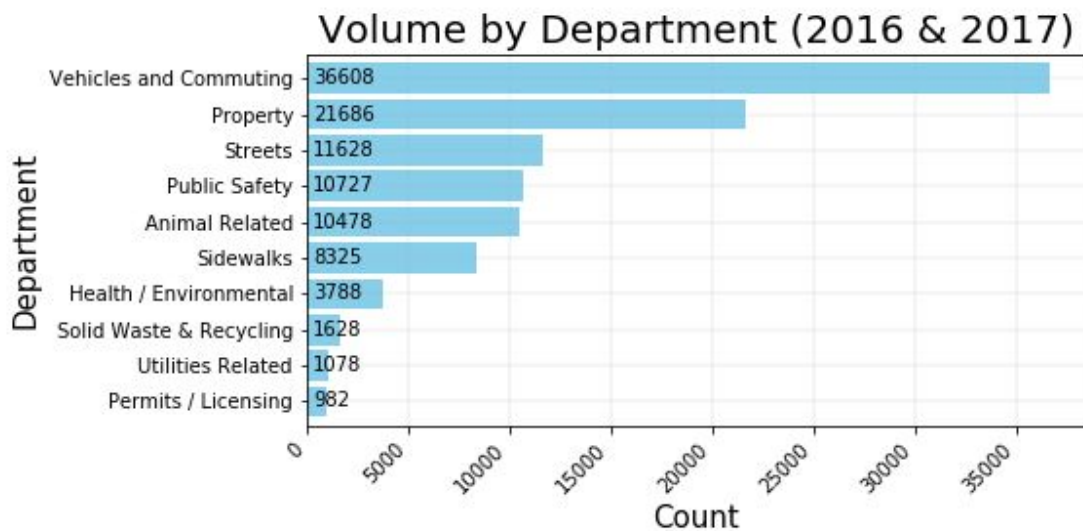


# Minneapolis 311 Calls: Exploratory Data Analysis

By Langhan Dee

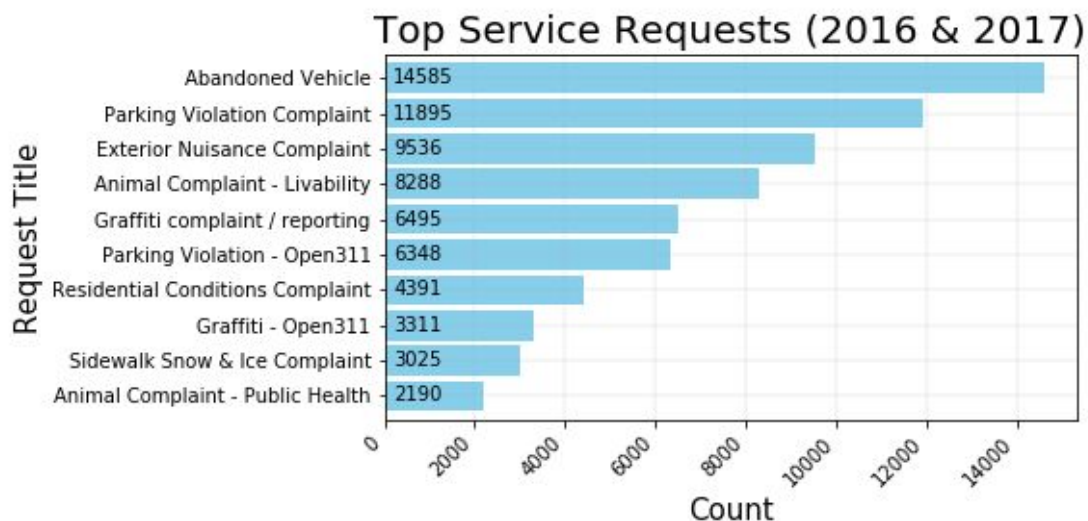
## 1. The busiest departments

**Vehicles and Commuting** and **Property**, make up **55% of call volume**. Not surprisingly, 5 of the top 7 case titles are from these two departments



## 2. Ten most common 311 service requests

Minneapolis residents care about where other people leave their cars. The two most common call types were reporting **abandoned vehicles** and **parking violations**. In 2017 alone, there were 8,700 calls regarding abandoned vehicles, and 9,775 reports of parking violations. That's an average of 26.78 parking violations per day.



### 3. Distribution of complaints by reporting platform (Phone, App, Online)

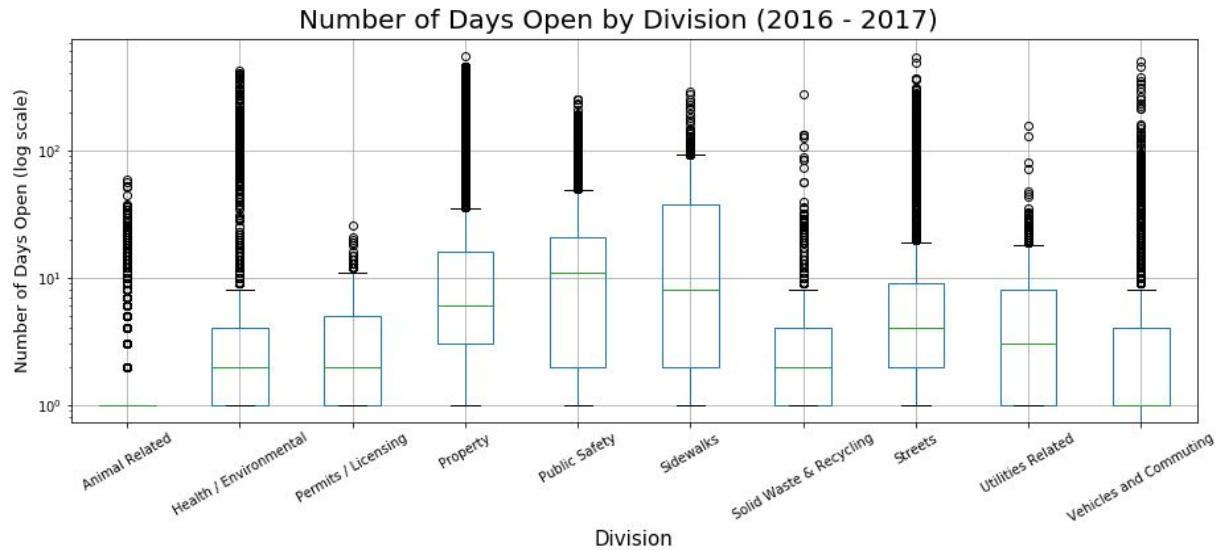
- **The Open311 mobile app accounted for 17% of cases.** This platform was heavily used for issues residents noticed while not at home: Parking Violation complaints, Graffiti, Abandoned Vehicles, Sidewalk Snow and Ice, Potholes, and other road-related complaints.
- **The App topics were well chosen to reduce phone staff.** All are high-volume service drivers, while none require immediate assistance (as Animal-Related complaints might). This seems to be an efficient use of technology.
- **Online reporting made up only 2% of cases.** The self-service online portal was only used for 3 case types: Sidewalk Snow and Ice, Exterior Nuisance, and Unpermitted Work (work requiring a City permit).

### 4. How many days does it take to close a case?

- **On average, cases were closed within 3 days.** Within a week (7 days), 75% of cases are closed.

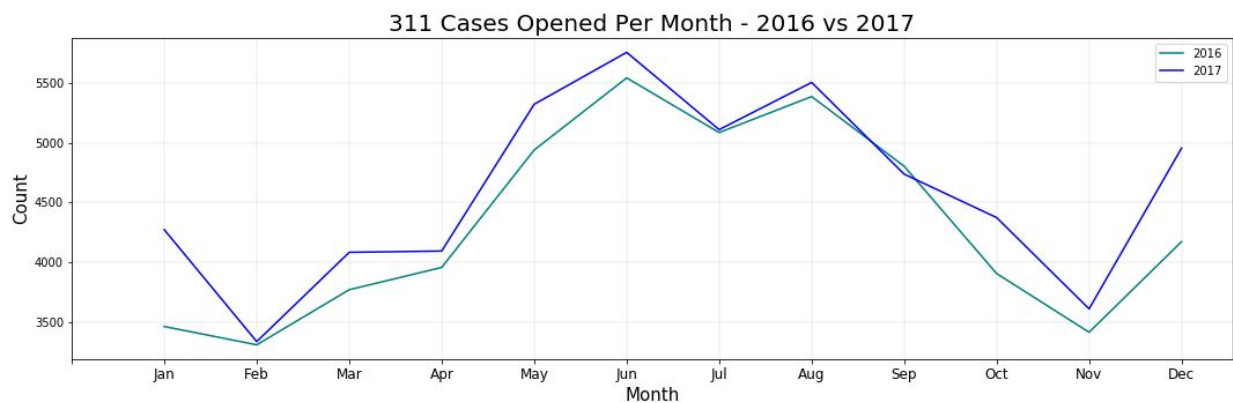
### 5. Average number of days cases are open - per division

- **Animal-Related** cases had the fastest response time. More than 75% of cases were closed within 1 day of being opened. As these cases included reports of abandoned, stray, or mistreated animals, they were the only call types affecting the immediate safety of living creatures.
- **Public Safety** had the highest median of 11 days open. This subject included one of the top ten volume drivers, Graffiti complaints.
- **Sidewalks** had the second highest median days open at 8 days, however, 75% of these complaints took 38 days to close. Sidewalk Snow and Ice complaints built up each winter and then were closed as a group when the weather warmed up. The volume of these complaints increased dramatically in 2017. They were so problematic that in 2018 the City plans to enforce inspections and fines to encourage people to keep their sidewalks clear.



## 6. Busiest months for opening cases

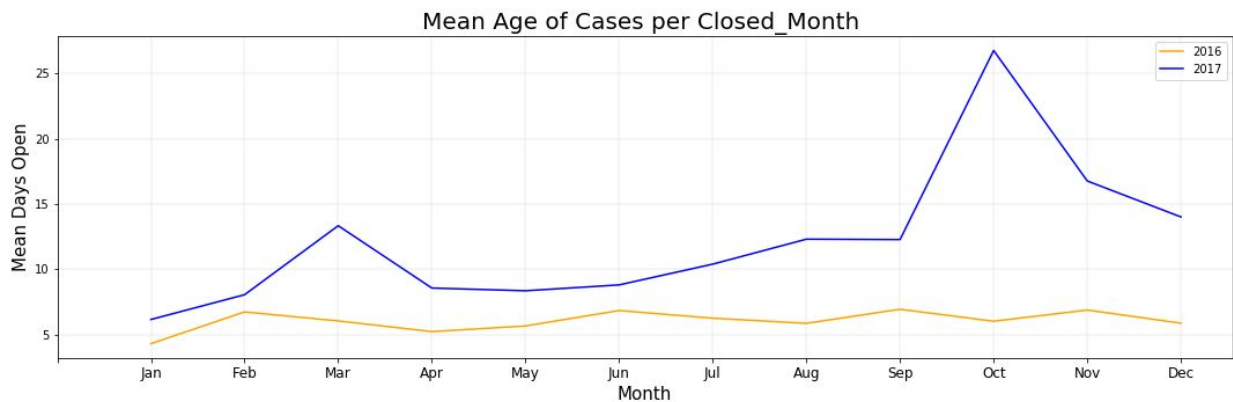
- **May - September ('16) and October ('17):** Volume during the summer months is driven by Abandoned Vehicles and Exterior Nuisance cases. The peak season lasted a month longer in 2017 and was slightly higher than 2016 every month except September.
- **December:** Another spike happens in December when snow accumulates and Sidewalk Snow and Ice complaints are reported.



## 7. How old are cases when they're closed?

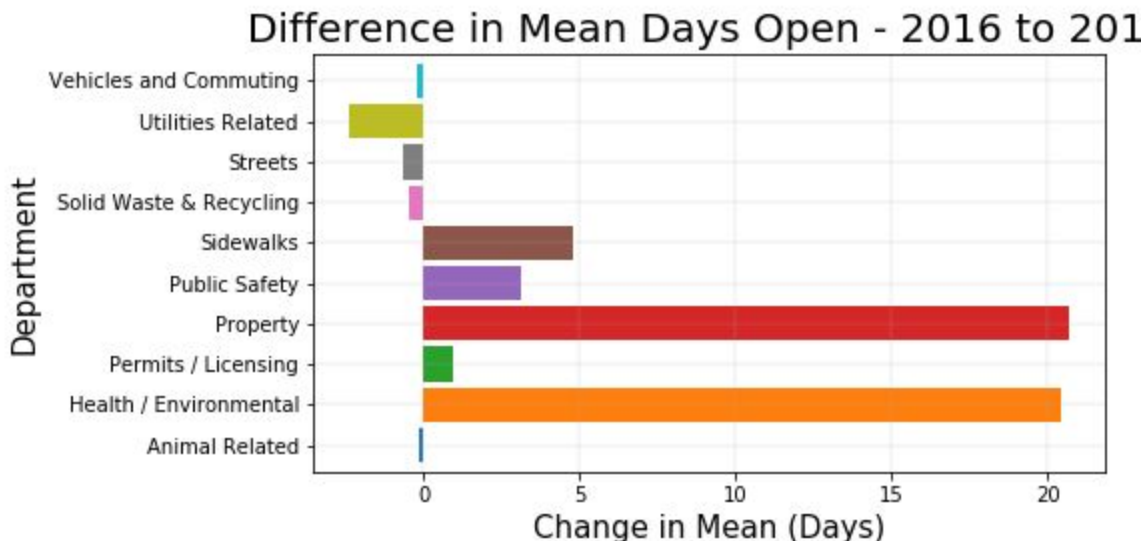
- Spikes in case age show when batches of old cases were closed. On 2017-03-31, the 2016 **Sidewalk Snow and Ice complaints** were closed en masse. The following year, Minneapolis didn't wait as long to close similar cases. The group of Sidewalk cases was closed on 2018-01-29.

- A cluster of **Residential Conditions Complaints** was closed on 2017-10-31. Some of these complaints were opened as early as November 2016.
- It should be noted that the 2016 line is relatively flat because 2015 cases were not included in the data, but were still being handled by the city of Minneapolis.



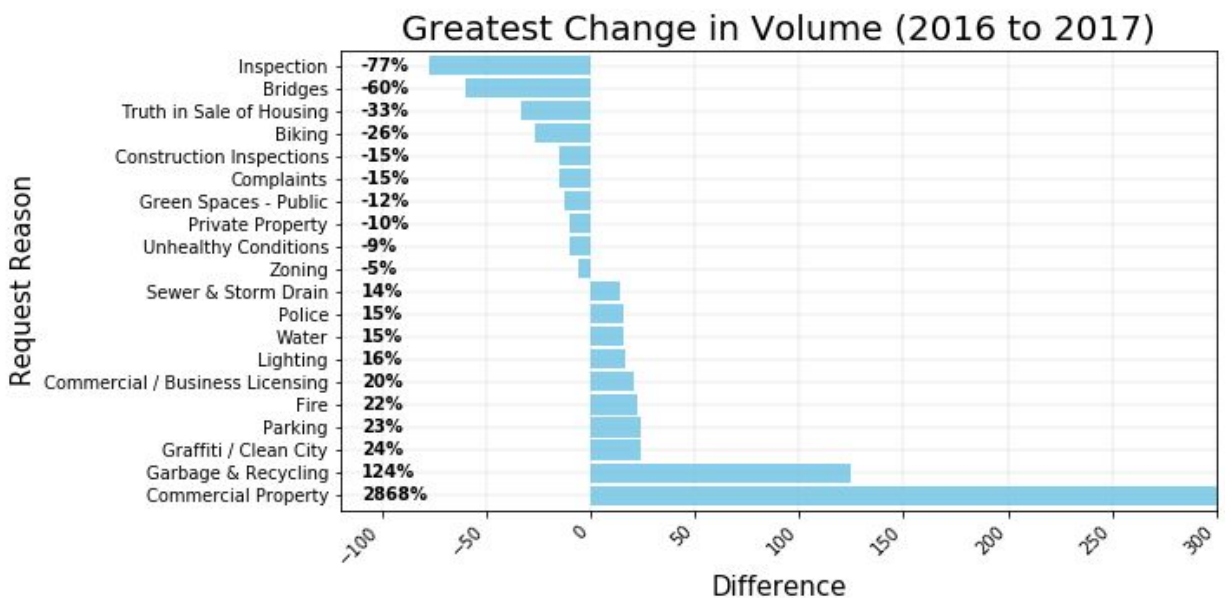
## 8. Complaint types with the largest change in the number of days open from 2016 to 2017

- From 2016 to 2017, **Vehicles and Commuting, Streets, Solid Waste & Recycling, Permits / Licensing, and Animal-Related** cases all had minimal change in the amount of time it took to close cases. The mean close time differed by less than 1 day.
- At the other end of the spectrum, **Property** and **Health / Environmental** cases increased by slightly over **20 days**.
- There are over 10 times as many **Private Property** cases than any other Property sub-type. These cases, specifically Exterior Nuisance complaints, overwhelmingly drive the Property group's metrics. Although the number of Private Property calls decreased by around 10% from 2016 to 2017, **the average days open increased from 14.5 to 37.1 days**.



## 9. Complaint types with the largest change in volume from 2016 to 2017

- Commercial Property: 2868.97%
- Garbage & Recycling: 124.95%
- Graffiti / Clean City: 24.14%
- Parking: 23.80%
- Fire (Fire Rig Visit Request): 22.71%



## 10. Do case types correlate with neighborhood location?

- The chi-squared test was used to examine the relationship between the Case Type and Neighborhood variables. The test produced a p-value near 0.0, indicating a strong correlation.
- The McKinley neighborhood is an outlier for average case age at 21 days.

