

Memorandum

DATE: January 29, 2024
TO: Victoria MPO
CC:
FROM: ATG|DCCM
RE: Safety Analysis

Introduction

A safety analysis was conducted focusing on regional vehicular crash trends occurring for the Victoria MPA in support of the 2050 MTP update. This analysis is meant to inform proposed transportation projects by highlighting traffic safety concerns in this region.

This analysis determines patterns and trends based on the recorded crash characteristics. This analysis illuminates existing safety concerns and past trends in the region so that proposed transportation projects can attempt to address these issues and improve the overall safety of the transportation system for all users.

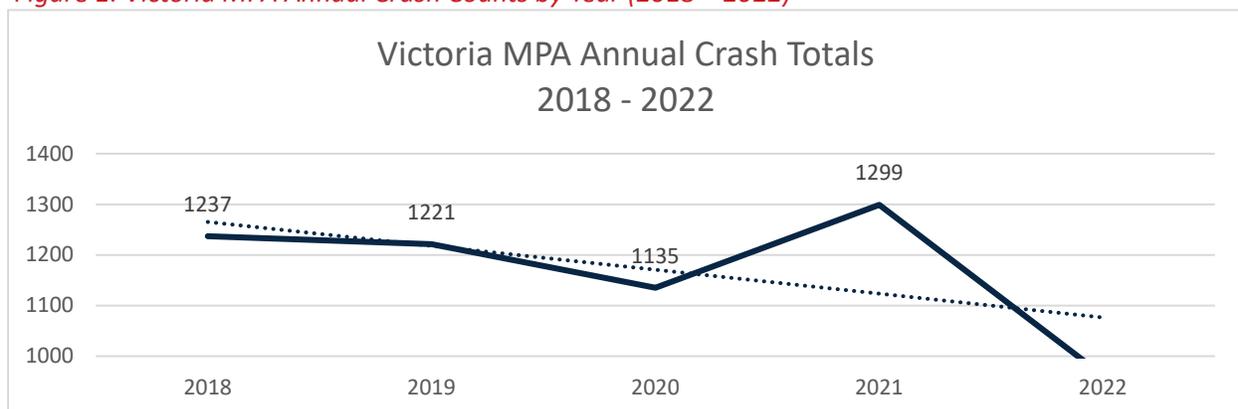
For this safety analysis, data from the Crash Records Information System (CRIS) data system was assessed for crashes that occurred in the Victoria MPO’s Metropolitan Planning Area (MPA) from 2018 to 2022. This assessment determines trends and patterns based on the characteristics of the crashes.

Regional Crash Trends

Total Crashes

During the five-year period (2018-2022), a total of 5,854 crashes occurred in the Victoria MPA, with the annual trend in crashes decreasing slightly. About 67% of crashes in the MPA occurred within the Victoria municipal boundary. The average annual total for 2018 to 2022 is 1,171 crashes per year. Figure 1 below shows crash counts by year for the Victoria MPA.

Figure 1: Victoria MPA Annual Crash Counts by Year (2018 – 2022)



Source: TxDOT CRIS Database

Table 1 below shows a comparison between regional crashes and the statewide crashes for Texas.

Table 1: Regional and Statewide Crash Comparison (2018 - 2022)

Crash Type	Victoria MPA	State of Texas	MPO's % of State Crashes
All Crashes	5,854	2,691,046	0.22%
Resulting in Fatality	70	18,267	0.38%
Resulting in Serious Injury	261	70,969	0.37%
Resulting in Ped/Bike Fatality	11	3,217	0.34%
Resulting in Ped/Bike Serious Injury	20	7,874	0.25%

Source: TxDOT CRIS Database

Crash occurrence density is mapped to reveal where higher concentrations of crashes, or crash “hot spots,” occurred from 2018 to 2022. The results of this analysis revealed that crashes occurred more frequently at or near the intersections of major roads.

To assess crashes that occurred at or near intersections a twenty-five-foot buffer was employed for each intersection in the transportation network. The top high crash intersections, or intersections that experienced the most crashes while having proximity to other intersections with high crash counts, are listed below in Table 2.

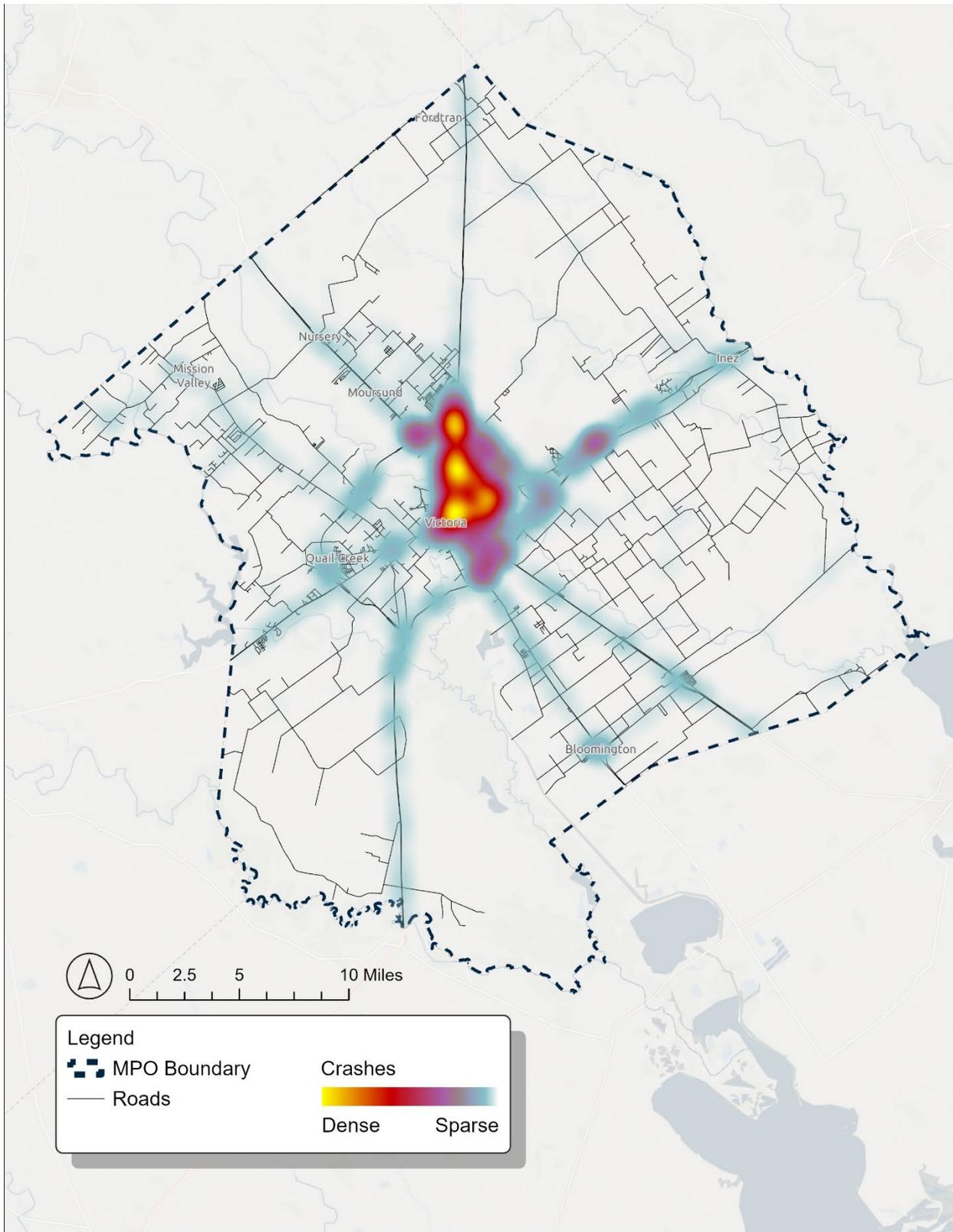
Table 2: Crashes by Intersection – Highest Crash Intersections

Intersection	Crash Count
463 & Navarro/ Bu77	46
Houston Hwy/ Bu 59 & Sam Houston Dr.	40
Whispering Creek St. & Navarro/ Bu 77	40
E Mockingbird Ln & Navarro/ Bu 77	36
Sam Houston Dr & Navarro/ Bu 77	32
Houston Hwy/ Bu 59 & N Ben Jordan St	31
E Red River St & Navarro/ Bu 77	26
N Ben Wilson St & Houston Hwy/ Bu 59	26
E Crestwood Dr & Navarro/ Bu 77	23
Broadmoor Street & Navarro/Bu 77	23

Source: TxDOT CRIS Database

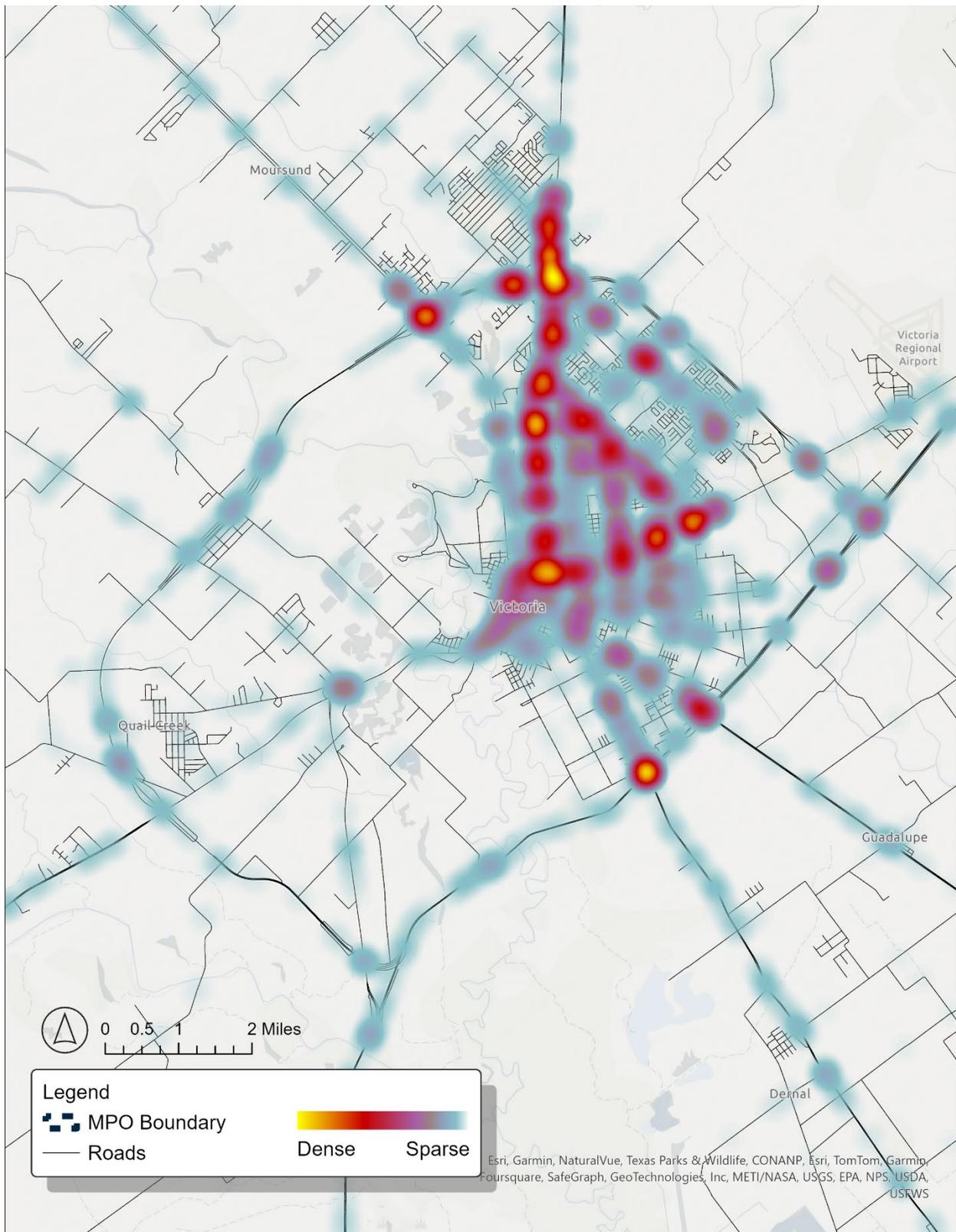
Figure 2 shows the hot spots for all crashes over the five-year period at a regional level. Figure 3 shows a zoomed-in view of the crash hot spots for all crashes in the City of Victoria.

Figure 2: Crash Density for All Crashes in Victoria MPA (2018 -2022)



Source: TxDOT CRIS Database

Figure 3: Crash Density in Victoria TX (2018 - 2022)



Source: TxDOT CRIS Database

Crash Rates

A crash rate is a metric representing the number of crashes relative to the amount of travel in a given region. Utilizing 2022 vehicle miles traveled (VMT) estimates from the travel demand model for the Victoria MPO and 5-year crash data, crash rates for the region were calculated and compared to statewide rates to track the region’s relative performance. For the Victoria MPO, crashes occurred at a rate of 52.78 per 100 million VMT for all crashes over the five-year period. The fatality and serious injury rates per 100 million VMT were 0.63 and 2.35, respectively. In comparison to the Texas statewide 5-year rolling averages, the Victoria MPO crash rate for all crashes is nearly 70% lower than the statewide rate. The MPO’s crash rate for crashes resulting in fatality is nearly 56% lower than the statewide rate, and the MPO’s crash rate for crashes resulting in serious injury is about 52% lower than the statewide rate. Table 4 shows the comparison between the Victoria Area MPO crash rates and Texas statewide crash rates.

Table 3: Victoria MPA and Texas Crash Rates

Type	Victoria MPA Crash Rates per 100 million VMT	Statewide Crash Rates per 100 million VMT
Total Crashes	52.78	191.22
Crashes Resulting in Fatality	0.63	1.44
Crashes Resulting in Serious Injury	2.35	4.85

Source: TxDOT CRIS Database

Crashes by Severity

Severity characteristics of crash data represent the level of impact on the people involved. The data obtained from CRIS breaks severity down into the following categories: Fatal Injury, Suspected Serious Injury, Non-Incapacitating Injury, Not Injured, Possible Injury, and Unknown. These categories represent the most severe impact experienced in each crash, but do not necessarily account for all of the different impacts that may have resulted from the same crash. For example, a crash may be assigned a severity of “Fatal Injury,” but this only means that the crash resulted in at least one death, despite the possibility that other people involved in the crash may have experienced serious or minor injuries or may not have been injured at all.

Over the five-year period, most of the reported crashes resulted in no injuries (about 63%). In the 70 crashes that were marked with a severity of “Fatal Injury,” a total of 132 fatalities occurred. Although 261 crashes were marked with a severity of “Suspected Serious Injury”, they resulted in a total of 483 people suspected to have experienced a serious injury. Overall, crashes that resulted in a severity of “Fatal Injury” or “Suspected Serious Injury” made up about 5.5% of the total crashes in the region from 2018 to 2022. Table 4 shows the breakdown of crashes by severity for the five-year period.

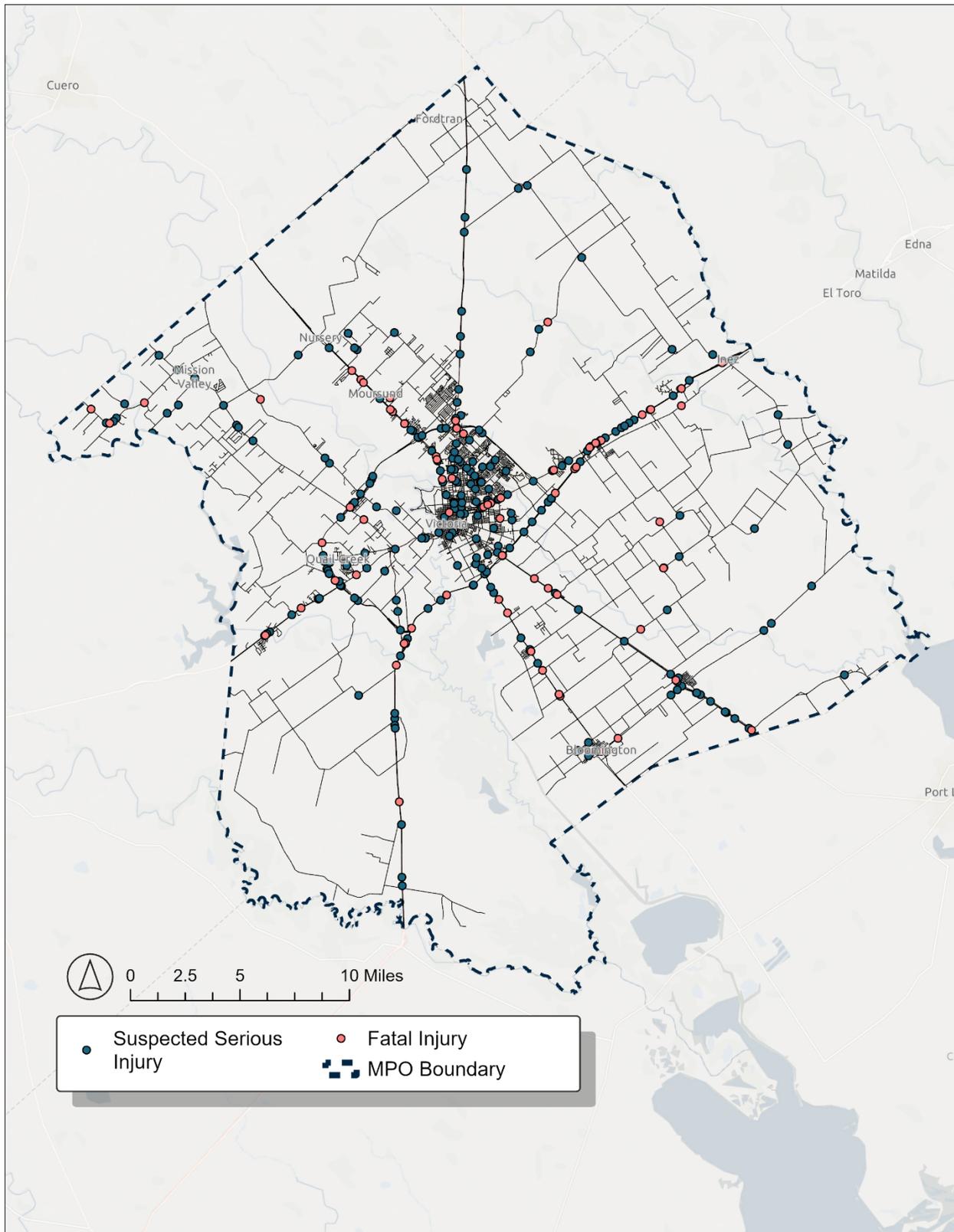
Table 4: Crashes by Severity

Crash Severity	Number of Crashes	% of Total MPA Crashes
Fatal Injury	70	1.20%
Suspected Serious Injury	261	4.46%
Suspected Minor Injury	798	13.63%
Possible Injury	813	13.89%
Not Injured	3,700	63.20%
Unknown	212	3.62%
All Crashes	5,854	100%

Source: TxDOT CRIS Database

Figure 4 shows the locations of crashes that resulted in a severity of either “Fatal Injury” or “Suspected Serious Injury.”

Figure 4: Locations of Fatal and Serious Suspected Injury Crashes (2018 -2022)



Source: TxDOT CRIS Database

Crashes by Manner of Collision

Manner of Collision is recorded using five categories with several subcategories to attribute the manner at which the collision occurred. Table 5 displays the top listed manners of collision for the Victoria MPO between 2018 and 2022. One Motor Vehicle – Going Straight represented the highest manner of collision with 2,254 crashes or roughly 39% of total crashes. Manner of collision for fatal and severe crashes are displayed in Table 6.

Table 5: Crashes by Manner of Collision (2018 - 2022)

Manner of Collision	Number of Crashes	% of Total MPA Crashes
One Motor Vehicle – Going Straight	2,254	38.50%
Angle – Both Going Straight	858	14.66%
Same Direction – One Straight One Stopped	505	8.63%
Opposite Direction – One Straight One Left Turn	503	8.59%
Same Direction – Rear End	427	7.29%
Angle – One Straight One Left Turn	305	5.21%
Same Direction – Both Going Straight - Sideswipe	266	4.54%

Source: TxDOT CRIS Database

Table 6: Fatal and Severe Crashes by Manner of Collision (2018 – 2022)

Manner of Collision	Number of Crashes	% of Total MPA Crashes
One Motor Vehicle – Going Straight	175	3%
Angle – Both Going Straight	37	0.63%
Opposite Direction – One Straight One Left Turn	23	0.39%
Opposite Direction – Both Going Straight	22	0.38%
Same Direction – Rear End	21	0.36%
Angle – One Straight One Left Turn	11	0.19%
Same Direction – Both Going Straight - Sideswipe	8	0.14%

Source: TxDOT CRIS Database

Crashes Involving Pedestrians or Bicyclists

In the Victoria MPA, there were 87 crashes involving either pedestrians or bicyclists from 2018 to 2022, which is just under 1.5% of the total crashes that occurred in the region over that period. Of the 87 crashes, 58 (67%) involved pedestrians and 29 (33%) involved bicyclists. In addition, 45.55% of crashes involving pedestrians resulted in either fatality or suspected serious injury for the pedestrians, and 13.79% of crashes involving bicyclists resulted in either fatality or suspected serious injury for the bicyclists. Table 7 provides a more detailed breakdown of the severity of crashes involving pedestrians or bicyclists.

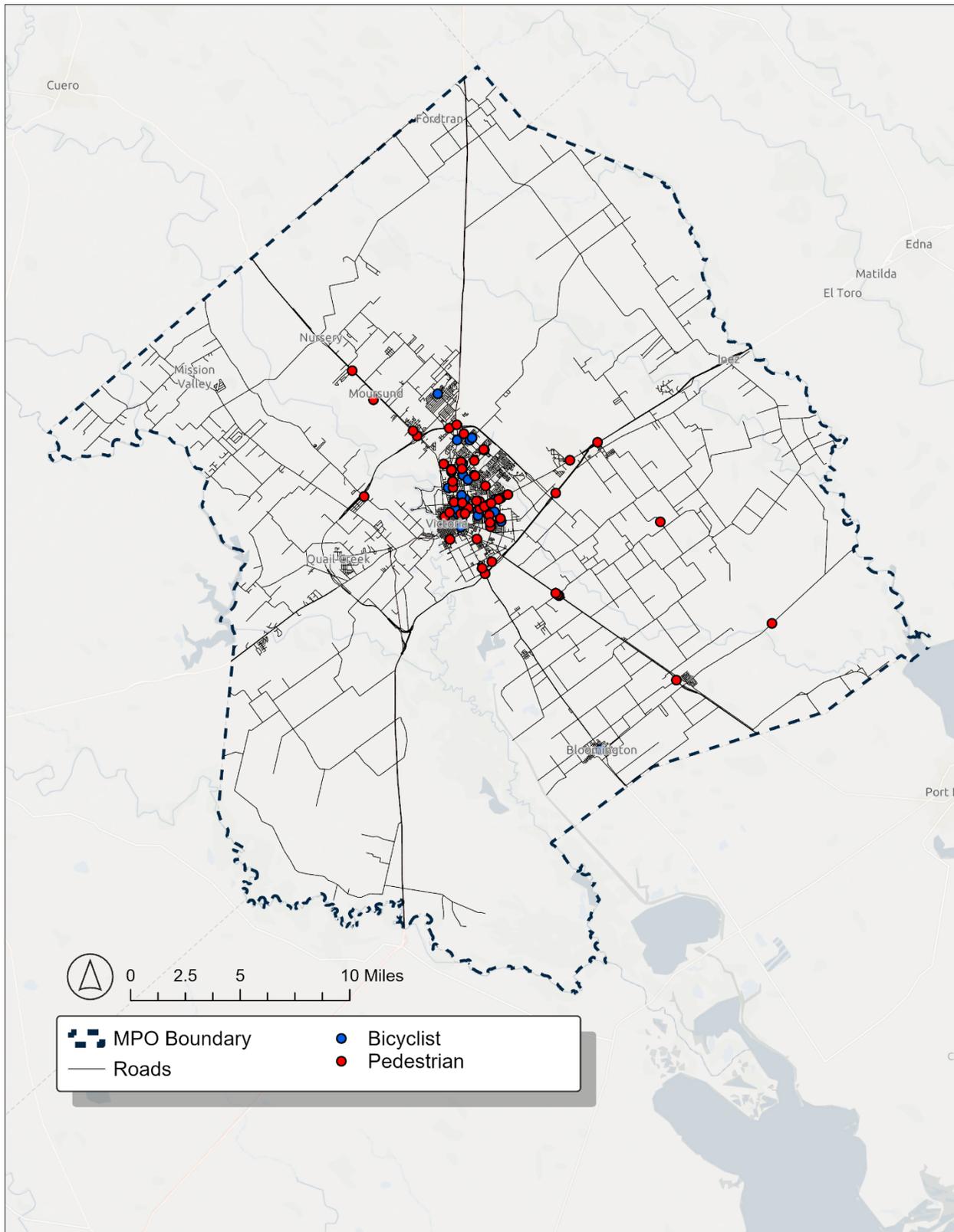
Table 7: Pedestrian and Bicyclist Crashes by Severity

Crash Severity	Pedestrian Involved Crashes		Bicycle Involved Crashes	
Fatal Injury	11	18.96%	0	0%
Suspected Serious Injury	16	27.59%	4	13.79%
All Crashes	58	100%	29	100%

Source: TxDOT CRIS Database

Figure 5 shows the locations of all crashes in the region that involved a pedestrian or bicyclist over the five-year period.

Figure 5: Crashes Involving Pedestrians or Bicyclists



Source: TxDOT CRIS Database