Informational Report: MNPD's Call Response Time

Note: This report is being provided to the Community Oversight Board for informational purposes only. This report carries no recommendations, and as such does not require a vote.

Per the Board's Rules, "The MNCO, on its own initiative or at the request of others, may review and investigate any aspect of the Davidson County criminal justice system without need for anyone having filed a Complaint as to any incident, policy or practice."

Background

News reports both locally[1] and nationally[2], in addition to personal experiences and complaints shared with the Community Oversight Board (COB) have highlighted that there has been an increase in response times from police when people make a 911 call. Long response times create a twofold issue: first of public perception (i.e., the general public not believing that police will respond promptly), and second from a safety perspective in that certain call types demand quick response times in the interest of public safety. Recognizing the importance of this issue, earlier this year the Metro Nashville Police Department (MNPD) transitioned officer schedules from five 8.5 hour shifts per week to four 10.5-hour shifts, in part because the Department believed this would "enable officers to get to citizen calls more quickly"[3].

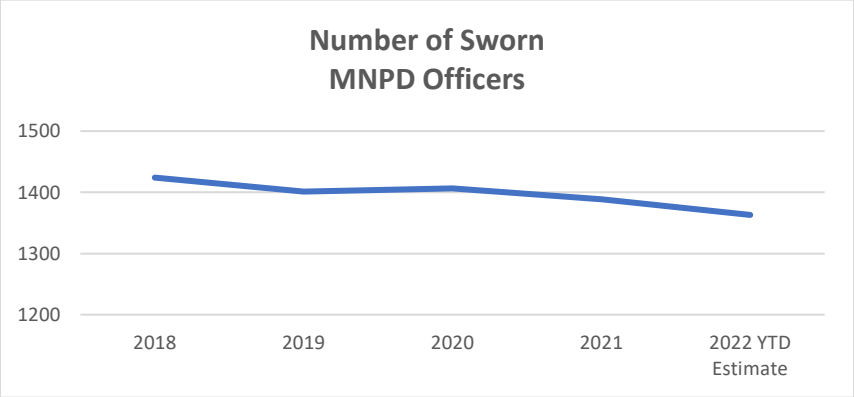
There are a number of factors that may influence call response time. For instance, multiple studies indicate that ecological factors can influence response time: police response time shortens in neighborhoods with high levels of "concentrated disadvantage"[4], immigrant populations[5], and non-white residents[6]. There is also an empirically supported relationship between call severity and response time, such that as perceived call severity increases, response time decreases[7].

Organizational factors are important as well. Perhaps the most obvious explanation for increasing call times would be a lack of police staffing to respond to emergency calls. Indeed, this common sense notion has empirical support: as the officer staffing rate of a police department increases, response time generally decreases[7].

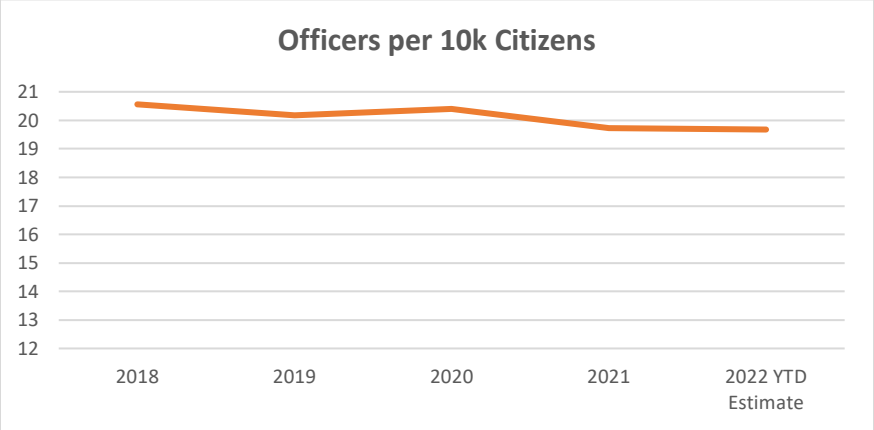
[1] https://www.newschannel5.com/news/antioch-residents-raise-concerns-over-police-response-times
[2] https://www.fox8live.com/2022/04/14/nopd-response-times-average-2-hours-force-critically-low-staffing-levels-according-data-analyst/
[3] https://www.nashville.gov/departments/police/news/officers-across-8-precincts-begin-new-105-hour-shifts-monday
[4] Cihan, Abdullah. "Social disorganization and police performance to burglary calls: A tale of two cities." Policing: An International Journal of Police Strategies & Management (2014).
[5] Cihan, Abdullah, Yan Zhang, and Larry Hoover. "Police response time to in-progress burglary: A multilevel analysis." Police Quarterly 15.3 (2012): 308-327.
[6] Mladenka, Kenneth R., and Kim Quaile Hill. "The distribution of urban police services." The Journal of Politics 40.1 (1978): 112-133.
[7] Salimbene, Nicholas Andrew, and Yan Zhang. "An examination of organizational and community effects on police response time." Policing: An International Journal (2020).

This highlights cause for concern in Nashville. Mirroring an increasingly common national phenomenon, Nashville is losing sworn officers even as its population climbs or holds steady, thereby lowering the number of per capita officers for the city:

Year	Number of Sworn MNPD Officers[8]	Nashville Population[9]	Officers per 10k Citizens
2018	1424	692,587	20.56
2019	1401	694,144	20.18
2020	1406	689,447	20.39
2021	1389	703,953	19.73
2022 YTD Estimate	1363	692,690	19.68



While these declines are noteworthy and deserve attention, they are such that the number of sworn officers per 10,000 citizens has decreased by less than one over the last five years:



While this decrease in available staffing almost certainly plays a part in the increase in call times, it seems unlikely to tell the whole story. The holistic system of call prioritization and officer dispatch is not yet well understood by the general public in Nashville.

[8] The number of sworn officers by year was provided via personal correspondence with Commander Carlos Lara on 6/28/22.
[9] Population estimates are from the Metro Public Health Department: https://bit.ly/3Ajecgx and the US Census Bureau: https://bit.ly/3NrTnSN

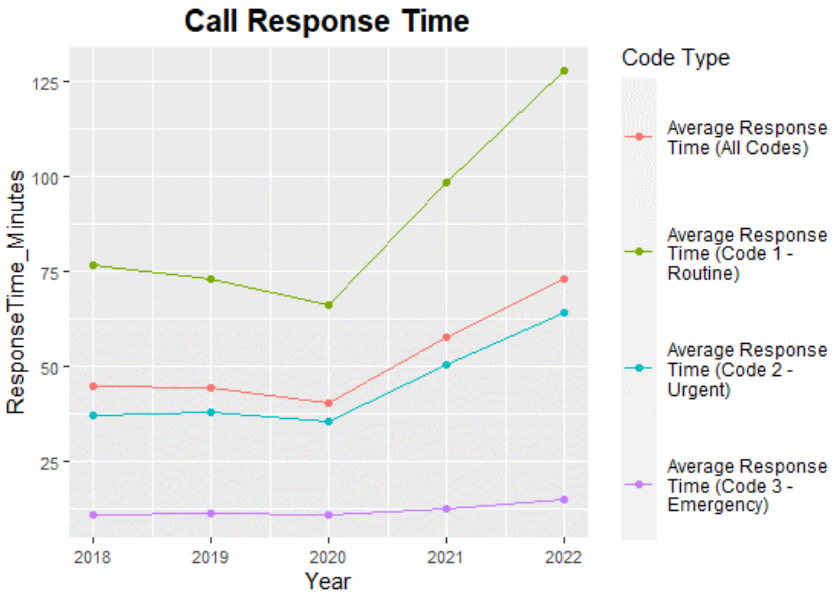
In terms of impact, there is empirical debate regarding whether increasing call response times has any substantive effect on crime outcomes such as arrest, deterrence, or other such metrics. On the one hand, research from the prevailing school of thought suggests that "[the theory that] rapid response has no meaningful effect on crime clearance rates is one of the most well-established paradigms in the criminology literature". Put more simply, criminologists have long believed that response time is largely irrelevant to solving crime[10]. On the other hand, newer research suggests that faster response times can have a statistically significant effect on clearing a crime by arrest[10]. Debate on this topic is very much ongoing, and research has yet to point clearly in one direction or another.

Regardless of whether increasing call times has any impact on crime, there is an important effect on community perception. Research has demonstrated that police response times to calls for service serves as the measure by which much of the population judges the effectiveness and legitimacy of the police[11]. Even older studies[12] which cast doubt on the capacity for quicker response times to reduce crime have acknowledged that response time significantly impacts public satisfaction with police.

Nashville Context

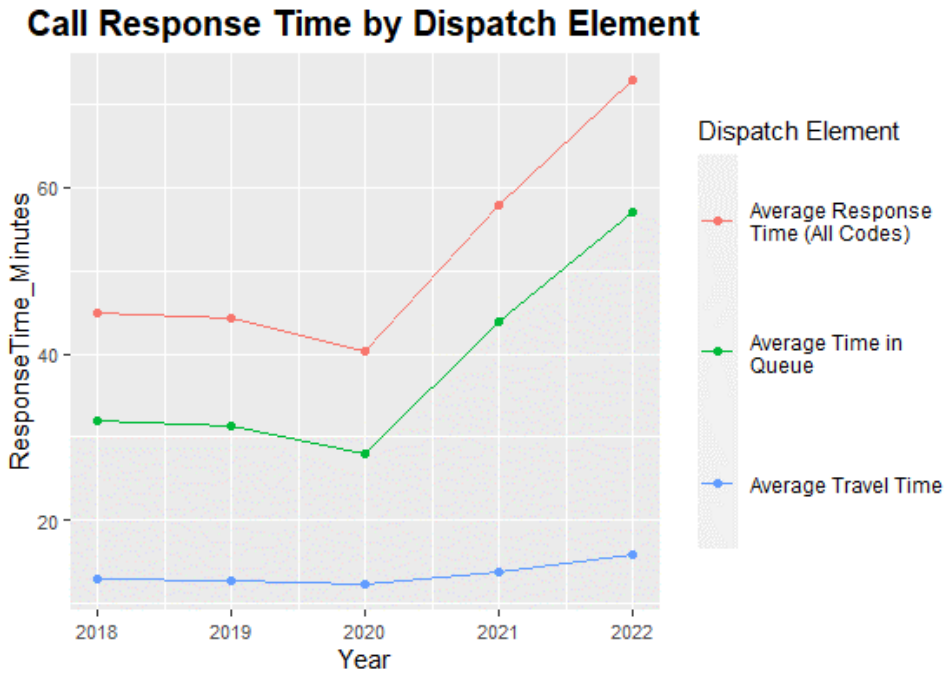
It's clear that response times are a national issue, but the below section aims to localize the problem. MNPD's call response time for all call types has increased since 2018, though this effect is most dramatic for routine and urgent calls as compared to emergency calls:

- Response time for emergency calls has increased from a low of 10.7 mins in 2020 to a high of 14.9 in 2022.
- Response time for urgent calls has increased from a low of 37.3 mins in 2018 to a high of 64.0 in 2022.
- Response time for routine calls has increased from a low of 66.3 mins in 2020 to 128.1 in 2022.

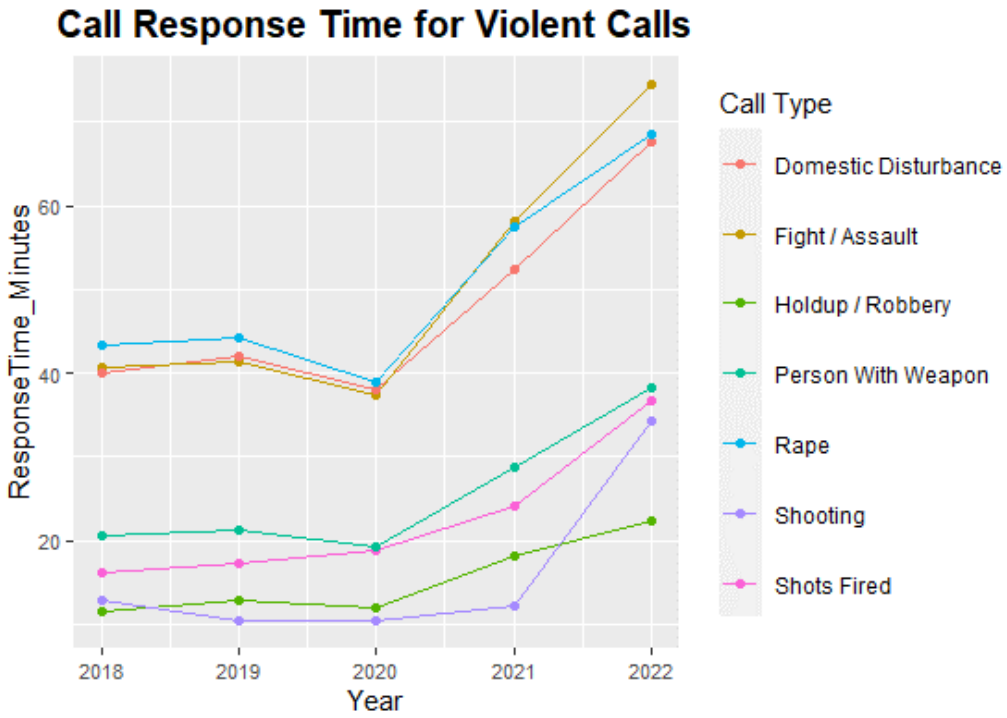


[10] Blanes i Vidal, Jordi, and Tom Kirchmaier. "The effect of police response time on crime clearance rates." The Review of Economic Studies 85.2 (2018): 855-891.
[11] Tyler, Tom R. "Psychological perspectives on legitimacy and legitimation." Annual Review of Psychology, 57 (2006): 375-400.
[12] Kelling, George L., et al. The Kansas City Preventive Patrol Experiment: A Tecnical Report. Washington, DC: Police Foundation, 1974.

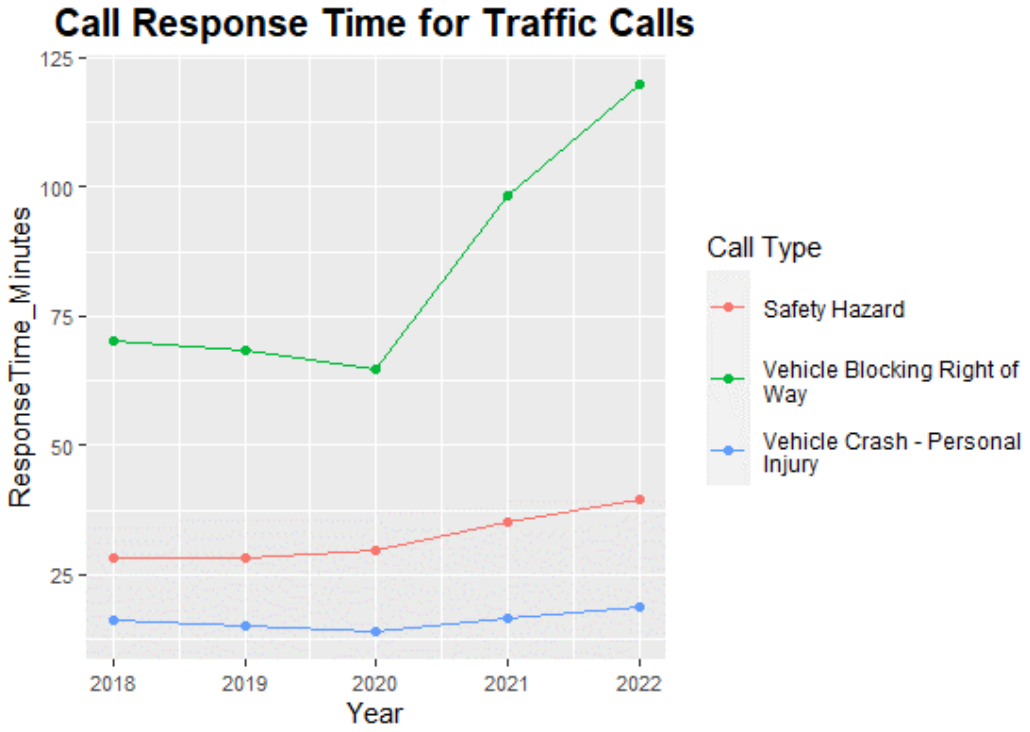
While officer travel time has increased slightly since 2020, the increase in overall call response time is driven by a caller's average time in queue. This increase could be driven both by slower response times by EMS dispatch and by longer response times from MNPD officers available to respond to a call:



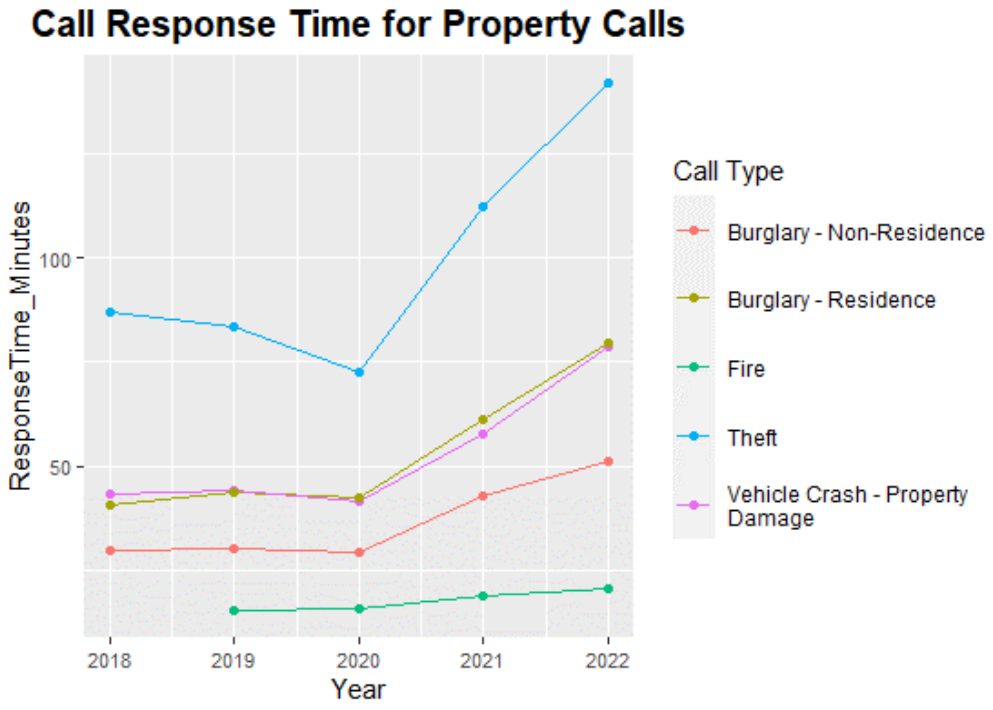
Response times for all violent calls have seen increases over the last three years, though shootings have seen the most dramatic increase in response times, predominantly from 2021-22:



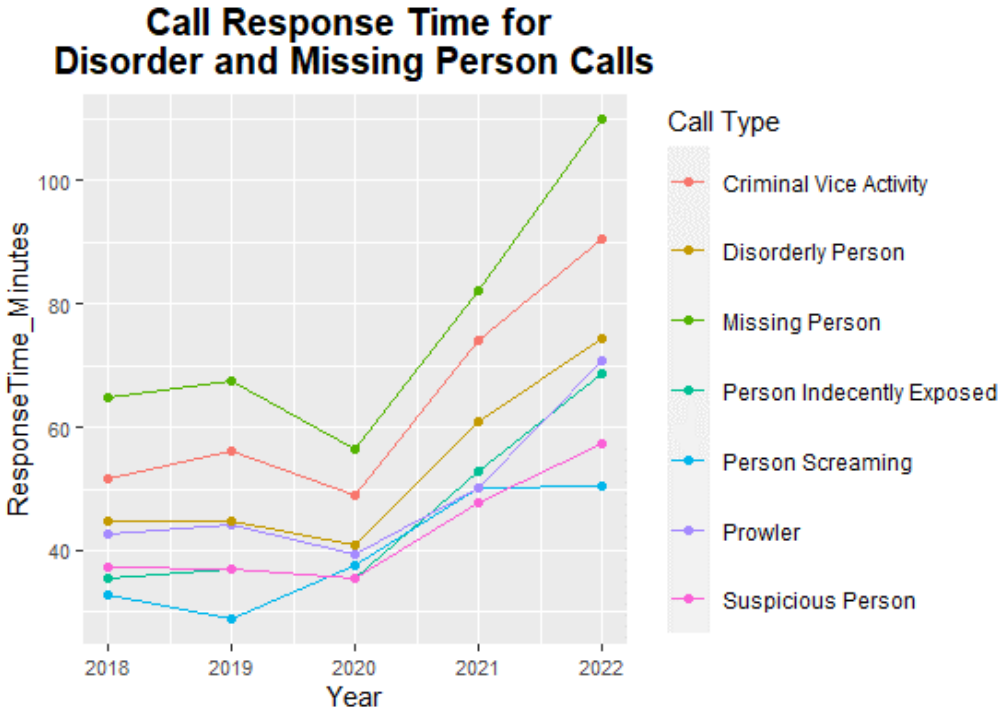
Response time for all traffic calls has increased, though response time for vehicles blocking the right of way has increased the most dramatically, almost doubling from 2020 to 2022:



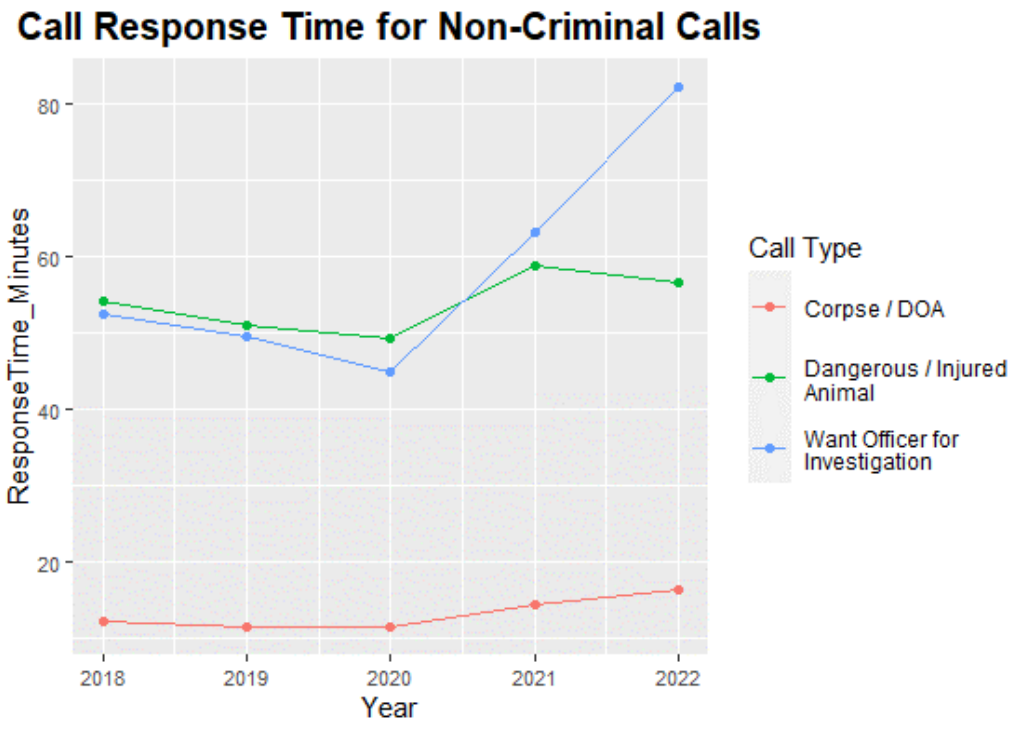
Response time for all property calls has increased, though response time for thefts has increased the most dramatically, nearly doubling from 2020 to 2022:



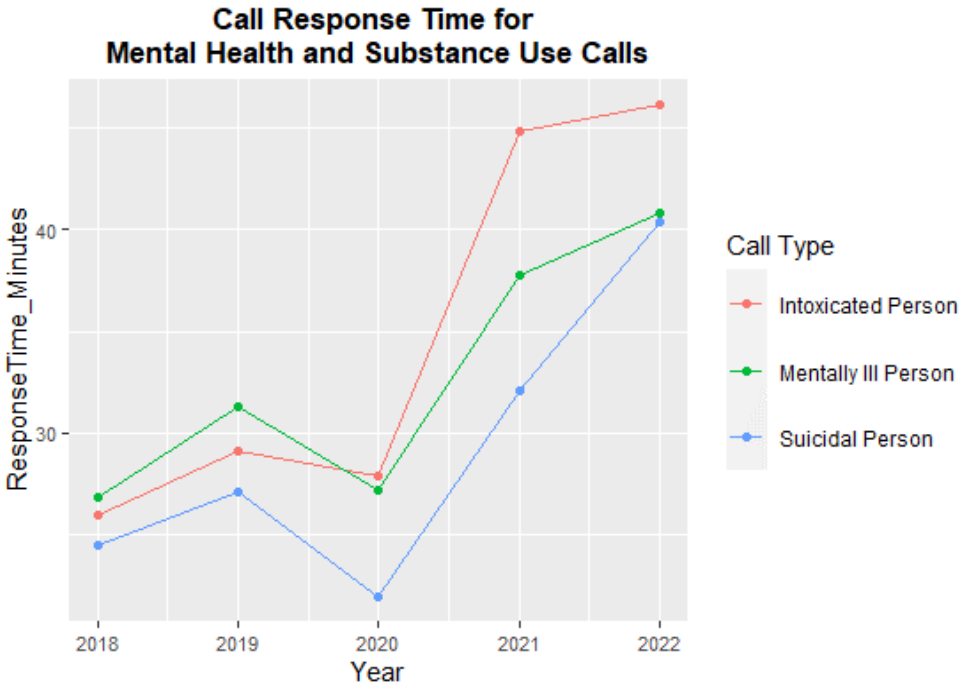
Calls for disorder or missing persons have all shown fairly comparable increases in response time over the last three years:



While all non-criminal calls have seen an average increase in call response time, response times requesting an officer for an investigation have increased the most steeply over the last several years:



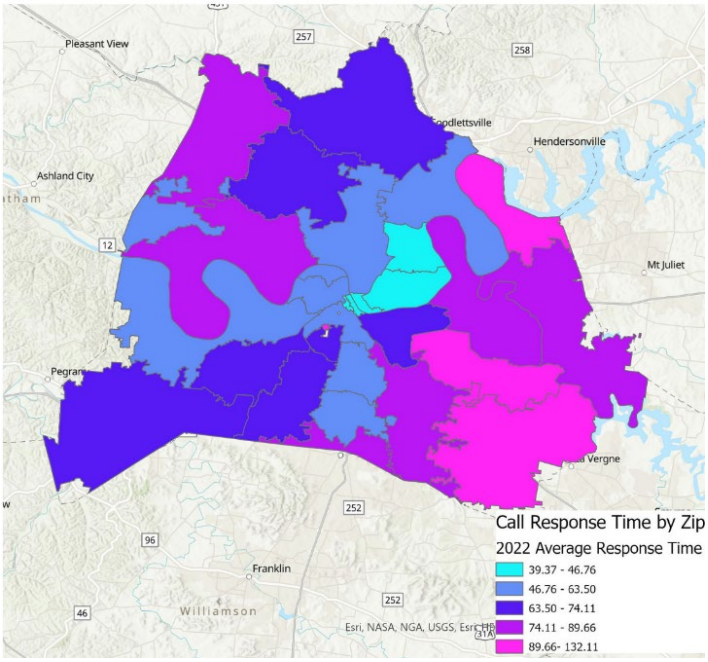
All calls for mental health and substance use have seen sharp increases in response times:



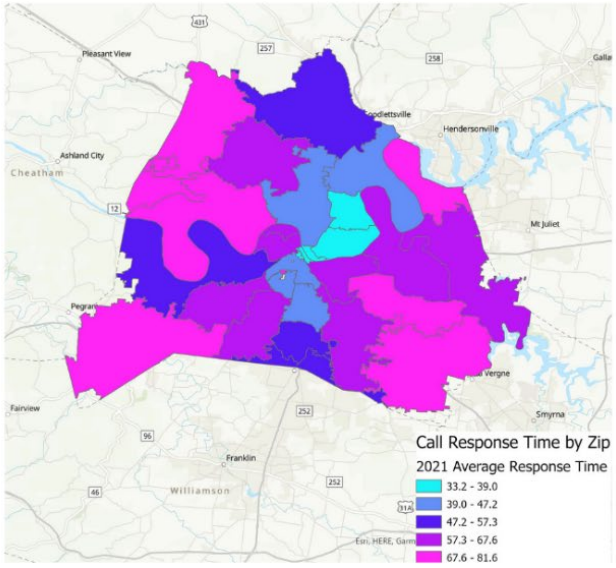
Geocoding

There also may be a spatial relationship impacting call response time. Below are graphs displaying the call response times by zip code in Nashville for each year from 2018-22. Light blue indicates the shortest average call response times, while light pink indicates the longest:

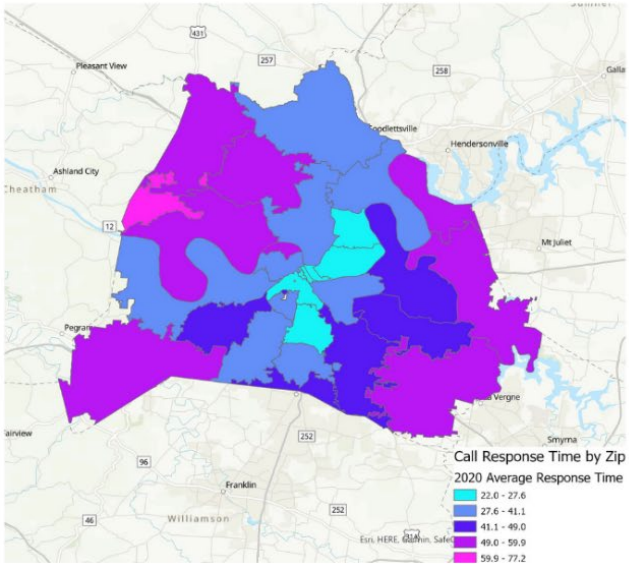
2022



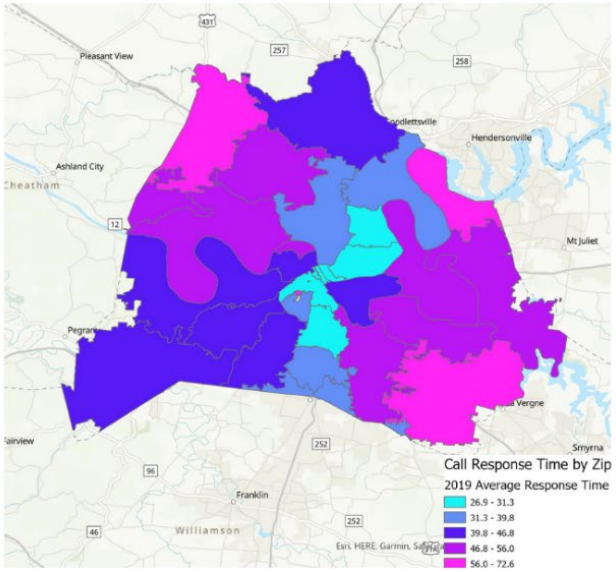
2021



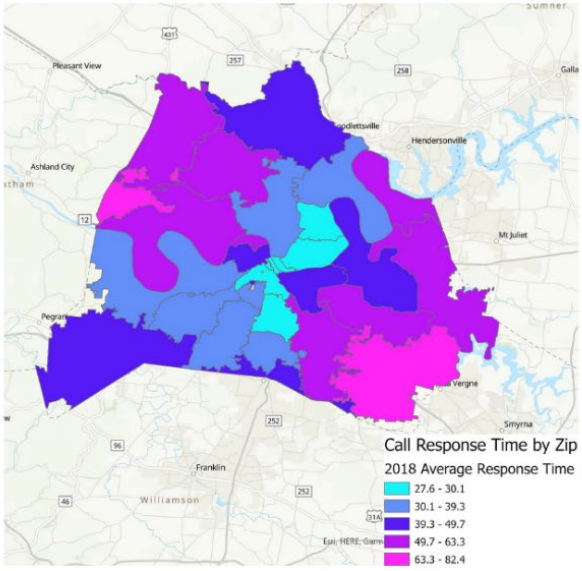
2020



2019



2018



There are a number of zip codes that consistently show the slowest response times: 37080, 37138, 37076, 37218, and 37013. Two of these zip codes (37013 and 37076) are in densely populated areas with high call volumes, two (37080 and 37218) are in less populous portions of the county with lower call volumes, and one (37138) is in a moderately dense area with low call volumes. There does not seem to be a particular pattern to these locations other than being along county lines, which may in fact explain the slower response times.

Conclusion

Per the Mayor's FY23 Recommended Budget[13], MNPD was 'On Track' with its goal of a response time below six minutes for Code 3 Emergency calls. It is unclear how the Mayor and/or MNPD came to this conclusion given that their publicly available data clearly outlines that the average response time to a Code 3 call was 10.7 minutes in 2020, 12.5 minutes in 2021, and 14.9 minutes in 2022 YTD[14]. Even removing 2022 from our analysis suggests a trend in the wrong direction for achieving that six-minute goal, not 'On Track' as suggested. Further, per an appendix[15] to that same FY23 budget, in FY21, the Mayor reports that average receive to arrive time for an urgent call with emergency equipment was 10.9 minutes; the average receive to arrive time for an urgent call without emergency equipment was 43.2 minutes; and the average routine call took 77.9 minutes from call receipt to arrival. Other research has shown that concentrated hot-spot style policing can be effective in reducing call response times, enabling police to respond quickly and efficiently to high-demand areas. This same research showed that call type could be an important factor impacting police response time, and encouraged future study to unpack this relationship[16].

It is clear from these numbers that there is some confusion regarding the performance metrics and benchmarks set for call response times. This leaves us with a number of outstanding questions regarding a) EMS call structure, b) performance goals and the department's achievement of such goals, c) MNPD officer's system for call prioritization, and d) community perception of whether their needs are being met by MNPD and Nashville's Department of Emergency Communications (DEC).

Further exploring these areas may provide satisfactory explanations for the phenomenon, but one thing is clear: MNPD's response times for almost all call types are increasing at a rapid rate, which has important public safety implications for the city.

[13] Available at: https://bit.ly/3MPlDOX
[14] These numbers are per the department's own public dashboard; if they are not accurate, that is suggestive of a different issue altogether: https://www.nashville.gov/departments/police/data-dashboard/response-time
[15] Available at: https://bit.ly/3OdZ6wu
[16] Lee, Jae-Seung, Jonathan Lee, and Larry T. Hoover. "What conditions affect police response time? Examining situational and neighborhood factors." *Police Quarterly* 20.1 (2017): 61-80.