

Methodology

How was this data accessed?

The council district level 311 data was accessed and loaded into RStudio through the KCMO Open Data Portal. The [current 311 data set](#) does not support the ability to filter by council district, so we used [this data story](#) on the open data portal to filter by council district and export the data for each separate council district (including the data for any case without an assigned council district — or “NA” in the filter). The downloads were completed on July 27, 2023. These 7 separate files were then merged into one in RStudio.

In order to view incidents at a neighborhood level, we took the [current 311 data set](#), used QGIS to map each point and overlaid it onto [the KCMO neighborhood boundary map](#). We used QGIS to assign the points to their neighborhood and exported the data, which was then uploaded into RStudio for aggregation.

Six neighborhood boundaries were unnamed, likely because these appear to be areas that are occupied by stadiums, event spaces, or otherwise non-residential structures. We named these areas according to the structures that occupied them. These areas are: Swope Park, the Truman Sports Complex, the KCATA Campus, the East Northeast Industrial District, the West Bottoms and Worlds of Fun.

Additionally, we used the historical data set in the Open Data Portal that logs 311 reports from 2007 to March 2021 to create the report change over time graph. Only raw numbers for the historical data are presented in this chart.

All of the data we used is maintained by the city. The timeframe we analyzed in this article began in late February/early March of 2021 and ran to July of 2023. We chose this time frame to give the most relevant and recent analysis and because the Kansas City, Missouri, 311 reporting system changed in March of 2021. The changes, such as the way incidents were classified, would make the two data sets difficult to merge and aggregate beyond raw counts of all incidents.

The data that could be checked against the city’s conclusions on their data stories was checked and was accurate. Some data, like median time open for council districts, could not be checked because those conclusions were not published online or otherwise made public by the city.

How were calculations made?

Many of the numbers illustrated are raw numbers, and did not require any additional calculation.

We did require calculations to compare the median number of days open for each council district.

We opted to compare median times rather than average times because the data’s distribution is skewed with a number of outliers.

To calculate the median response times, we excluded any cases that had a status of “canceled” which could indicate cases were not in the 311 jurisdiction, false or duplicates. We also excluded any cases with a status of “referred” which indicates the issue was handed off to a third-party contractor. Additionally, we excluded any cases where the “days open” was listed as

N/A or was less than -1. When “days open” was listed as -1, it is due to a calculation error made when subtracting the open date from the resolved date. The “open date” field records both the date and time that the incident was reported, but the “close date” records only the date of when the incident is closed and sets the time equal to 12 a.m. For the purpose of calculations, any resolution time greater than -1, and less than 1 were all counted as “0” days. Any cases with response times less than -1 were excluded (around 50 cases total).

What are the limitations?

It is important to note that this analysis is limited to the scope of incidents that were **reported to 311**, not the sum total of all incidents that have occurred. Each report may or may not be representative of an incident, Lawson said, as some reports may be determined to be incorrect or inaccurate when the responsible department responds. Additionally, this data cannot account for whether some areas use 311 more or less.

Referred or canceled reports were included in the raw numbers, which gives an overview of **all reports made to 311**, regardless of whether they were duplicates or referred to another department.

It is important to note that the variation in median response times could be attributed to the variation in issue types for each district and neighborhood. For example, property violations have a longer median response time than trash pickup. Therefore, a district with a higher number of property violations may report a longer median response time.

Additionally, Lawson said the city did not look at median response times after they launched the new system in 2021 and prior to January of 2023.

“...for the previous two years when we first went live with the 311 data, and the new system we did not actually look at that measure because we had so many issues trying to get the interfaces to work and some things were being closed in their work order systems, but not in the 311 system,” Lawson said.

The city has been working on an analysis regarding median response times since January.

The R Notebook file documenting the cleaning and analysis process of the data, as well as the original data files — aside from the historical file, which can be found [here](#) — are on [Github](#).