



**TRAFFIC SAFETY
COMMISSION**

Dataset:

Washington Fatal Crashes

Source:

Washington Traffic Safety Commission (WTSC)



GO NAVY, BEAT UMD

Team Number:

23033

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Overview

- Crashes within residency and outside residency
- Zip Code Analysis
- Demographic Analysis
- Solutions

Impetus:

Why We Care...



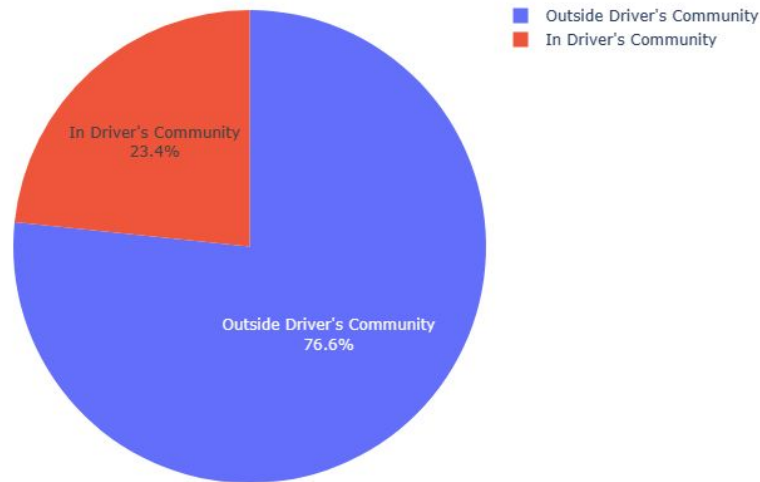
Fatal crashes the most common deaths in the US. But these can easily be prevented by a simple fix. Whether it is complacency or a hazard on the road, we can take the necessary actions to prevent a fatal accident from occurring. We want to offer some solution to help prevent these accidents and provide some knowledge that may be unknown to drivers in the area.

Relationship Between Crash Location and Residency

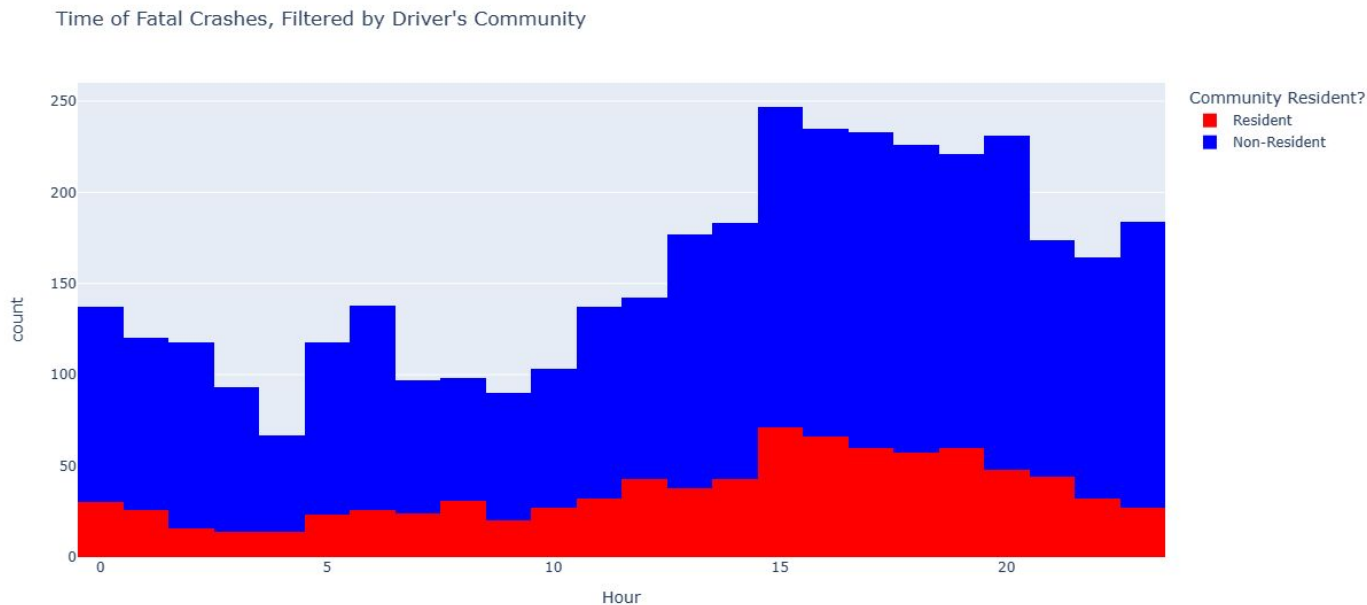
23.4% of fatal crashes occurred within the driver's own community

Using reverse geolocation strategies, based on the coordinates of the crash, each incident could be matched to a zip code. Comparing the crash location zip code to the vehicle driver's home zip code determines if they crashed in their own community.

Percentage of Fatal Crashes Within a Driver's Own Community

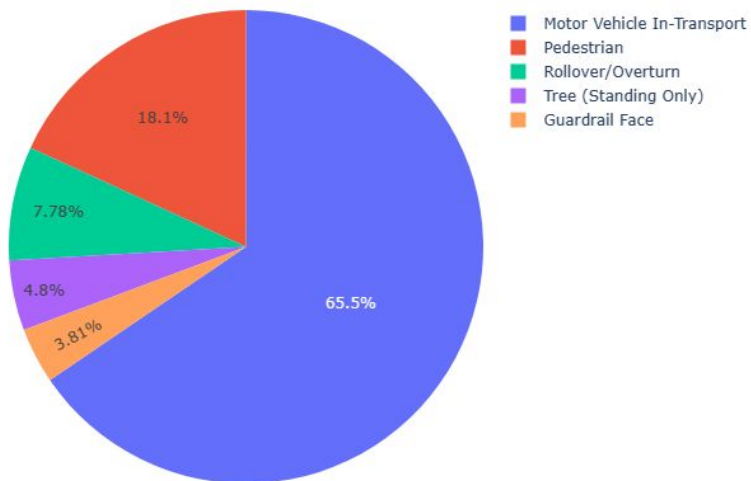


Crash Factors of Residents and Non-residence

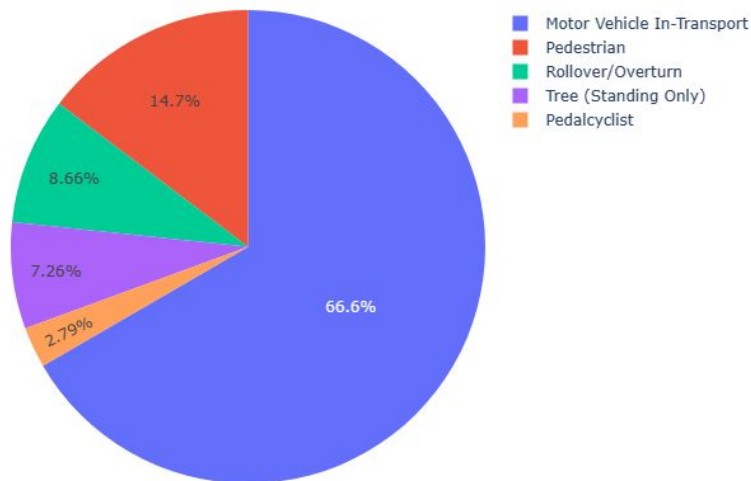


Crash Factors of Residents and Non-residence

Most Common Crashe Type of Non-residents

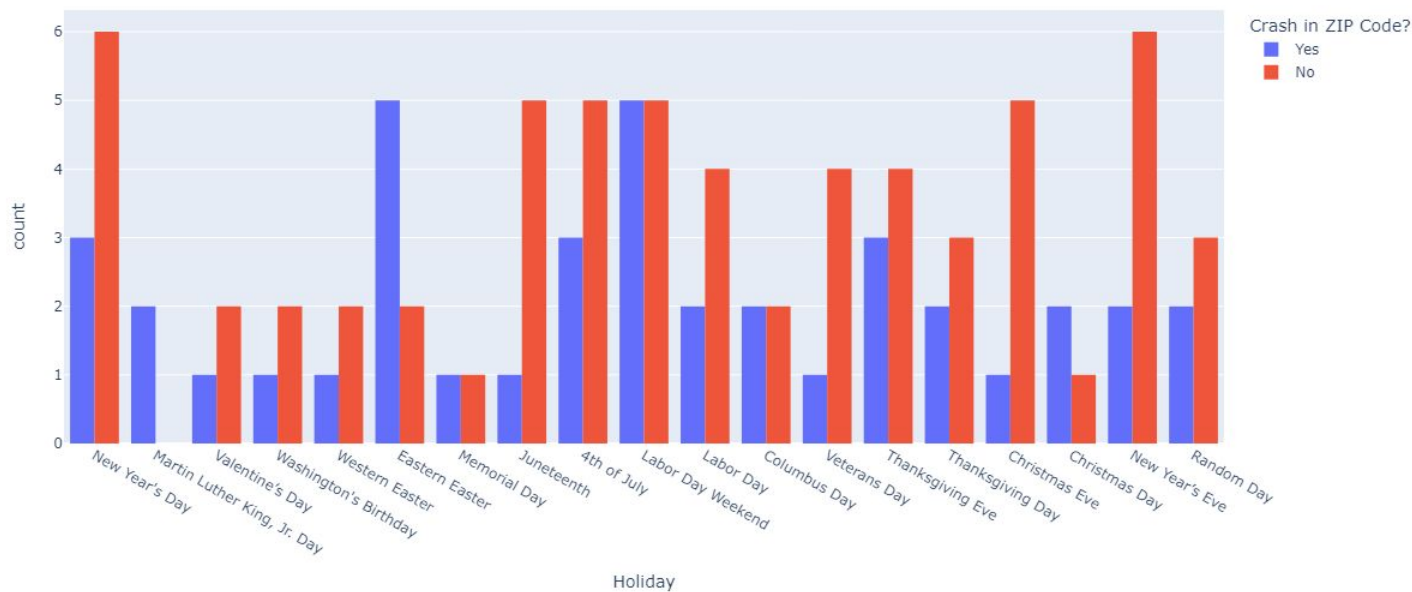


Most Common Crashe Type of Residents



Crash Factors of Residents and Non-residence

Fatal Accidents during Holidays



Zip Codes with the Most Fatal Crashes

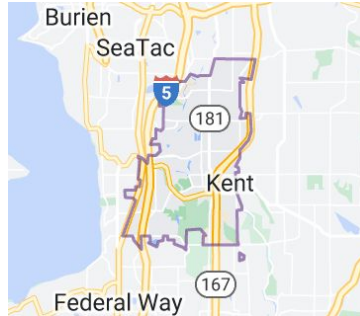
Zip Code: 98951

Number of Crashes: 68



Zip Code: 98032

Number of Crashes: 43



Zip Code: 99301

Number of Crashes: 40



Common Zip Codes of the Driver's Residency

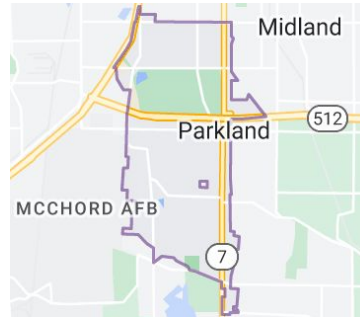
Zip Code: 99301

Fatal Accident Victims: 47



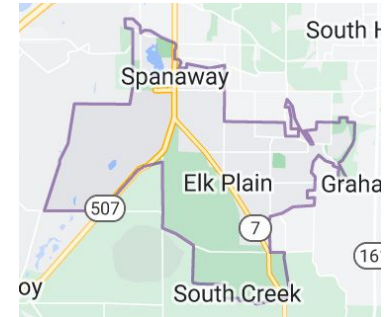
Zip Code: 98444

Fatal Accident Victims: 43



Zip Code: 98387

Fatal Accident Victims: 35





Investigation of Common Zip Codes: 99301

- With 84,124 people, 99301 is the 1st most populated zip code in the state of Washington out of 594 zip codes.
- Drivers that live in zip code 99301 accounted for 24 of the 47 crashes that occurred in the area. That is about 51% of the fatal crashes.

[https://www.washington-demographics.com/99301-demographics#:~:text=The%20largest%2099301%20racial%2Fethnic,Two%20or%20More%20\(2.9%25\).](https://www.washington-demographics.com/99301-demographics#:~:text=The%20largest%2099301%20racial%2Fethnic,Two%20or%20More%20(2.9%25).)



Investigation of Common Zip Codes: 98952

- The largest 98952 racial/ethnic groups are American Indian (67.1%) followed by Hispanic (18.8%) and White (11.5%).
- Has a population of 1,956 people
- 40.3% of 98952 families live in poverty.
- Rural Land

[https://www.washington-demographics.com/98952-demographics#:~:text=The%20largest%2098952%20racial%2Fethnic,%25\)%20and%20White%20\(11.5%25\).](https://www.washington-demographics.com/98952-demographics#:~:text=The%20largest%2098952%20racial%2Fethnic,%25)%20and%20White%20(11.5%25).)

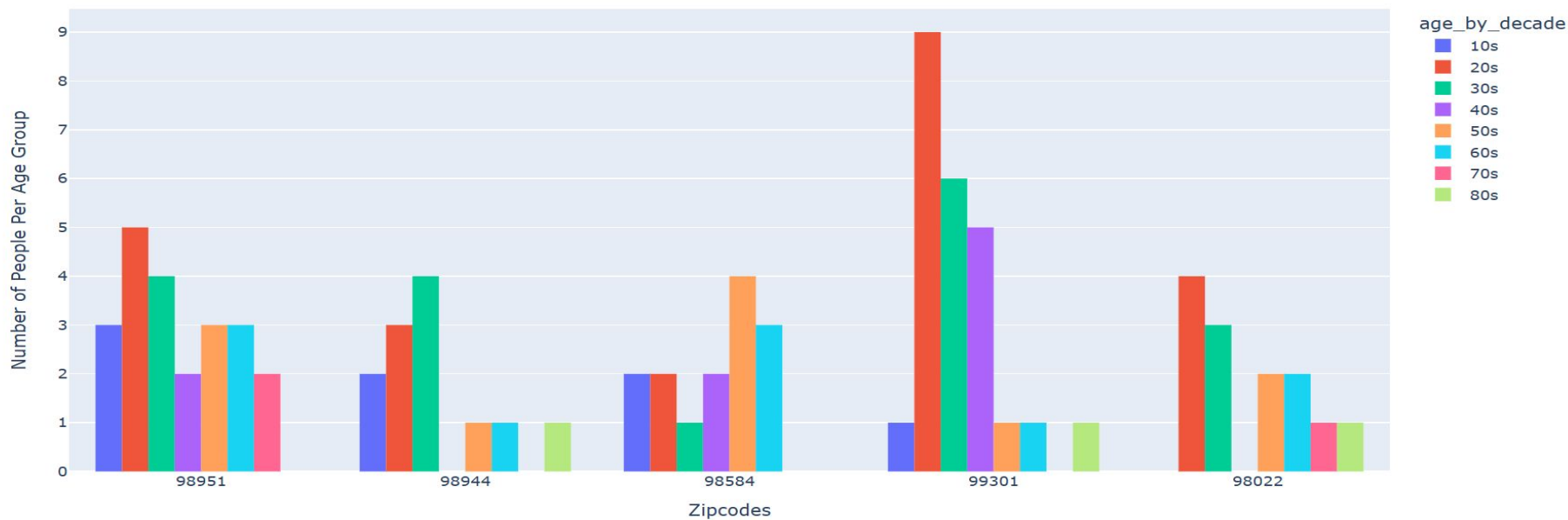


Demographics of High Risk Drivers

- Age
- Car
- Road type

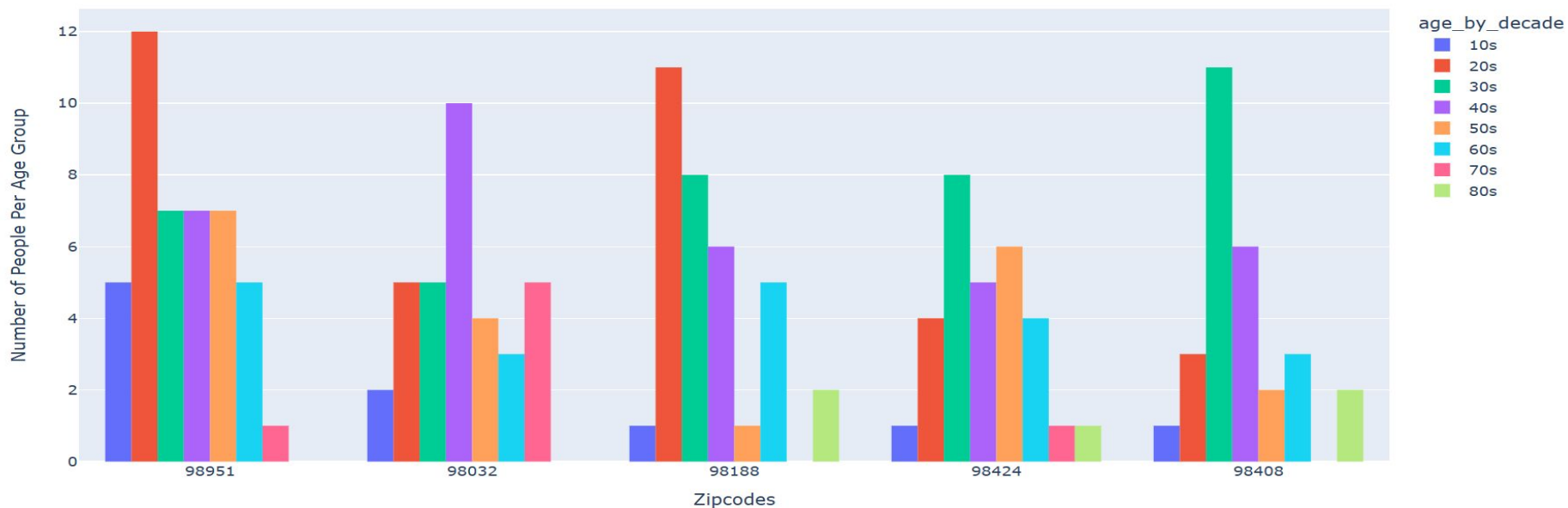
Age-Inside Residential Zip Code

Age Demographics-For Fatalities Occuring Inside of Residential Zipcode



Age-Outside Residential Zip Code

Age Demographics-For Fatalities Occuring Outside of Residential Zipcode





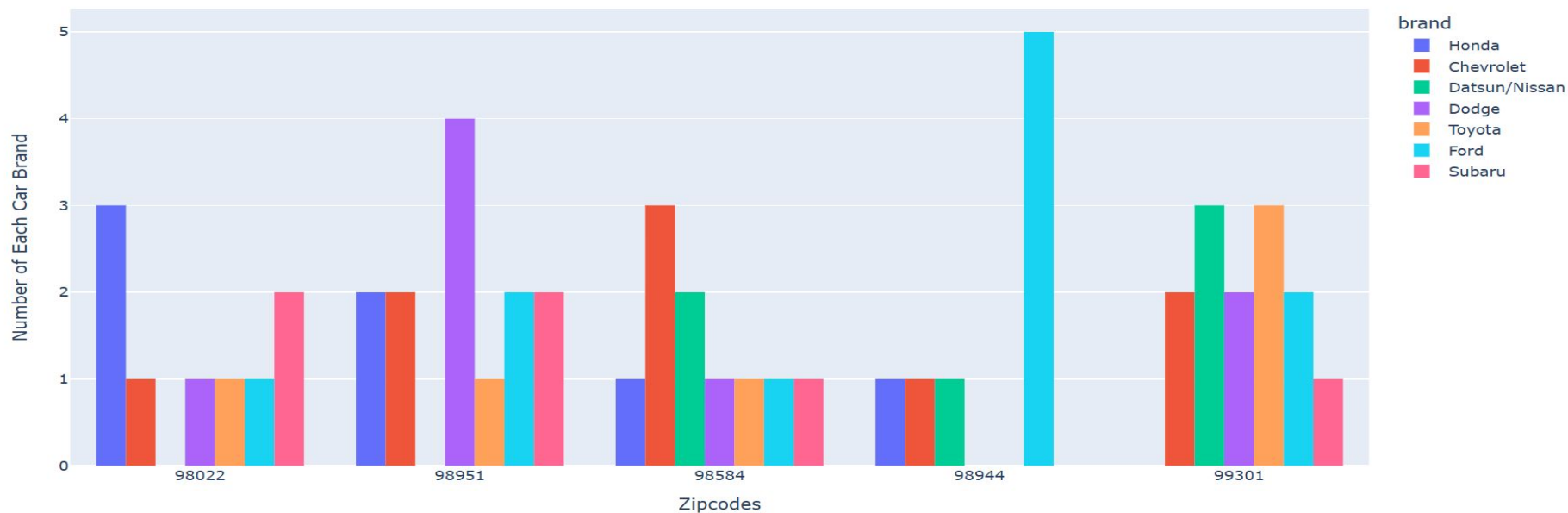
Investigation for the Age Demographics

- In the histogram for fatalities of those that crashed within their residential zip code, those in their 20s and 30s account for more than 50% with 27.05% and 21.17% respectively.
- In the histogram for fatalities of those that crashed outside their residential zip code, those in their 20s and 30s account for 43.5% with 20.58% and 22.94% respectively.
- In both histograms zip code 98951 appears in both. Based on the graph each age group has roughly the same ratio of fatalities, except for those in their 40s and those in their 80s.



Car Make-Inside Residential Zip Code

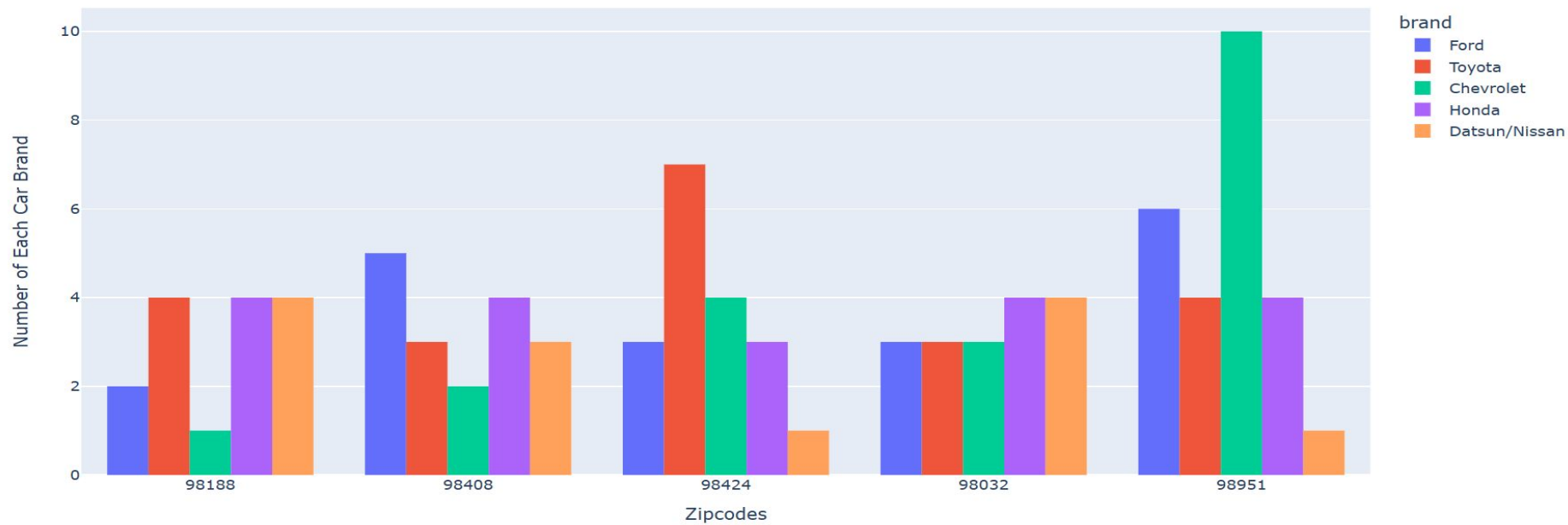
Car Brand Demographics-For Number of Fatalities Occuring Inside of Residential Zipcode





Car Make-Outside Residential Zip Code

Car Brand Demographics-For Number of Fatalities Occuring Outside of Residential Zipcode



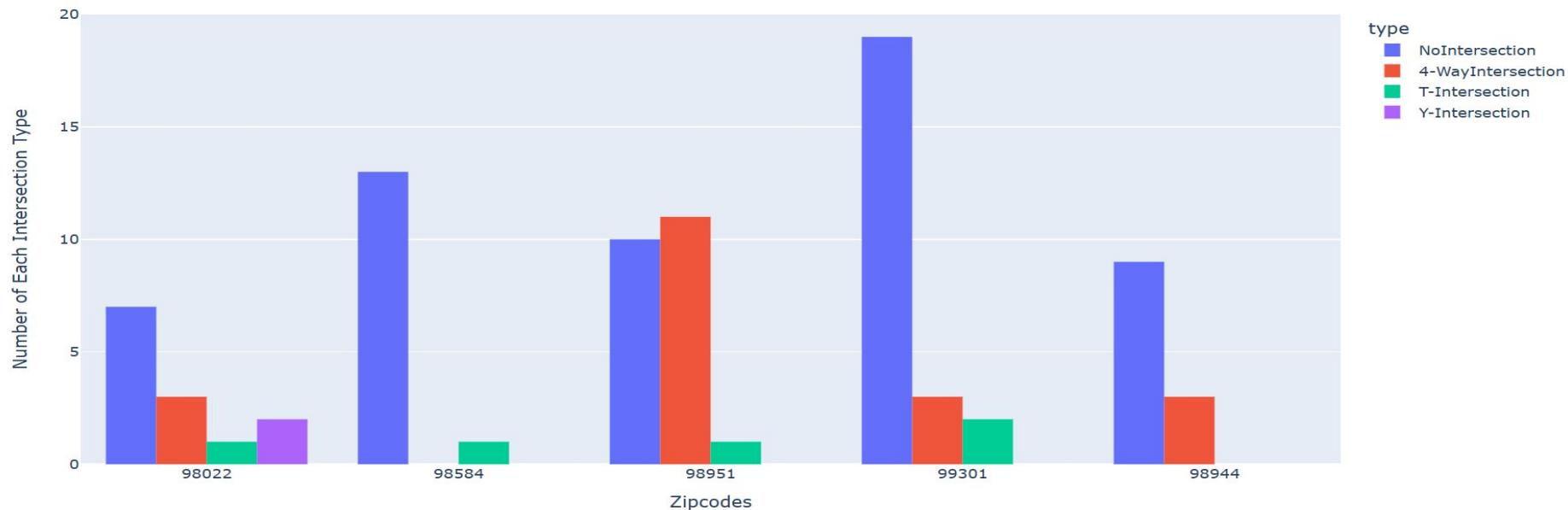


Investigation for the Car Make Demographics

- In the first histogram Ford represents the largest percentage of cars within the 5 zip codes with 20.7%.
- In the second histogram Datsun/Nissan is the only make displayed showing less than 20% in representation.
- Both graphs share 98951 as a represented zip code. In the first histogram Dodge has the highest count in the zipcode. In the second graph Chevrolet has the highest total count in that zipcode. Chevrolet represents 10% more of the total car makes in its histogram, than Dodge in its respective histogram.

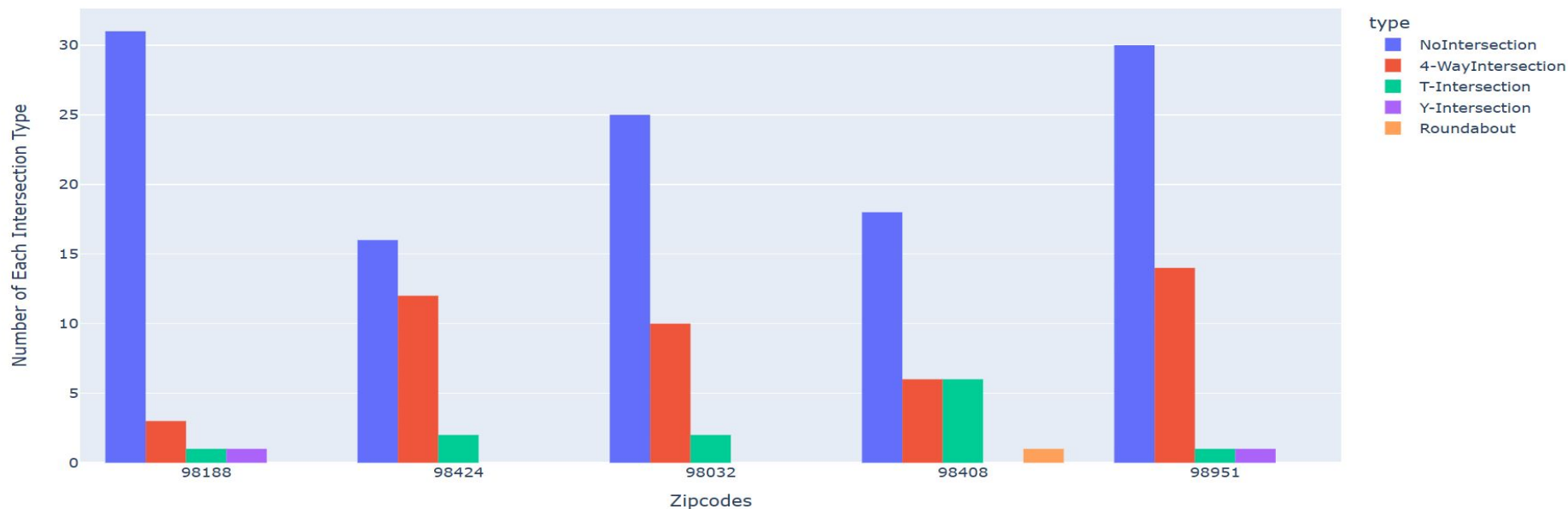
Intersection Type-Inside Residential Zip Code

Intersection Type Demographics-For Number of Fatalities Occuring Inside of Residential Zipcode



Intersection Type-Outside Residential Zip Code

Intersection Type Demographics-For Number of Fatalities Occuring Outside of Residential Zipcode





Investigation for the Intersection Type Demographics

- Amongst both histograms No Intersection represents 67.16% of fatal crashes amongst the respective 5 most frequent zip codes.
- Amongst both histograms 4 Way Intersection represents 24.5% of fatal crashes amongst the respective 5 most frequent zip codes.
- Fatal crashes involving No Intersection appeared 2.7x more than the next closest intersection type.

**How can we reduce the amount
fatal crashes?**



Solutions

- Place more controlled traffic signals like stop signs, traffic lights.
- Mark any unmarked obstacles, or increase awareness in rural areas.
- Put more police in the area to control the traffic.
- Give awareness to the public about the general trend and factors that cause accidents
 - Don't travel far during the holiday
 - Be cautious driving home from work



Citations

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Questions?