

CHECKPOINT 6 – VISUALIZATION

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(The tableau workbook has also been submitted in case one wants to view it in detail)

Method for Map representation–

The location was first found from the trr_trr data table. Then the said location was used in reverse geocoding the address to the lat long from the Google cloud maps API.

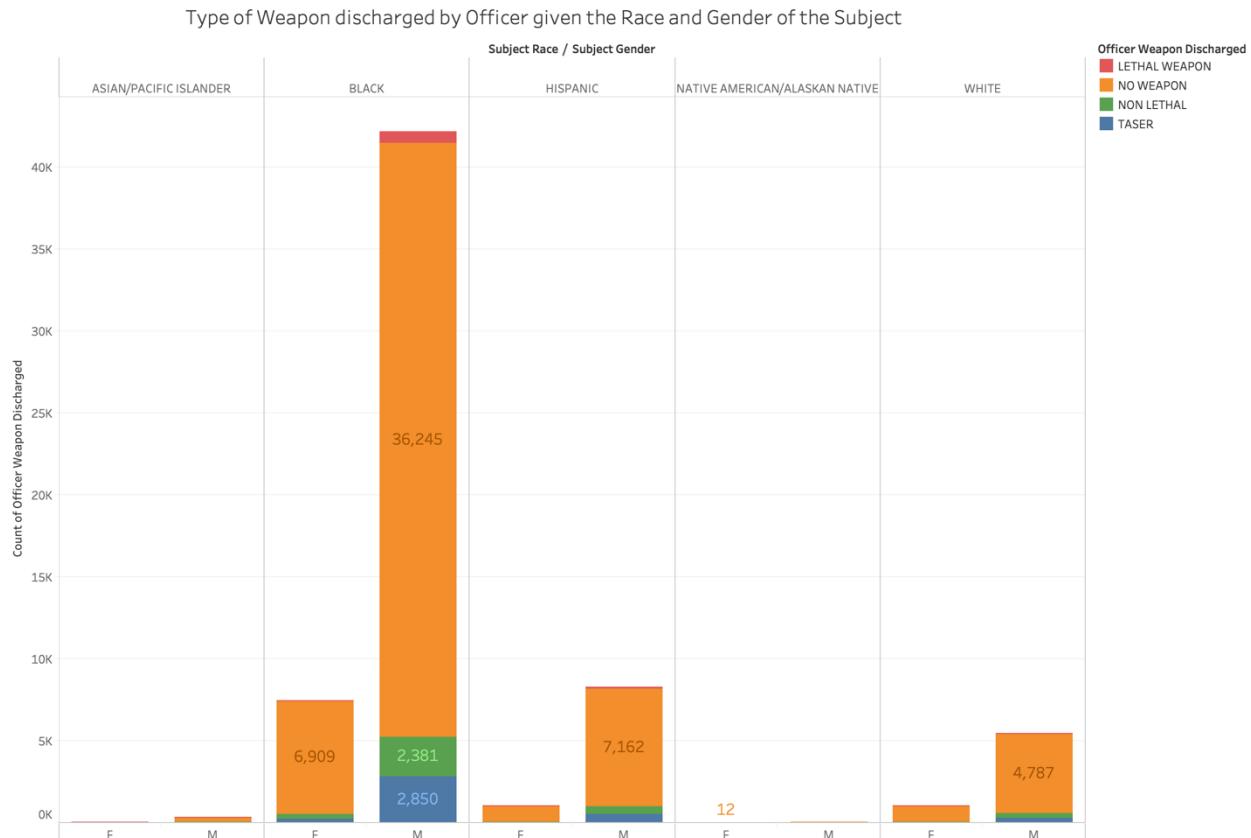
The reverse geocoding was done using python.

Post that the background map was added from terrestris.de website.

First we try to answer the question proposed in our project proposal –

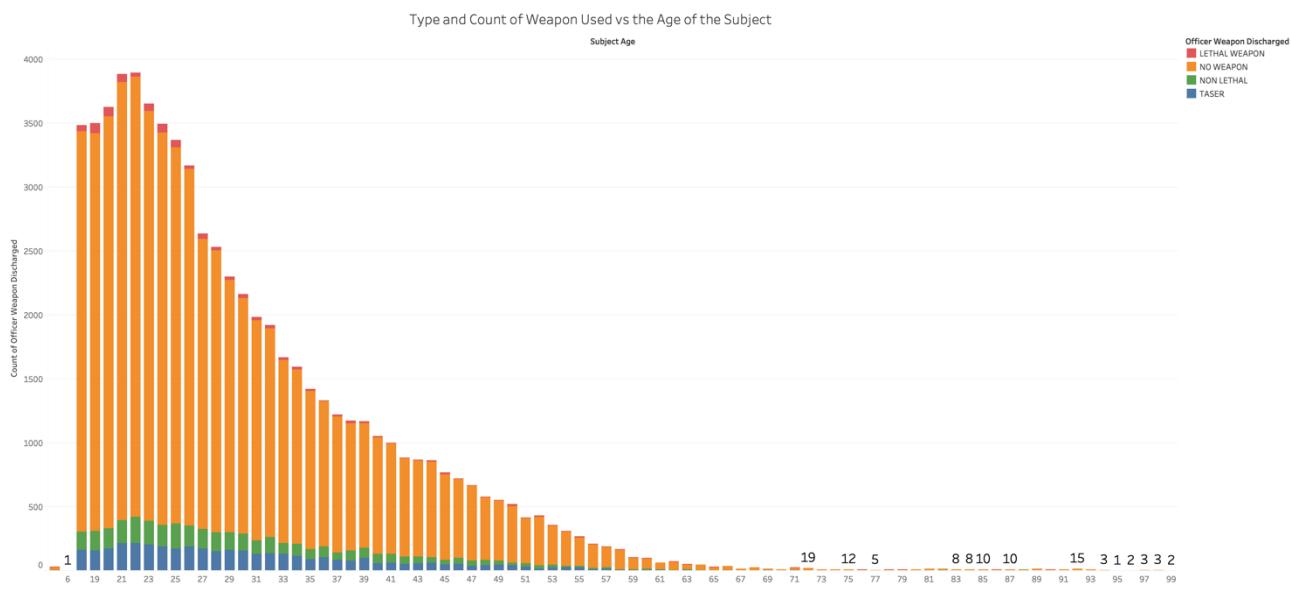
The race and the gender of the subject and the weapon discharged by the officer.

The image below shows the same –



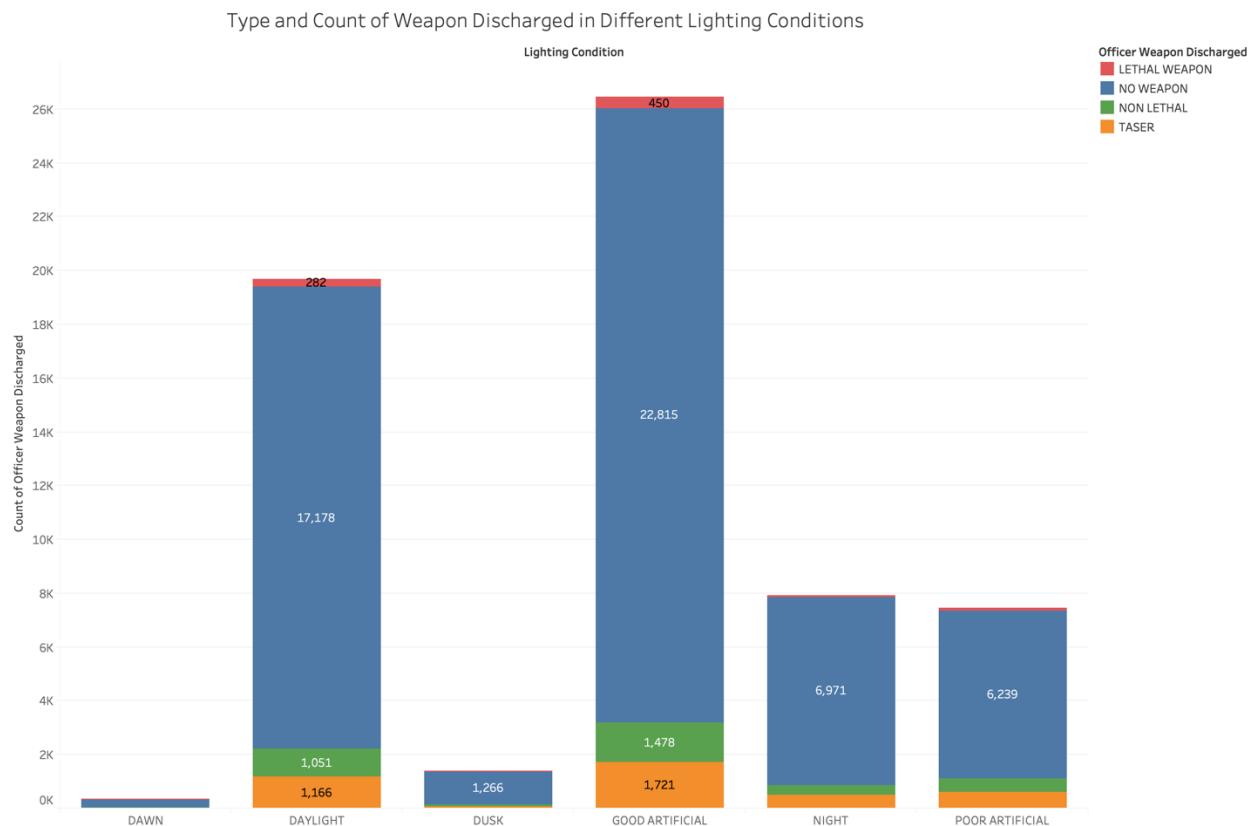
As clearly seen in the image above if you are a male then it is more likely that you will face a weapon discharge by an officer.

We have added the question where we try to explore the age of the victim and the type of weapon used –



It can be clearly seen from the above image that as the age of subject increases we steadily see the drop in the weapons being used. At first we see the increase in the number of weapons being used with the peak ages around the 20s and then it keeps dropping.

We try to answer another new question –
Given a lighting condition the type of weapon discharged by the police officer and the count of the same



As we can see that the weapons being used by the officers seem to be more during artificial lighting. This can be attributed to the fact that artificial lighting is usually present indoors or in poorly lit areas which might make an officer apprehensive of any subject.

In the next couple of visualization, we try to see how it looks on maps of Chicago.

The following visualizations will show the type of weapon discharged mapped to the areas in Chicago.

Legend –

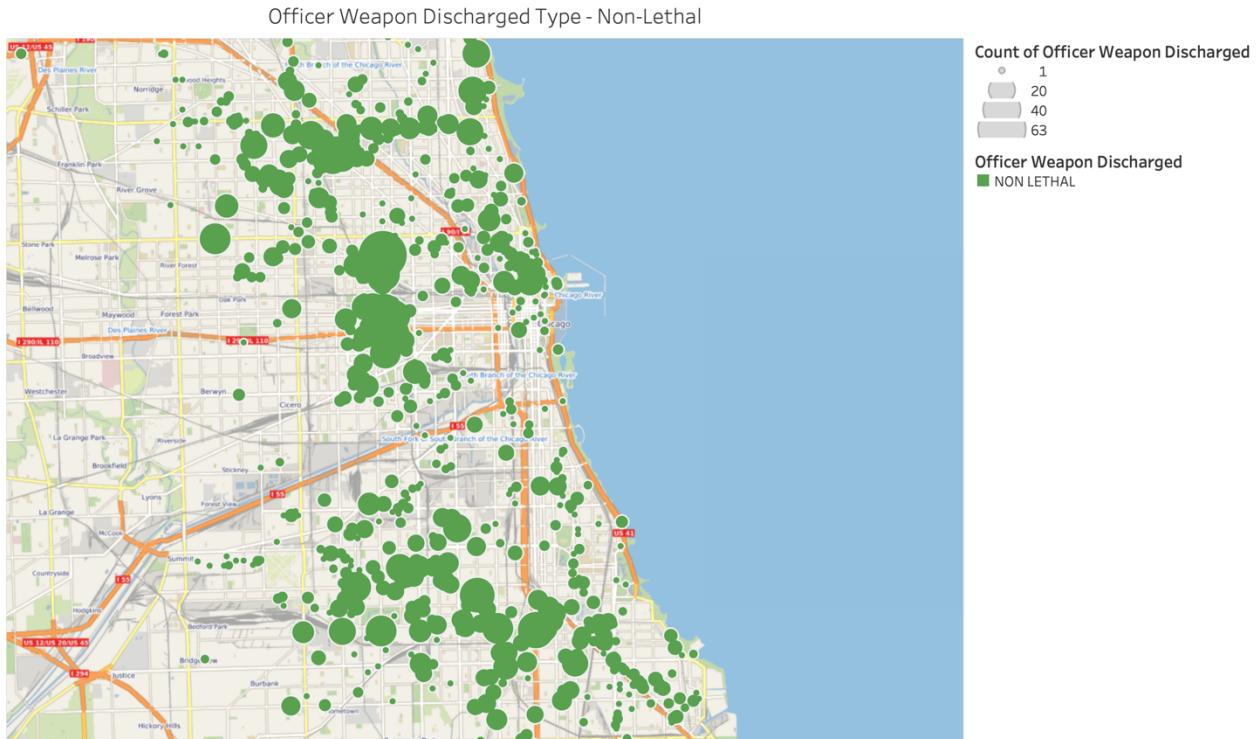
Green – Non-Lethal

Red – Lethal

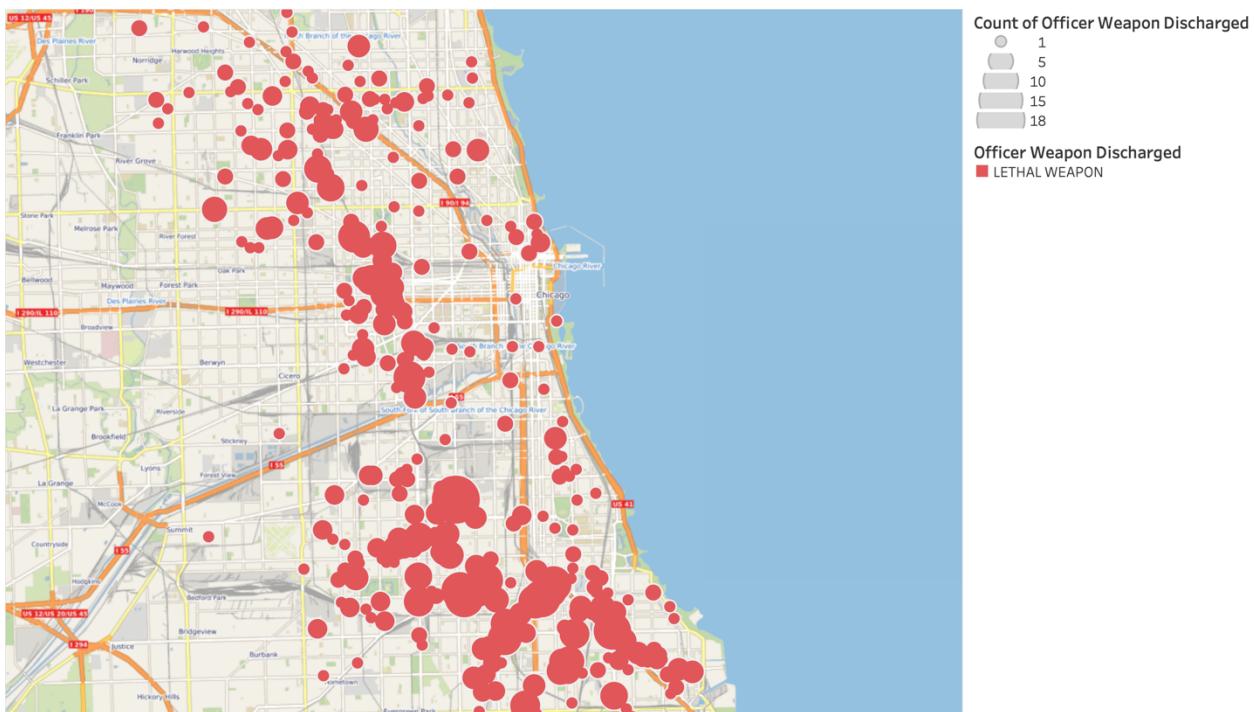
Gray – No weapon used

Blue – Tasers

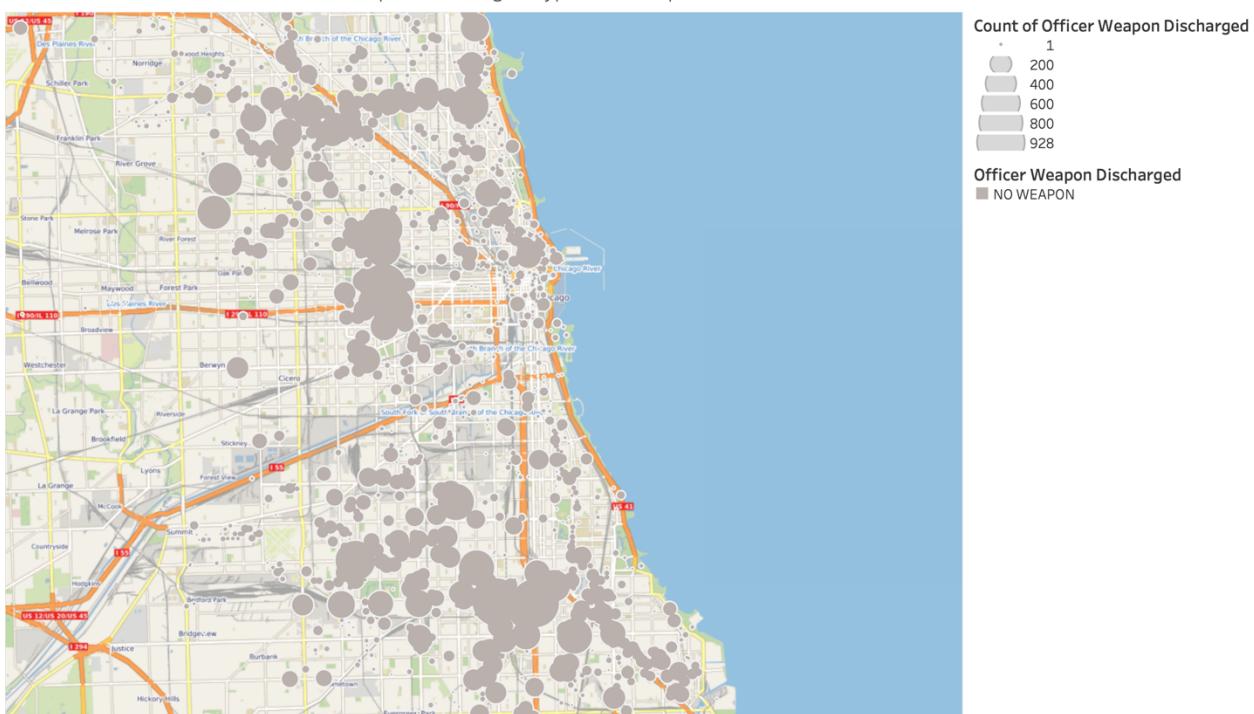
The map area has been kept constant to see overlapping areas. The legend of individual areas also show the count of cases which help us understand the relative use of these weapons.



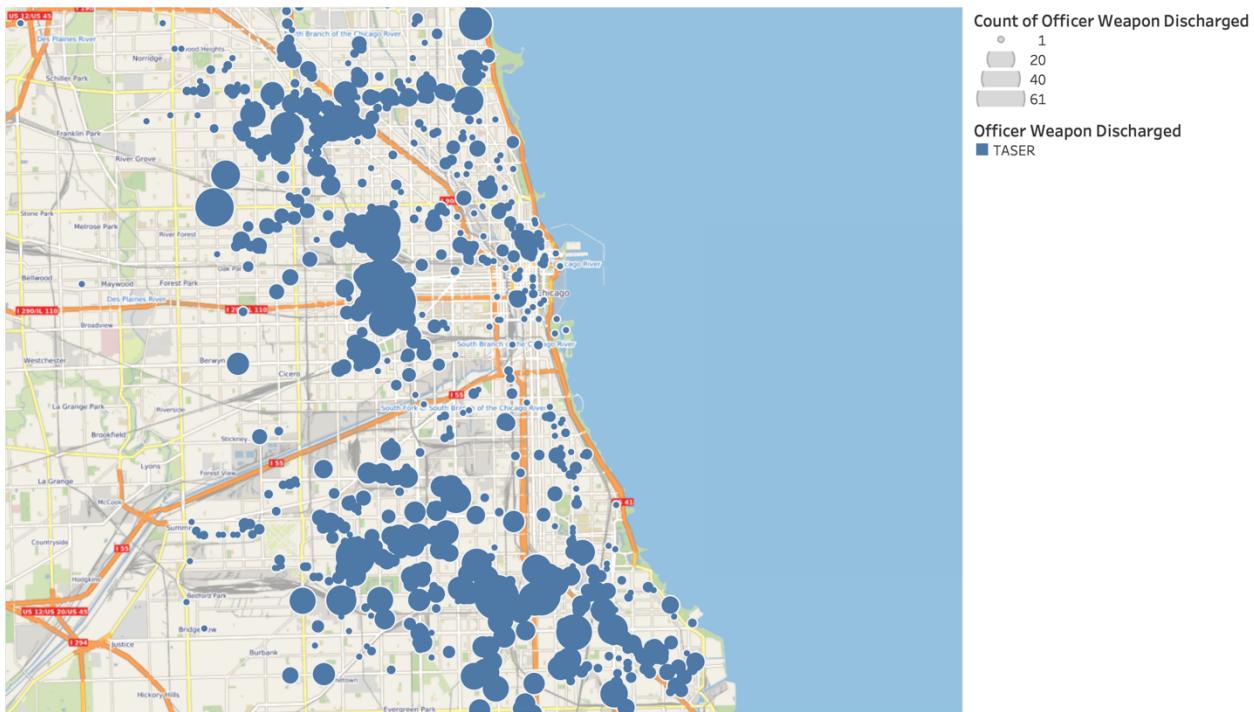
Officer Weapon Discharged Type - Lethal



Officer Weapon Discharged Type - No Weapon



Officer Weapon Discharged Type - No Weapon

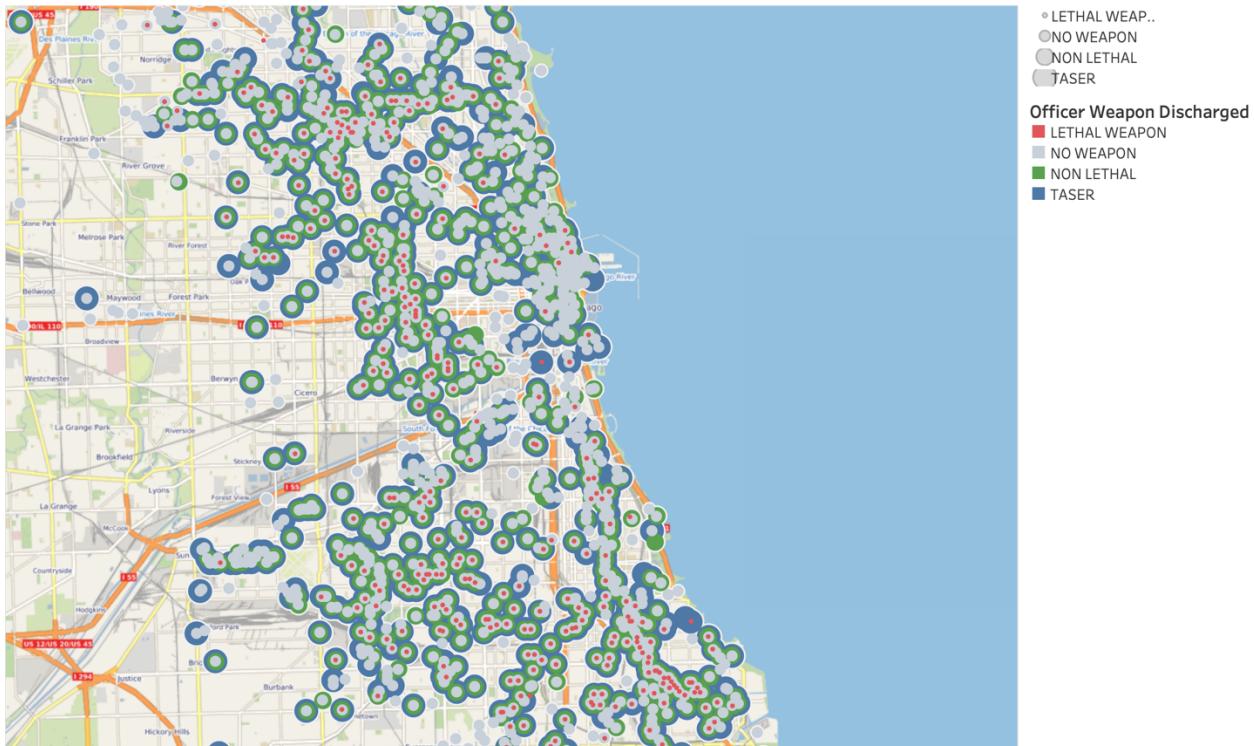


As we can see from the above analysis that the number of lethal weapons discharged are the least when compared to other weapons used. This is a good indication that the police officers are showing restraint with the subjects.

We can also see that lethal weapons tends to be used more in the south and north side of Chicago.

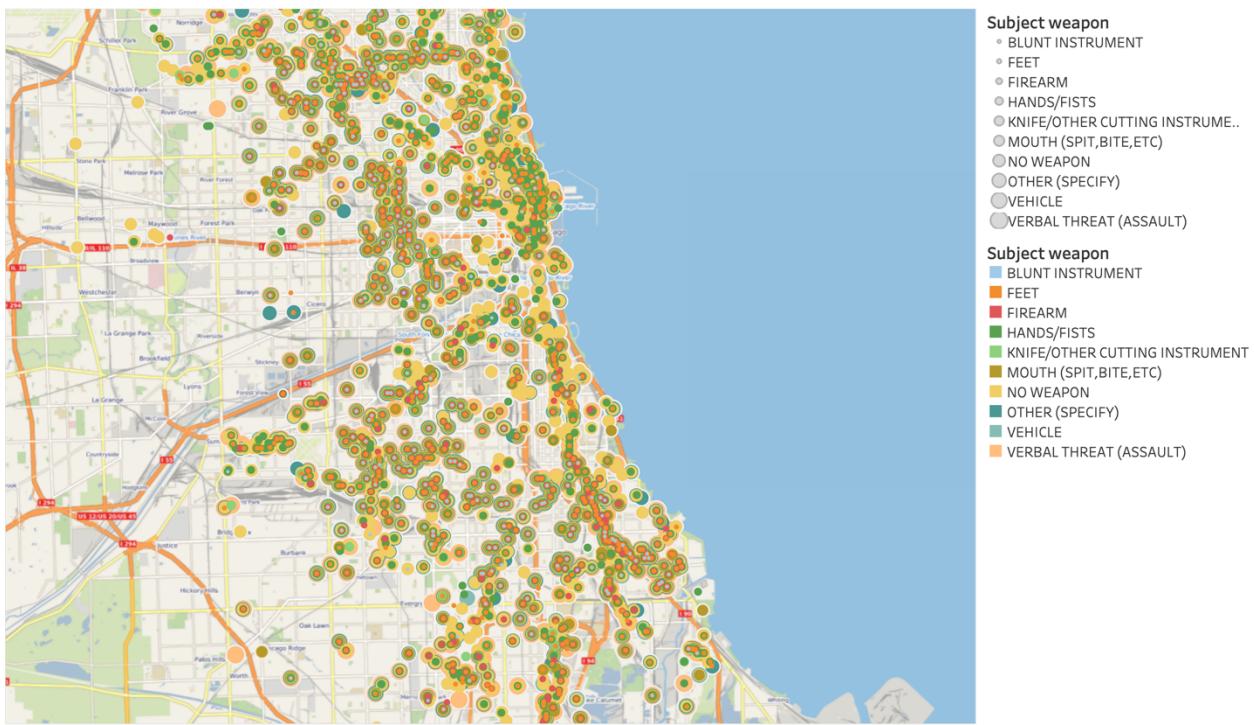
The comparative map which combines all the types of weapon discharged by the police officers

Officer Weapon Discharged Type - All Types

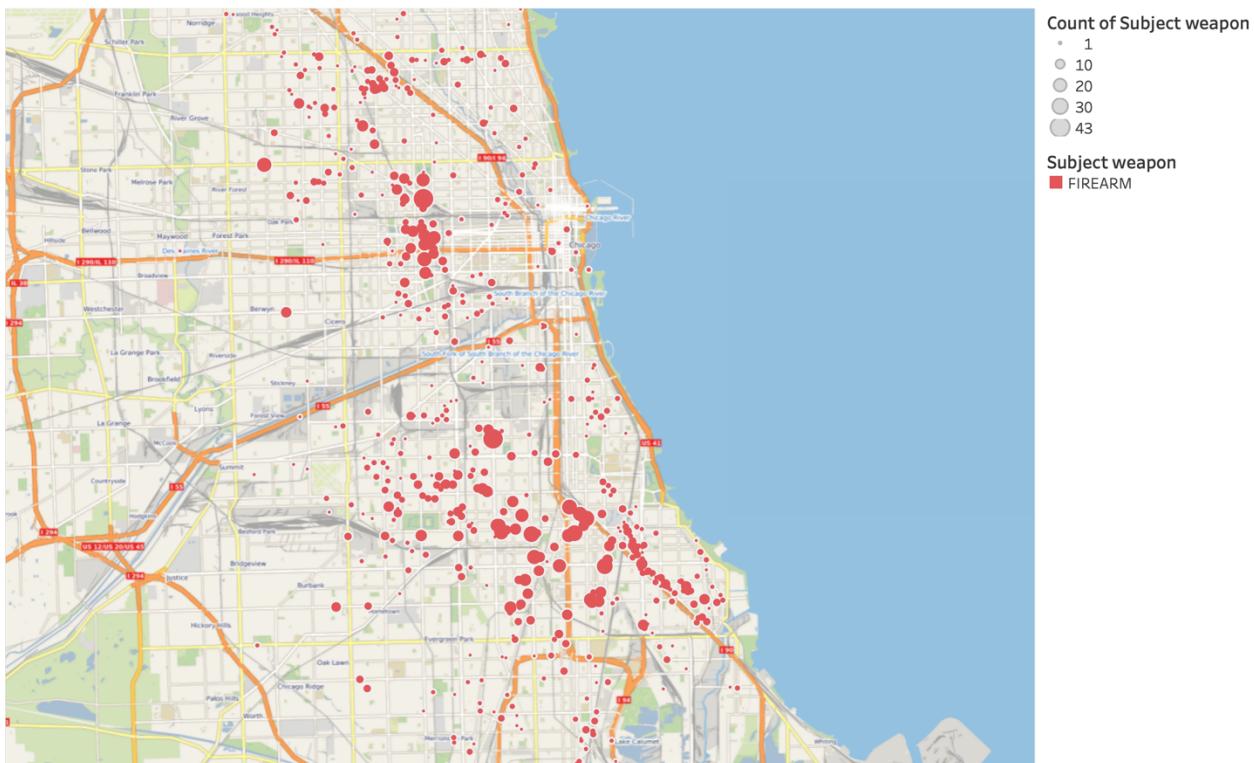


In the next few visualizations we take a look at the weapons used by the subjects against the police. The weapons have been divided into the following categories –

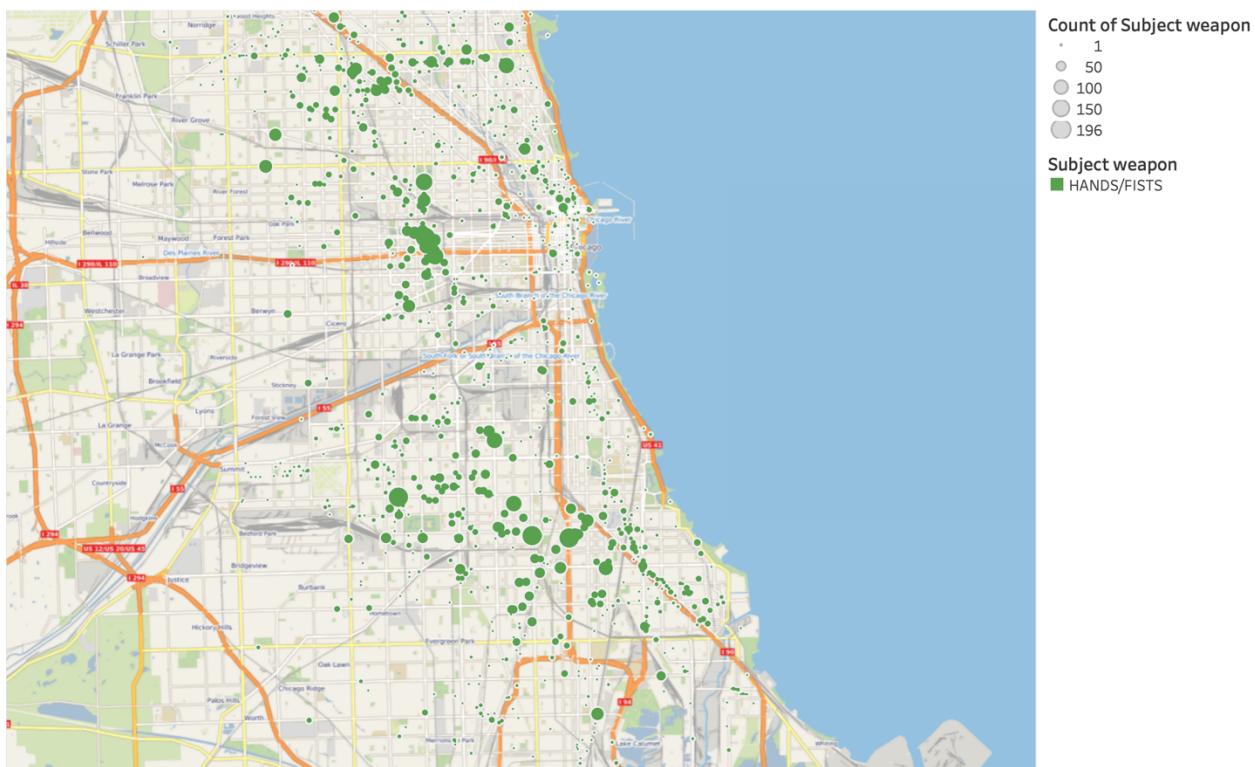
Subject Weapon Used



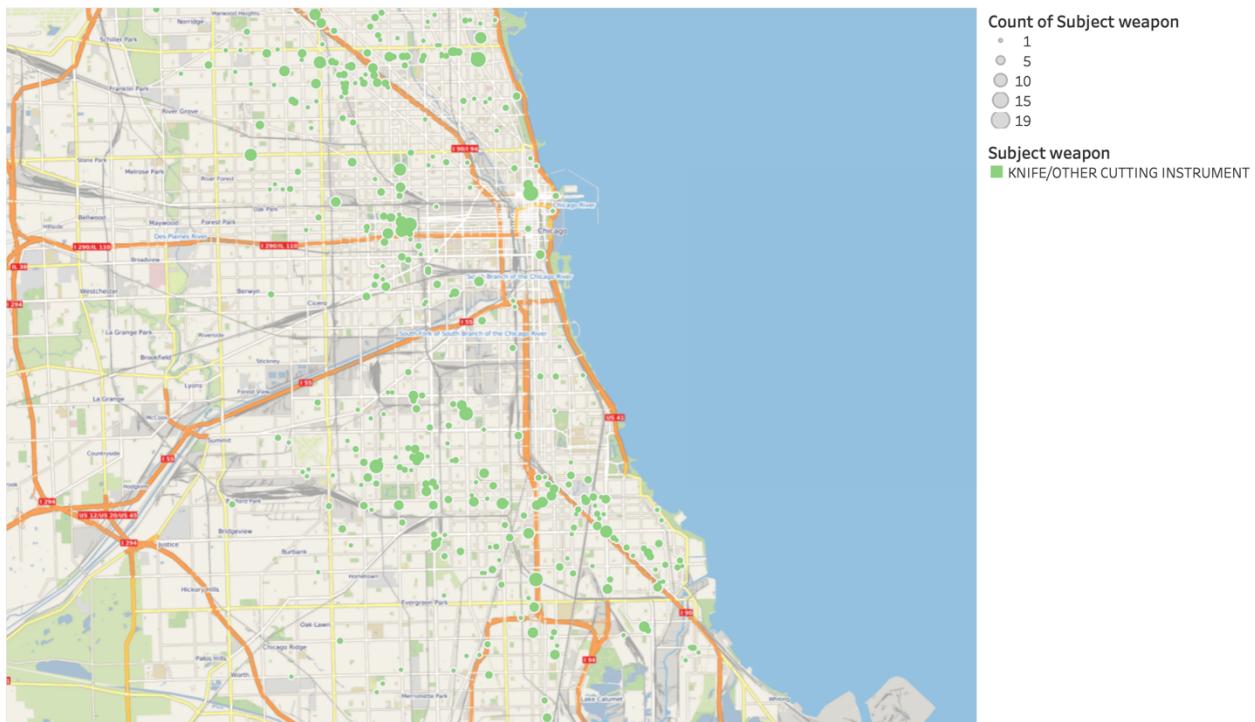
Subject Weapon Used - Firearm



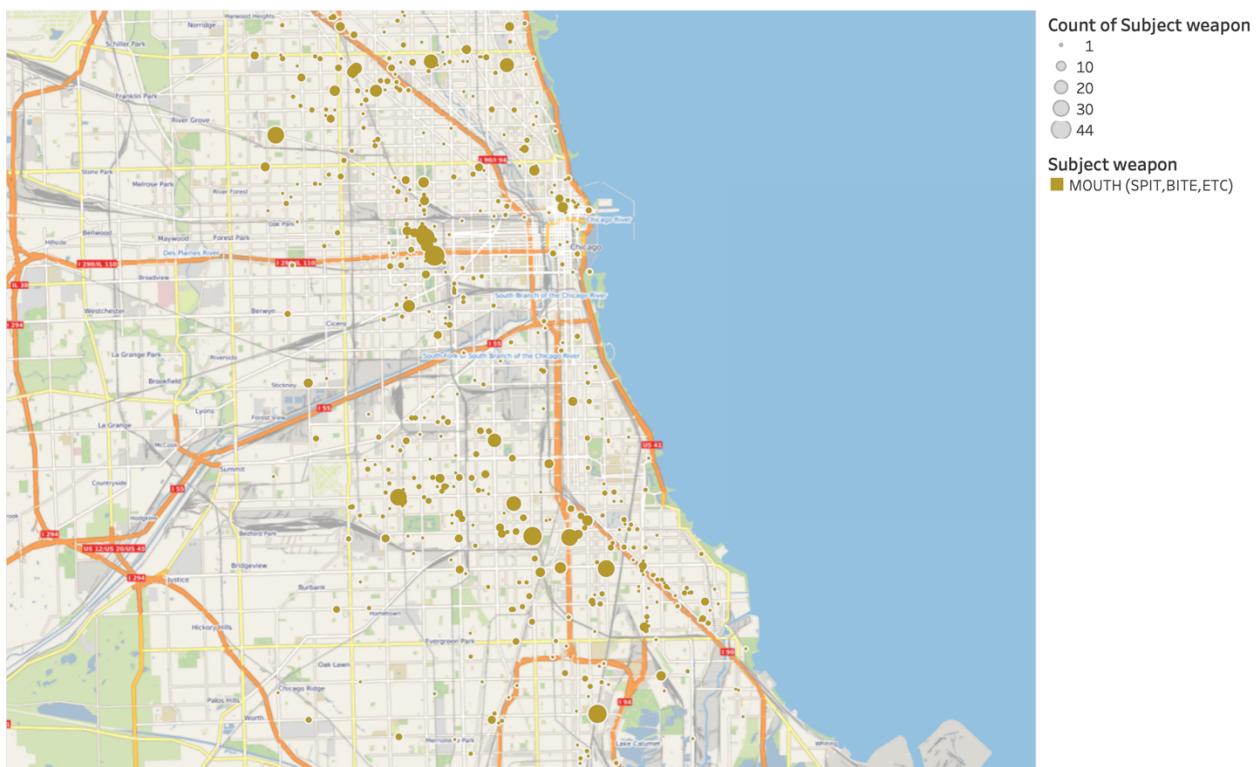
Subject Weapon Used - Hands/Fists



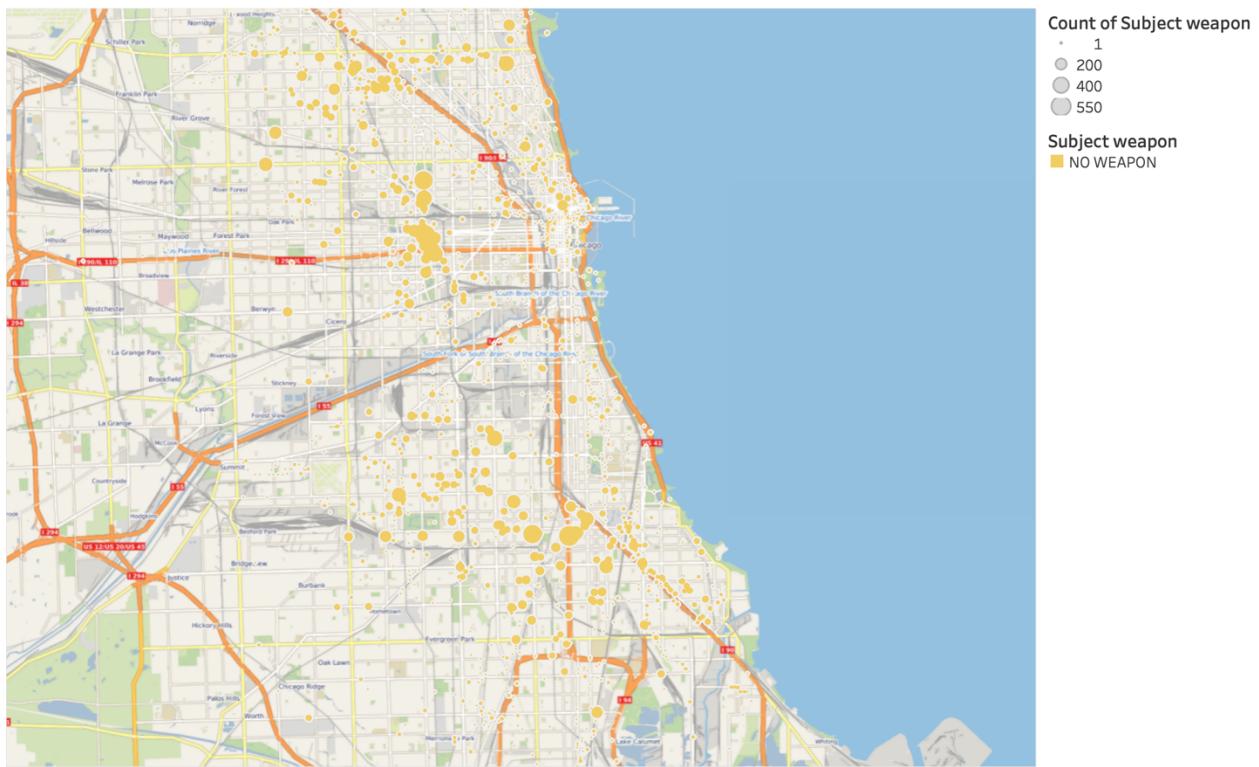
Subject Weapon Used - Knife



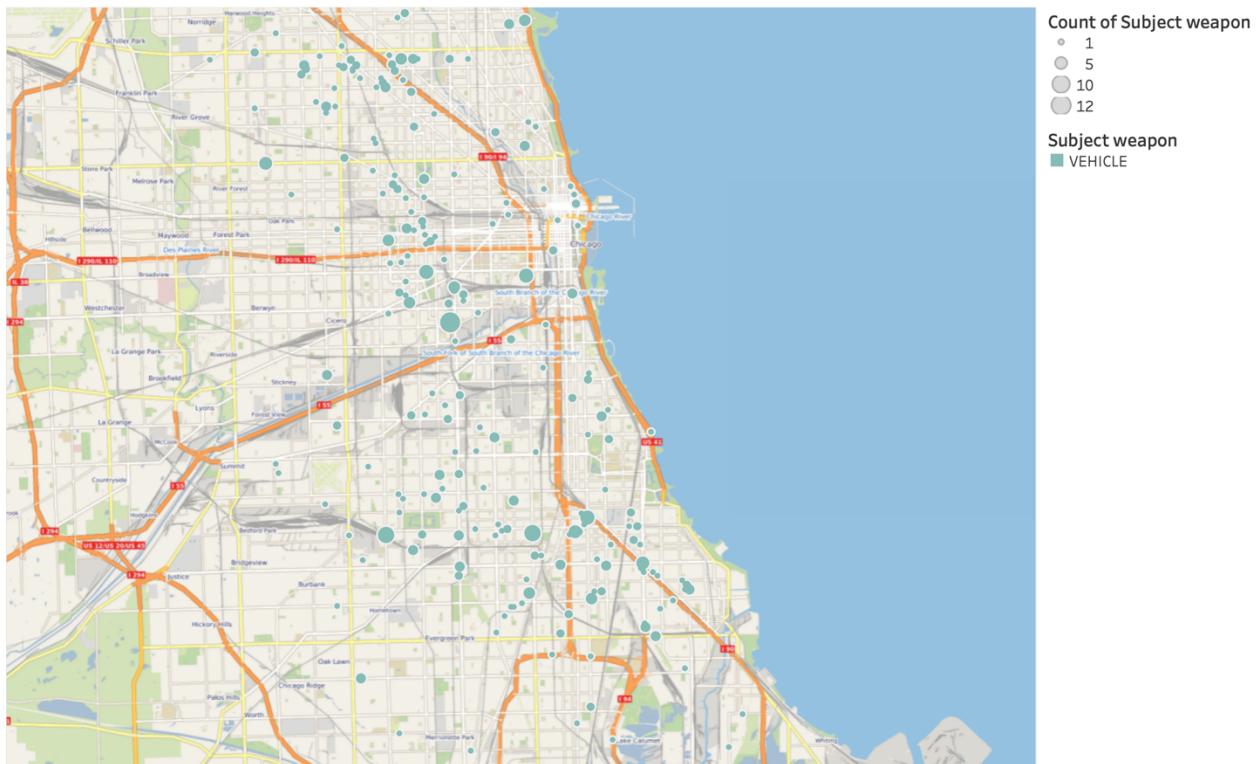
Subject Weapon Used - Mouth



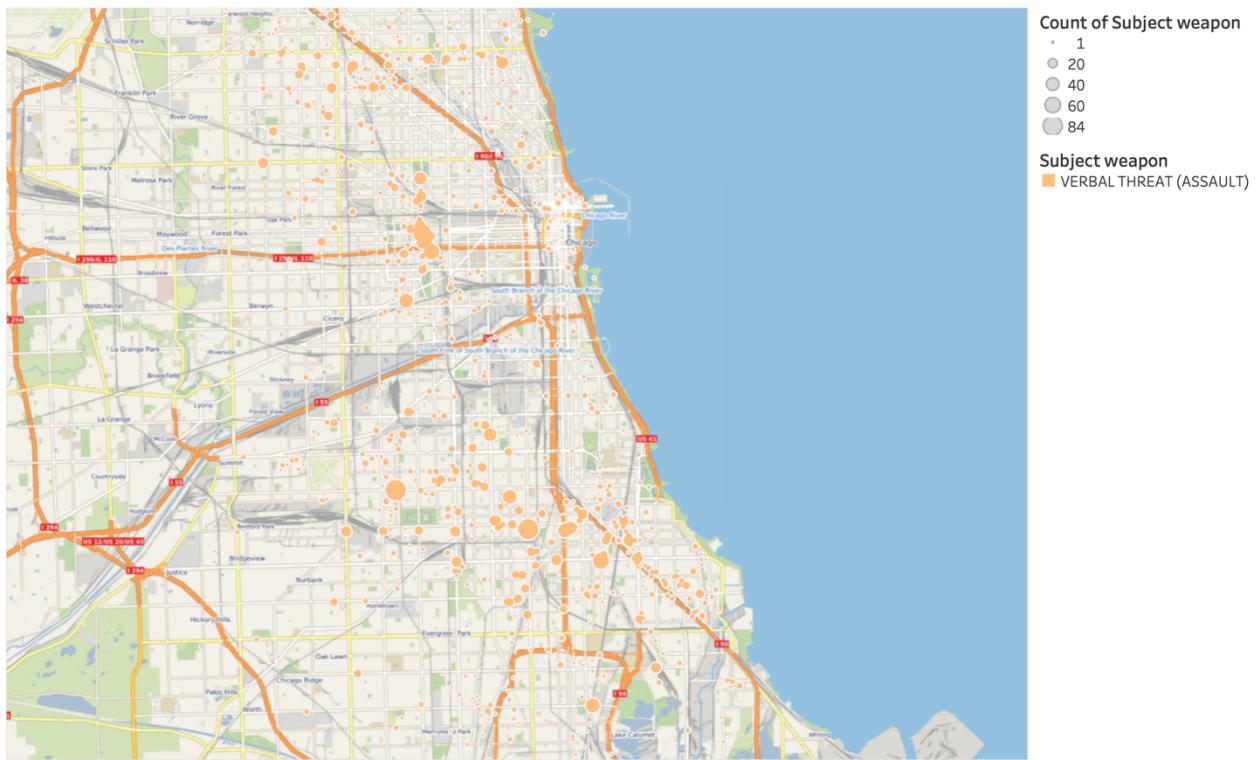
Subject Weapon Used - No Weapon



Subject Weapon Used - Vehicle



Subject Weapon Used - Verbal Threat



As we can see from the above maps –

Firearms used by the subjects are concentrated in pockets in the north and the south east. Most offenders don't use any kind of weapon, while people have tried to use their own vehicles as the least priority weapon. Here the usage of vehicle refers to the subjects trying to hurt the police officers with vehicles.