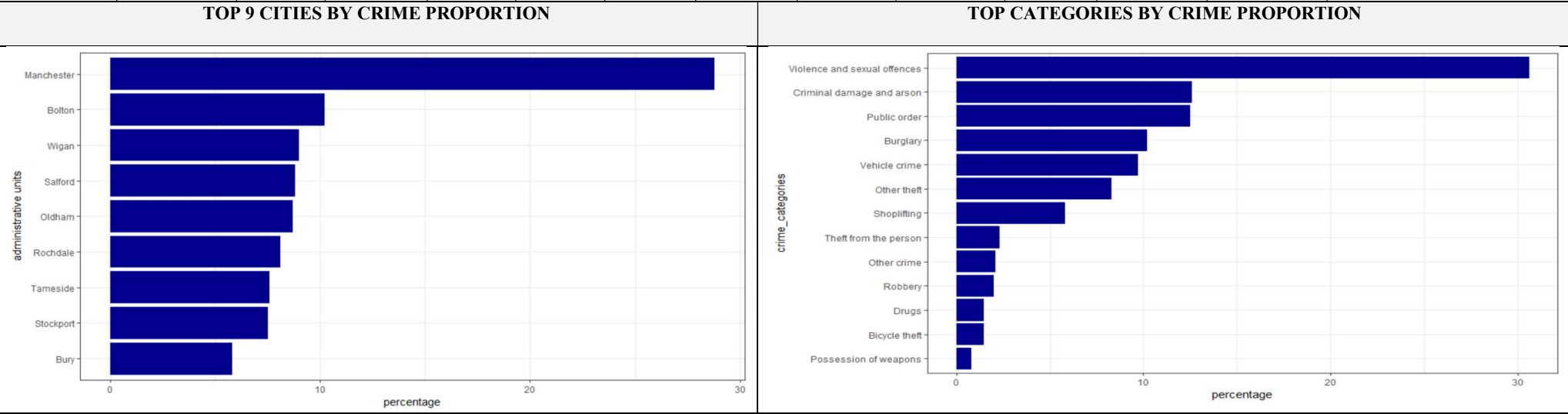**Introduction**

Greater Manchester city is selected from open data source of UK police. Great Manchester is a county in the northwest of England with a population of 2.8 million. Data Source: https://data.police.uk/data/.
To understand the visualization trends or comparisons better, let's have a quick look on Borough's population, mid-year 2017 population estimates (source: https://en.wikipedia.org/wiki/Greater_Manchester)
Data initially had 1.1M records, after dropping "Anti- Social Behavior" records (not meant for police), analysis is carried on dataset of ~ 930K records.

Borough	Manchester	Wigan	Stockport	Salford	Oldham	Trafford	Tameside	Rochdale	Warrington	Bolton	Bury	Darwen	
Population	545,500	324,700	291,000	251,300	233,800	235,500	224,100	218,500	202,800	194,189	189,600	140,700 [2011]	

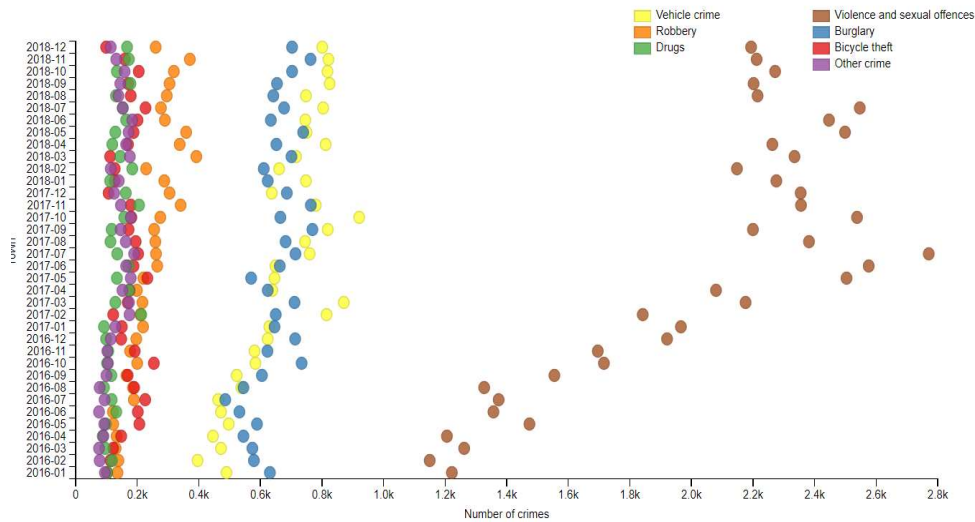| TOP 9 CITIES BY CRIME PROPORTION	TOP CATEGORIES BY CRIME PROPORTION

In Greater Manchester County, Manchester borough top the crime rate (with highest population), though unlike Manchester, Bolton is much low in population but is the ranked second highest borough to report high and ferocious crimes. Certainly, listed administrative units needs more attention in highlighted offences especially "Violence and Sexual Offence". Surprisingly, drugs offences are not much, reason could be either those are controlled in wider sense or reported less – thus an area for serious considerations and deeper exploration.
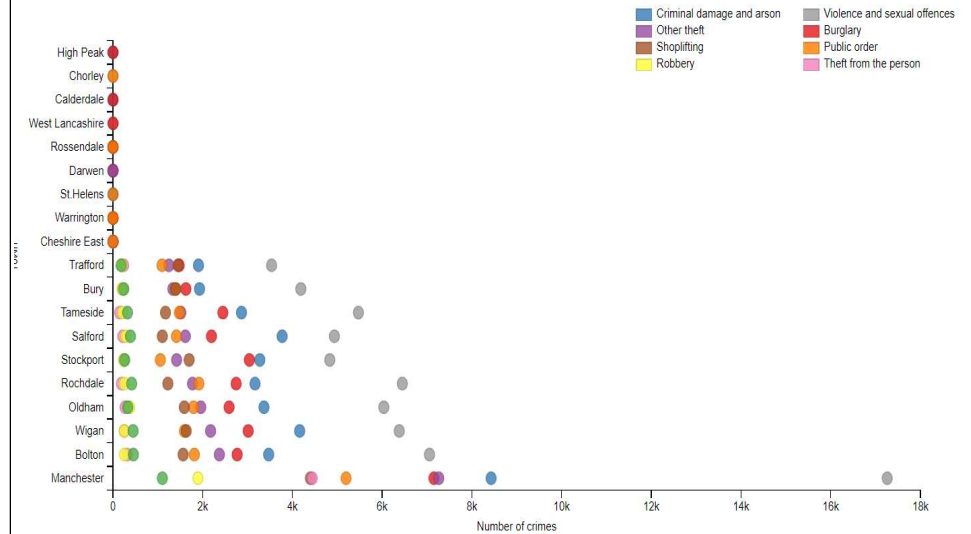

Above map shows a deeper look in the zones of 3 major towns in Greater Manchester Area for a category violence & sexual offence are recorded highest. Rest neighborhoods can be displayed using interactive maps. (Due to limitation, have shown only most highlighted areas based on topmost category, more categories and neighborhoods to be explored for further analysis).
Recommendation: Need to keep an eye on such neighborhoods (of other listed boroughs as well) for better investigation and security improvement.
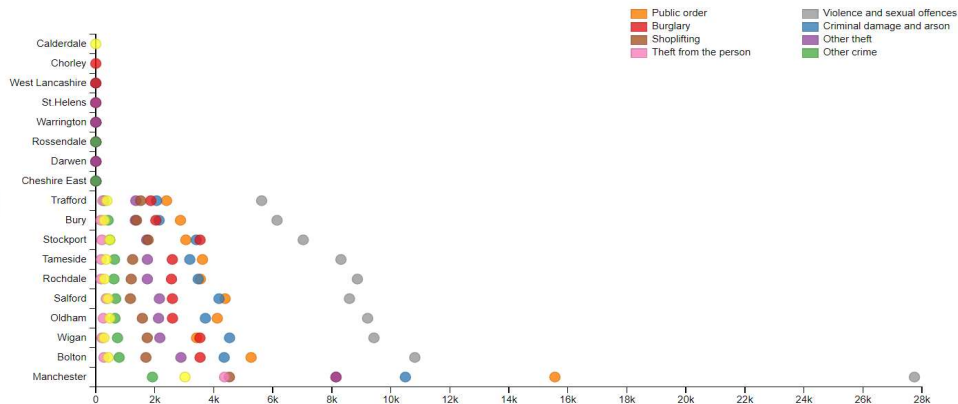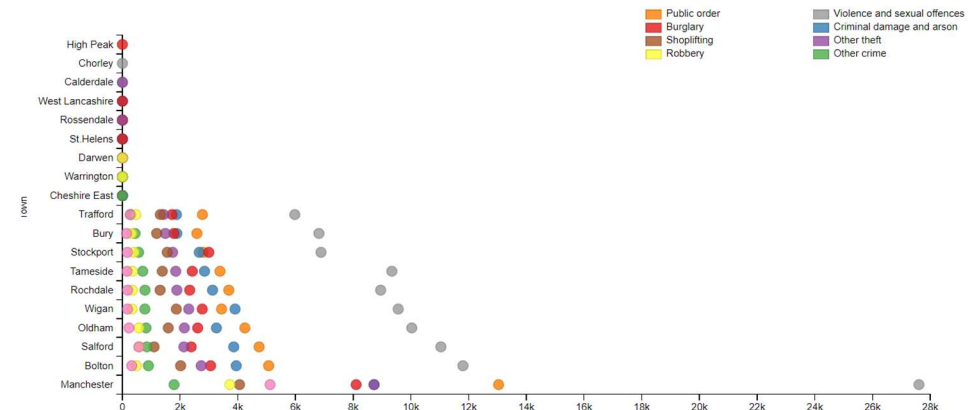
Crimes in Manchester City over 2 years

Legend: Vehicle crime, Robbery, Drugs, Violence and sexual offences, Burglary, Bicycle theft, Other crime

Crimes in Greater Manchester in Y2016

Legend: Criminal damage and arson, Other theft, Shoplifting, Robbery, Violence and sexual offences, Burglary, Public order, Theft from the person

Crimes in Greater Manchester in Y2017

Legend: Public order, Burglary, Shoplifting, Theft from the person, Violence and sexual offences, Criminal damage and arson, Other theft, Other crime

Crimes in Greater Manchester in Y2018

Legend: Public order, Burglary, Shoplifting, Robbery, Violence and sexual offences, Criminal damage and arson, Other theft, Other crime

Crime levels in Manchester by year

	Bicycle theft	Burglary	Criminal damage and arson	Drugs	Other crime	Other theft	Possession of weapons	Public order	Robbery	Shoplifting	Theft from the person	Vehicle crime	Violence and sexual offences
2018	1966	8103	8730	1789	1792	8718	1139	13040	3724	4062	5120	9250	27610
2017	2074	8144	10494	1805	1922	8142	891	15563	3026	4529	4366	8911	27746
2016	2073	7156	8430	1267	1102	7263	609	5197	1895	4402	4443	6086	17260

"Y2017 topped the crime chart"

Bicycle Theft, Burglary, **criminal damage and arson**, drugs, other crimes, **public order**, shoplifting, **violence and sexual offences** are crime levels that seen steep rise in 2017 compared to 2016 & gradual decrease in 2018 compared to 2017.

Analysis: Months as "Feb, March July, Aug & September" have seen highest crime rate. As we know that offence rate has not shown strong evidence for direct relationship with higher population. We can establish that Trafford, Darwen, High Peak, Chorley, St. Helens, Warrington are safer despite higher population than Bolton, Bury etc., or probably offences are not getting recorded in these areas; may need a deeper investigation. Here, we should stop and have a thought, if the data is properly recorded/shared. If yes than, consider these boroughs certainly as safer places. If not, may be a scope to enquire more about data or look more into the past to verify the information

Conclusion: Greater Manchester County Police, looking at the information gathered from analysis (which is tedious to obtain from table records) may prefer to increase surveillance around Bolton, Manchester etc. and may emphasize more security in months of Feb, March & September. Also, few stringent measures to control ruthless offences must be taken. It's time to revisit the policies and adopt some strategic changes. May implement more force and digital security in needed zone or increase emergency forces.

Limitation: Highlighted legends show selected categories (as pallet can maximum take max 8 categories at a time.)