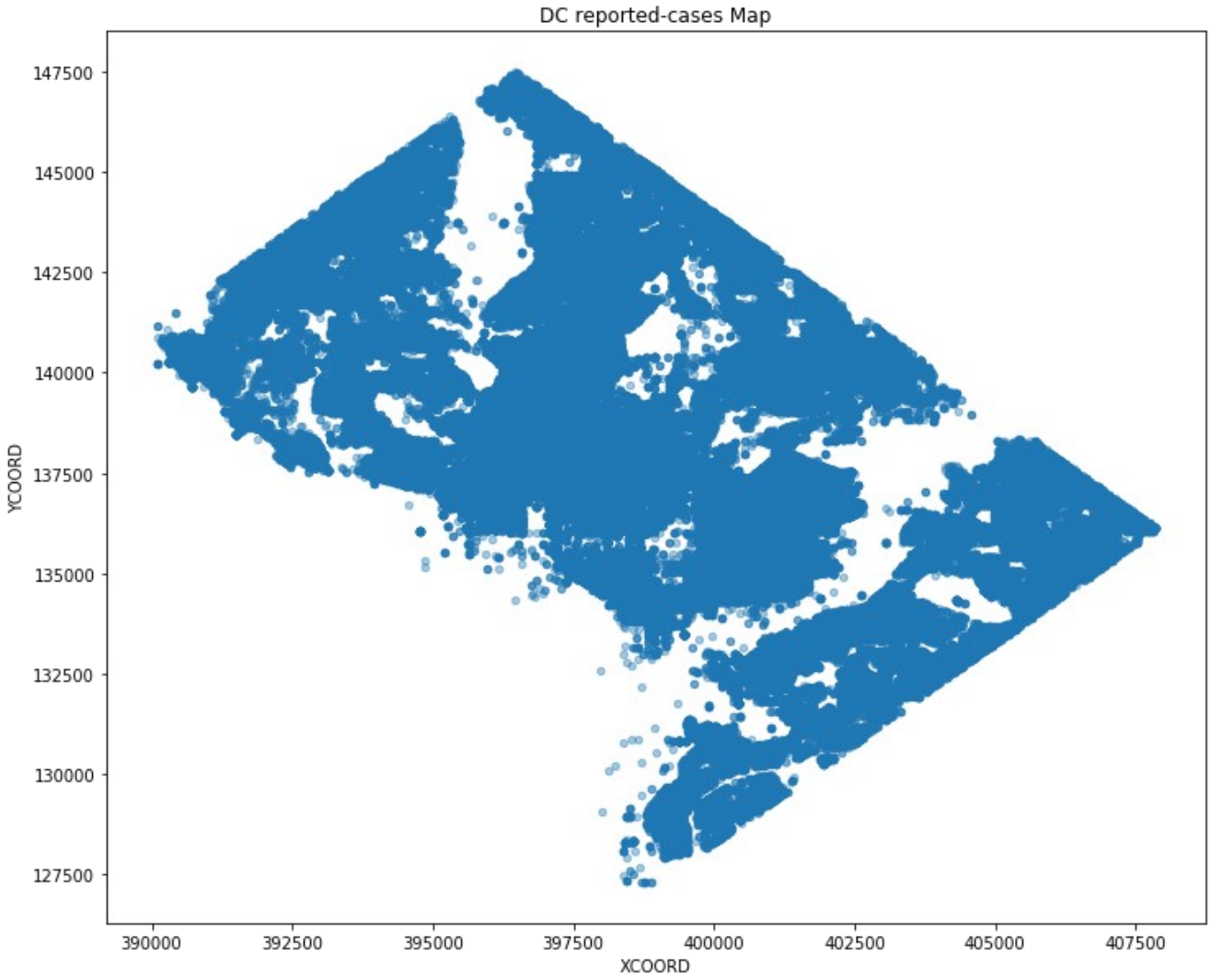
# Data Analysis of City Service Requests in 2018 for Washington D.C.




### *Introduction*

This report is going to present an analysis of the city service requests received by the Office of Unified Communications (OUC) through the Mayor's Call Center (311). The OUC oversees the designated call center for all 311 calls and for all District 911 calls. The requests made could be for Trash Pick-up, Homeless people, Parking meter repairs etc.

In this report we are going to present our findings regarding the roles and efficiencies of different departments, try to look at the common and important issues reported. So, at the end we are going to conclude how and what should/can be done in-order to make this city better and serve its people well.

## Analysis

# Department-wise Analysis

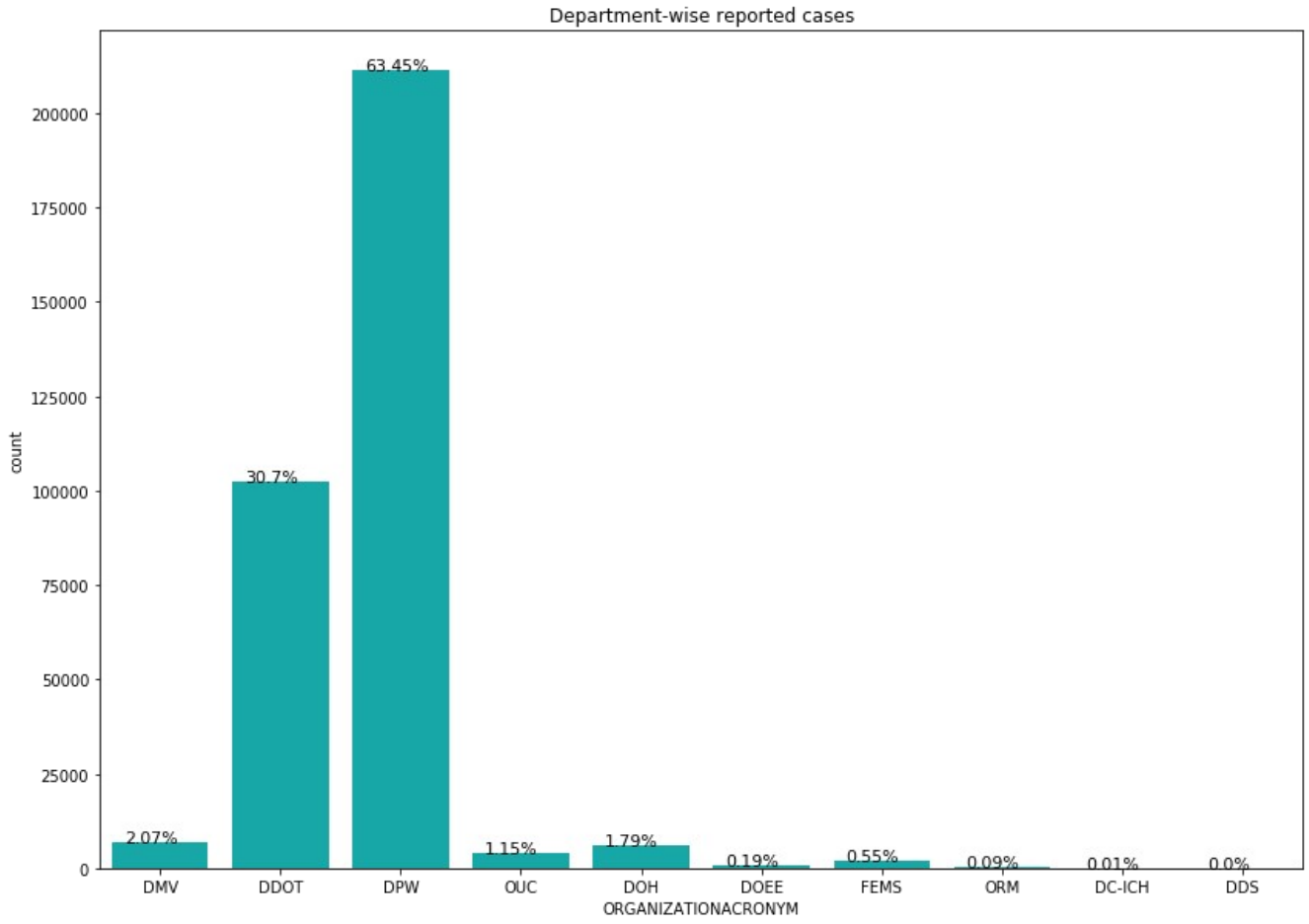
There are 10 departments equipped with different roles in DC. So, first we try to analyze how the reported cases are spread department-wise, which would give us an idea about which departments have more cases reported and thus narrowing out the analysis spectrum.

| | |
|---|---|
| DMV | Department of Motor Vehicles |
| DDOT | District Department of Transportation |
| DPW | Department of Public Works |
| OUC | Office of Unified Communications |
| DOH | Department of Health |
| DOEE | Department of Energy and Environment |
| FEMS | Fire and Emergency Medical Services Department |
| ORM | Office of Risk Management |
| DC-ICH | District of Columbia-Interagency Council for Homelessness |
| DDS | Department on Disability Services |

As you can see from ***figure 1*** that most of the reported cases are in DPW (63.45%), DDOT (30.7%), DOH(1.79%), DMV(2.07%). But this doesn’t mean we are going to leave

the other departments, we are definitely sure of one thing that DPW and DDOT are really busy all the year round.

**Figure 1:**



## Status ( open/closed) of cases

**Figure 2:**

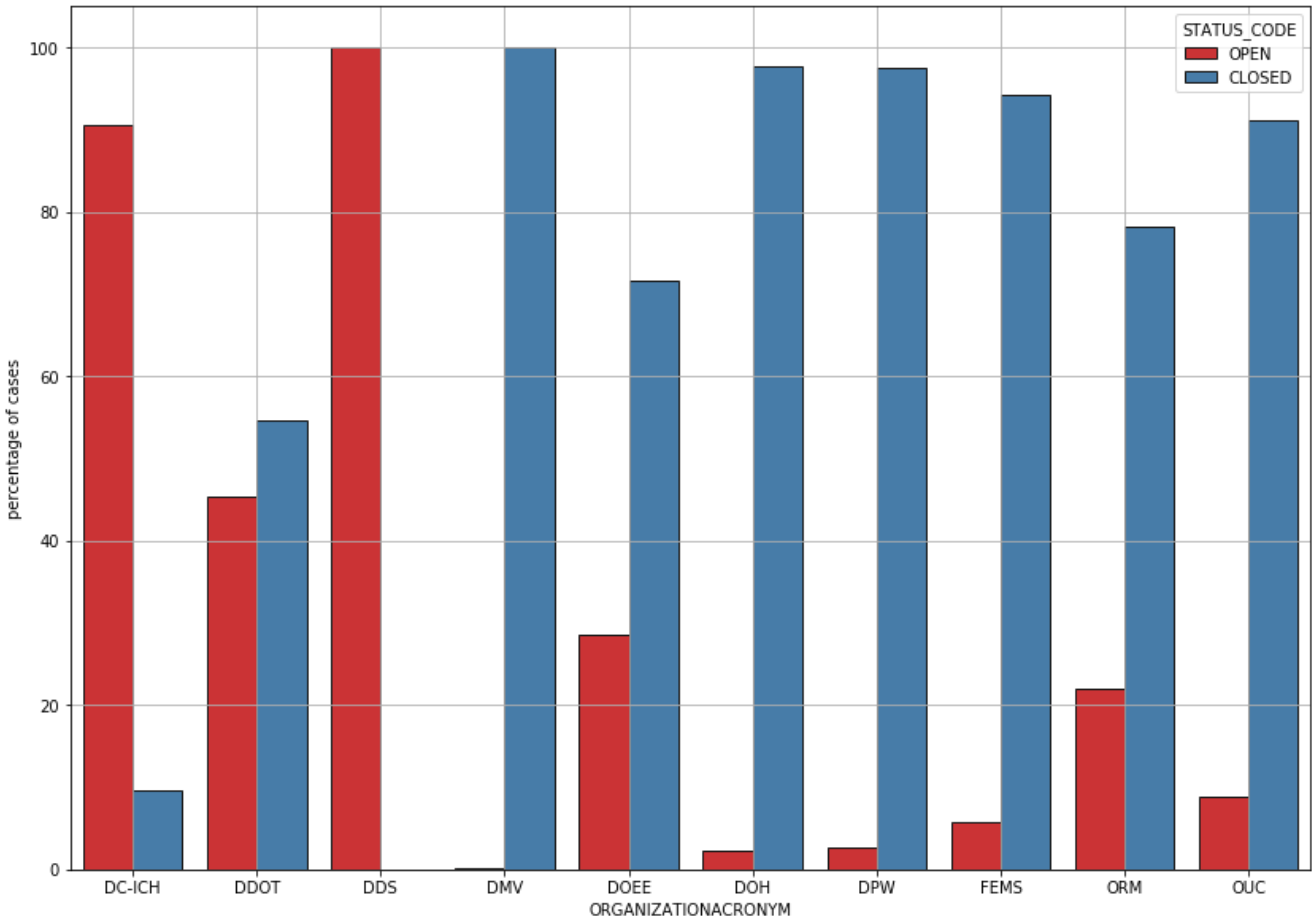



***Figure 2*** gives us a visualization of about the efficiency of each department, here the red bars correspond to percentage of cases which are still open and blue bars correspond to percentage closed cases in a particular department.
So, from this we can say that the DC-ICH, DDOT and DDS have comparatively high number of unsolved cases, which gives narrows down our search criteria to look into these particular departments, while the other departments are doing fairly well.

**Figure 3:**

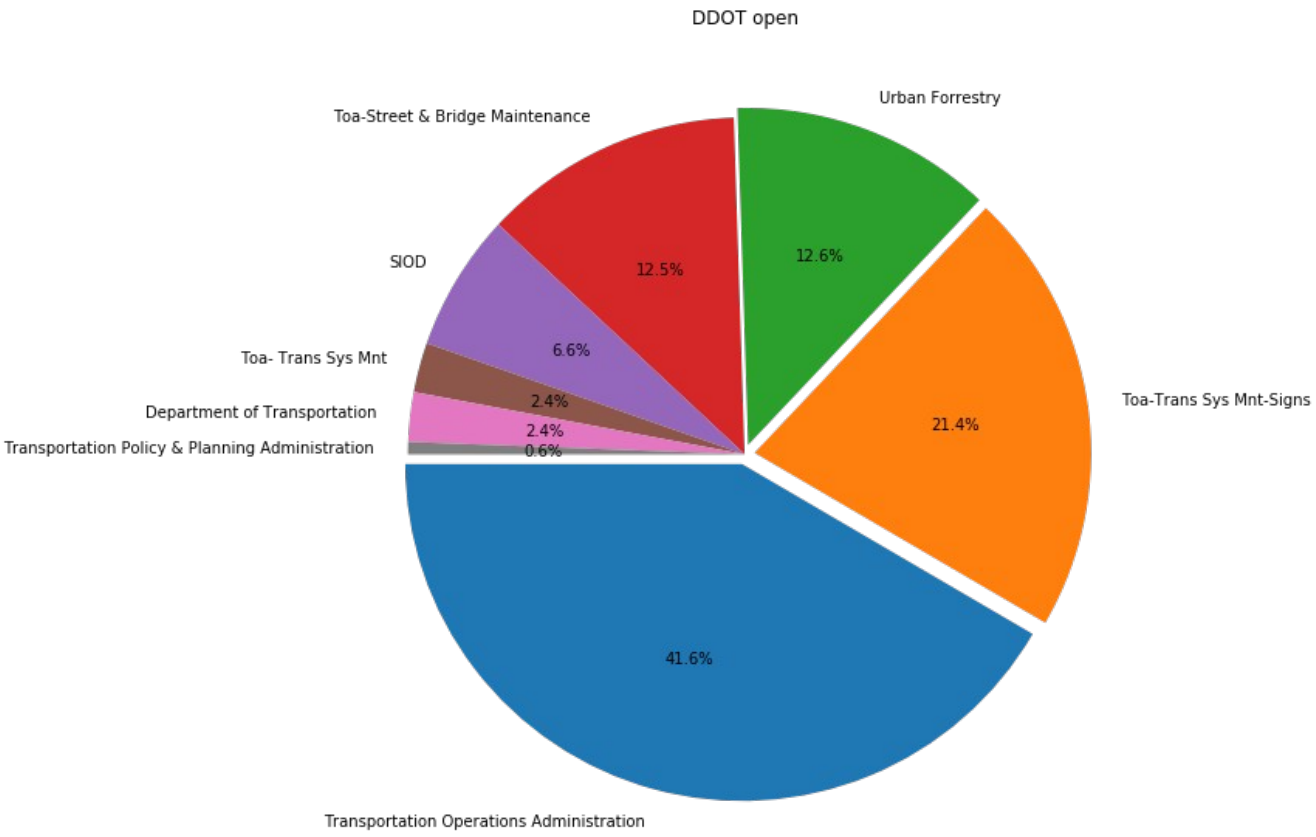



*Figure 3*, gives us an illustration that most of the cases which are open in DDOT belong to the *Transportation Operations Administration, Toa-Trans Sys Mnt-Signs and Urban Forrestry.*

So, let's try to look at these particular cases and see what major contributions to the cases are coming from.

**Figure 4: Transportation Operations Administration**

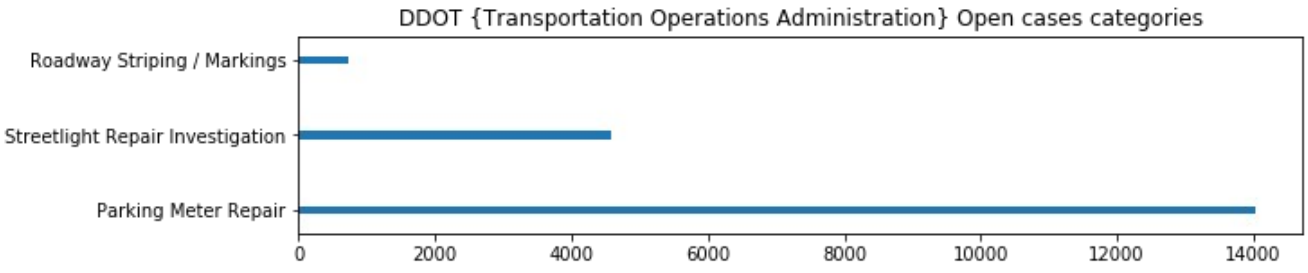



Figure 4, gives us an illustration that in Transportation Operations Administration category of DDOT, most cases either belong to Parking meter repair or Streetlight repair.

**Figure 5: Toa-Trans Sys Mnt-Signs**

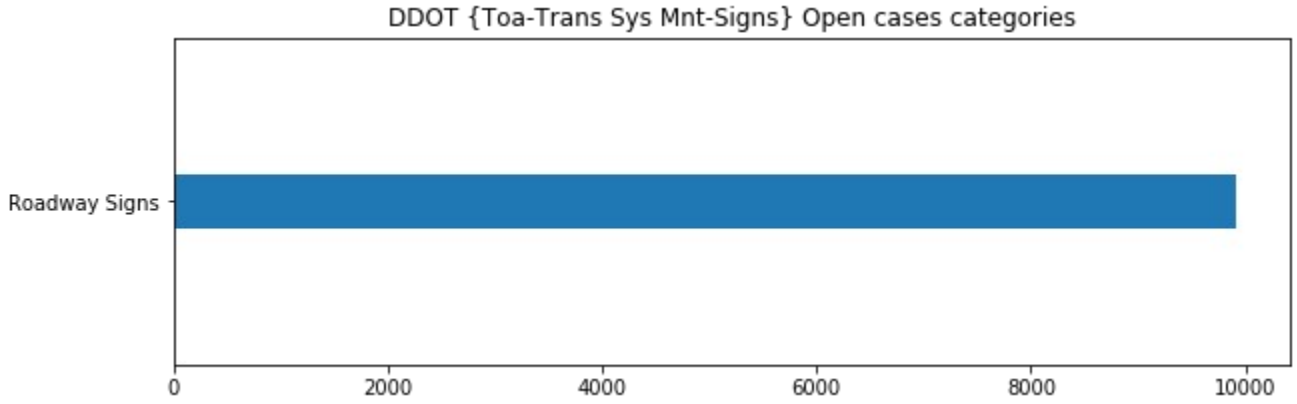



Figure 5, shows us that that in Toa-Trans Sys Mnt-Signs category of DDOT , most cases are related to roadway signs.

**Figure 6: Urban Forestry**

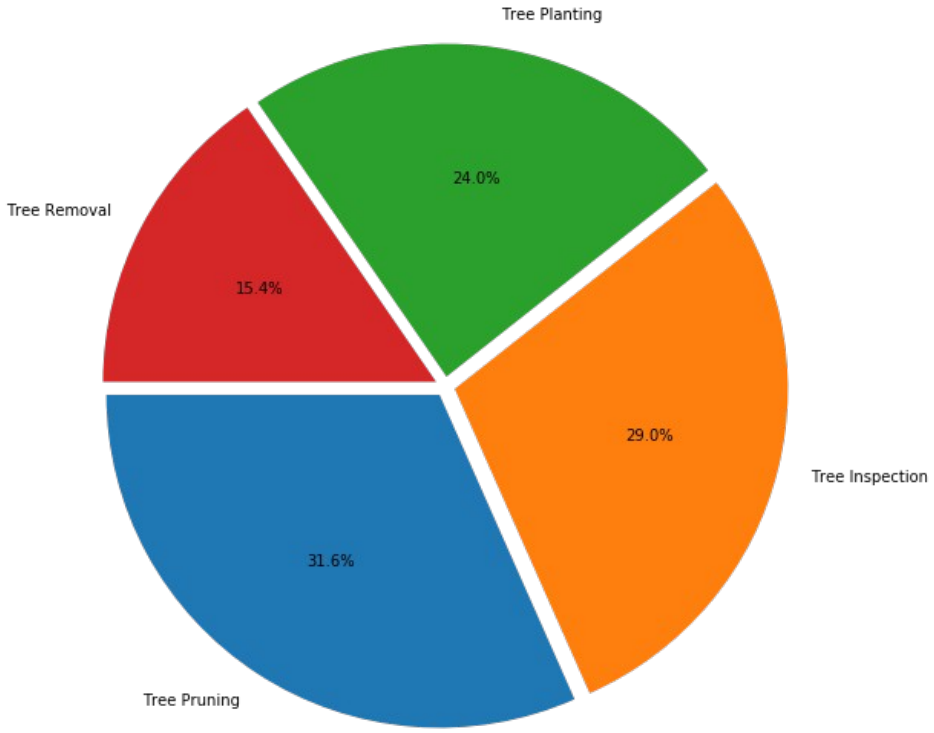



Figure 6, displays the contributions in Urban Forestry category of DDOT.

Conclusion: So, from above visualizations we conclude that
1. The DDOT department has a decent number of open cases.
2. The major contribution to open cases is coming from:
    2 a) Parking meter repairs
    2 b) Streetlight repairs
    2 c) Roadway signs
    2 d) Forest related activities

So, the DDOT department either has a few problems
1. they might be short on staff.
2. they don't care.
3. they don't have proper management of  person-power.

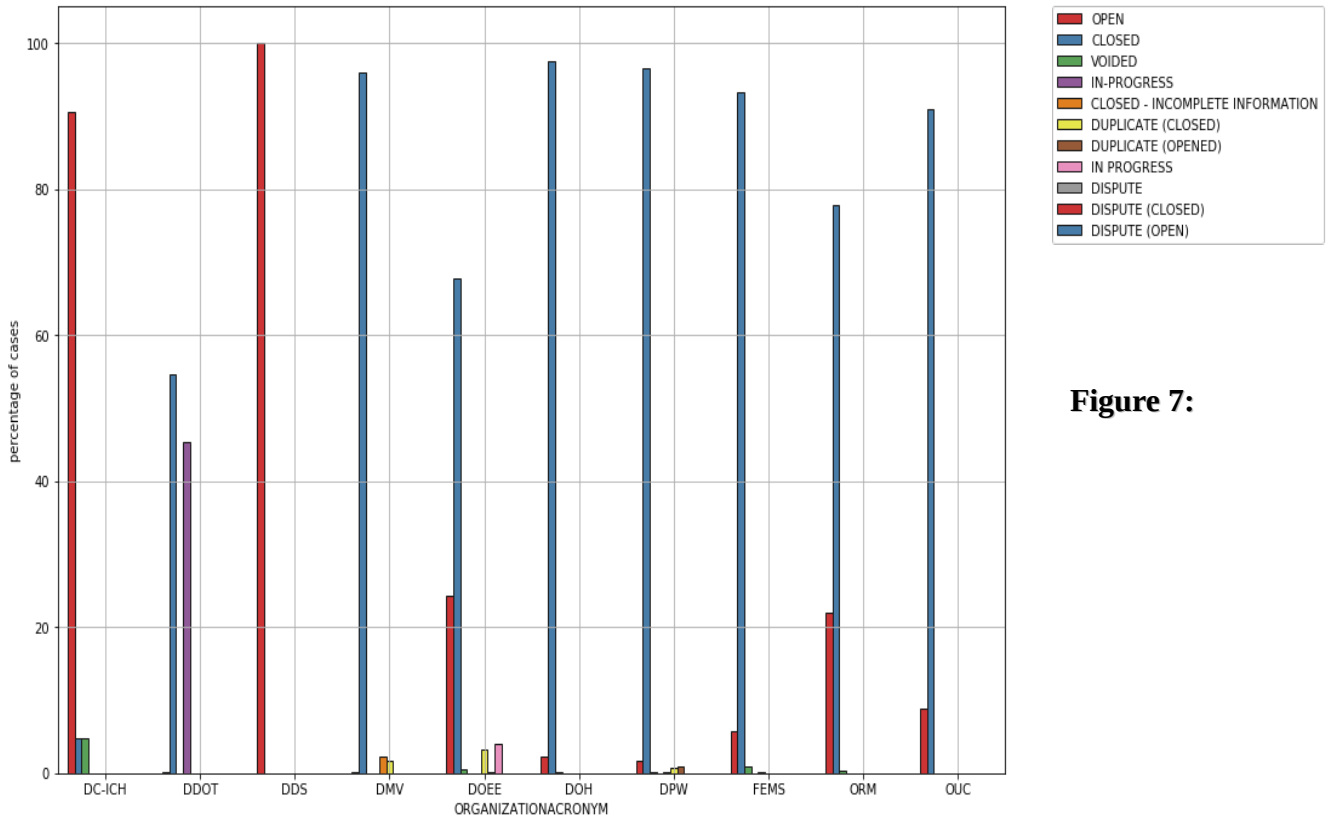



**Figure 7:**

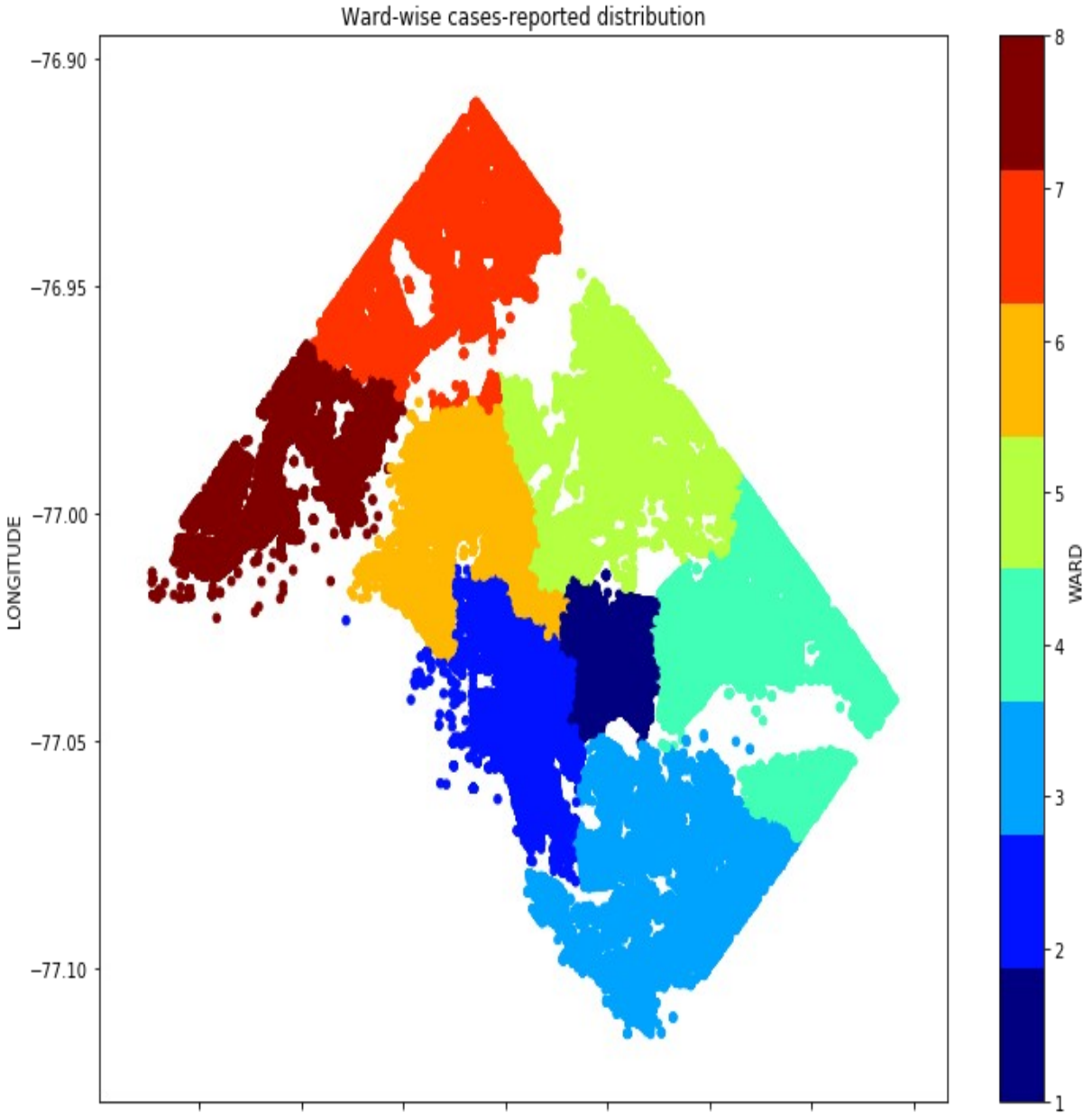
Now, Since from ***Figure 2,*** we observed that DDS and DC-ICH alos have a higher number of open cases but turns out most them are in the dispute category and have been put in open category as is quite evident from the figure 7

## Ward-wise cases reported

In this part of our report we would show ward wise analysis analysis of the cases-reported.

So, Washington DC has been divided into 8 wards.

**Figure 8:**




So, **figure 8**, represents the the distribution of all the cases on a map in particular wards.

**Figure 9:**

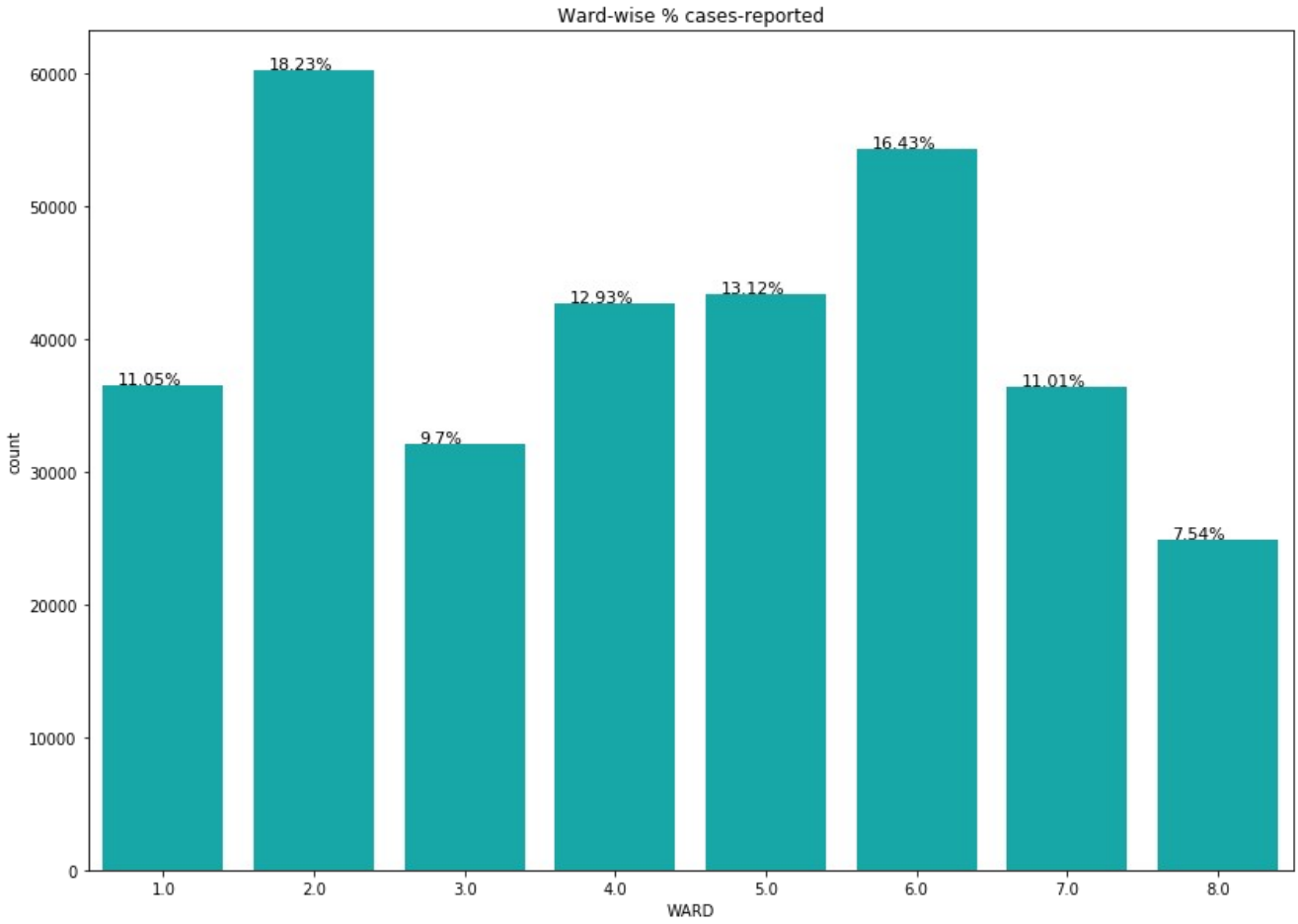



**Figure 9**, gives us an illustration of the fact that wards 2 and 6 have a really high number of cases-reported , while other wards also have a decent amount of complaints. So, we can say the complaints are fairly we distributed over the DC region and not concentrated to some particular regions.

So, lets try to have a look at the case-distribution for ward 2

**Figure 10:**

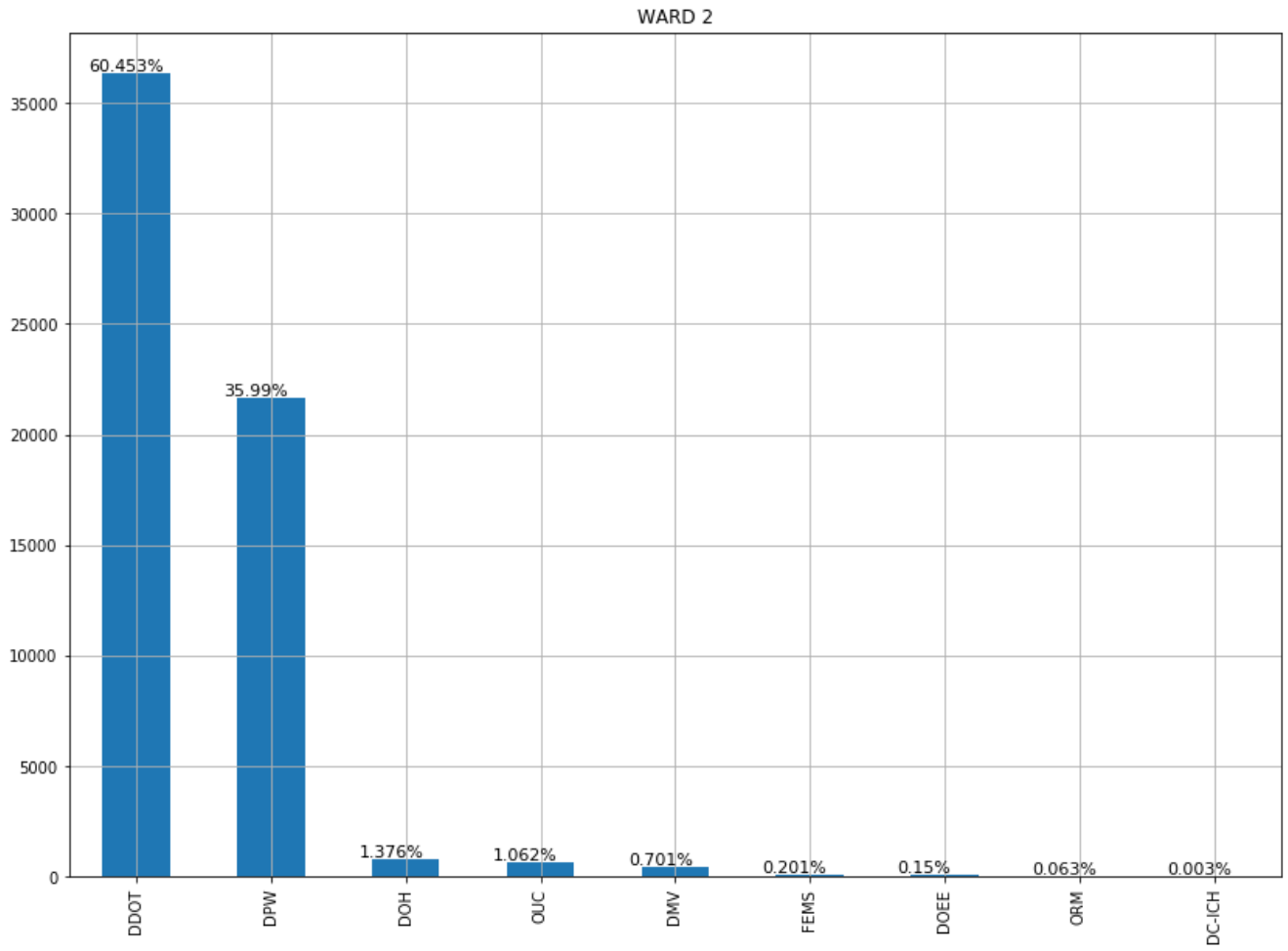
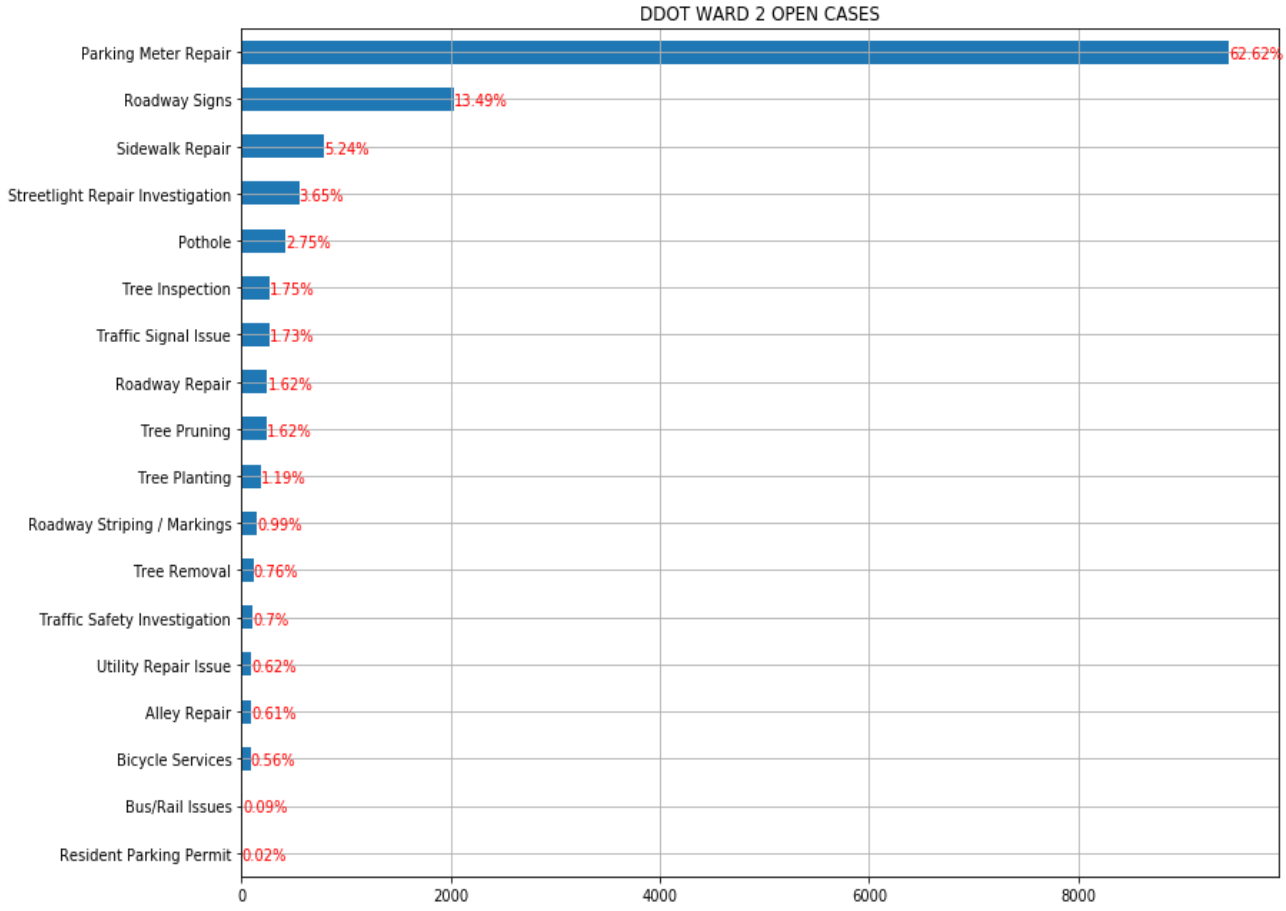



Figure 10, show that 60% of the cases reported are for DDOT, and ~36% for DPW.
So, it would be nice to look at the DDOT open case category in ward 2 see fig 11 below.
Which gives us the same conclusion as our previous findings that most complaints are for Parking meter repair followed by roadway signs

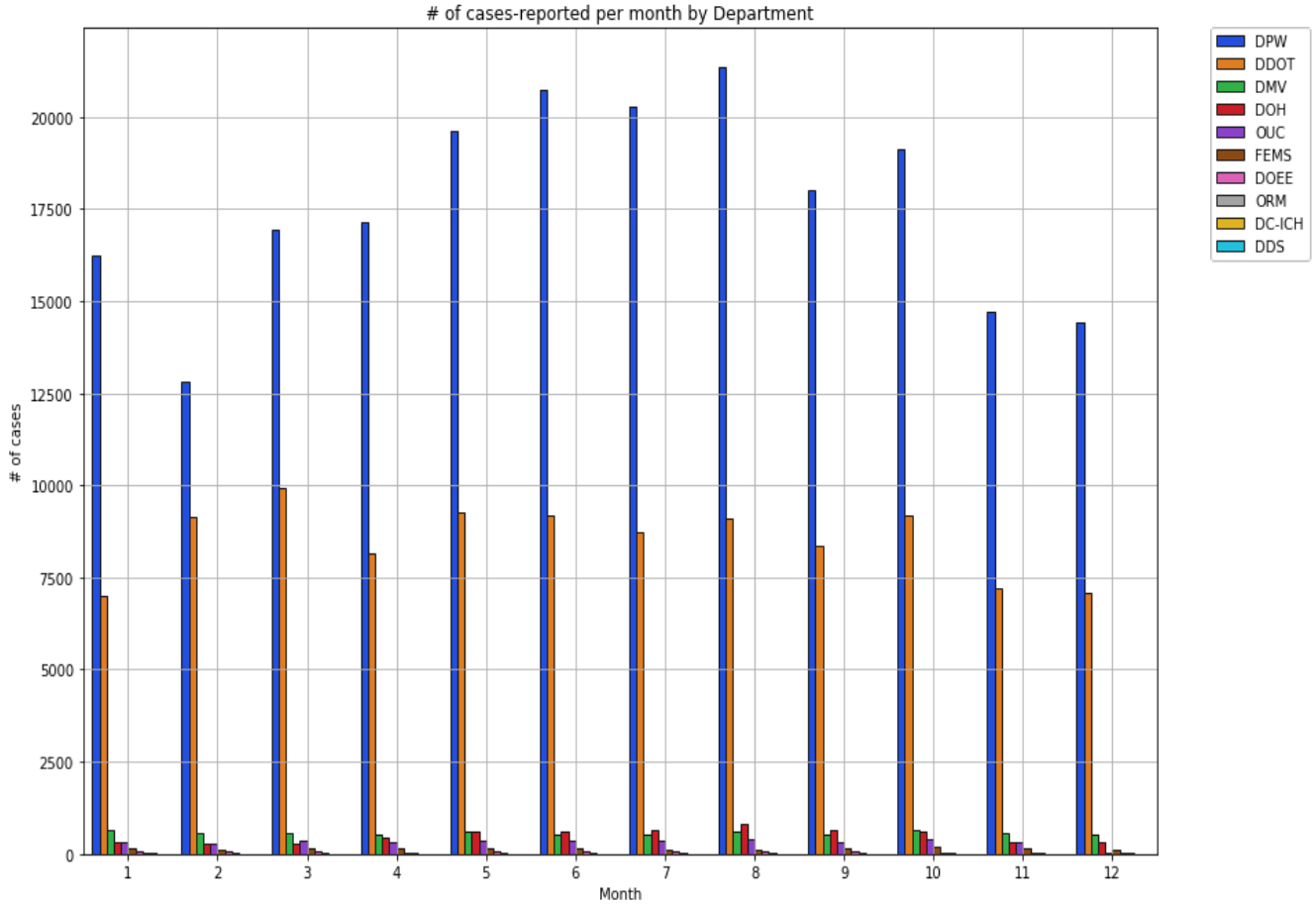
**Figure 11:**


DDOT WARD 2 OPEN CASES
Parking Meter Repair
Roadway Signs
Sidewalk Repair
Streetlight Repair Investigation
Pothole
Tree Inspection
Traffic Signal Issue
Roadway Repair
Tree Pruning
Tree Planting
Roadway Striping / Markings
Tree Removal
Traffic Safety Investigation
Utility Repair Issue
Alley Repair
Bicycle Services
Bus/Rail Issues
Resident Parking Permit
62.62%
13.49%
5.24%
3.65%
2.75%
1.75%
1.73%
1.62%
1.62%
1.19%
0.99%
0.76%
0.7%
0.62%
0.61%
0.56%
0.09%
0.02%
0
2000
4000
6000
8000

## Month-wise analysis

In this part of the report we are going to present how the cases reported evry month are spread  over departments.

**Figure 12:**




So, Figure 12 shows us that the DPW and DDOT  have cases all the year round. So, a special focus on these two particular departments would be good idea to start.

# Conclusion

1. DPW, DDOT and DMV are the departments with the major share of reported cases.
2. Open to Closed cases ratio for DDOT is really high
3. DC-ICH has many homeless people open cases.
4. Ward 2 has the most number of cases reported among all wards, which I feel is because it the center of the city and where all the tourist spots are.
5. DPW is the most efficient department as even though the have a lot of cases-reported, their open to closed cases ratio is excellent.
6. Most of the cases-reported for DPW are for bulk collection.

Sources and references:

dataset: http://opendata.dc.gov/datasets/city-service-requests-in-2018?geometry=-77.861%2C38.708%2C-76.211%2C39.082

Visualization tools used : python, matplotlib, seaborn.