

For the following data visualizations, 5,066 samples (0.5%) are selected out of 1015270 to observe potential patterns in the relationship between traffic violations and geographical locations.

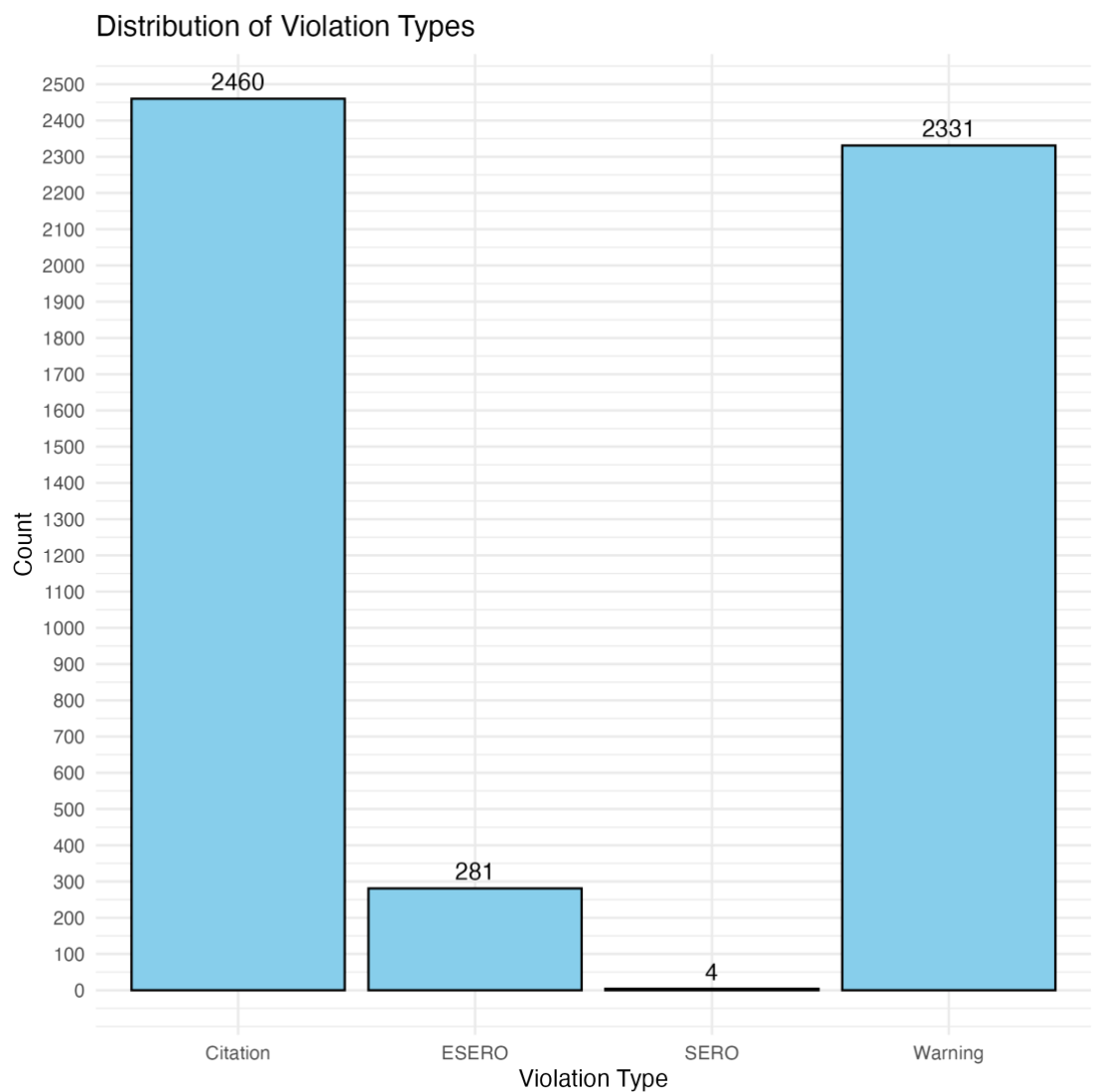


Figure 1. Distribution of Traffic Violation Types via Bar Chart. An example of ESERO is wearing decorative items violating traffic regulations. For SERO violations, most are due to destroyed exterior car parts or headlights.

Data Story Message for Figure 1:

There 4 types of traffic violations in Montgomery County, namely Citation, ESERO, SERO, and Warning. Most traffic violations are citations and warnings with similar occurrence frequencies. Drivers in Montgomery County are advised to be cautious of possible citations and warnings when driving and should be aware of traffic laws in Montgomery County beforehand.

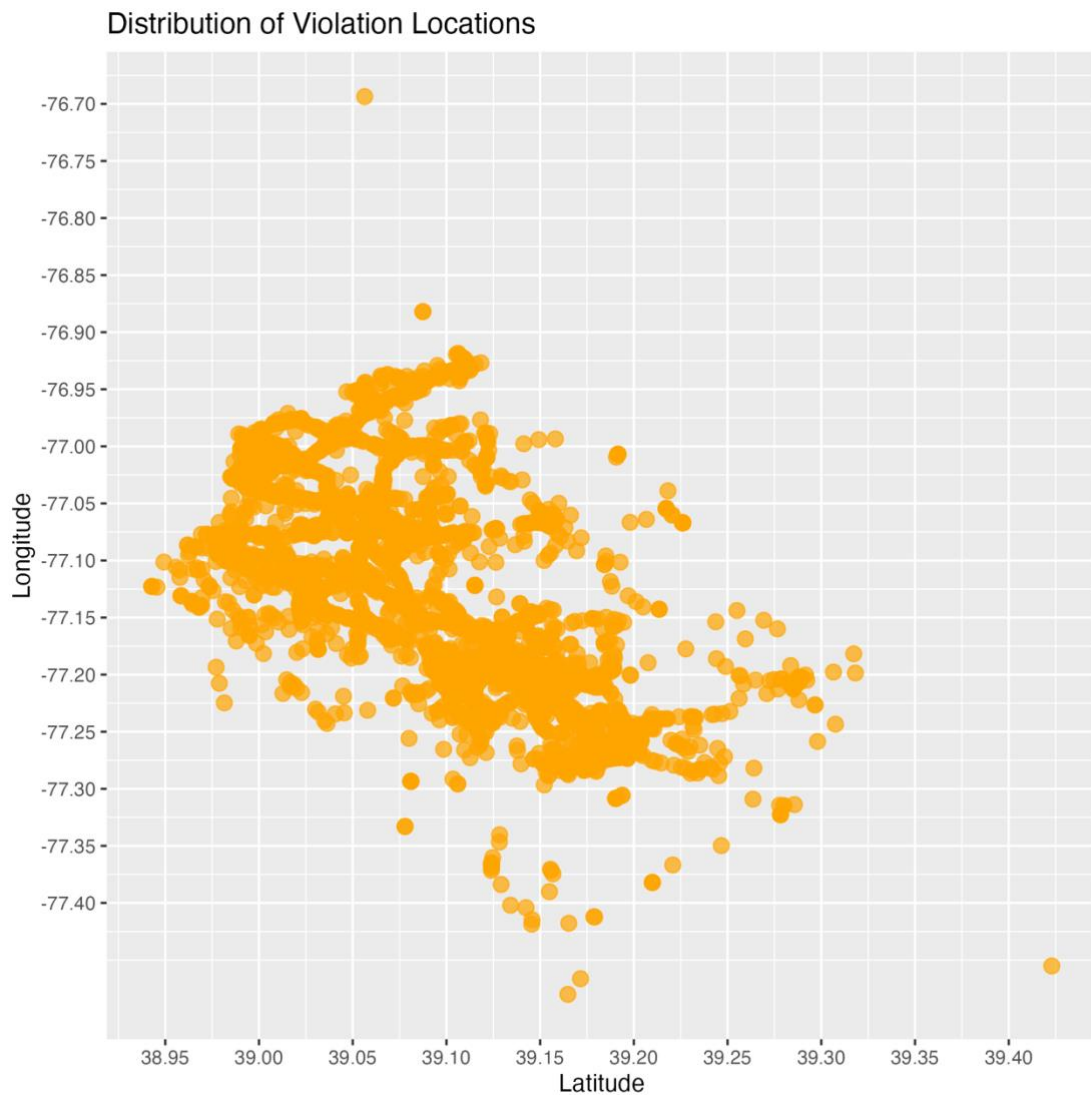


Figure 2. Distribution of Traffic Violation Locations

Data Story Message for Figure 2:

There 2 variables describing geographical locations in Montgomery County, namely latitude and longitude. Most traffic violations occur around -77 ± 0.05 longitude degrees and 39 to 39.2 latitudes. The shape of traffic violation distribution is like a tilted rectangle heading towards the southeast (where the latitude decreases and longitude increases). If drivers in Montgomery County are equipped with navigation systems, it is highly recommended to set up a location reminder when they drive approaching (39.10, -77.00) or heading southeast.

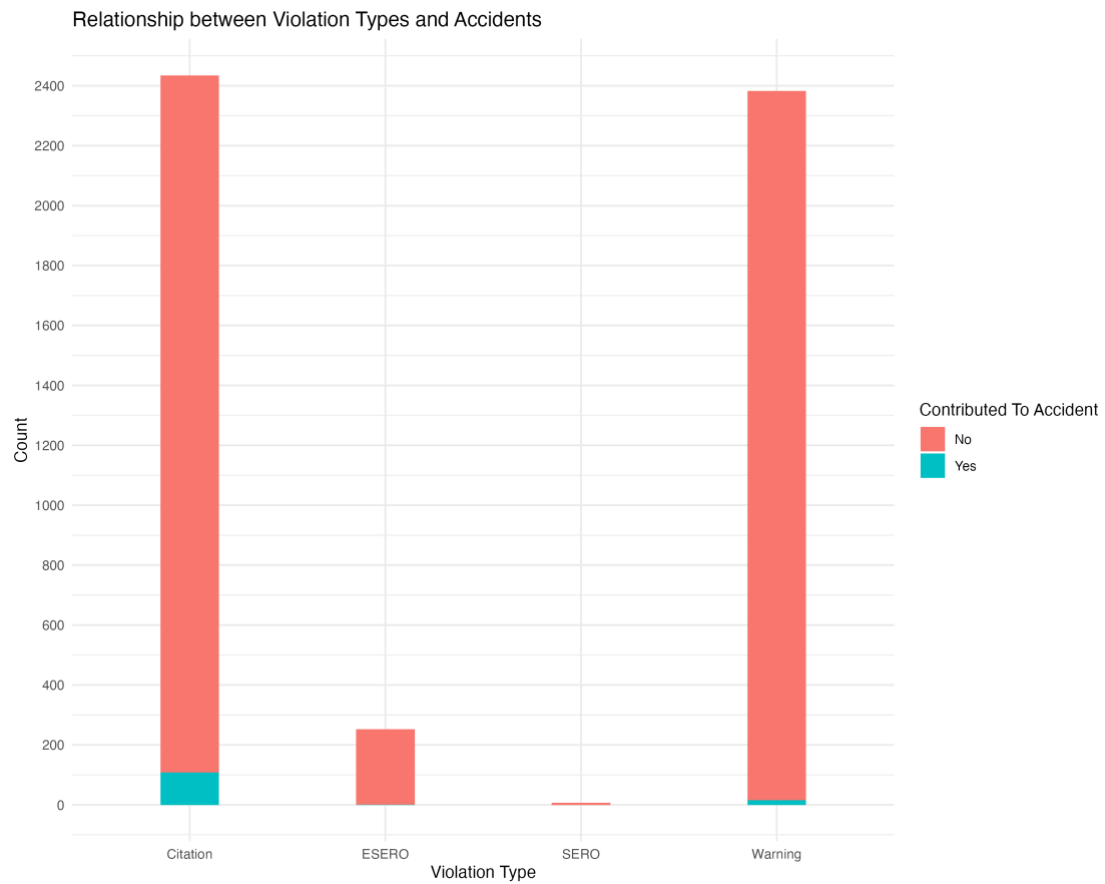


Figure 3. Relationship between Traffic Violation Types and Accidents

Data Story Message for Figure 3:

There are variables demonstrating the relationship between violation types and accident occurrence. Only a small part of traffic violations led to accidents eventually, with most accidents happening after citations, indicating well-conditioned roads and a safe traffic atmosphere. For drivers living in Montgomery County, it is wise to keep calm when driving to avoid citations and warnings in case of internal accidents.

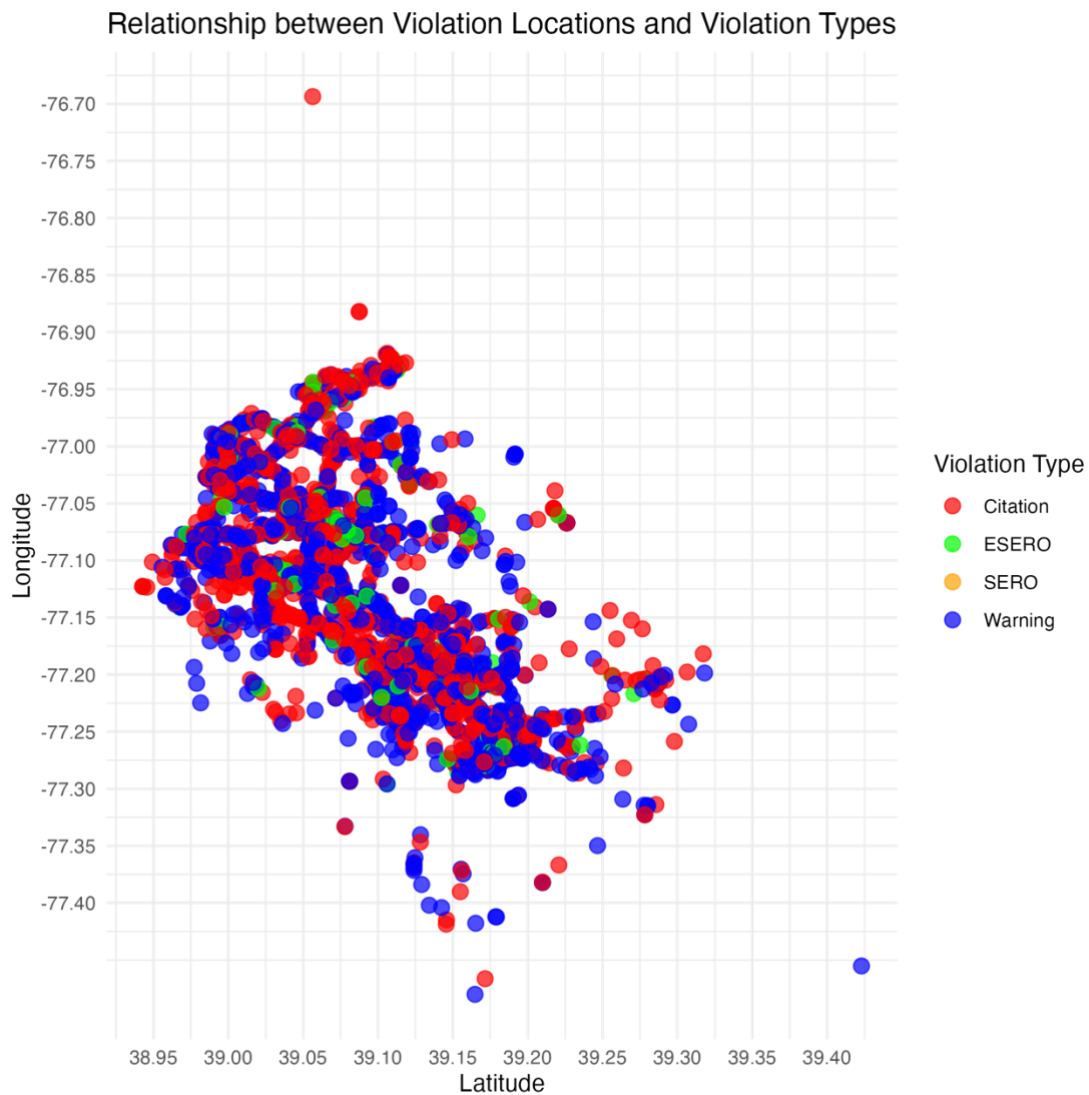


Figure 4. Relationship between Traffic Violation Locations and Violation Types

Data Story Message for Figure 4:

There are three variables demonstrating the relationship between violation types and violation locations. There are no obvious patterns between violation types and geographical locations since citations and warnings seem to have covered areas around (39.10, -77.00), where the most traffic violations happen. However, citations might be more common as the longitude increases (to about -76.90 degrees), and warnings are still observed as the longitude decreases. Combined with Figure 1 and Figure 3, it is recommended to set up reminders in the area around (39.10, -77.00) and also be aware of potential citations and accidents when heading east.