San Francisco Severe Traffic Injury Trends: 2011-2020

September 2021

Produced by the San Francisco Department of Public Health

Table of Contents

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Executive Summary

Vision Zero is San Francisco's initiative to eliminate traffic fatalities and reduce severe traffic-related injury on San Francisco's streets. The Department of Public Health's (SFDPH) Vision Zero team monitors severe injuries utilizing trauma registry data from Zuckerberg San Francisco General Hospital – our City's Level I Trauma Center where the most severely injured patients are seen and treated, and where injury severity is clinically assessed by medical professionals. SFDPH tracks both ***severe injuries*** as well as ***critical injuries*** - a subset of patients that are the most severely injured. This is our best and most reliable data source for detecting severe injuries in our transportation system. SFDPH supplement this data with SF police data collected from police traffic collision reports (see Appendix A), which has been historically the primary data source for severe injury in San Francisco.

The decade of data presented in this report inform City and community understanding of those most severely injured on streets in San Francisco – and how that picture is shifting over time, including since the adoption of Vision Zero in 2014. Vision Zero SF monitors and reports fatality data, which is more readily available, separately and on a monthly basis.[1] The latest end of year fatality report can be found here: https://www.visionzerosf.org/wp-content/uploads/2021/03/Vision-Zero-2020-End-of-Year-Traffic-Fatality-Report_1.0.pdf. Severe injury data helps us to further assess Vision Zero progress, and guide injury prevention initiatives.

This report includes crash data from 2020 during the pandemic of the coronavirus disease 2019 (COVID-19). The San Francisco Department of Public Health issued its first Stay at Home Order on Tuesday, March 17, 2020 and, as of the time this report was written, continues to advise avoiding high risk settings including workplaces and non-essential travel. Given the unprecedented social and economic disruption caused by the COVID-19 pandemic, the crash data trends shown in this report for 2020 may be a brief aberration. Caution should be used when comparing 2020 crash data to previous years as both significant increases or decreases in injuries may be attributable to the short-term effect of the pandemic on transportation patterns.

Next steps include updating the existing 2013-2015 Transportation-related Injury Surveillance System linkage of police and hospital data to include data through 2019. This seven-year dataset will enable more in-depth analyses of location, crash characteristics, socio-demographic information and travel mode, and used to update the city's Vision Zero High Injury Network[2].

[1] Available at: https://app.powerbigov.us/view?r=eyJrIjoiZDFhN2E3YjctMGNjNi00ZDZmLTgzMDAtNzYxYjRlODJkNzA3IiwidCI6IjIyZDVjMmNmLWNlM2UtNDQzZC05YTdmLWRmY2MwMjMxZjczZiJ9

[2] Available at: https://sfgov.maps.arcgis.com/apps/webappviewer/index.html?id=fa37f1274b4446f1bdddd7bdf9e708ff

MONITORING SEVERE INJURIES IN OUR TRANSPORTATION SYSTEM USING ZUCKERBERG SF GENERAL HOSPITAL AND TRAUMA CENTER (ZSFG) DATA

WHO IS TREATED FOR SEVERE INJURY AT ZSFG?

- People walking continue to comprise approximately one-third of severe and 31-45% of critical injuries in recent years (2017-2019, tables 1-2).
- Motor vehicle injury makes up 29% of severe injuries and 24% of critical injuries in 2019. The proportion of critical injuries to people in motor vehicles treated at ZSFG slightly increased between 2018 and 2019, but both years were below the proportion seen in 2017 (30%). (See fig. 4, tables 1-2).
- Although there was a noticeable decrease in 2019, people biking continue to comprise approximately one-fifth of severe and critical injuries in recent years (2017-2019). (See fig. 3, tables 1-2).
- People on motorcycles continue to represent an increased proportion of severe injuries in 2019 (29%) compared to previous years; however, there was a slight decrease in proportion of critical injuries. (See fig. 5, tables 1-2).
- People biking and motorcycling continue to have a notably higher burden of injury relative to the proportion of trips they represent on SF streets**.**

WHAT ARE TRENDS IN ZSFG SEVERE AND CRITICAL INJURY BY TRAVEL MODE?

OVERALL (See Fig. 1, Page 5)

- **Severe injuries:** Overall severe injuries increased in hospital data through 2017 and 2018 but have since had a steady decline in 2019. The decrease in injuries in 2020 is likely attributable to the COVID-19 pandemic and shelter-in-place public health order.
- **Critical injuries:** ZSFG counts of critically (the most severely) injured patients during 2017-2020 were relatively stable and within a similar range compared to previous years. Unlike severe injuries, there was no noticeable decrease in critical injuries in 2020.

PEOPLE WALKING (See Fig. 2, Page 6)

- **Severe injuries** slowly increased between 2017 to 2019 but had a significant drop in 2020 most likely due to the COVID-19 pandemic impacting transportation patterns.
- **Critical injuries** saw a notable rise between 2017 and 2018 but have since slowly decreased and are now within a stable range comparable to previous years.
    - Within the pedestrian category, injuries associated with **e-scooters** were tracked for the first time in 2018 where seven severe injuries were associated with the devices, of which two injuries were critical. In 2019 this number decreased to 1 critical and 4 severe injuries but increased in 2020 to 4 critical and 5 severe injuries.

PEOPLE ON BIKES (See Fig. 3, Page 7)

- Except for 2019, both **severe and critical injuries** to SF cyclists have been relatively steady since 2017. In 2019 an unusually high proportion of injured cyclists were discharged from ER relative

to other years. Unlike people walking and people in motor vehicles, there was no noticeable decrease in injuries to people on bikes in 2020 during the COVID-19 pandemic.

PEOPLE IN MOTOR VEHICLES (See Fig. 4, Page 8)

- **Severe injuries** to people in motor vehicles have continued to trend downward, with 2019 seeing a 17% decrease in injuries compared to 2017. Like people walking, the decrease in injuries to people in motor vehicles in 2020 may be attributable to the COVID-19 pandemic impacting transportation patterns.
- **Critical injuries** to people in motor vehicles decreased 30% between 2017 and 2018 but remain higher than recent lows and within a stable range compared to previous years. Notably, hospital data includes people injured on freeways.

PEOPLE ON MOTORCYCLES (See Fig. 5, Page 8)

- **Severe injuries** to people riding motorcycles, although down slightly compared to 2018, remain slightly higher compared to previous years. Like people riding bikes, there was no noticeable decrease in injuries to people on motorcycle in 2020 during the COVID-19 pandemic.
- **Critical injuries** to people riding motorcycles decreased relative to 2018, though remain within the range of 18-28 annual critical injuries seen since 2015. Notably, hospital data includes people injured on freeways.

Detailed Findings: 2011-2020 Severe Traffic Injury Trends

Methodology

This report relies on data from Zuckerberg San Francisco General Hospital and Trauma Center (ZSFG)'s trauma registry to monitor severe injury trends for Vision Zero. Strengths of this data system include clinical assessment of injury severity, and that ZSFG is the City's only Level I Trauma Center, where the most severe injuries in the city are treated. SFPD data was historically the only data source used to track severe injury and is summarized in Appendix A for comparison.

Injury severity in hospital data is categorized using a clinical injury severity scale (ISS) ranging from 1-75, as well as whether someone required hospital admission for treatment. This analysis presents severe injuries from hospital data coded as *critical* (ISS greater than 15) and/or *severe* (all traffic injuries resulting in hospital admission).[3] **For hospital data, critical injury is included in severe injury counts and statistics.** Note that fatal injuries are not included in this analysis and are detailed in annual fatality reporting.[4]

[3] Note: Severe injury reporting excludes deaths that occur within 30 days of injury which are tracked separately for Vision Zero fatality monitoring. Distinct from fatality monitoring for Vision Zero SF, severe hospital injuries in this analysis *include* those sustained on freeways, not-at-grade MUNI, BART and Caltrain infrastructure and in the Presidio. Fatality data do not. Protocol available at: https://www.sfdph.org/dph/files/EHSdocs/PHES/VisionZero/Vision_Zero_Traffic_Fatality_Protocol.pdf

[4] Vision Zero Traffic Fatality 2020 End of Year Report available at: https://www.visionzerosf.org/wp-content/uploads/2021/03/Vision-Zero-2020-End-of-Year-Traffic-Fatality-Report_1.0.pdf

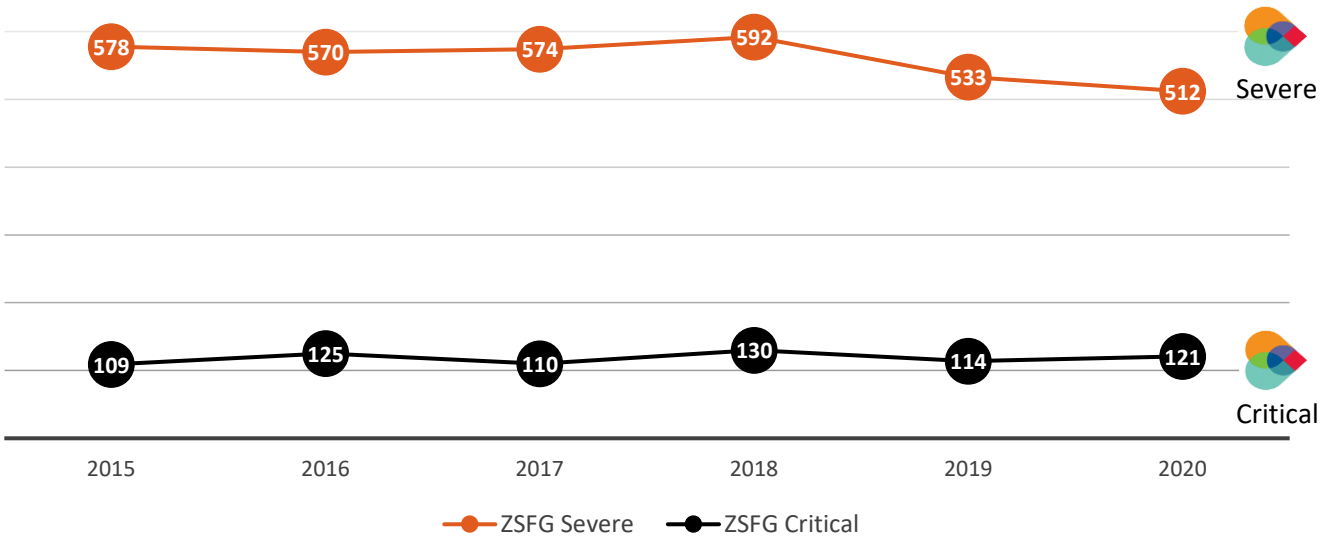
Interpretation Notes

Given the unprecedent disruption the COVID-19 pandemic had in the year 2020, this report will avoid any direct comparisons of 2020 to previous years. There is not enough information available yet to exactly understand how changes in traffic volume, enforcement, tourism, remote work, and transportation mode shift during this period impacted traffic crash injuries in San Francisco, or how long these emerging trends will continue after the pandemic ends. This report recommends providing additional context or caveats whenever 2020 data is used in comparison to previous or subsequent years of data and that longer-term conclusions should not be drawn based on data from 2020.

Additionally, a shift to the new International Classification of Diseases medical coding system (ICD-10) beginning with 2017 data affects the categorization of traffic modes but is not anticipated to have substantially changed number of patients attributed to each mode. Please note – hospital data includes people injured on SF freeways, making it distinct from VZSF fatality data which exclude people killed in freeway crashes (in addition to other factors, summarized in footnote 2).

At the end of 2013, the San Francisco Emergency Medical Services Agency (SF EMSA) issued retriage guidelines to ensure the most severely injured people were treated at ZSFG, even if they initially reported to another hospital. This change increases inclusion of the most severely injured in the ZSFG hospital data – and contributes to the increased but stable number of severe injuries observed from 2015 forward, relative to earlier years. Due to this change, counts of severe and critical injuries in years prior to 2015 are not inconsistent with current practices and therefore not shown in the following charts and tables. Severe and critical injury counts prior to 2015 (fig. B) are provided in Appendix B of this report

Figure 1: Total Traffic Injury Counts by Year

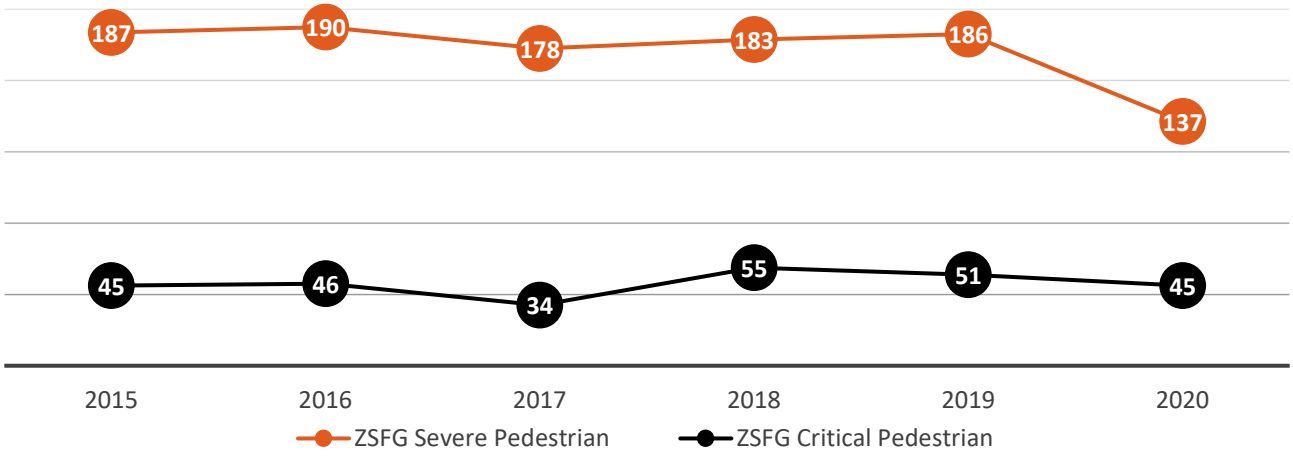


Overall injury trends reflect relatively stable counts of critically injured and slightly declining counts of severely injured patients in recent years. However, this consistency is not true of each individual travel mode, as explored in figures 2-5.

Note: ZSFG severe injury numbers *include* ZSFG critical injury counts.

Severe Injury by Mode of Travel

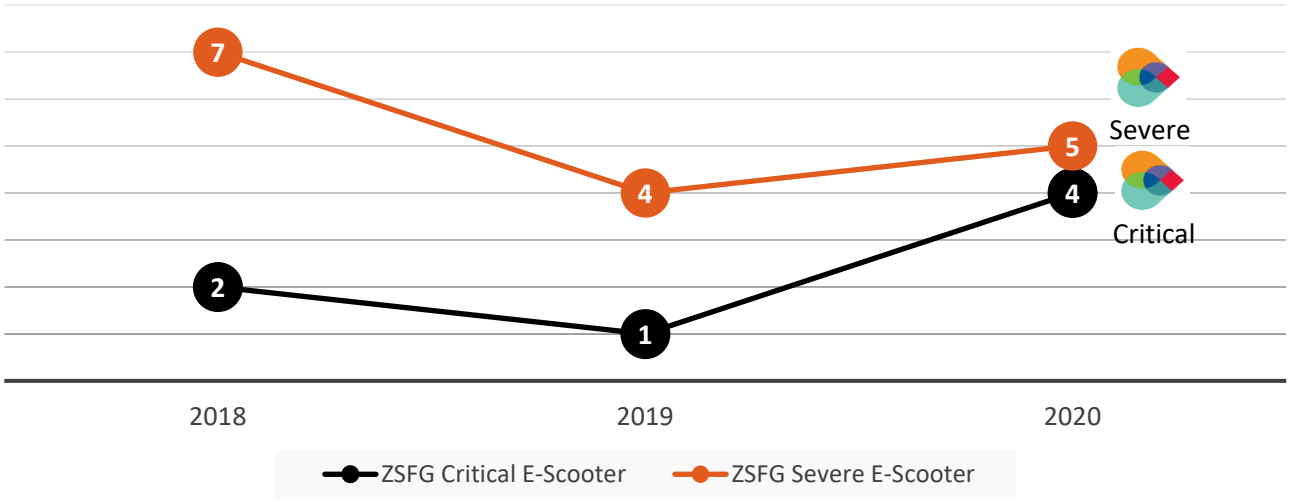
Figure 2: Pedestrian Traffic Injury Counts by Year



Pedestrian injury is the most common severe traffic injury reported by ZSFG. Severe injuries to people walking were similar to prior years in 2019. While the annual count of critical pedestrian injuries rose in 2018, it declined in 2019.

The decline in severe and critical injuries in 2020 is likely attributable to lower pedestrian volumes due to the COVID-19 pandemic.

Figure 2A: e-Scooter Traffic Injury



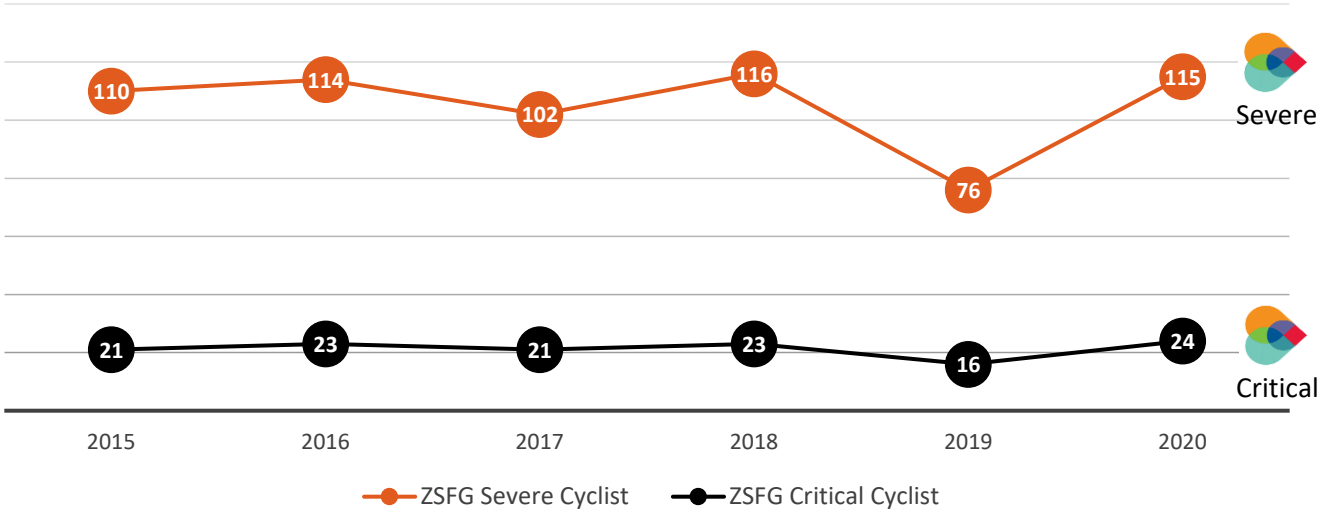
In 2018 ZSFG began tracking injuries associated with use of standing electric scooters, following increased use of the devices.[5] E-scooter injuries are presently included within the pedestrian category of injury surveillance, whether the injured party was a person on foot or an e-scooter rider. A detailed analysis of preliminary data from e-scooter companies, police reports and ZSFG tracking conducted during the 2018 powered scooter pilot is available.[6]

Year 2020 data show five severe (requiring hospital admission) e-scooter related injuries, and of these four were critical injuries. These data do not include fatal injuries: for the first time in 2020 two riders of e-scooters died in San Francisco. Taken together, these data indicate this emerging mode may be particularly vulnerable to traffic injury.

[5] Vision Zero SF Injury Prevention Research Collaborative. 2019. A Methodology for Emerging Mobility Injury Monitoring in San Francisco, California Utilizing Hospital Trauma Records: Version 2.0. San Francisco, CA. Available at: https://www.sfdph.org/dph/EH/PHES/PHES/TransportationandHealth.asp

[6] Vision Zero SF Injury Prevention Research Collaborative. (2019, April). *E-Scooter Collision and Injury Analysis.* San Francisco, CA. Available at: https://www.sfdph.org/dph/files/EHSdocs/PHES/VisionZero/E-Scooter_Collision_Injury_2019.pdf

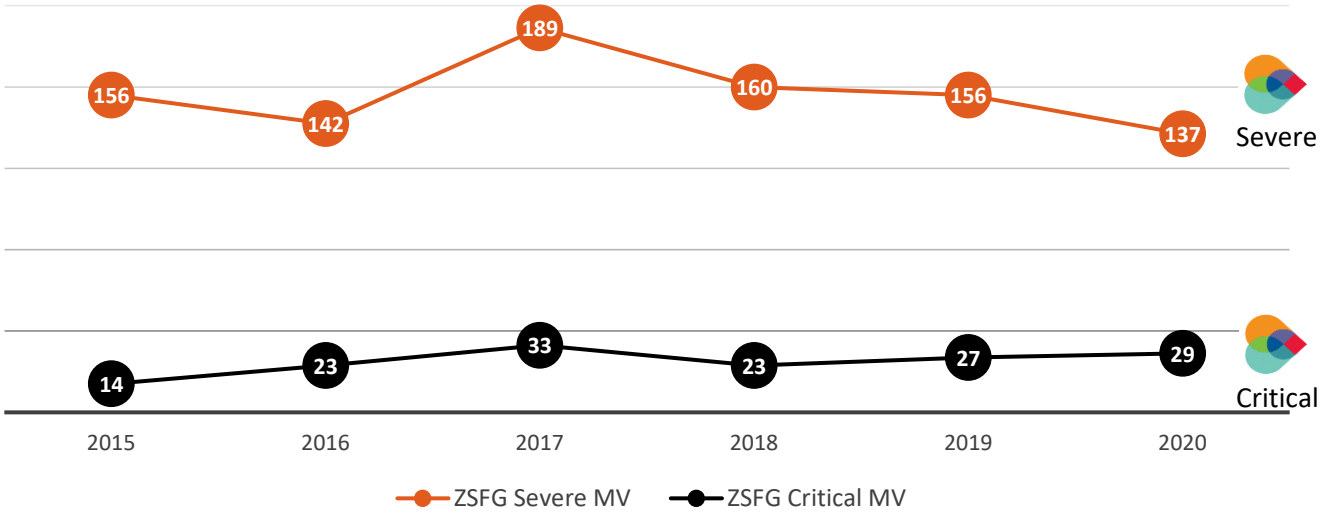
Figure 3: Bicycle Traffic Injury Counts by Year



Severe and critical cyclist injury counts dropped notably in 2019, for reasons which are not clear. People riding bicycles remain vulnerable road users who are over-represented in severe injury data relative to their proportion of trips on San Francisco streets.

Both severe and critical injury counts for cyclists increased in 2020 returning to the range seen in previous years apart from 2019. It is unclear if this increase is due to more people choosing to cycle because of the COVID-19 pandemic or if cyclist severe injuries are retracing back to their long-run trend.

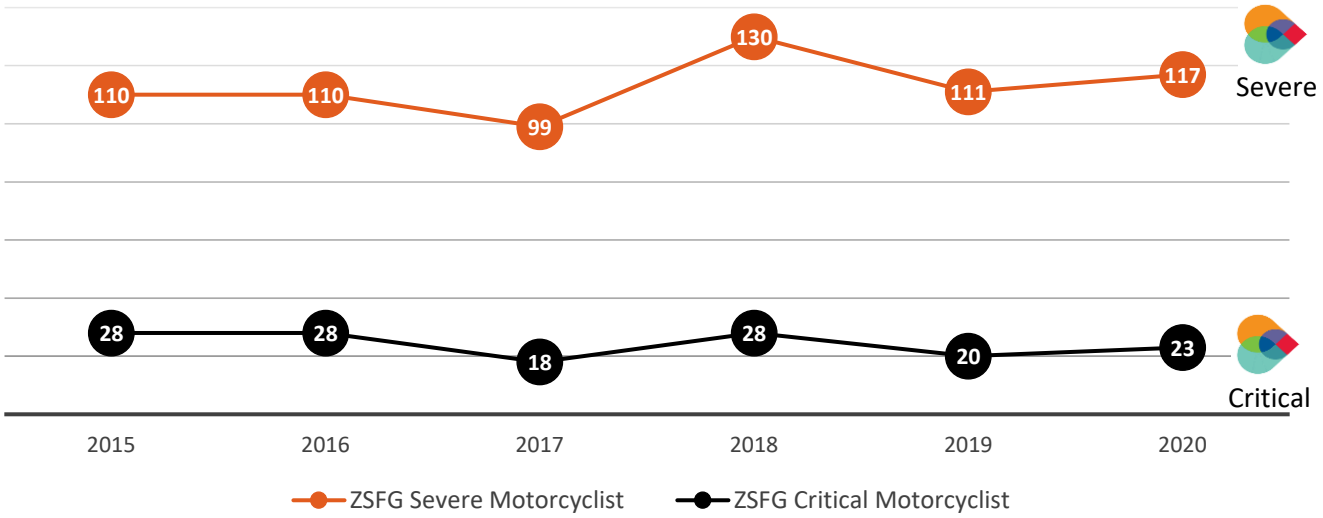
Figure 4: Motor Vehicle (MV) Traffic Injury Counts by Year



Counts of severe motor vehicle injury have fluctuated over time. Severe motor vehicle injury has been on the decline since 2017, while critical injuries slightly increased 2019. Notably, this data includes freeway injuries.

Like severe injuries to people walking, severe injuries to motor vehicle occupants declined noticeably in 2020. This is likely due to decreases in the number of people commuting into San Francisco by vehicle during the COVID-19 pandemic in 2020.

Figure 5: Motorcycle Traffic Injury Counts by Year



While recent counts of critical and severe injuries to people riding motorcycles fell below 2018's historic highs, motorcyclists remain a vulnerable road user group and trending slightly higher over the years

Similar to cyclists, there was an increase in the number of severe injuries during the COVID-19 pandemic in 2020. This could be due to less passenger vehicle volume and potential for higher speeds on uncongested streets.

Table 1: Count of Severe Injuries and Proportion by Travel Mode - from Hospital Data

Year	Pedestrian	Cyclist	Motorcyclist	Motor vehicle occupant	Other/ Unknown	Total
2015	187 (32%)	110 (19%)	110 (19%)	156 (27%)	15 (3%)	578 (100%)
2016	190 (33%)	114 (20%)	110 (19%)	142 (25%)	14 (2%)	570 (100%)
2017	178 (31%)	102 (18%)	99 (17%)	189 (33%)	6 (1%)	574 (100%)
2018	183 (31%)	116 (20%)	130 (22%)	160 (27%)	3 (1%)	592 (100%)
2019	186 (35%)	76 (14%)	111 (21%)	156 (29%)	4 (1%)	533 (100%)
2020	137 (27%)	115 (22%)	117 (23%)	137 (27%)	6 (1%)	512 (100%)

Among severe injuries from hospital data, pedestrian injury perennially ranks as the most prevalent mode of injury, ranging from 31-35% of severe injuries over the last decade except for 2020. From 2017 to 2019 the proportion of severe injuries attributable to motorcycle crashes rose and remained above 20%. Severe injuries to cyclists have fluctuated somewhat, comprising 20% or more of all severe injuries in 2018 but falling to 14% in 2019. The motor vehicle occupant proportion of severe injury remained consistent from 2015 to 2019.

Table 2: Count of Critical Injuries and Proportion by Travel Mode - from Hospital Data

Year	Pedestrian	Cyclist	Motorcyclist	Motor vehicle occupant	Other/ Unknown	Total
2015	45 (41%)	21 (19%)	28 (26%)	14 (13%)	1 (1%)	109 (100%)
2016	46 (37%)	23 (18%)	28 (22%)	23 (18%)	5 (4%)	125 (100%)
2017	34 (31%)	21 (19%)	18 (16%)	33 (30%)	4 (4%)	110 (100%)
2018	55 (42%)	23 (18%)	28 (22%)	23 (18%)	1 (1%)	130 (100%)
2019	51 (45%)	16 (14%)	20 (18%)	27 (24%)	0 (0%)	114 (100%)
2020	45 (37%)	24 (20%)	23 (19%)	29 (24%)	0 (0%)	121 (100%)

Among critical injuries, the proportion attributable to injured pedestrians rose in 2018 and 2019, reversing a decline observed in 2017. Regardless of year, pedestrian injury stands out as the leading mode of critical injury. The proportion of critical injury occurring among people riding bicycles has been relatively level over the past few years (~20%), while injury to motor vehicle occupants declined from a high of 30% in 2017 to 18% in 2018 then increasing to 24% in 2019, a proportion consistent with previous years.

Next Steps

SFPD and ZSFG injury assessments represent overlapping populations and do not compare severity between data sources. Some of the injured people in police data are also captured in hospital injury data, while some injured people are included in police or hospital data only. To address this issue SFDPH maintains the San Francisco's Transportation-related Injury Surveillance System which found that ~60% of records classified as severe appeared both in police and hospital data, with notably differences in proportion captured in hospital-only data based on travel mode. The linked data from 2013-2019 will become the primary data source to analyze severe injury trends and will be used to update San Francisco's Vision Zero High Injury Network. In 2023 SFDPH will complete another linkage of 2020-2022 data.

Data linkage will facilitate analyses at the intersection level and offer more comprehensive data on crash and socio-demographic factors. There will be further investigation into the factors contributing to increases in severe motorcycle injuries, as well as those contributing to increases in critical pedestrian injuries following recent declines.

Discussion

San Francisco continues to invest significant resources to eliminate traffic deaths and reduce severe injuries on San Francisco streets. This work is described in the **Vision Zero Action Strategy** – which includes: data-driven, strategic actions city agencies are advancing; evidence-based, high-impact transformative policies to address vehicle speeds and miles travelled that require local legislative authority; complementary city goals to increase walking, biking, and improved transit while reducing driving and vehicle miles travelled; and the critical importance of equity and ensuring a safe transportation system for even the most vulnerable communities to realize Vision Zero.

Vehicle speed is a fundamental predictor of crash survival and injury severity – and is thus a focus of Vision Zero efforts to slow speeds, save lives and prevent severe injury. Seniors are more vulnerable at any given speed. San Francisco city staff and state representatives continue to push for revisions to statewide traffic laws that will allow local jurisdictions more control over lowering speed limits on high injury streets and busy commercial districts.

San Francisco has a dynamic transportation environment that includes several additional factors that can impact the number and type of severe injuries sustained on the transportation system. These factors include:

- **The COVID-19 pandemic and potential for permanent of work-from-home or flex work schedules**: San Francisco's high proportion of tech and white-collar jobs has allowed a greater number of employees to work remotely compared to other similar sized cities and drastically changed commute patterns and travel mode preferences since the pandemic began. Commute and visitor trips within San Francisco continue to be affected by the pandemic in 2021, as

evidenced by BART and MUNI ridership remain significantly lower compared to 2019. Although 2020 had reductions in the number of severe in critical injuries seen at ZSFG for people walking and people in motor vehicles, it remains to be seen how the changes in city street activity impact long term injury trends when the economy fully reopens, and the pandemic finally subsides.

- **Increases in population, employment, and vehicle miles travelled**: Although the COVID-19 pandemic has temporarily changed previous-trends in population and employment growth in San Francisco, the Association of Bay Area Governments Regional Housing Needs Allocation mandates the city plan for approximately 82,000 additional housing units between 2023 and 2031. This population growth could increase daily vehicle miles travelled (VMT), strengthen the need for traffic congestion pricing, and encourage the usage of alternative modes of transportation including walking, cycling, transportation network (Uber/Lyft), taxis, and ridesharing with electric scooters and mopeds

- **Aging population**: One in five residents are seniors according to the Department of Aging and Adult Services – a population particularly vulnerable to severe injury when injured in a crash. The Bay Area's senior population is forecasted to grow by 137% by 2040 according to Plan Bay Area 2040.

- **Increasing homelessness**: 2019's biannual Point-in-Time Count showed a 17% increase in people living on the streets compared to 2017. This means that more people are living where exposure to traffic and potential traffic injury is highest, while facing the increased physical and mental health issues experienced by people without housing.

This context highlights the continued importance of targeted and coordinated Vision Zero SF initiatives to save lives and prevent severe injuries on San Francisco's transportation system.

Appendix A: SAN FRANCISCO POLICE DEPARTMENT (SFPD) DATA

VZSF relies on ZSFG hospital data for severe injury monitoring due to the aforementioned strengths, including clinical assessment of injury severity and more complete assessment of severe injuries based on data from the City's only Level I Trauma Center.

This Appendix summarizes SFPD-reported severe injury data, which was historically the primary source of severe injury data reported to the public and used by City staff. Excluding fatal injuries, police data offer three categories of injury severity, assessed at the injury scene: Severe Injury, Other Visible Injury, and Complaint of Pain.

Severe injury is defined in the CHP 555 Traffic Collision Manual[7].

An injury, other than a fatal injury, that including the following:

1. Broken of fractured bones.
2. Dislocated or distorted limbs
3. Severe lacerations
4. Skull, spin, chest, or abdominal injuries that go beyond "Other Visible Injuries."
5. Unconsciousness at or when taken from the collision scene
6. Severe burns

Notably, a memo released to SFPD officers in Dec. 2014 advised head injuries to be classified as severe to avoid under-reporting of traumatic brain injury. This guidance likely partially accounts for the increase in severe injuries recorded in police data from 2015 onward.

WHO IS SEVERELY INJURED?

Among severely injured people in police data, proportions of people injured while engaged in various travel modes are generally comparable to hospital data. Consistent with ZSFG data, pedestrians are the group of road users most affected by severe injury.

SEVERE INJURY TRENDS

Overall severe injury trends in police data are comparable to that in hospital data, as are trends for people walking, cycling and motorcycling. Notably injuries to motor vehicle occupants rose 36% in police data from 2017 to 2019. By contrast, numbers declined for both severe and critical injuries in ZSFG data for the same time period and mode.

[7] California Highway Patrol Collision Investigation Manual HPM 110.5 Available at: https://www.nhtsa.gov/sites/nhtsa.gov/files/documents/ca_chp555_manual_2_2003_ch1-13.pdf

Figure A: Total Police Severe Counts and Hospital Severe and Critical Injury Count- from Police Data and Hospital Data

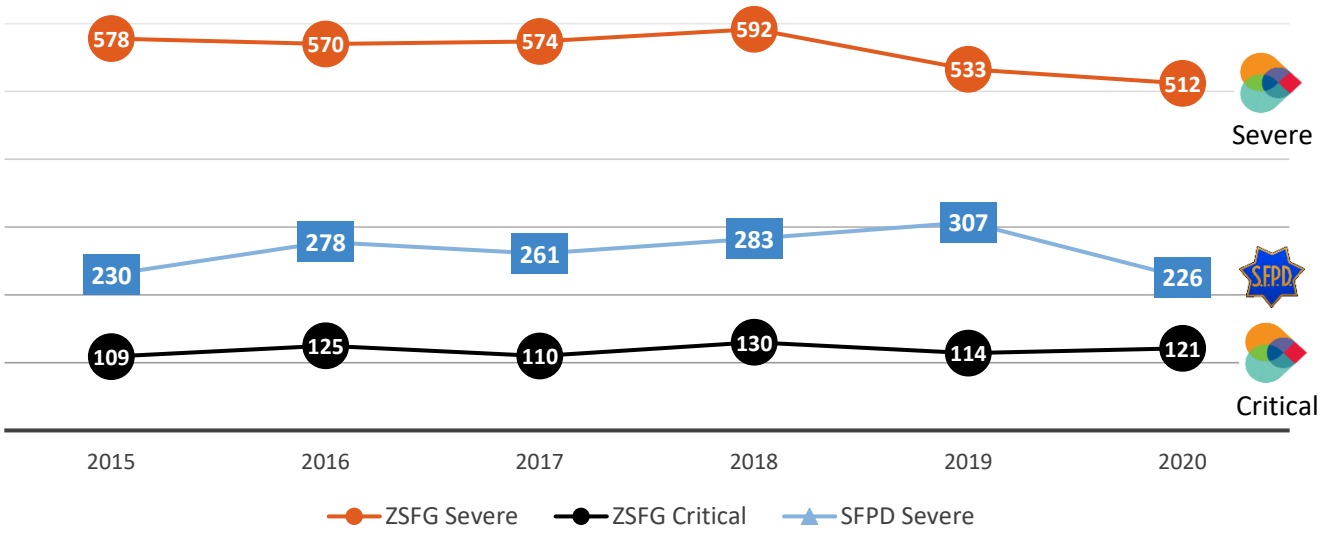


Table A: Count of Severe Injuries and Proportion by Travel Mode - from Police Data

Year	Pedestrian	Cyclist	Motorcyclist	Motor vehicle occupant	Other/ Unknown	Total
2011	76 (38%)	36 (18%)	31 (16%)	44 (22%)	11 (6%)	198 (100%)
2012	83 (41%)	31 (15%)	43 (21%)	41 (20%)	6 (3%)	204 (100%)
2013	80 (40%)	47 (23%)	36 (18%)	38 (19%)	0 (0%)	201 (100%)
2014	79 (39%)	49 (24%)	32 (16%)	44 (21%)	1 (0%)	205 (100%)
2015	87 (38%)	51 (22%)	45 (20%)	47 (20%)	0 (0%)	230 (100%)
2016	118 (42%)	40 (14%)	56 (20%)	64 (23%)	0 (0%)	278 (100%)
2017	112 (43%)	46 (18%)	48 (18%)	53 (20%)	2 (1%)	261 (100%)
2018	110 (39%)	55 (19%)	45 (16%)	69 (24%)	4 (1%)	283 (100%)
2019	117 (38%)	53 (17%)	46 (15%)	77 (25%)	14 (5%)	307 (100%)
2020	92 (41%)	34 (15%)	35 (15%)	53 (23%)	12 (5%)	226 (100%)

Among police-designated severe injuries, pedestrian injury perennially ranks as the most prevalent mode of injury – comprising 38% of police recorded severe injuries in 2019. The disproportionate burden of injury to motorcyclists and bicyclists compared to motor vehicles observed in hospital data is also seen in police data, as these road users make up 15% each of severe injury reports in 2019 yet represent relatively smaller proportions of trips in San Francisco.

SFPD data show increased motor vehicle injury collisions in 2018, while hospital data show declines in motor vehicle severe and critical injuries. Contributing factors to these differing trends will be investigated in more detail when the Transportation-related Injury Surveillance System linkage of police and hospital data is completed in 2022.

PUBLIC DATA

While granular hospital data are not distributable to the public, police crash report data released quarterly and can be explored via www.transbase.sfgov.org.

Appendix B: SAN FRANCISCO EMERGENCY MEDICAL SERVICES AGENCY (SF EMSA) RETRIAGE GUIDELINES

San Francisco Emergency Medical Services Agency (SF EMSA) issued retriage guidelines in late 2013 to ensure the most severely injured people were treated at ZSFG, even if they initially reported to another hospital. People with severe injury receive the highest level of medical care when treated in a trauma center. The protocol change in the SF EMSA retriage guidelines facilitates the rapid transfer of severely injured trauma patients from non-trauma hospitals to the trauma center with unconditional acceptance. This change helps increase the inclusion of the most severely injured in the ZSFG hospital data – and also likely contributed to the increased but stable number of severe injuries observed from 2015 forward, relative to earlier years. The data presented below includes hospital data prior to the SF EMSA's retriage guidelines from 2011-2013.

Figure B1: Total Traffic Injury Counts by Year Including Years Prior to 2015

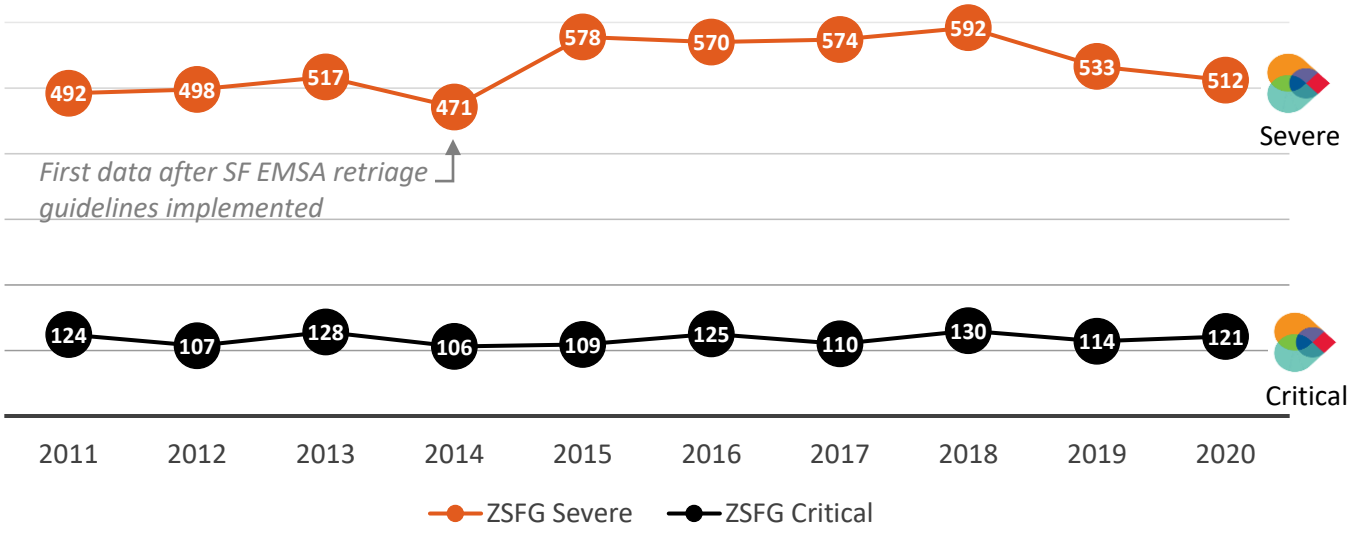


Figure B2: Pedestrian Traffic Injury Counts by Year (2011-2020)

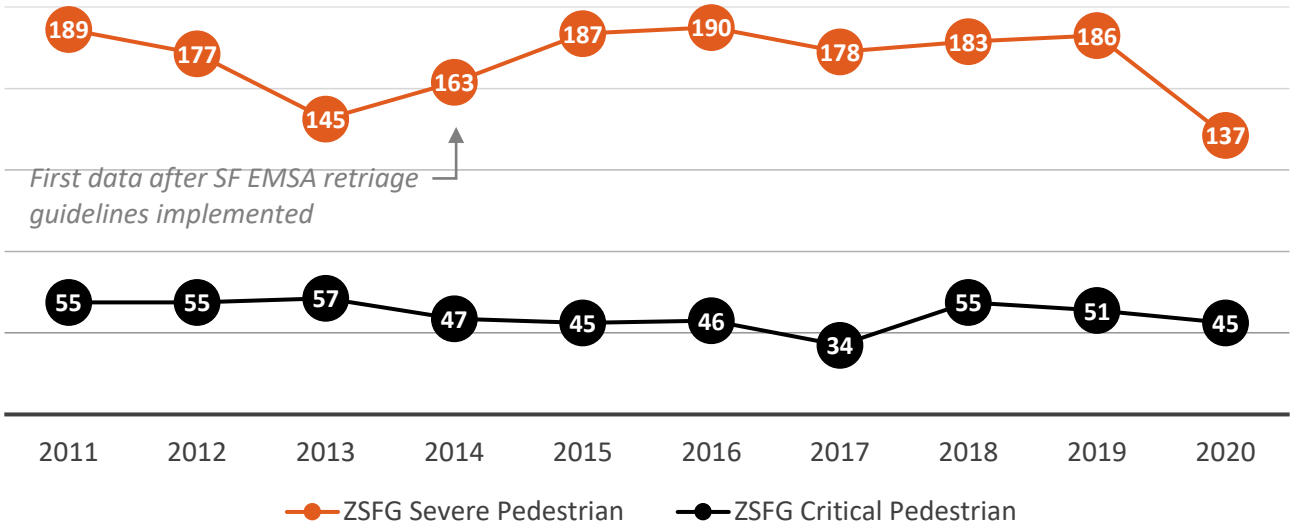


Figure B3: Bicycle Traffic Injury Counts by Year (2011-2020)

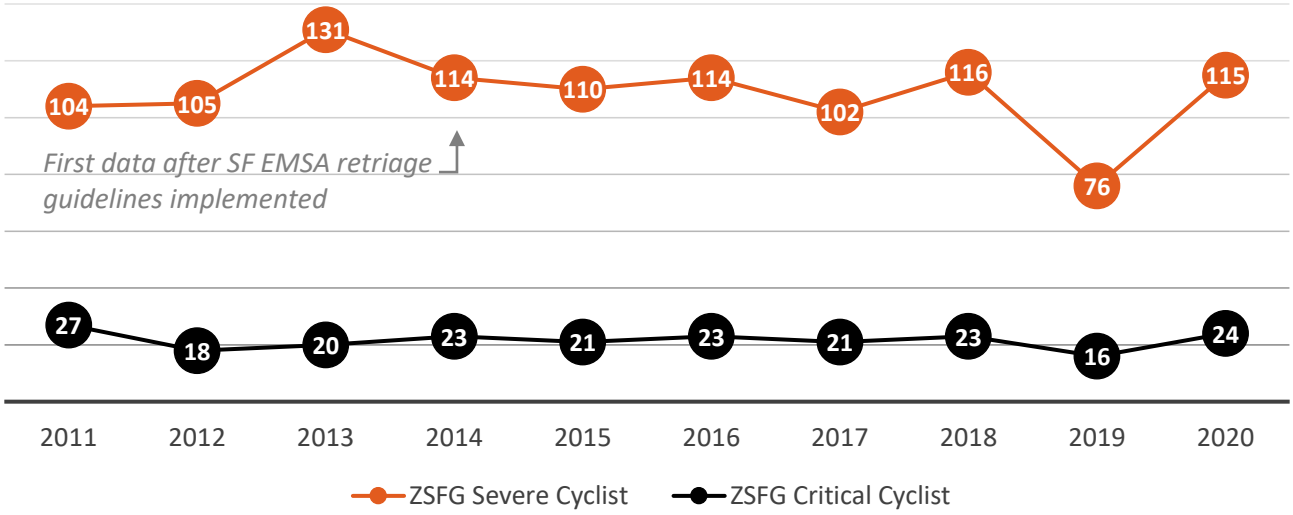


Figure B4: Motor Vehicle Traffic Injury Counts by Year (2011-2020)

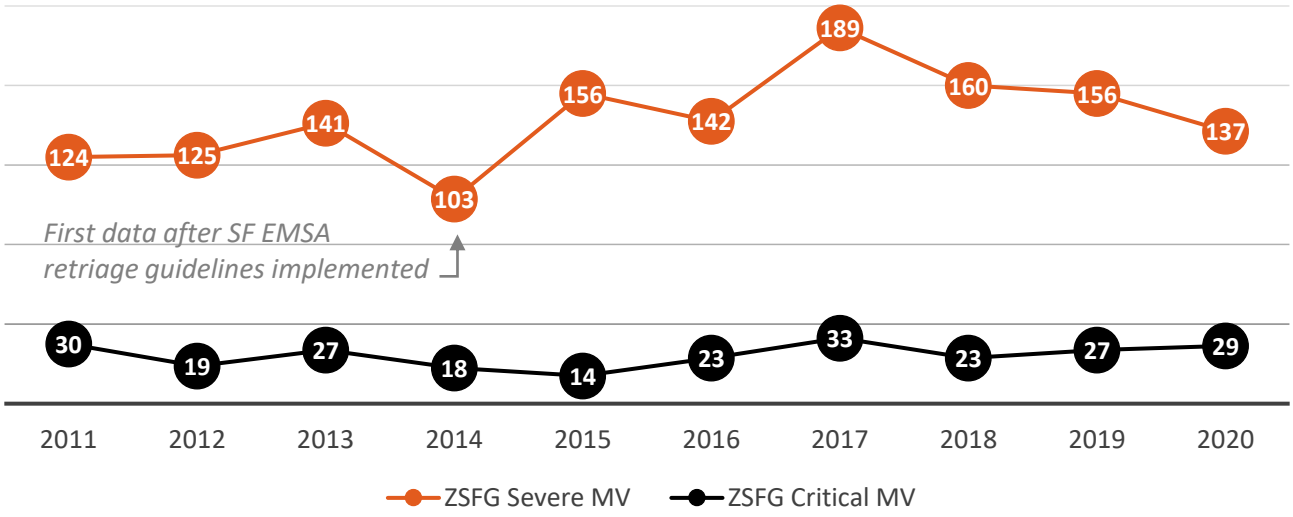


Figure B5: Motorcycle Traffic Injury Counts by Year (2011-2020)

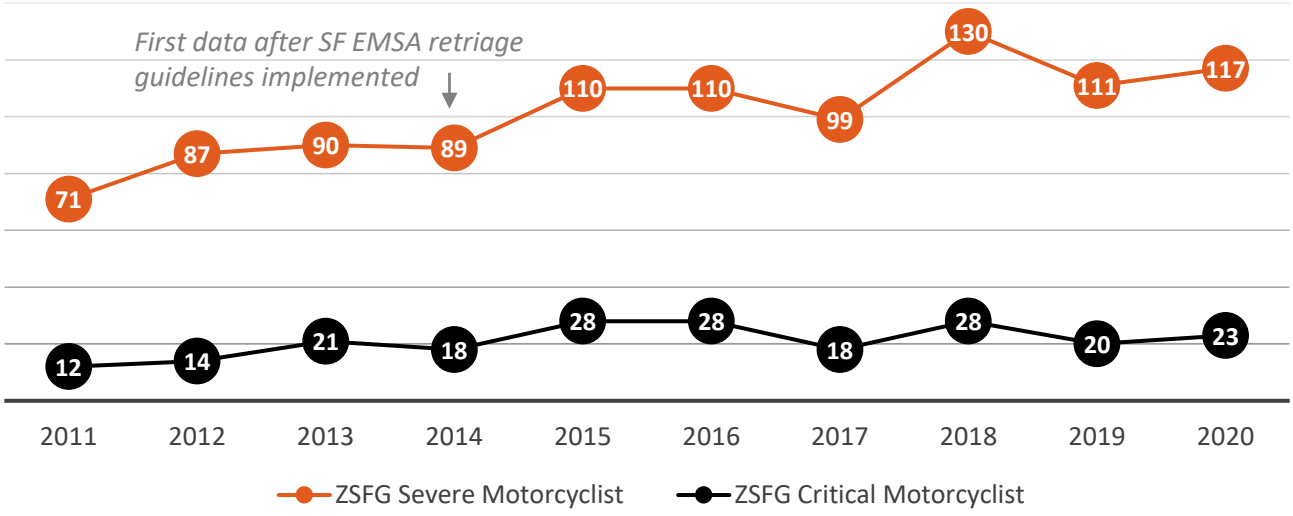


Table B1: Count of Severe Injuries and Proportion by Travel Mode - from Hospital Data (2011-2020)

Year	Pedestrian	Cyclist	Motorcyclist	Motor vehicle occupant	Other/ Unknown	Total
2011	189 (38%)	104 (21%)	71 (14%)	124 (25%)	4 (1%)	492 (100%)
2012	177 (36%)	105 (21%)	87 (17%)	125 (25%)	4 (1%)	498 (100%)
2013	145 (28%)	131 (25%)	90 (17%)	141 (27%)	10 (2%)	517 (100%)
2014	163 (35%)	114 (24%)	89 (19%)	103 (22%)	2 (0%)	471 (100%)
2015	187 (32%)	110 (19%)	110 (19%)	156 (27%)	15 (3%)	578 (100%)
2016	190 (33%)	114 (20%)	110 (19%)	142 (25%)	14 (2%)	570 (100%)
2017	178 (31%)	102 (18%)	99 (17%)	189 (33%)	6 (1%)	574 (100%)
2018	183 (31%)	116 (20%)	130 (22%)	160 (27%)	3 (1%)	592 (100%)
2019	186 (35%)	76 (14%)	111 (21%)	156 (29%)	4 (1%)	533 (100%)
2020	137 (27%)	115 (22%)	117 (23%)	137 (27%)	6 (1%)	512 (100%)

Table B2: Count of Critical Injuries and Proportion by Travel Mode - from Hospital Data (2011-2020)

Year	Pedestrian	Cyclist	Motorcyclist	Motor vehicle occupant	Other/ Unknown	Total
2011	55 (44%)	27 (22%)	12 (10%)	30 (24%)	0 (0%)	124 (100%)
2012	55 (51%)	18 (17%)	14 (13%)	19 (18%)	1 (1%)	107 (100%)
2013	57 (45%)	20 (16%)	21 (16%)	27 (21%)	3 (2%)	128 (100%)
2014	47 (44%)	23 (22%)	18 (17%)	18 (17%)	0 (0%)	106 (100%)
2015	45 (41%)	21 (19%)	28 (26%)	14 (13%)	1 (1%)	109 (100%)
2016	46 (37%)	23 (18%)	28 (22%)	23 (18%)	5 (4%)	125 (100%)
2017	34 (31%)	21 (19%)	18 (16%)	33 (30%)	4 (4%)	110 (100%)
2018	55 (42%)	23 (18%)	28 (22%)	23 (18%)	1 (1%)	130 (100%)
2019	51 (45%)	16 (14%)	20 (18%)	27 (24%)	0 (0%)	114 (100%)
2020	45 (37%)	24 (20%)	23 (19%)	29 (24%)	0 (0%)	121 (100%)