

Non-Incredible Trash Haulers

Presented by Team Incredibles

Jamila Madda

Geraden Hraba

Kanak Gupta

Jacob Cook



Introduction



Data Source: Service request related to missed trash pickups from hubNashville for 3 companies
- Red River, Metro, Waste Ind



Data Timeline: Nov 2017 to Nov 2019 (2 yrs)

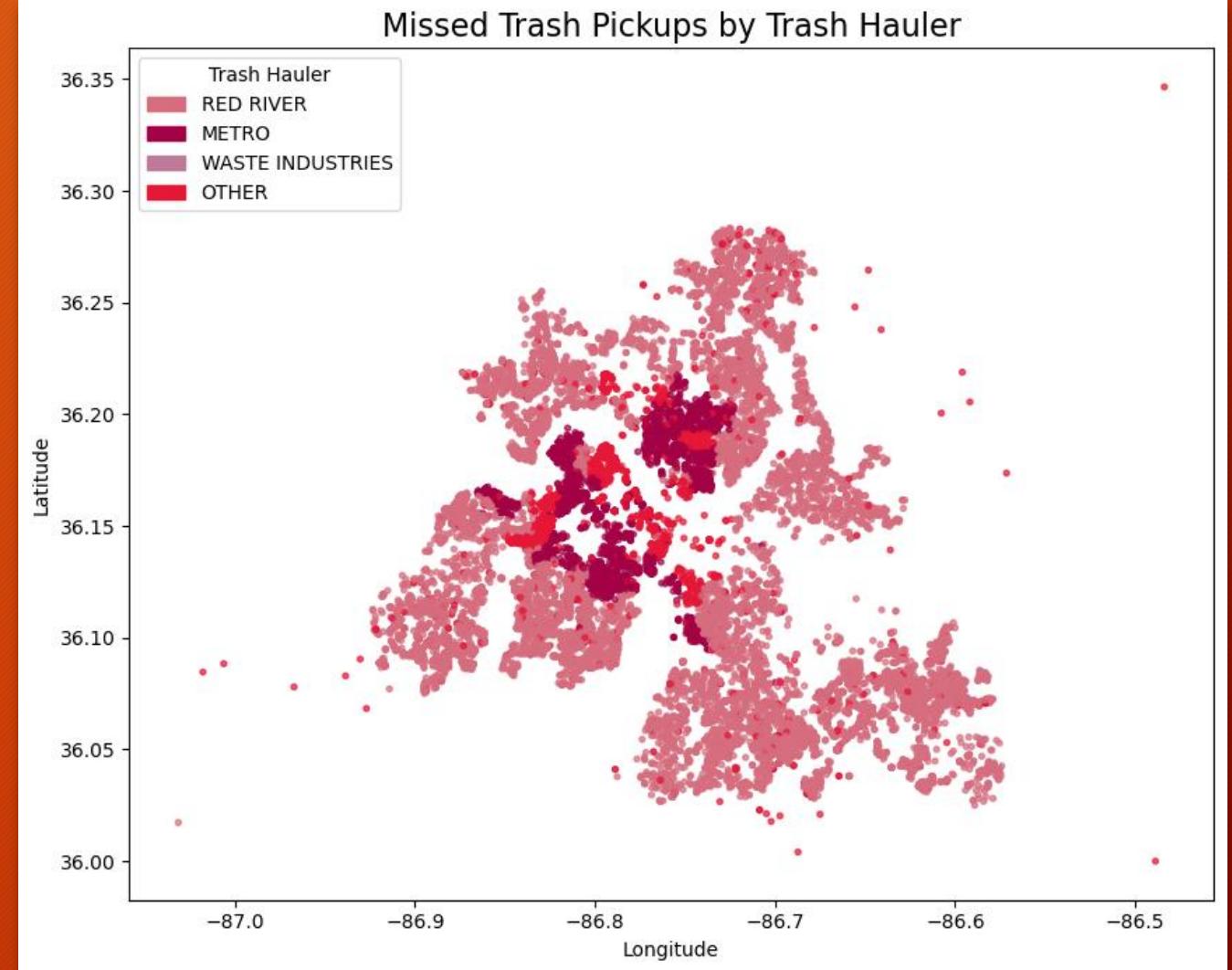
Data Cleaning

Changed datatype of ‘date opened’ column to datetime and zipcode to object

Replaced ‘Metro’ with ‘METRO’

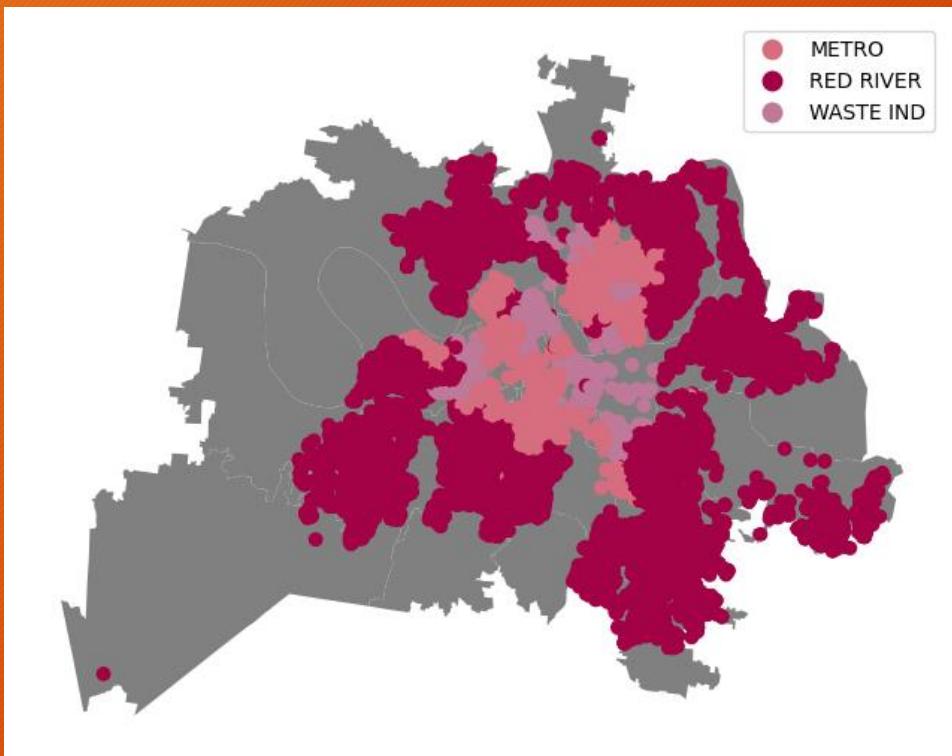
Used regex code to find all the words in the description with miss and pick

Coverage of Trash Pickups

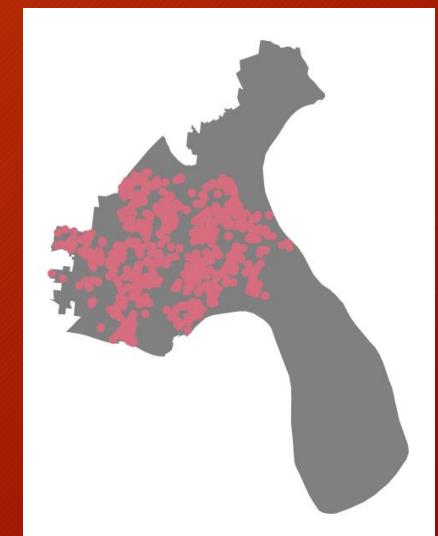
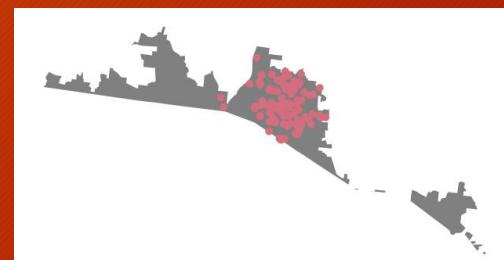
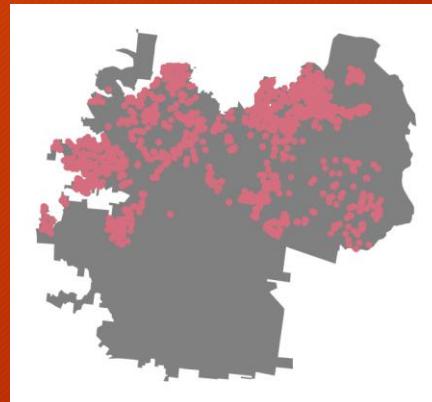


Where They Work The Most & Where They Miss Working The Most !?!

ALL 3 HAULERS WORK IN NASHVILLE



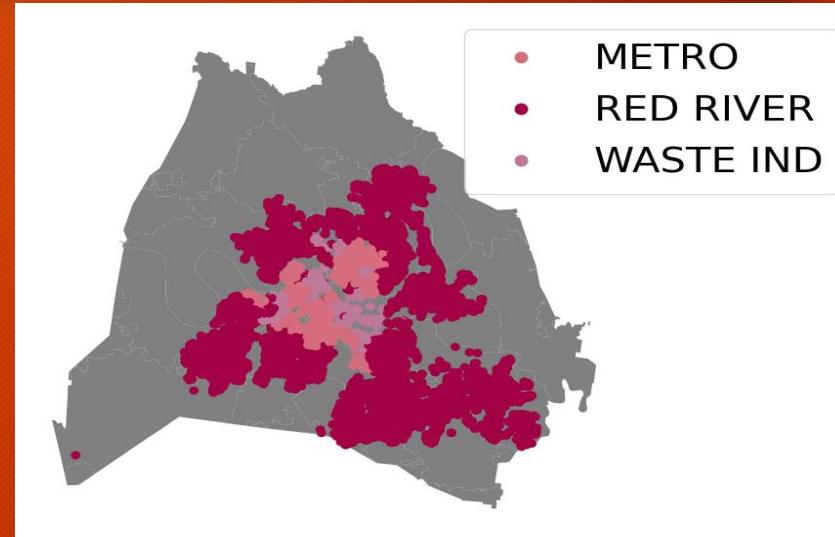
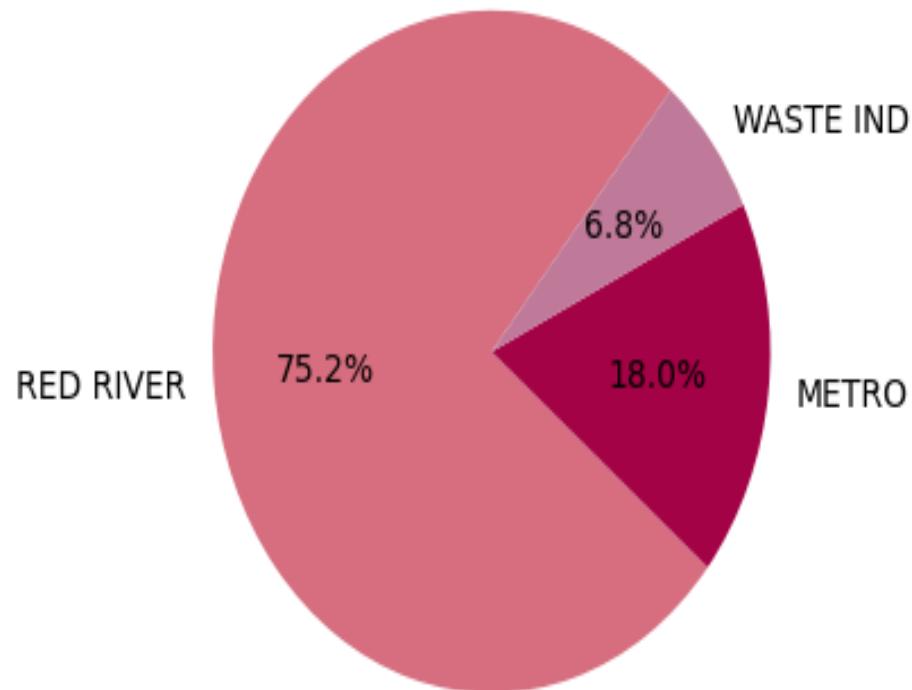
ONLY RED RIVER WORKS IN OTHER MAJOR CITIES OF-



ANTIOCH, MADISON, BRENTWOOD

The More They Do, Hence The More They Miss!

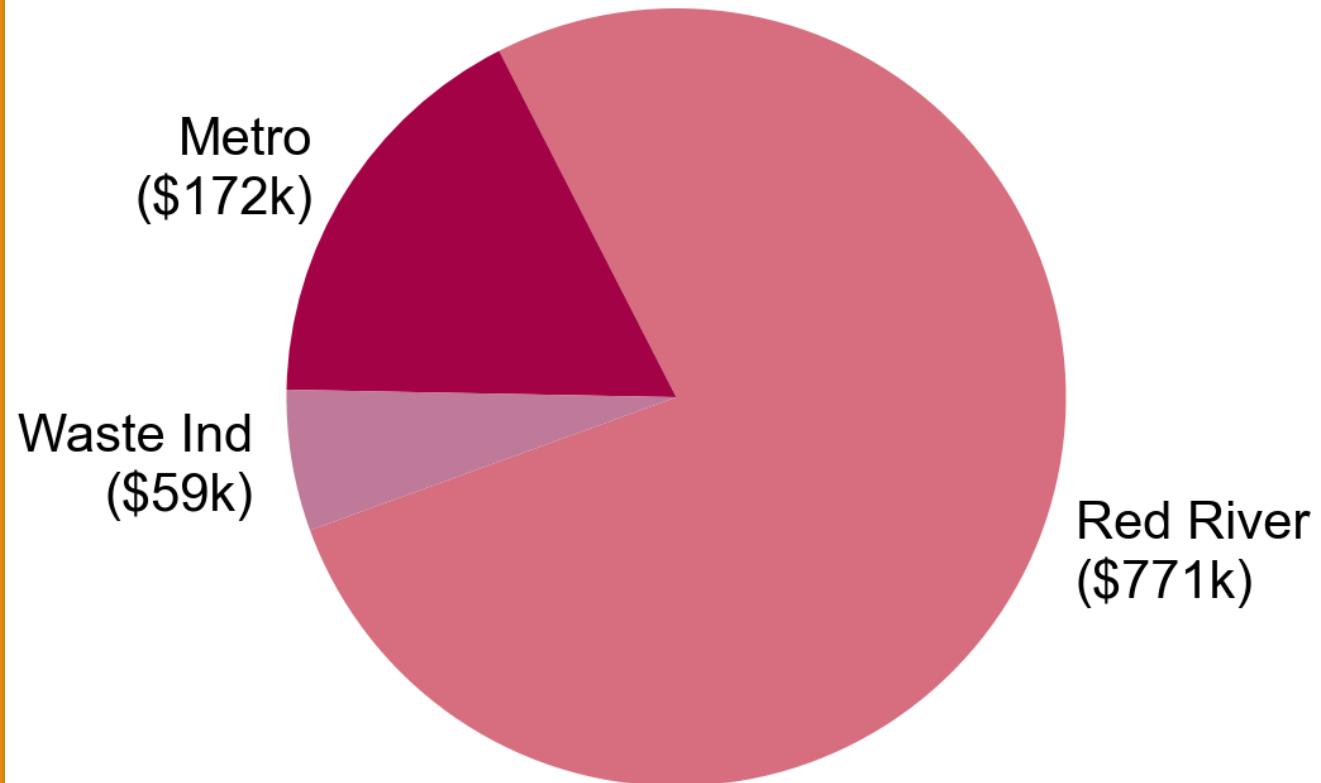
Percentage of Missed Trash Reports by Company



Trash to Cash

- Here every missed pick up after the first is a \$200 fine.

Total Fines Due to Missed Pickups by Company



Bonus Question

Alternative Method One:

- We looked at each date separately and sorted dates within each address.
- Created a sliding window to maintain a uniform period of 180 days.
- A for loop iterated over each date in the window and if the count was equal to or more than 3, a fine was recorded.
- Every valid window produced a fine. Dates were not removed from the list after forming the fine, and hence same date can appear in **multiple** 180-day windows.

Total fines for the alternative method

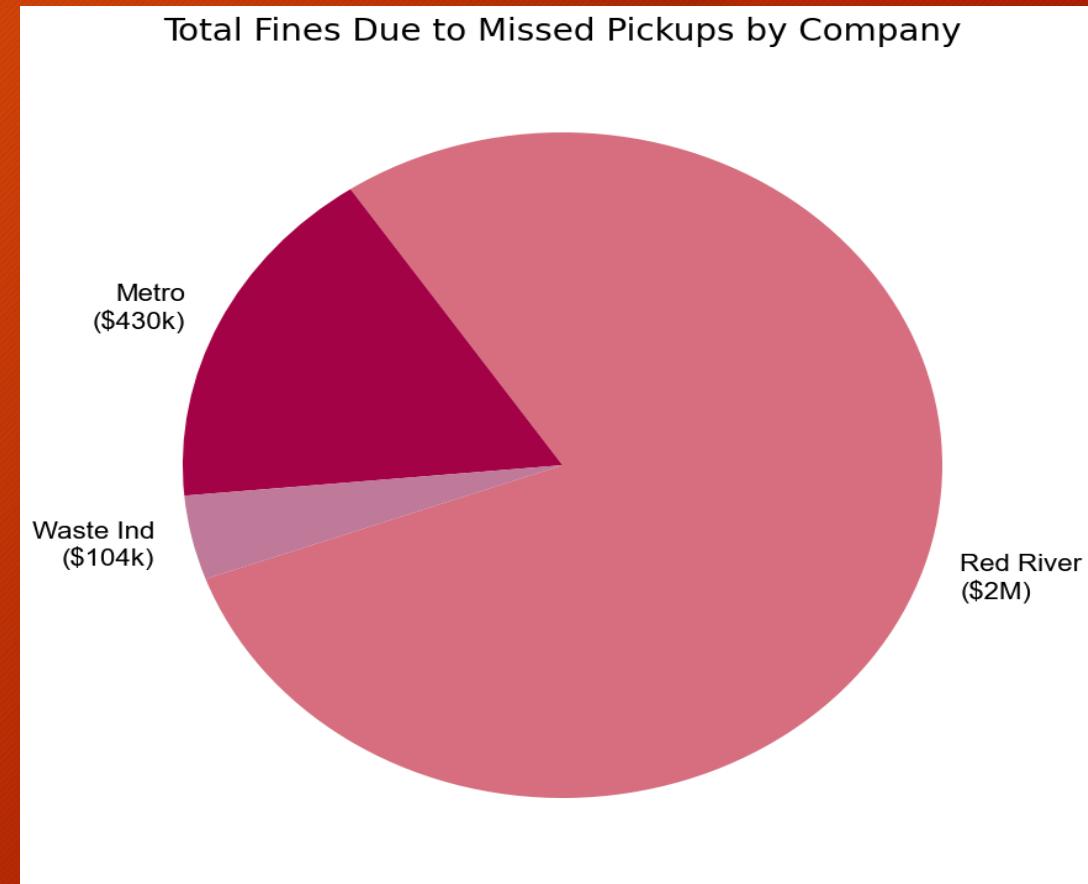
THE PERCENTAGE INCREASE IN FINES WITH THE NEW METHOD WOULD BE AROUND

1000% for Red River

150% for Metro

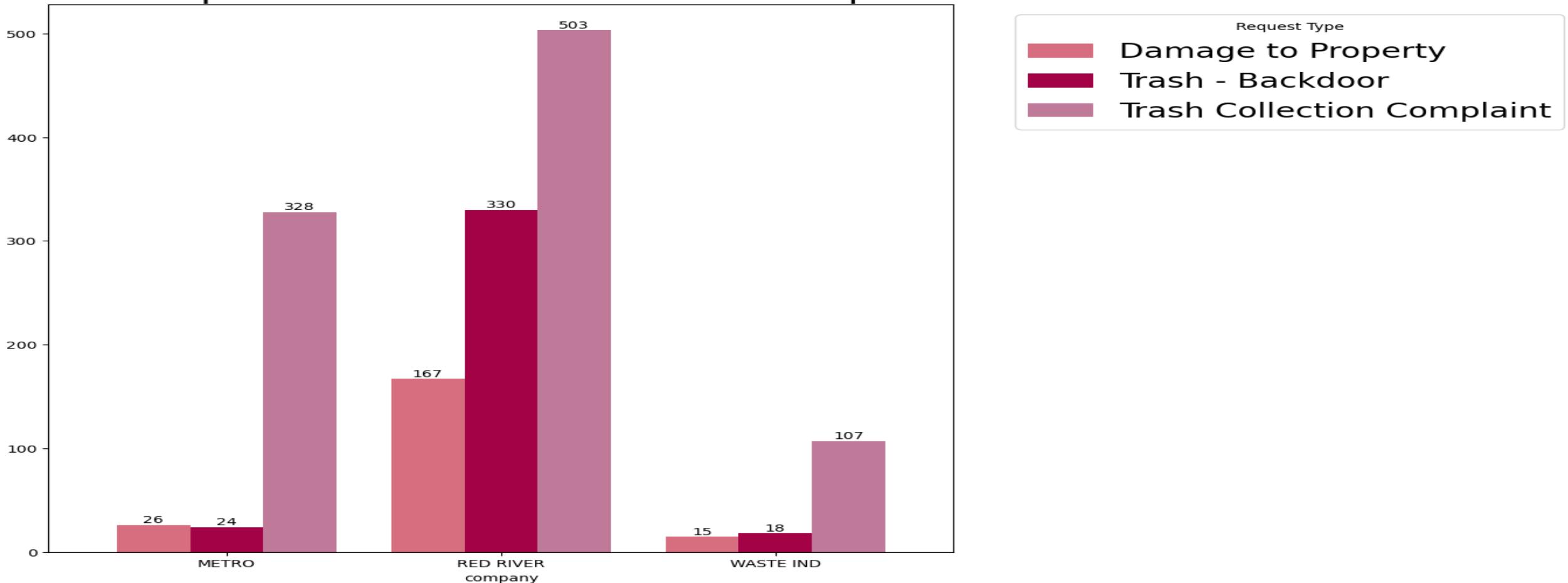
76% for Waste Industries.

No wonder , Red River filed for bankruptcy!!



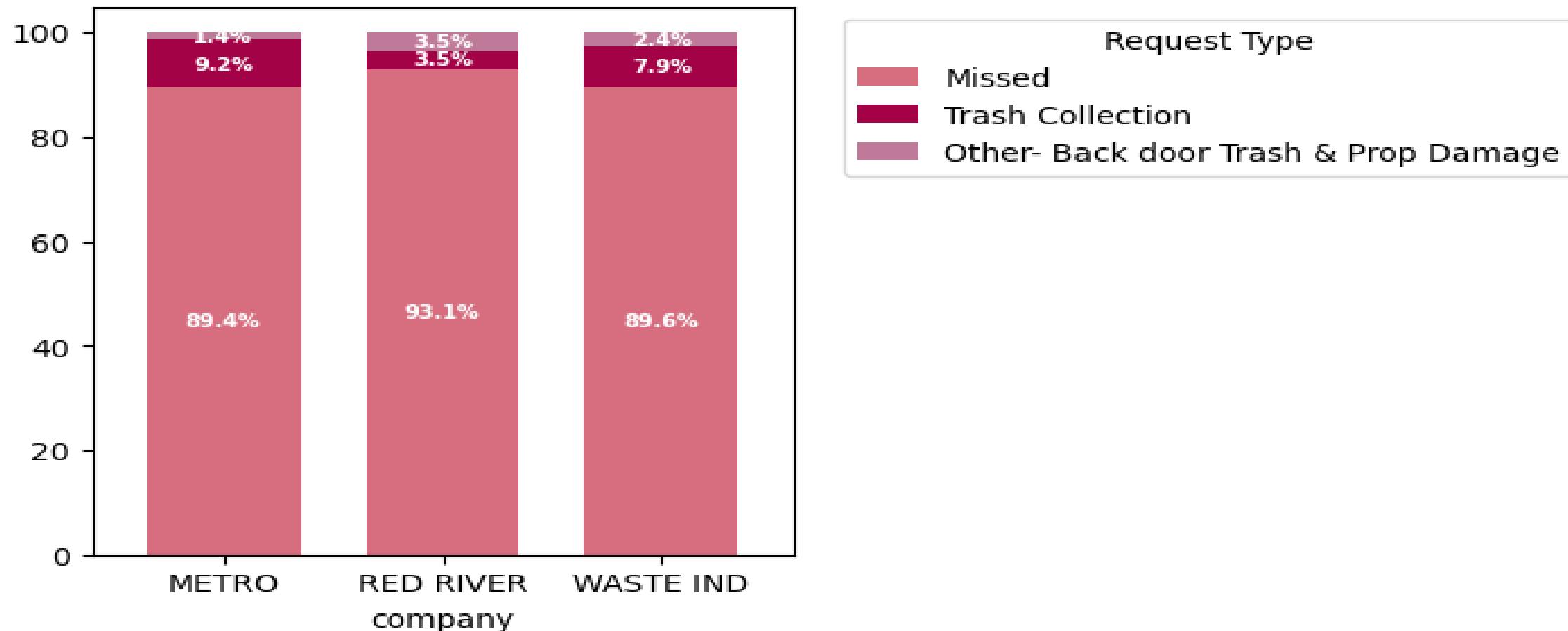
The other ways they annoyed their customers!

Complaints Other Than Missed Pickups



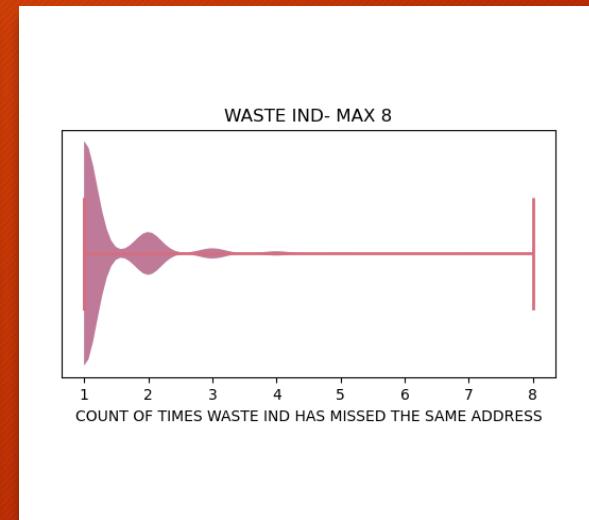
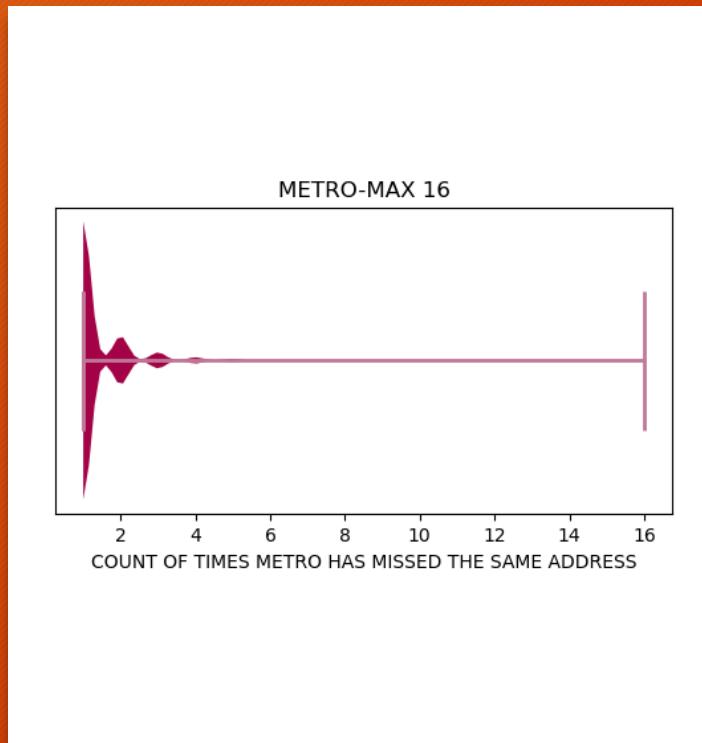
Metro's Comparison to Contractor's Performance

Percentage of Request Categories by Company (100% Stacked)



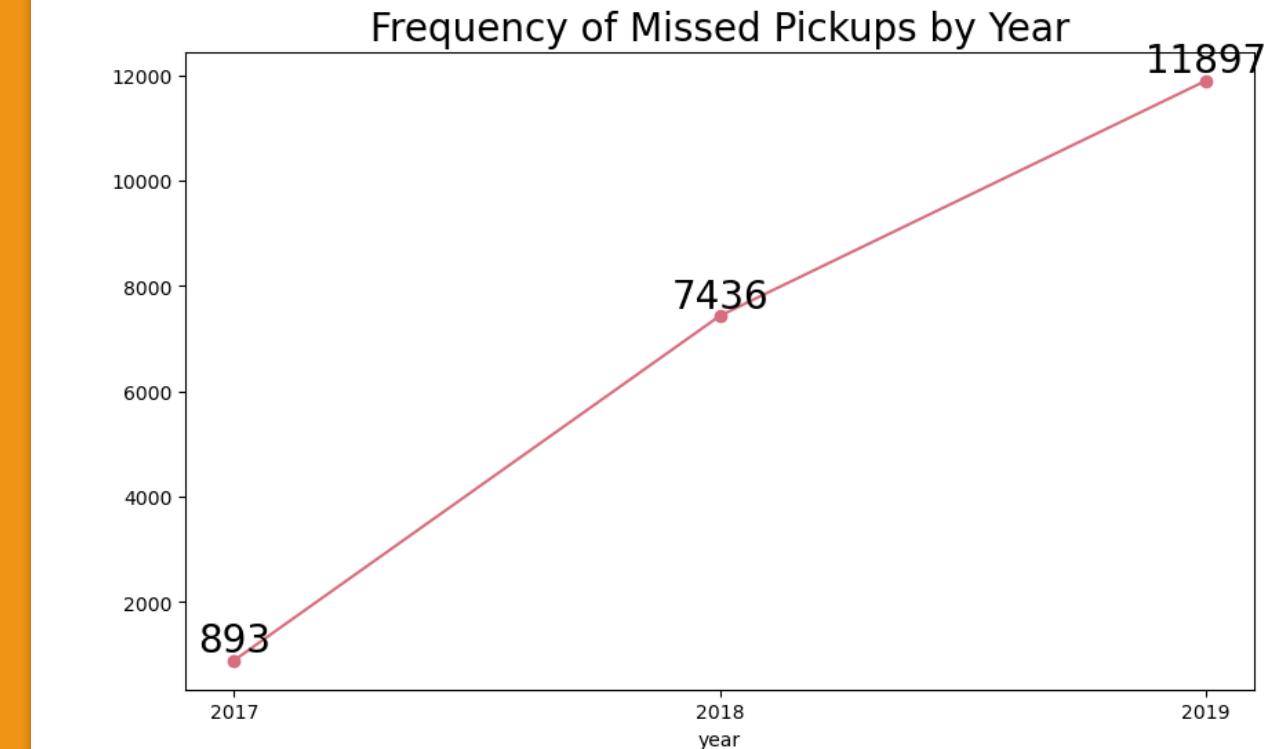
Just how inconsistent are they?

- All haulers mostly missed an address maximum of 1 to 4 times.
- Red river records the maximum for the maximum misses- 19 times the same address !!!
- Metro records the maximum misses at 16 while for waste industries, the maximum is 8 times.



Yearly missed pickups

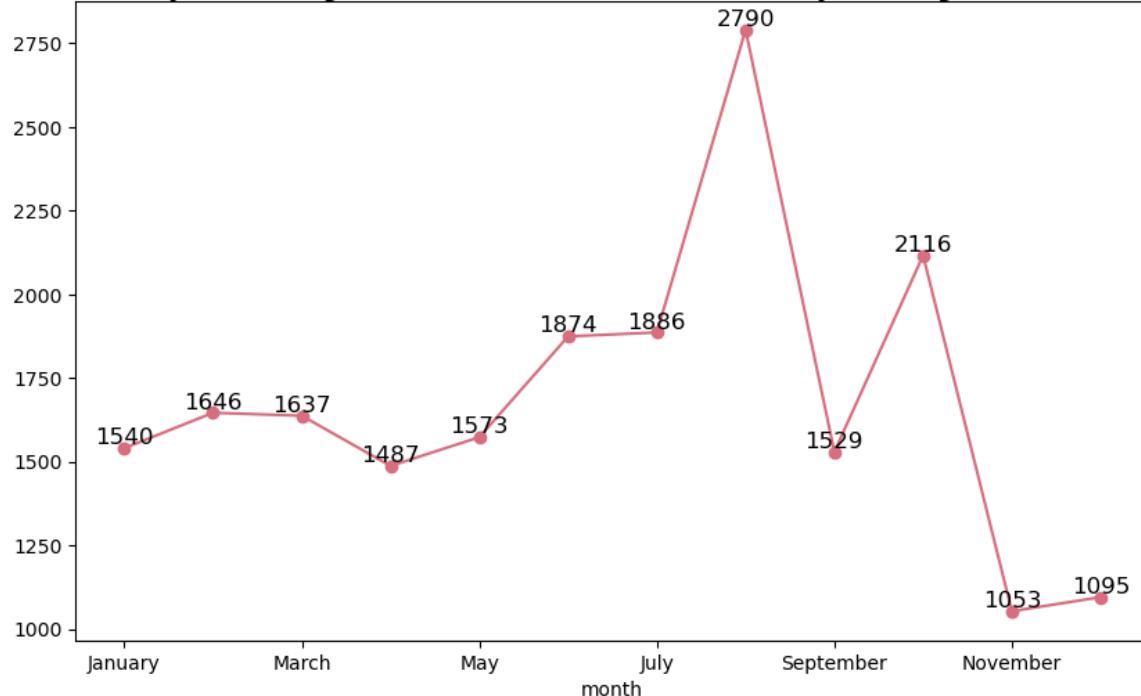
- 2017 entries only started in November when the year was nearly over with
- 2018 is the only filed year that covered the entire year
- 2019 had a huge influx of people moving to Nashville in the serviced areas



Missed pickup by month

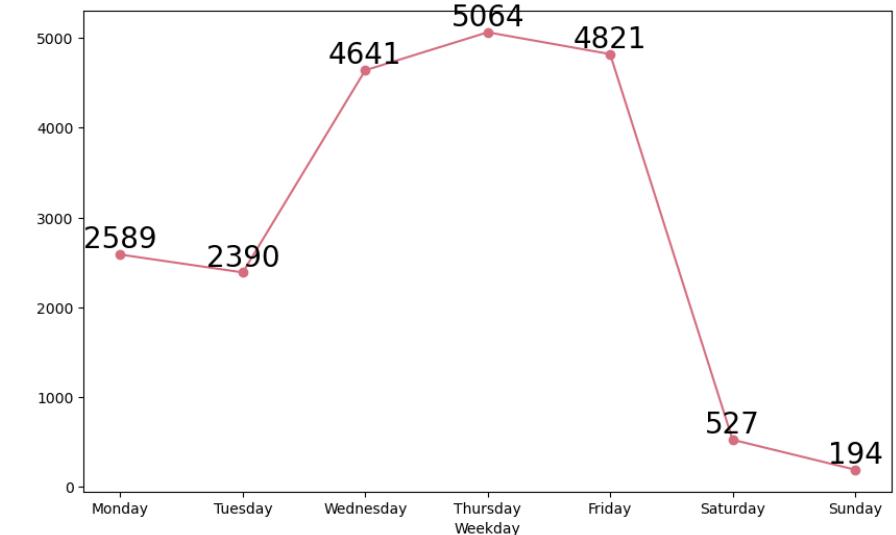
- A new pickup plan was filed in Aug of 2019 and Sept of that same year. The plan officially took hold which can explain the significant spike for Aug and drop for Sept.

Frequency of Missed Pickups by Month



Weekday misses

- Most pick ups generally fall on wednesday so an explanation as to why most complaints are on Wednesday or Thursday could be the timing. When someone gets home after the trash pick up and notice its not been picked up they are likely to call it in. If they do not have the time they may call in the next day or two.



Final Thoughts

- A small number of chronic problem areas drive the most fines
 - Targeted interventions could have the greatest impact
- Capacity and Route Design mismatch impacts reliability
- Next Steps:
- Investigate root causes behind persistent hotspots
 - Routing Issues
 - Workforce Gaps
 - Equipment Failures
- Prioritize chronic addresses for targeted follow-up
 - These locations generate most of the fines and operational costs.

