Preliminary analysis on crashes in MD

04 February, 2020

Contents

Criteria Used and Other Considerations

This is a fast and dirty first analysis to get an idea of the data.

Crashes were categorized as belonging to the intersection of Columbia Pike and Rivers Edge road, when the `REFERENCE_ROAD_NAME` **contained** `RIVERS EDGE RD` and the `MAINROAD_NAME` **contained** `COLUMBIA PIKE`. In some occasions the `MAINROAD_NAME` was indeed reported as `SPUR FR RIVERS EDGE RD` or `SPUR TO RIVERS EDGE RD`.

Some of these crashes were categorized as `Intersection` or `Intersection Related` but other were not (see tab below).

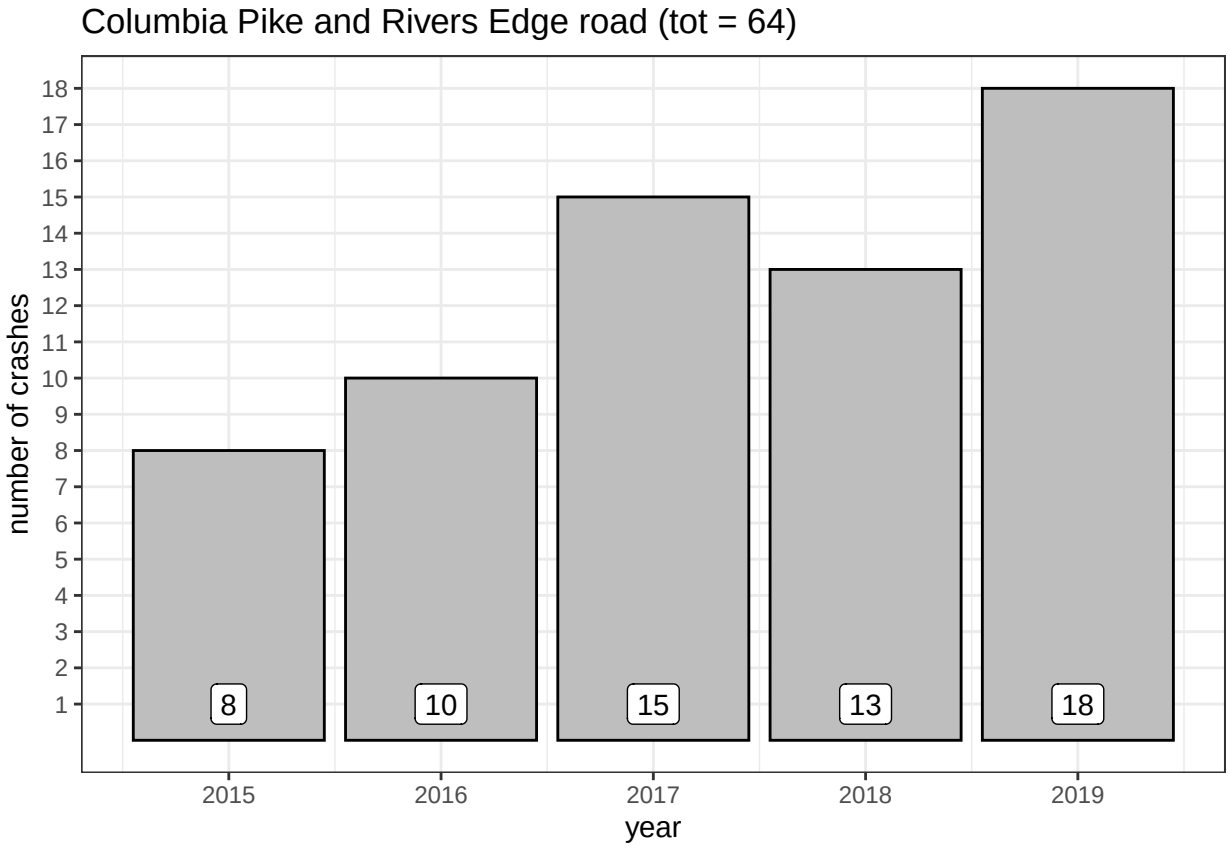
description	count
Crossover Related	1
Interchange Related	1
Intersection	16
Intersection Related	18
Non Intersection	13
Not Applicable	15

At this stage, I am not sure why crashes were categorized in this way (I can investigate that tomorrow). Nevertheless, it seems to me that all the crashes were in close proximity of your intersection (maximal `DISTANCE` from COLUMBIA PIKE was 500 feet), and thus **they were all used for the current analysis**.

Trends by Year

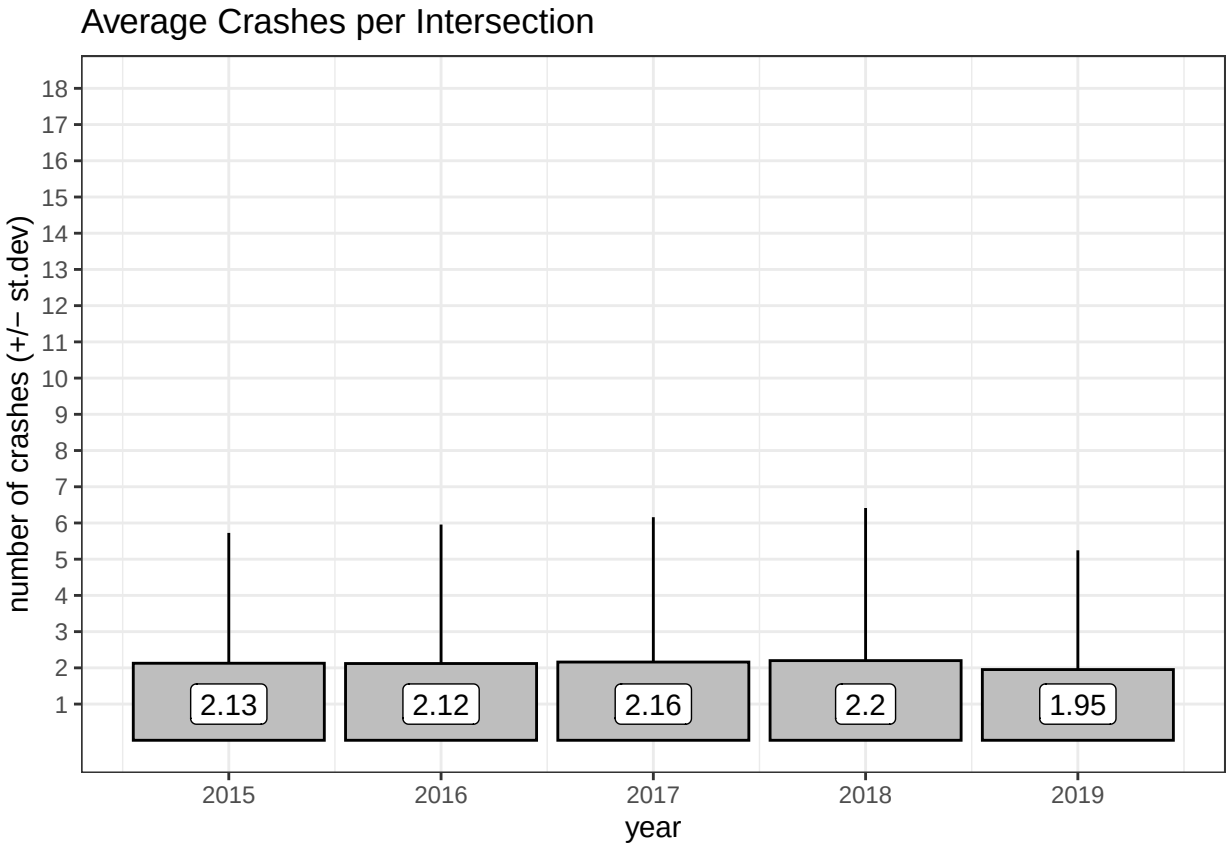
In the last 4 years, a total of 64 crashes was reported in proximity of your intersection. Overall, it seems that there has been a constant and steady increase in the number of crashes since 2015. . . (fig below)

Possibly this might be the result of increase in traffic, with more people commuting to DC (?). Regardless, this trend is quite concerning. . .



That growth in number of crashes does not seems to be the result of a general increase in the number of collisions per intersection. The average number of crashes per intersection has remained quite steady from 2015 to 2019 (see figure below)

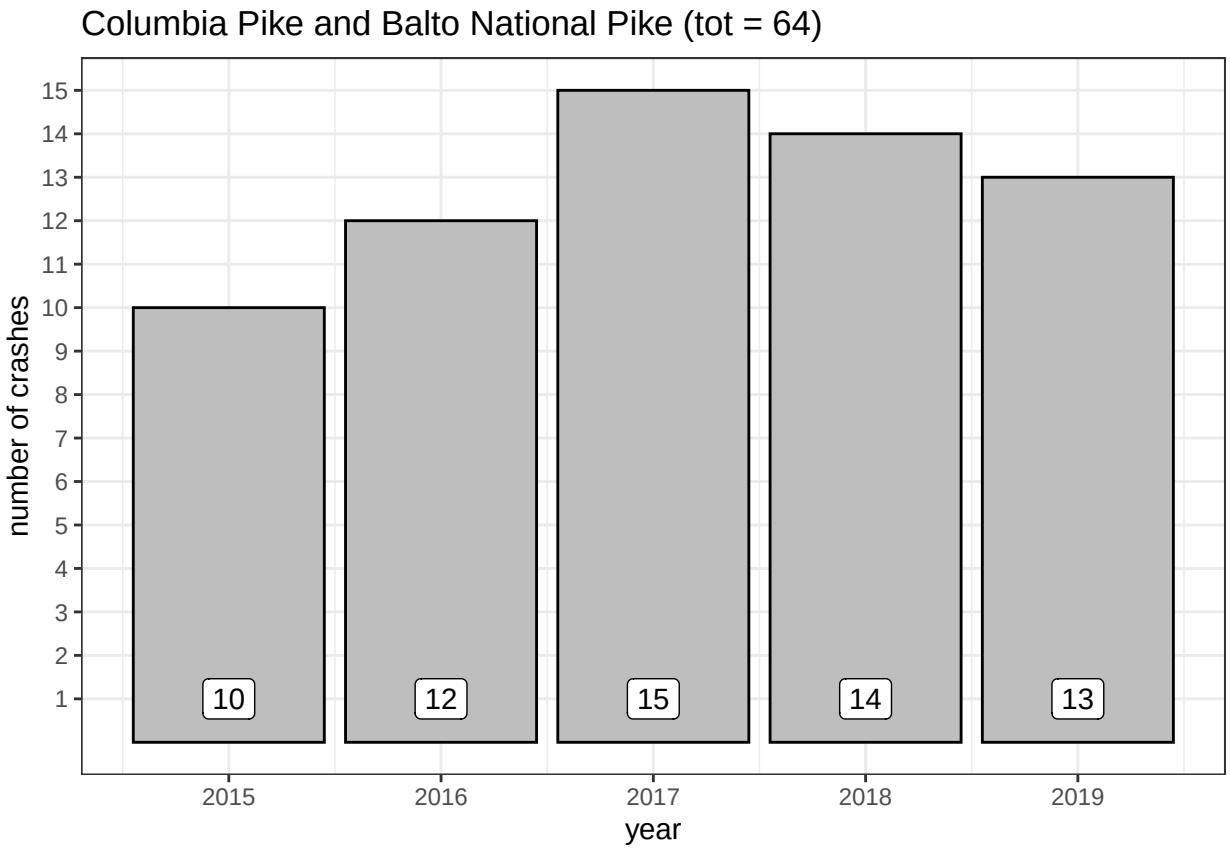
You will notice that the average number of crashes per intersection is quite lower when compared with the ones of yours. Honestly, I am not even sure that a similar comparison is that meaningful. For the vast majority of intersections, the number of crashes is actual just 1, and that really drags down the mean... (this will be looked in detailed in the next section).



I identified a list of other intersections that had the same number of crashes of yours (see tab below).

intersection	n
BRANCH AVE + BEECH RD	64
COLUMBIA PIKE + BALTO NATIONAL PIKE	64
COLUMBIA PIKE + RIVERS EDGE RD	64
CRAIN HWY + CROOM RD	64
EAST WEST HWY + TAYLOR RD	64
EASTERN BLVD + MARLYN AVE S	64
FAIRMOUNT AVE + DULANEY VALLEY RD	64
GEORGIA AVE + DENNIS AVE	64
GOV RITCHIE HWY + W ORDNANCE RD	64
INDIAN HEAD HWY + AUDREY LA	64
OCEAN GATEWAY + WHITE LOWE RD	64
PHILADELPHIA RD + GOLDEN RING RD	64
ROCKVILLE PIKE + GROSVENOR LA	64
SOUTHEAST BLVD + OLD EASTERN AVE	64
W NORTHERN PKWY + FALLS RD	64

I then looked at yearly trends for one of them (COLUMBIA PIKE + BALTO NATIONAL PIKE) (look below).



I don't see for that intersection a clear year by year increase in crashes as for yours.

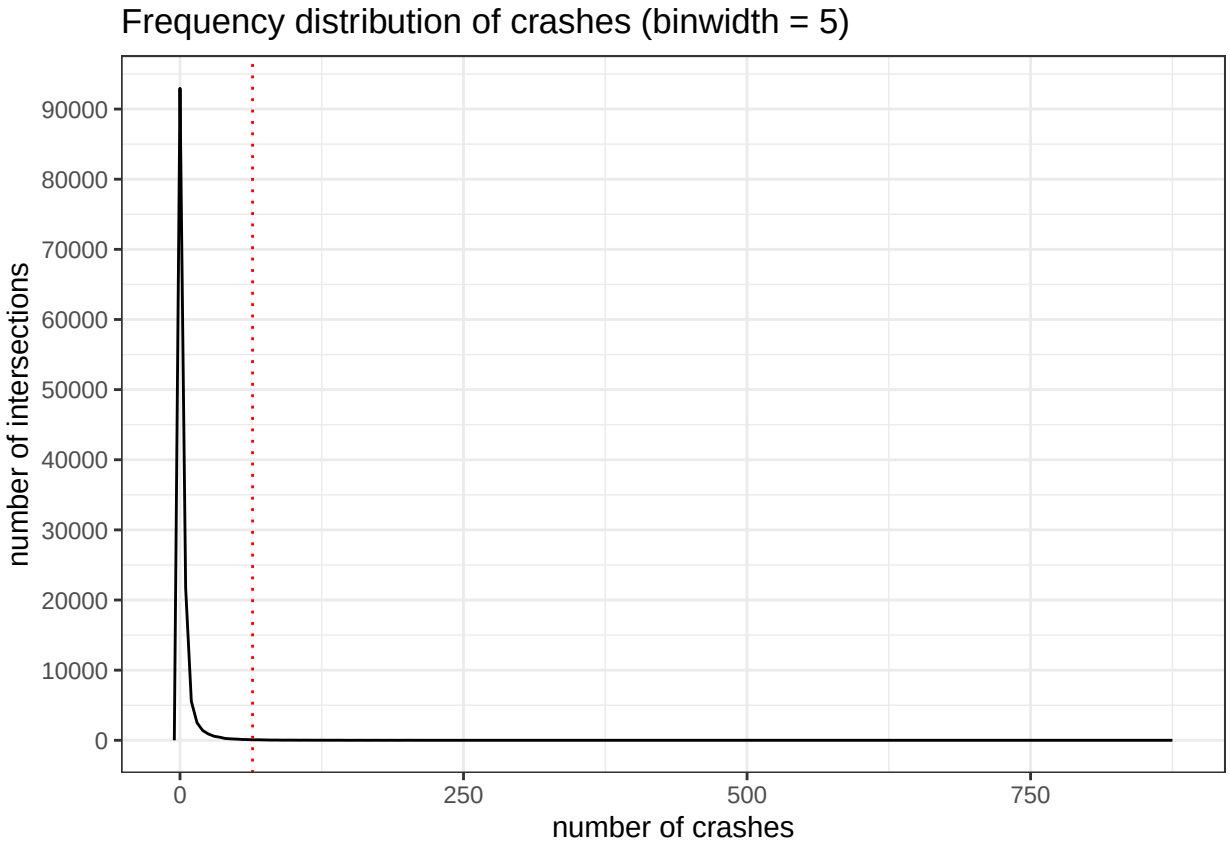
So far, it seems to me that your intersection is becoming more dangerous, and this is not true for average intersection or another intersection of Columbia Pike (with same total crashes).

Distribution

The distribution of crashes per intersection is severely right skewed (look figure below).

In the last 4 years, more than 90000 of the intersections of the dataset **had no more than 5 crashes**. Actually, I am pretty confident that if we were ti included all the intersections of MD, the distribution would be even more right skewed (with a lot of 0 crashes).

The red line in the graph below indicates the bin containing your intersection. This can help for putting it in prospective...



See below a list with the top 20 intersection for number of crashes in the last 4 years.

intersection	n
CAPITAL BELTWAY + CONNECTICUT AVE	871
NO NAME + BALTO BELTWAY	677
NO NAME + NO NAME	677
CAPITAL BELTWAY + BALTIMORE WASHINGTON PKWY	637
CAPITAL BELTWAY + GEORGIA AVE	606
NO NAME + POWDER MILL RD	523
NO NAME + WATERLOO RD	499
BALTO BELTWAY + LIBERTY RD	495
CAPITAL BELTWAY + ANNAPOLIS RD	471
CAPITAL BELTWAY + BRANCH AVE	471
CAPITAL BELTWAY + PENNSYLVANIA AVE	467
BALTO BELTWAY + NO NAME	465
CAPITAL BELTWAY + BALTIMORE AVE	455
CAPITAL BELTWAY + RITCHIE MARLBORO RD	443
CAPITAL BELTWAY + RIVER RD	443
CAPITAL BELTWAY + ROCKVILLE PIKE	429
BALTO BELTWAY + SECURITY BLVD	411
CAPITAL BELTWAY + LANDOVER RD	392
CAPITAL BELTWAY + CENTRAL AVE	391
BALTO BELTWAY + GREENSPRING AVE	373

Take Home Message.

So far, the most striking observation is the yearly increase in the crashes in your intersection.

This is still very preliminary. Tomorrow I will keep looking at the data.