes
Fair Access Census Tract - Percent of Individuals with Limited Financial Resources Above the Regional Average	10	14%	28	8%	299	12%
Fair Access Census Tract - Percent of Minority Population Above the Regional Average	17	23%	67	19%	501	20%
Fair Access Census Tract - Percent of Individuals with Limited Financial Resources and Minority Population Above the Regional Average	24	32%	125	35%	749	30%
Not a Fair Access Census Tract - Percent of Individuals with Limited Financial Resources and Minority Population Is Not Above the Regional Average	23	31%	135	38%	922	37%
Grand Total	74	100%	355	100%	2471	100%

## References

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1

<https://library.ctr.utexas.edu/Presto/content/Detail.aspx?ctID=M2UxNzg5YmEtYzMyZS00ZjBILWlyODctYzljMzQ3ZmVmOWFI&rID=NjEx&bmdc=MQ%3D%3D>

<sup>2</sup> Jennifer Dill, John Gliebe. OTREC-RR-08-03. Oregon Transportation Research and Education Consortium. December 2008. *Understanding and Measuring Bicycling Behavior: a Focus on Travel Time and Route Choice.*

<https://nacto.org/wp-content/uploads/Dill-and-Gliebe-2008.pdf>

<sup>3</sup> Advocacy Advance. August 2014. *First Mile, Last Mile: How Federal Transit funds can improve access to transit for people who walk and bike.*

[https://bikeleague.org/wp-content/uploads/2023/03/FirstMileLastMile\\_August2014\\_web.pdf](https://bikeleague.org/wp-content/uploads/2023/03/FirstMileLastMile_August2014_web.pdf)