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| Allyson  Slide 1 |  | We are excited to share our group’s analysis of **Missed Trash Pickups in Metro Nashville**, using service request data from **hubNashville**, the city’s customer service system. Our goal was to calculate potential fines and highlight key patterns in this real-world dataset. |
| Slide 2 |  | Our assignment was to: Identify all **missed trash pickups** from the raw service request data **and** clean and prepare the data so only true missed pickups were counted.  We made sure to apply Metro’s contract rule: the first missed pickup at an address is free, but every additional missed pickup costs $200. Following these steps allowed our team to estimate the total damages owed by each hauler. |
| Slide 3 |  | Before any calculations, we worked together to explore and clean the dataset. We removed unrelated service requests and standardized addresses to ensure accuracy. This preparation step was critical so that only valid missed trash pickup records remained.  After cleaning, we found:  **12,647 unique addresses** with at least one missed pickup.  **2,709 addresses** had multiple misses and were subject to fines.  AThe total damages owed are approximately **$942,800**.  This shows how fines are distributed. Most fined addresses owe **$200** for a single repeat miss, but a few chronic problem addresses accumulated fines of **$1,000 to over $3,000**. |
| Jacob  Slide 4 |  | The hubNashville system also tracks other complaints. Even after filtering, we found categories such as backdoor service issues and general collection complaints, but missed pickups dominate with over 15,900 curbside or alley requests. |
| Slide 5 |  | For this part of the project, our team built two separate heat maps to better understand the geographic patterns in the data.  *The first heat map* shows **total missed pickups by zip code**. This map highlights where service requests for missed trash collection are concentrated. Large clusters appear in several neighborhoods, with a particularly strong hotspot in zip code 37013, which stands out well above the rest. These areas represent the highest service demand and reveal where residents experience the most disruption. |
| Slide 6 |  | *The second heat map* displays **total fines by zip code**. Because fines are only issued after the first missed pickup at an address, this map reflects repeat service failures rather than just isolated incidents. We noticed that many of the same high-pickup zip codes also rank high in fines, but some zips with fewer total requests still appear bright because they have a higher proportion of repeat offenders.  By comparing these two maps side-by-side, we can see the difference between sheer volume of complaints and severity of chronic issues. This distinction is important for planning: Metro may need different strategies—such as education, enforcement, or contractor oversight—depending on whether a neighborhood suffers from frequent one-off misses or persistent repeat problems. |
| Megan  Slide 7 |  | We compared Metro crews to private contractors:  **Red River** had the most requests logged and had the highest fines.  **Both Metro** and **Waste Industries** crews had lower missed pickups per address and a lower fine rate, with **Waste Industries** performing best overall with the lowest fines and requests. |
| Slide 8 |  | For this slide, our team compared service performance across the three haulers using two key metrics.  On the **left chart**, we show the **fine rate per request**. This reflects the average dollars of fines assessed for each service request. You can see a wide spread of almost **100 dollars** between the best and worst performers. **Red River** stands out with the **highest fine rate**, suggesting more frequent repeat misses and potential service quality issues. Metro crews fall in the middle, while **Waste Industries** performs the best with the lowest fine rate.  On the **right chart**, we look at the **average number of missed pickups per address**. Again, Red River has the **highest average—over three missed pickups per address**, while Metro averages about **2.8**, and Waste Industries is the lowest but still above **2**.  These two views together show that **service reliability remains a challenge across all haulers**, but Red River consistently performs the worst on both measures, highlighting where Metro might prioritize oversight and enforcement. |
| Slide 9 |  | Breaking down total damages:  **Metro** owes about **$158,200**.  **Red River** owes roughly **$722,400**—by far the highest.  **Waste Industries** owes around **$53,800**. |
| Brandon  Slide 10 |  | We also examined missed pickups by route. The worst performing route was **Red River Route 4504** with **351 requests** and fines exceeding **$129,000**.  Looking at fines per request, some Red River routes averaged more than **$700 per request**, indicating repeated failures at the same addresses. |
| Slide 11 |  | Looking at the years 2017 through 2019, missed pickups increased dramatically--from 792 in 2017 to 11,479 in 2019. That’s a rise of more than 1300%, highlighting the growing service issues over the three-year period. |
| Allyson  Slide 12 |  | To summarize our findings:  We analyzed **19,057 service requests** from 2017–2019.  **$942,800** in damages are owed under the contract.  **Zip code 37013** and **Red River Route 4504** are key problem areas.  **As a team, we recommend**:  Target enforcement and service improvements in high-impact zip codes.  Audit Red River operations, especially Route 4504.  Monitor addresses with chronic violations.  Continue to benchmark contractor performance against Metro crews. |
| Slide 13 |  |  |