Paper

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Abstract

Inroduction

This paper explores how demand on police time changed during COVID-19 pandemic and lockdown. We consider calls for service for a northwest england police force, using 5 years' pre-pandemic data to establish trends, and build a forecast against which to compare observed data. Specifically we look at how call volume, attendance, and response time changed (or did not change) for different call categories (examples), whether there was a change in how the calls came in (999, police non-emergency, etc) or how these changes differed between severity of call (grade). We further disaggregate calls coming from areas with areas with different socio-demographic characteristics to understand how COVID-19 affected different sections of society differently in terms of incidents which they deemed required police assistance.

The contribution of this paper is three fold. First, we contribute to the growing literature which aims to better understand demand on police time, and how the pandemic and associated lockdowns influenced this. Second, we disaggregate calls from areas with different socio-demographic characteristic, to understand not only how police demand changed, but the variations in this change between different groups in society. Finally, we showcase temporal forecasting as an appropriate methodological approach to compare what we might have expected to happen in 2020/2021 in the absence of the pandemic, versus the observed data.

Demand on police time

It is important to study how police spend their time. Misconception about always focus on crime. Majority of time spent on non-crime calls e.g. mental health, missing persons, etc. What we know about demand on police time. 3 reasons why it's important to study.

The effect of COVID-19

Other studies which have explored how COVID-19 and associated lockdowns have affected demand on police time. Why this is important to understand. What is the gap: - big picture (all demand, not just crime), disaggregate by where the calls come from, and using forecasting to project what would have happened based on past data and compare observed data with this.

The current study

In this paper we explore how did demand on police time (as measured by calls to police) change over the pandemic? and address the gaps noted above. Specifically we look to answer the following research questions:

- For which call categories did observed data deviate from what would be predicted in the absence of the pandemic?

- Was there change in what proportion of calls were attended, and in the response time for the attended calls?
- Are there differences between calls coming from areas with different socio-demographic characteristics?

To answer these questions, we use data containing all calls for service made to northwest england police force between start date and end date. We build a forecast on 5 years of pre-pandemic data, and then compare this to what was observed during the pandemic. We followed up this analysis with qualitative interviews with call centre staff in the same force, to understand the experience of call handlers, and build a richer understanding of the context behind the calls data.

Results

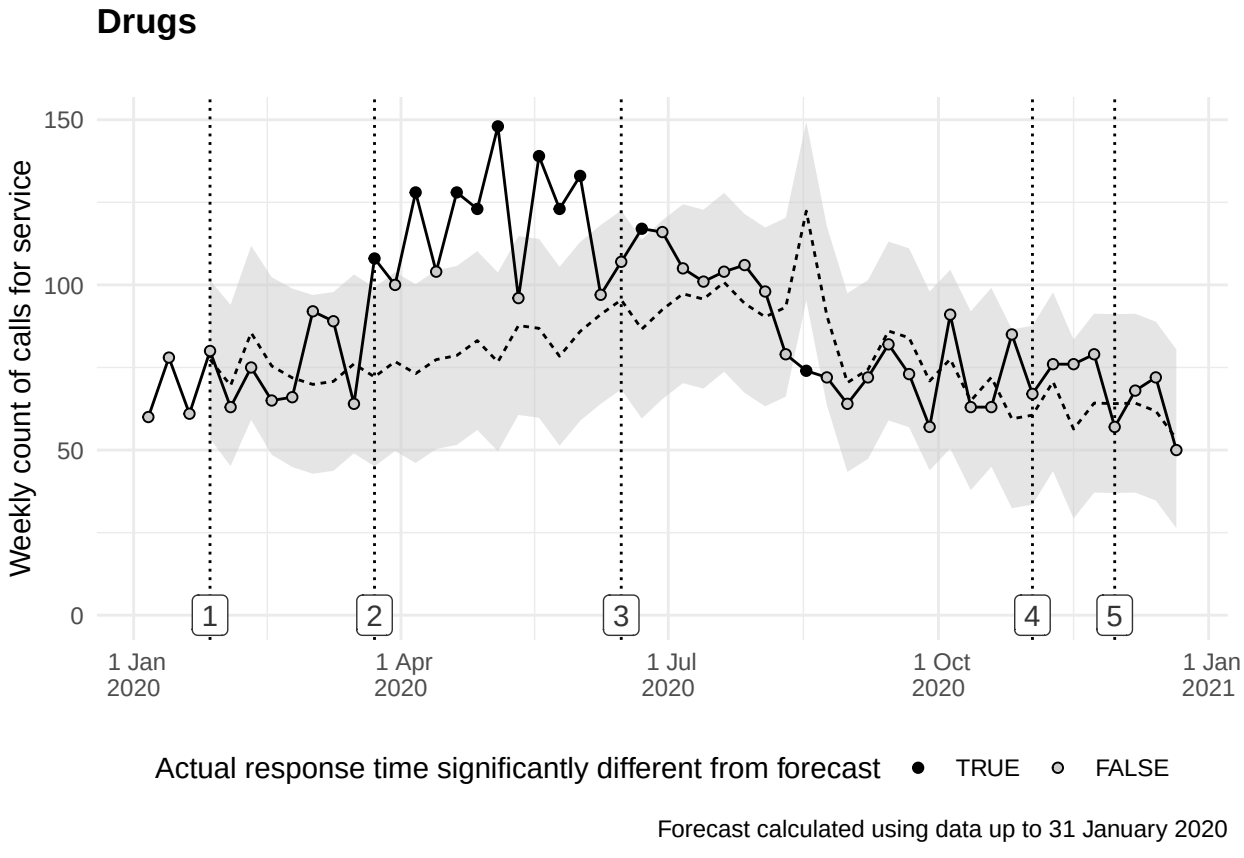
Overall volume of calls for service made in 2020 were below what we would expect based on past years' data.

A higher proportion of calls were attended, and the response time was also shorter than the forecasts.

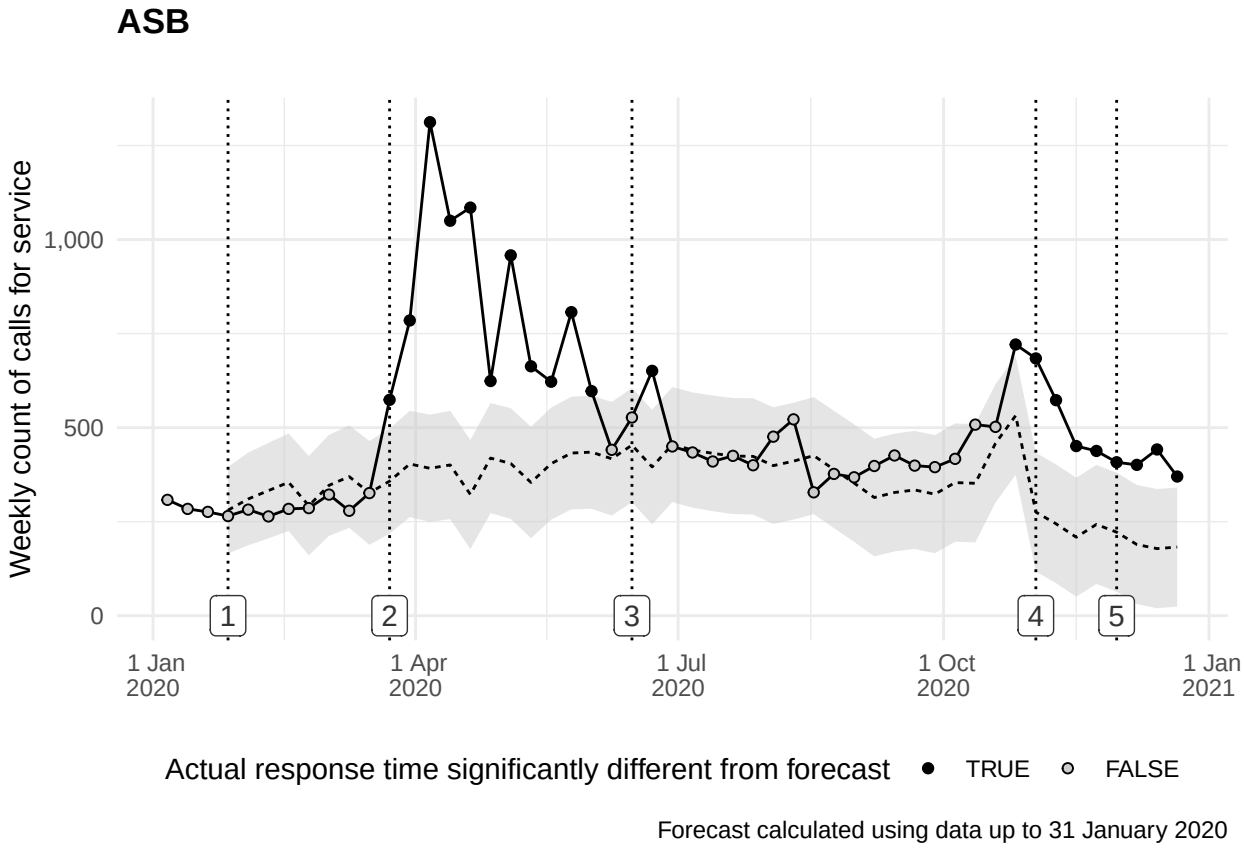
We present key themes which emerged from our data.

Shooting fish in a barrel

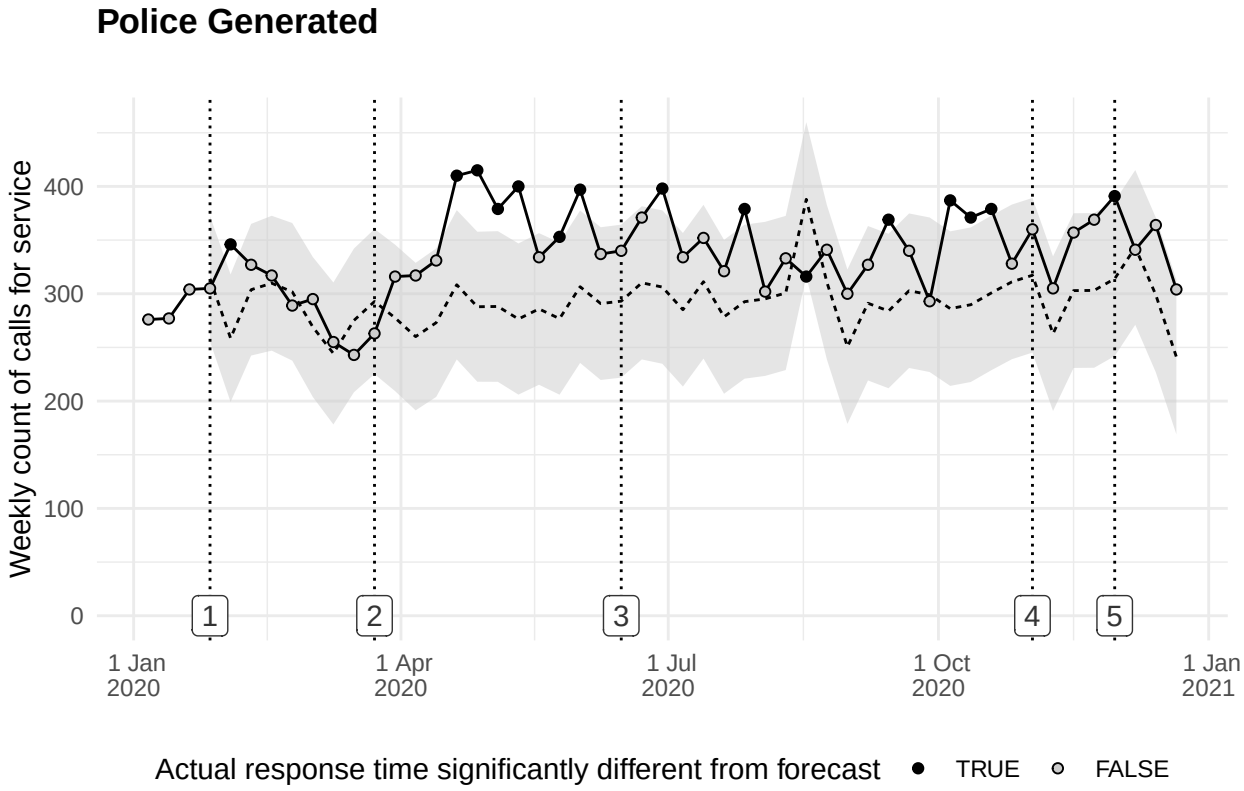
- Drug related offences



- ASB - although COVID breach was coded as ASB so can we even say this??

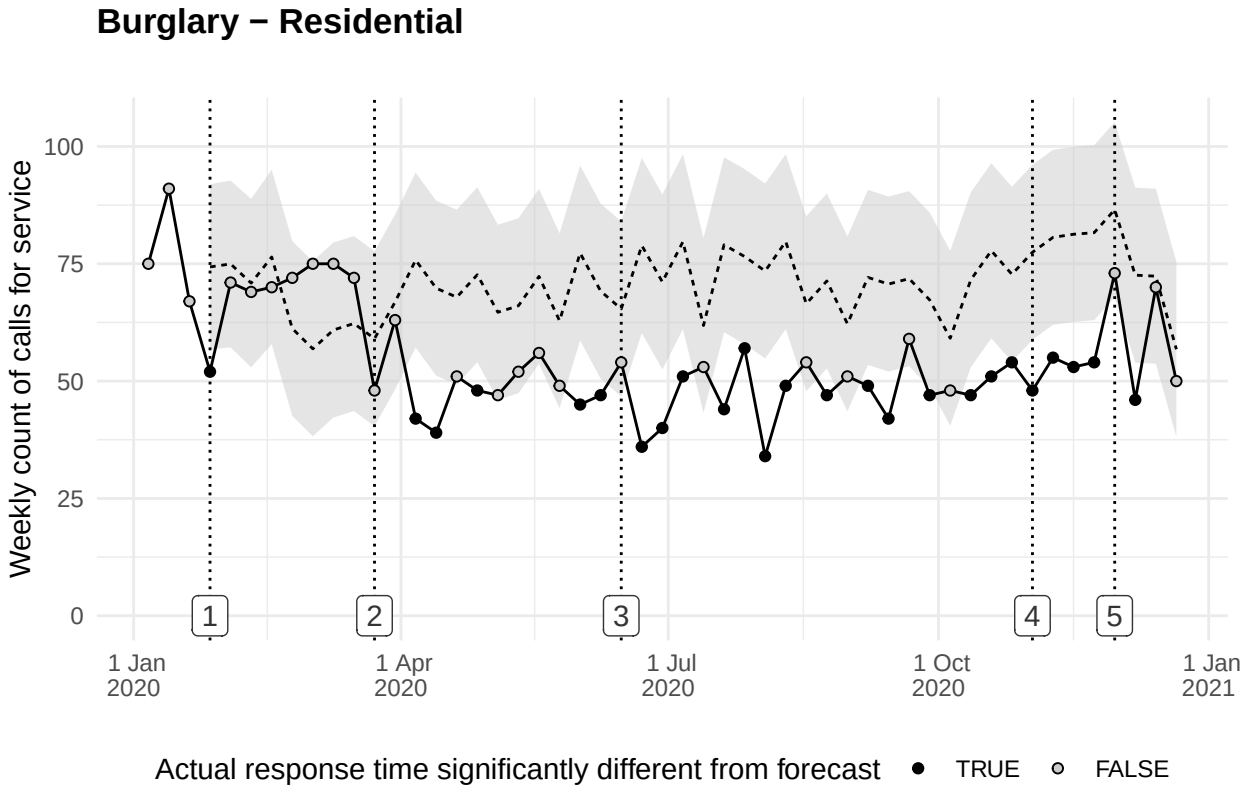


- Police generated?



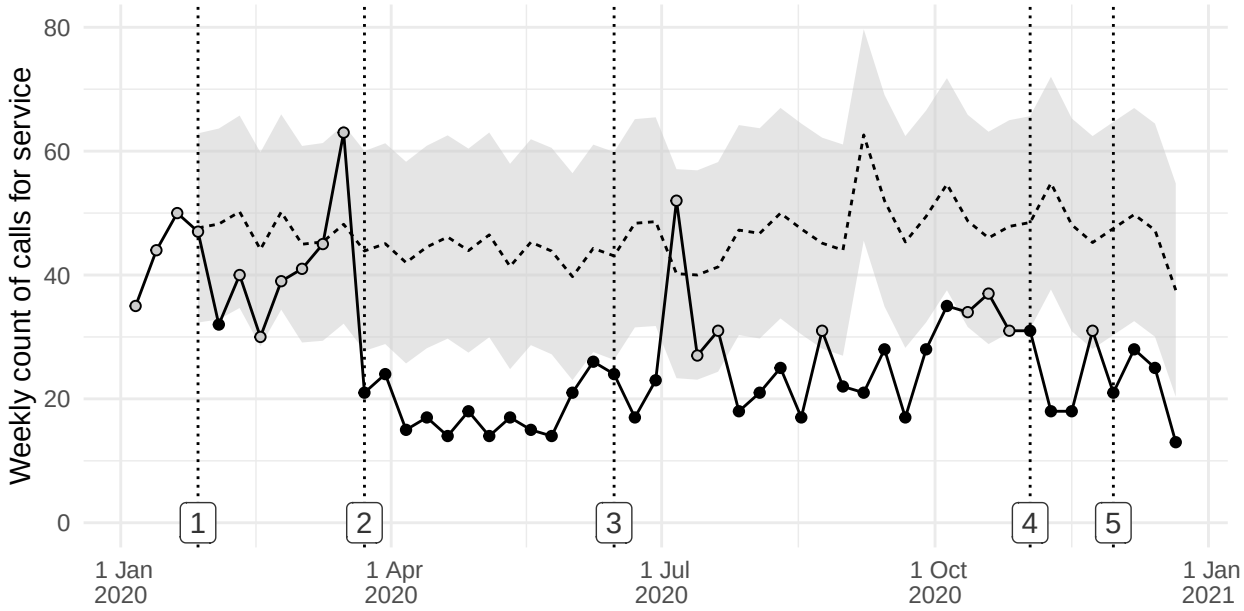
Increased guardianship

- Residential burglary



- Theft from MV (and theft of)

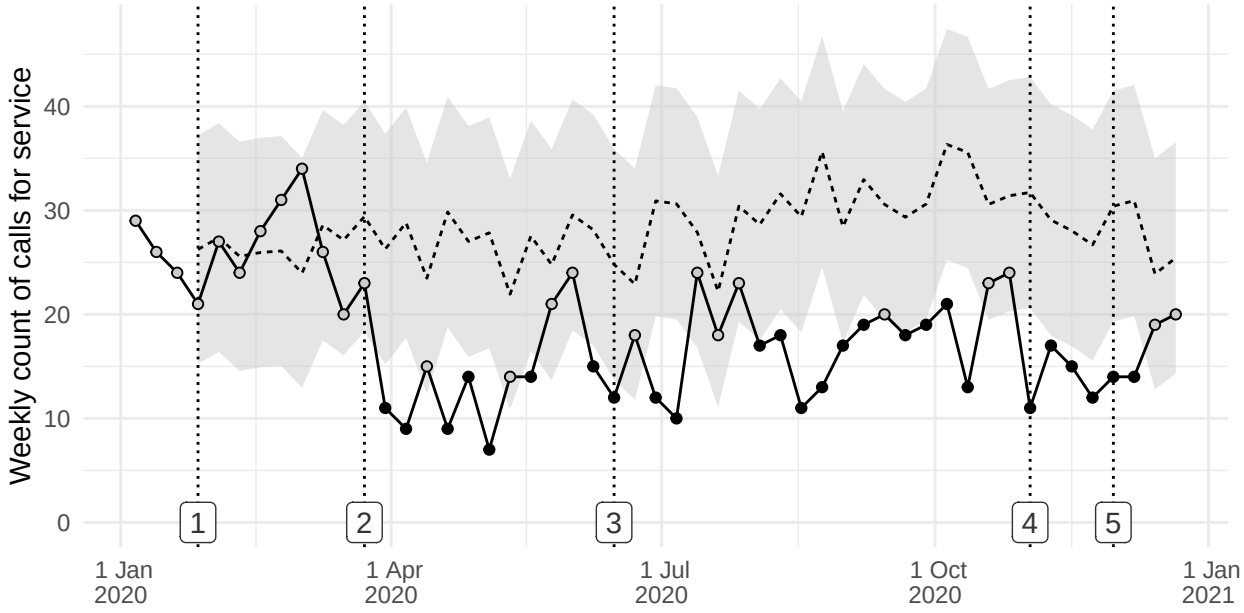
Theft From Motor Vehicle



Actual response time significantly different from forecast ● TRUE ○ FALSE

Forecast calculated using data up to 31 January 2020

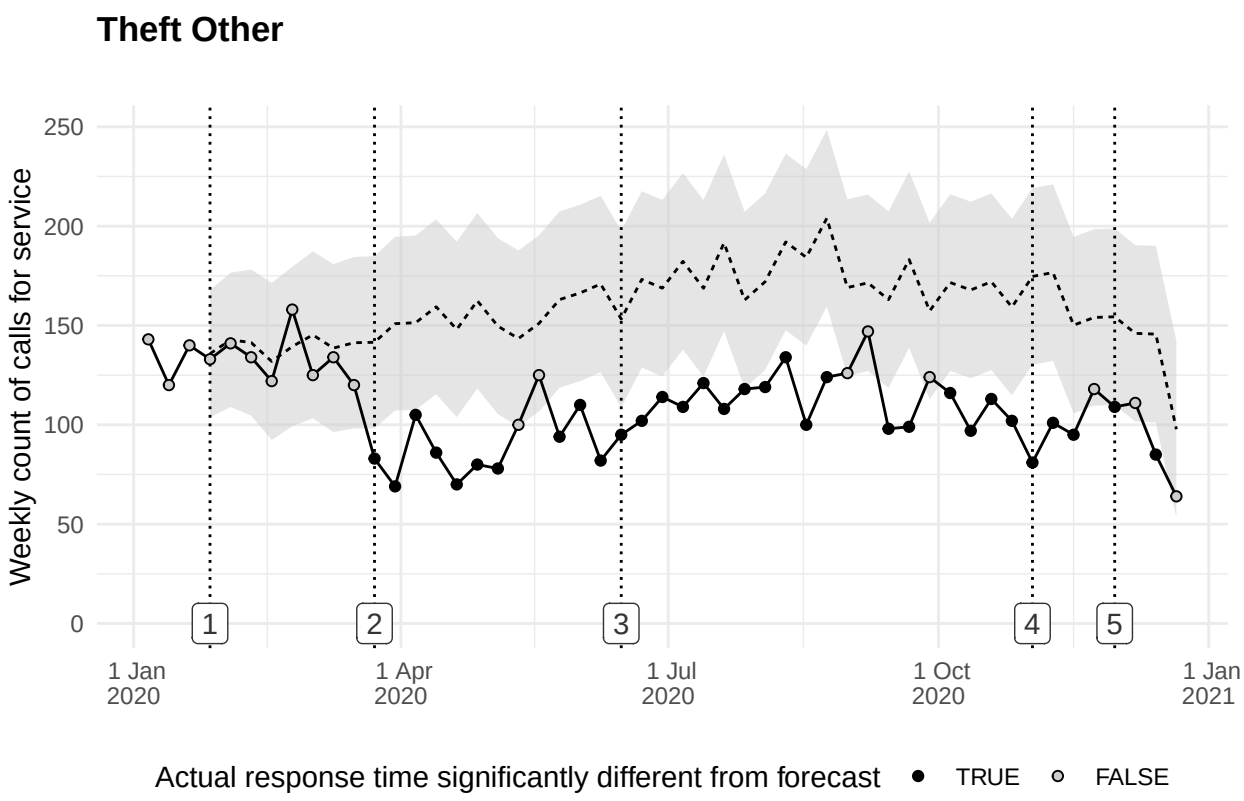
Theft Of Motor Vehicle



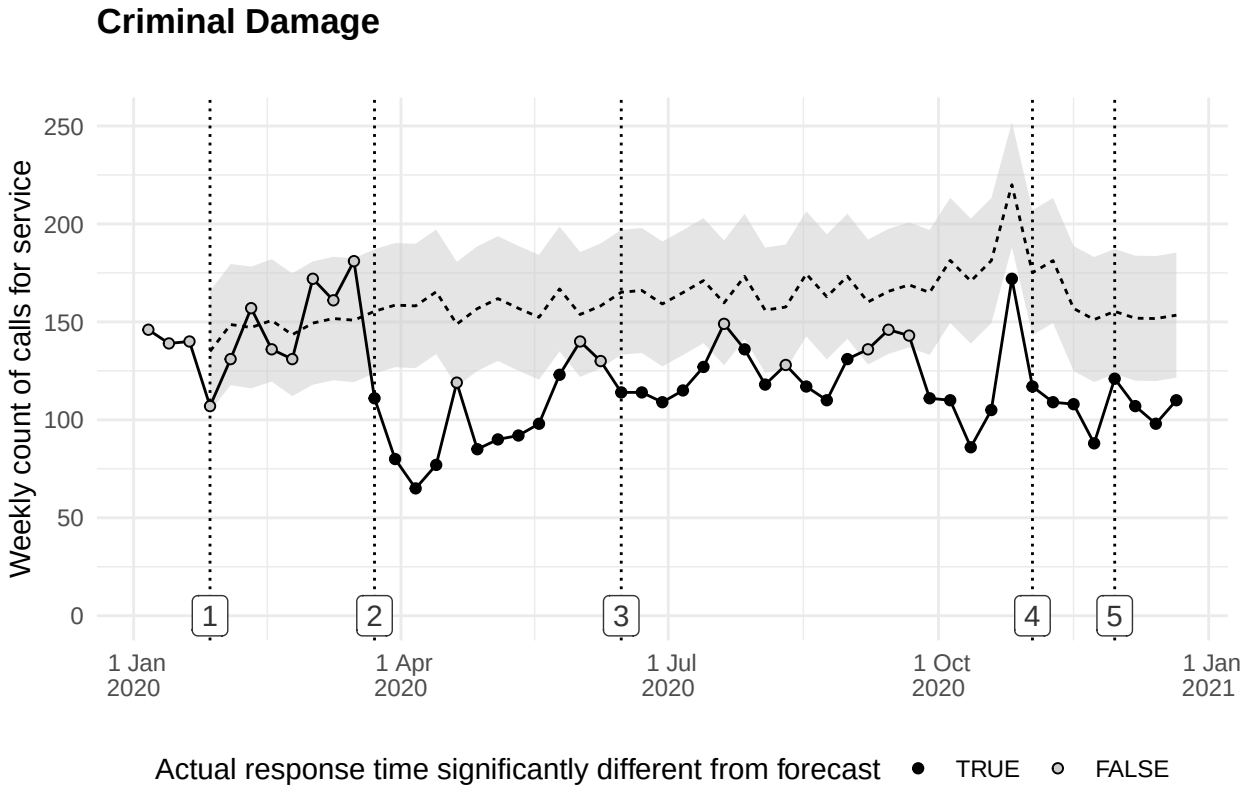
Actual response time significantly different from forecast ● TRUE ○ FALSE

Forecast calculated using data up to 31 January 2020

- Theft other

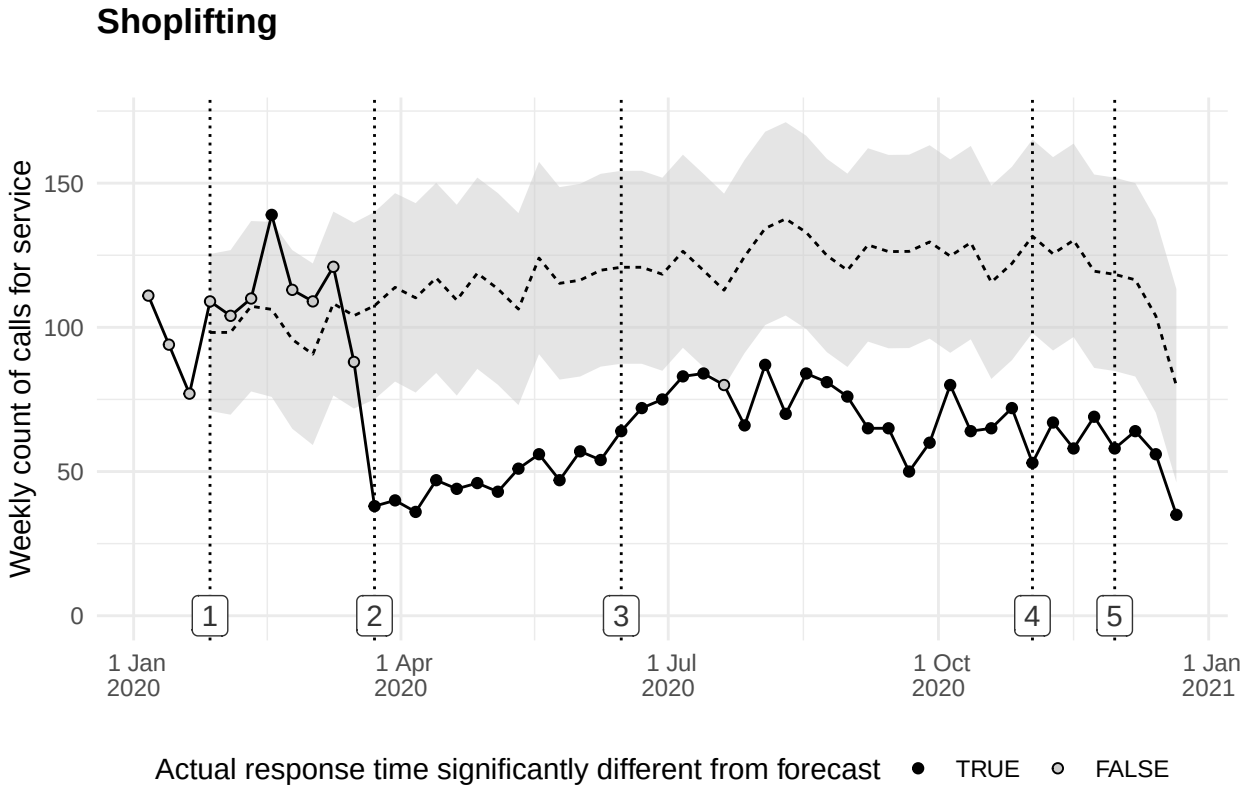


- Criminal damage (???)

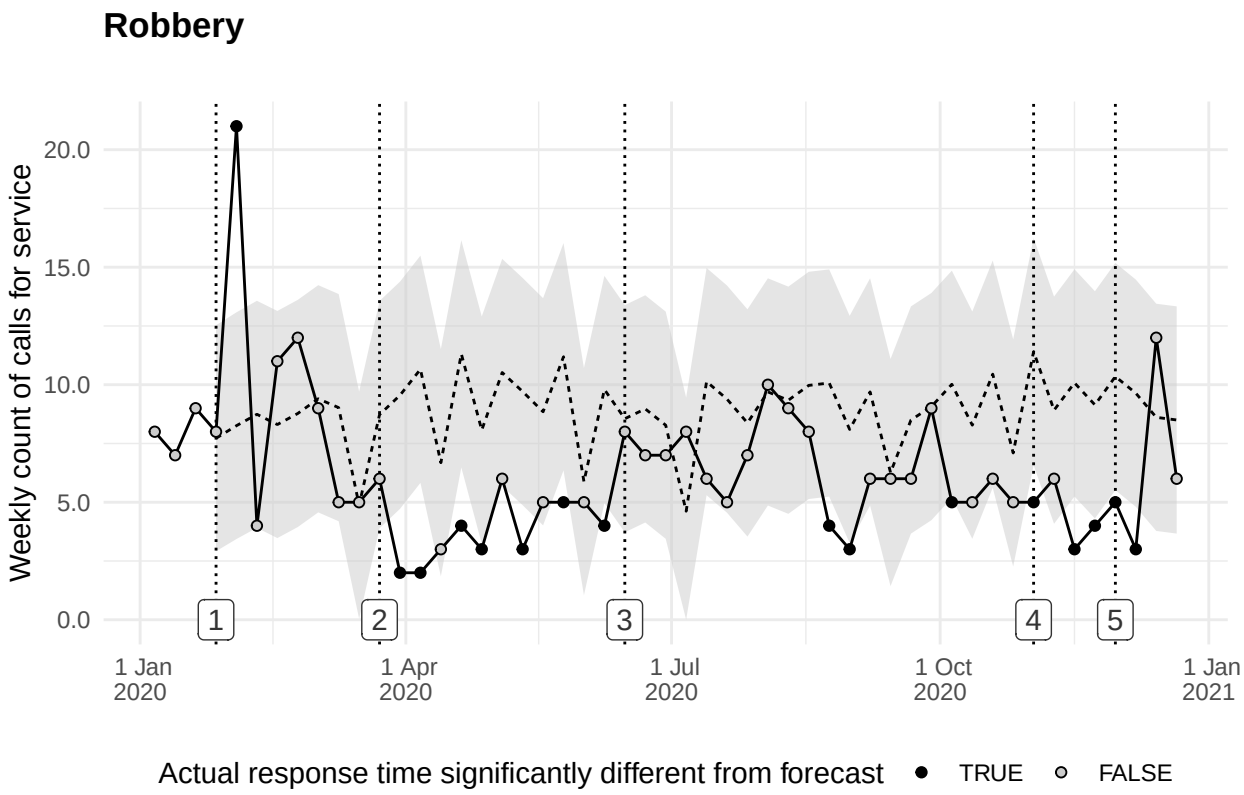


Removal of suitable targets

- Shoplifting

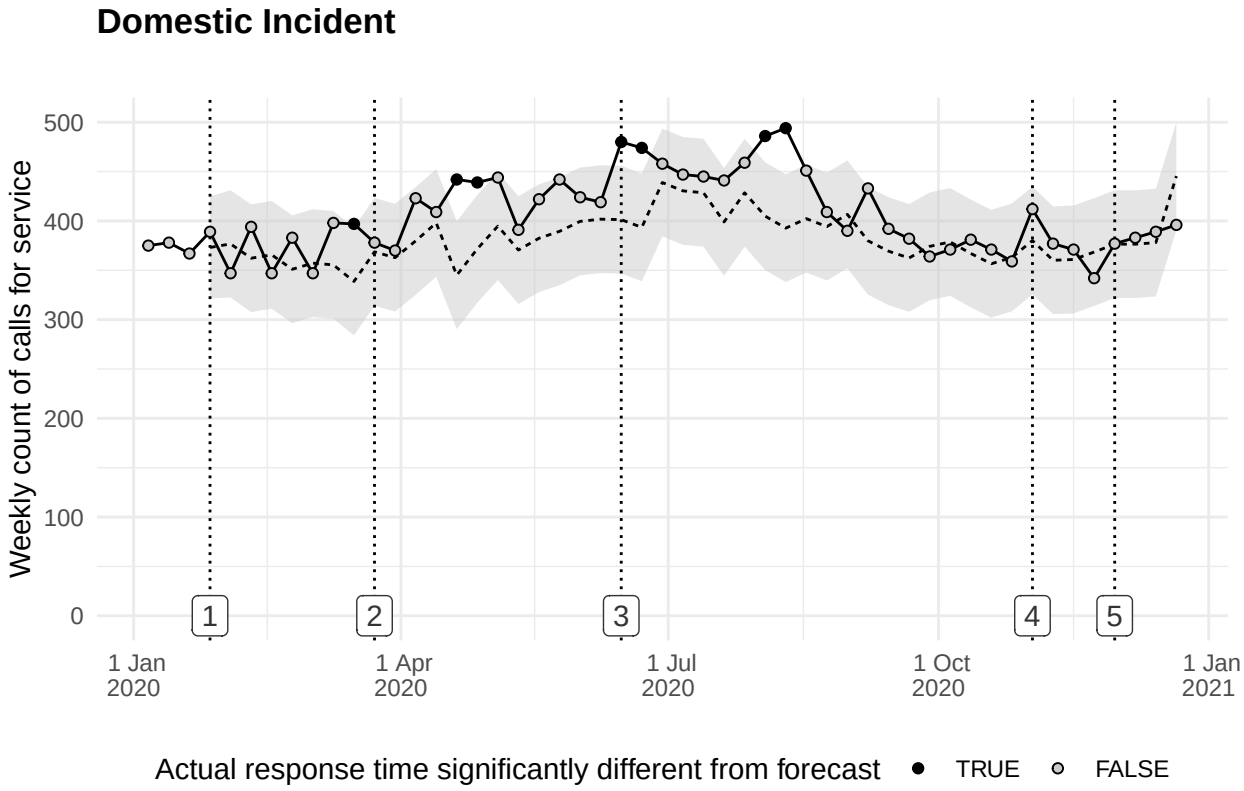

Shoplifting
Weekly count of calls for service
150
100
50
0
1
2
3
4
5
1 Jan 2020
1 Apr 2020
1 Jul 2020
1 Oct 2020
1 Jan 2021
Actual response time significantly different from forecast
TRUE
FALSE
Forecast calculated using data up to 31 January 2020

- Robbery



Domestic incidents

This is worth highlighting as there was much discussion about increase of domestic incidents during the lockdowns. When we look at all domestic incidents as a whole we do not really see this.



However when we break down by grade of call

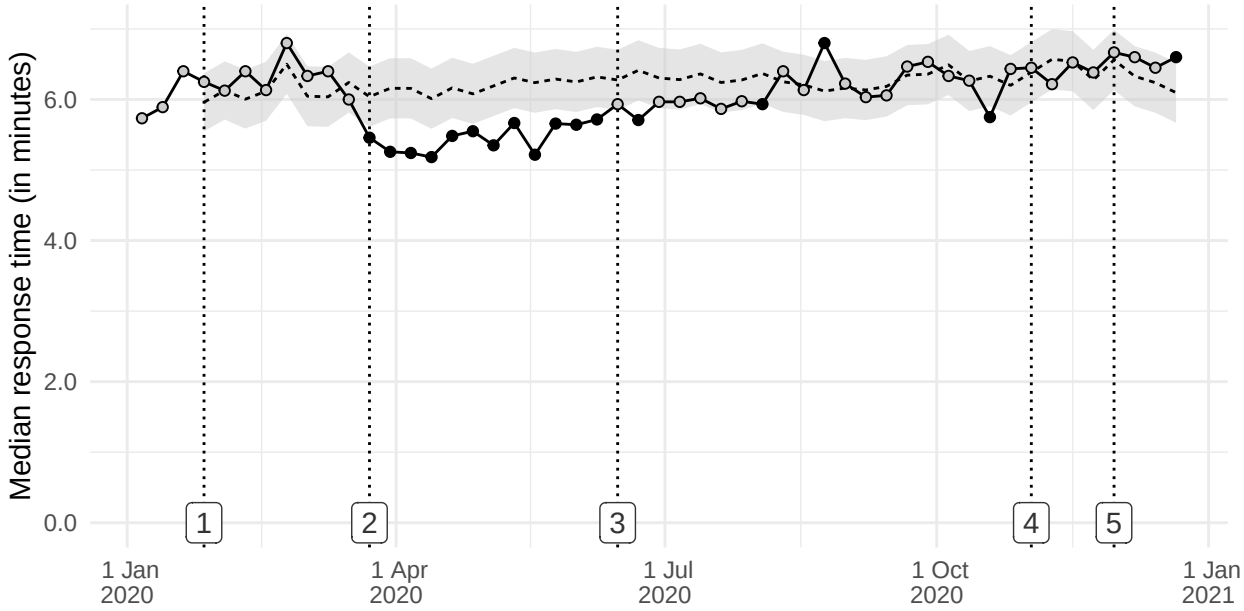
Police response by grade

Freed up resources

Attend more stuff where less time at scene - eg night time economy calls takes people off scene for longer? *check time on scene*

With fewer calls for *list everything that had fewer than pre-covid* it is likely that officer workload changed (i.e. lowered). This meant quicker response times for calls. Figure X shows median response times by grade. Response times decreased for grade 1, grade 2, and grade 3 calls, the most drastic decrease in the latter category. This suggests that the freed up resources allowed faster responding to routine response calls. There was no difference in response time to those grade 4 calls (these require attendance or other resolution within 48 hours) and grade 5 calls are not attended.

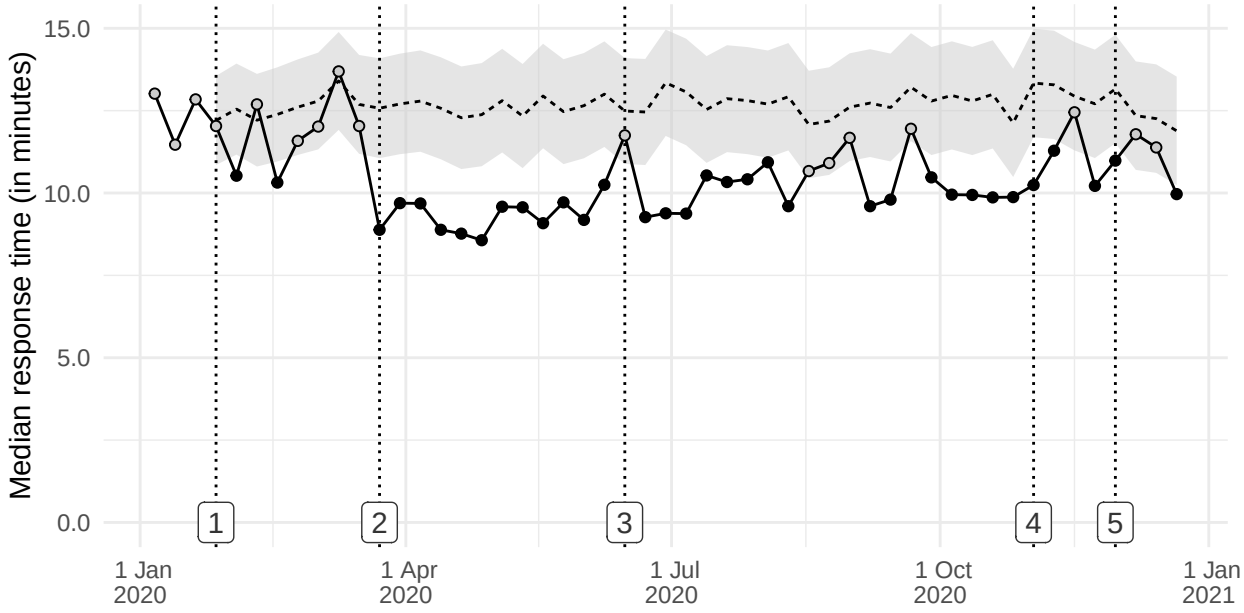
Grade 1



Actual response time significantly different from forecast ● TRUE ○ FALSE

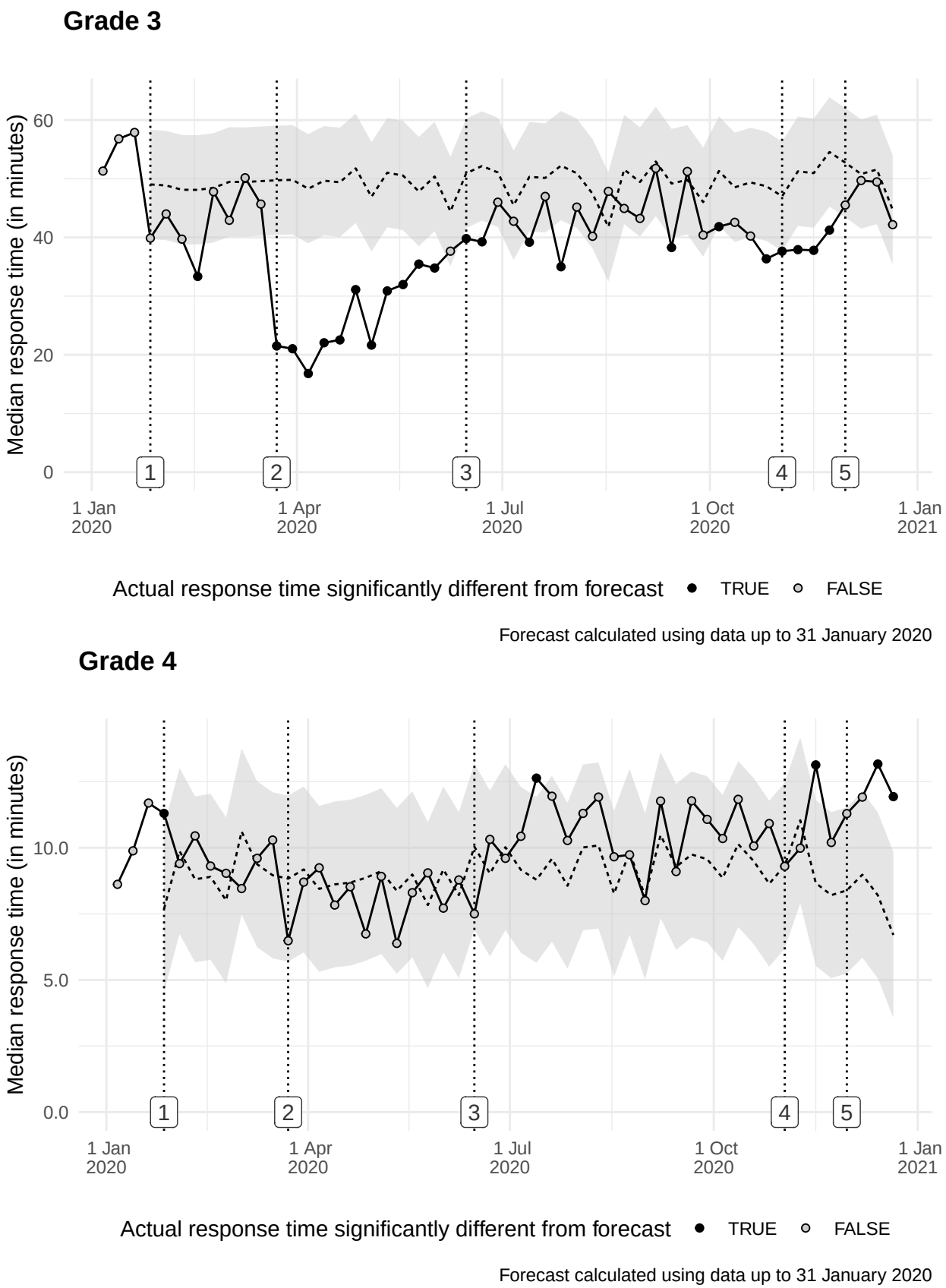
Forecast calculated using data up to 31 January 2020

Grade 2



Actual response time significantly different from forecast ● TRUE ○ FALSE

Forecast calculated using data up to 31 January 2020

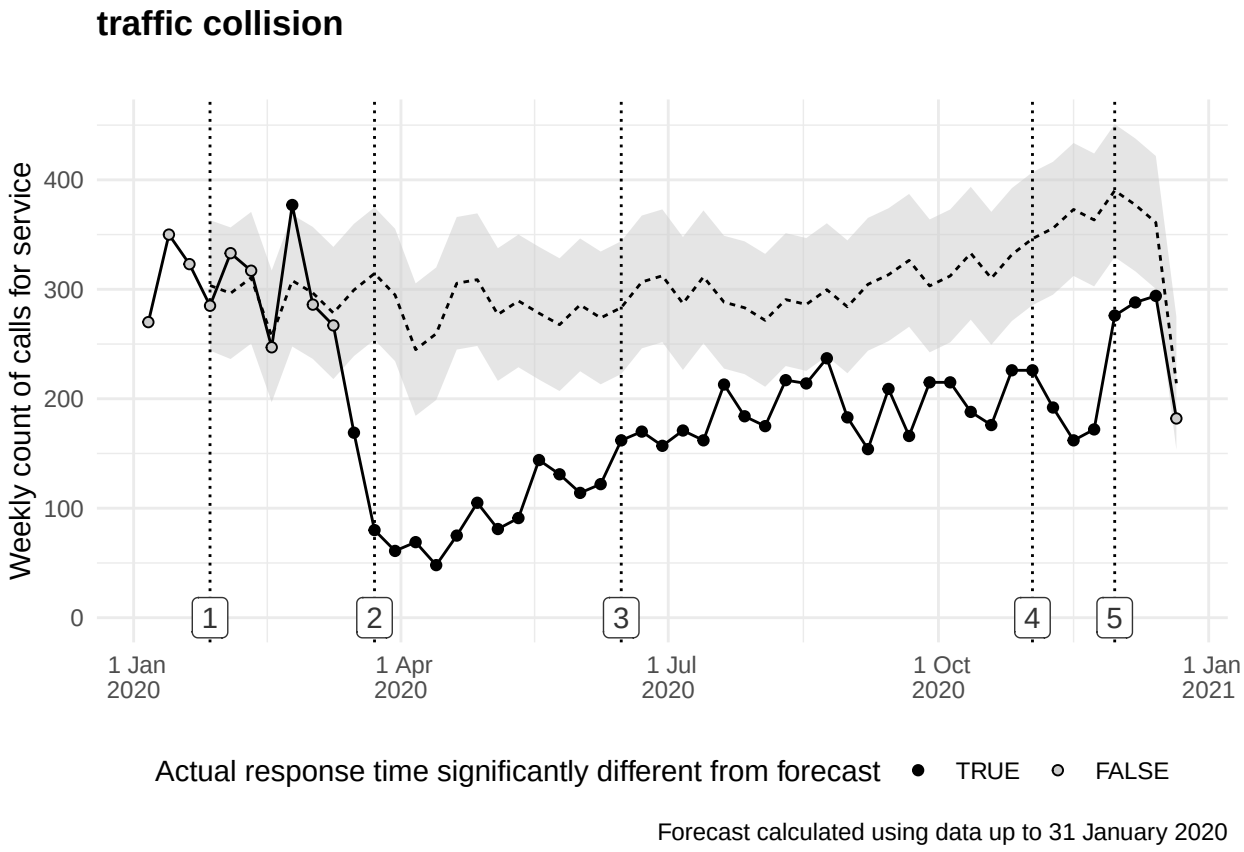


Budget for covid cars - also free up resources - these dealt with the ASB? **Ask in interview about "covid**

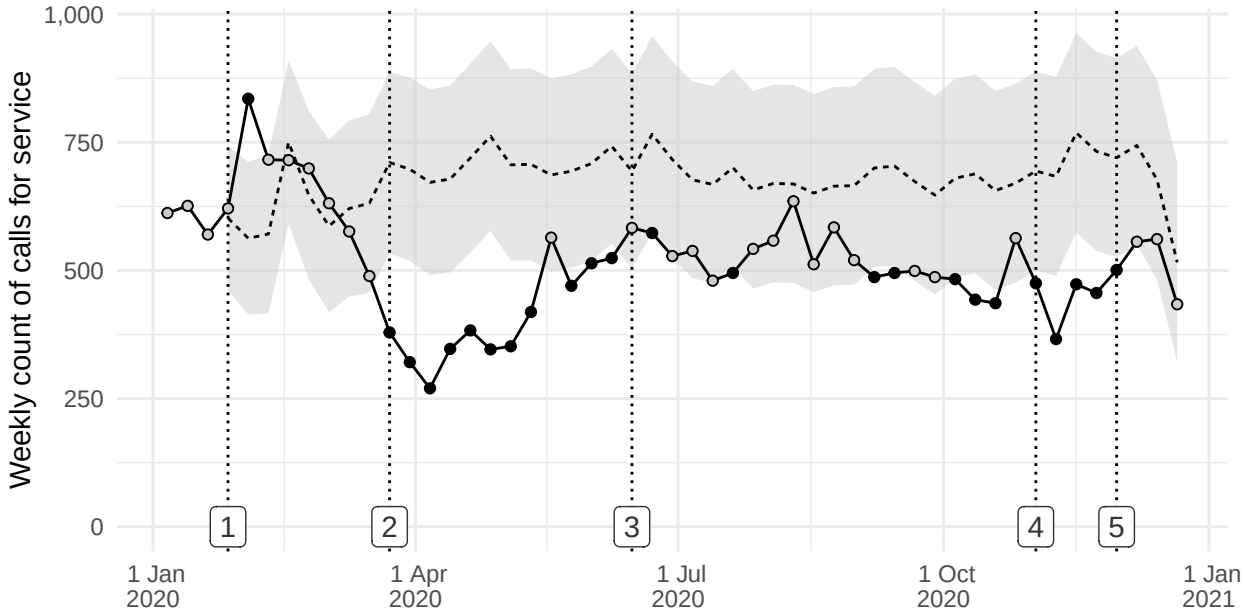
cars" and whether these dealt with ASB

Quiet streets

Another possible explanation for the decrease in response times of course is the quiet streets. We see that calls related to roads all dropped off in the first lock down, as fewer people were driving. Figures A, B, and C show how calls for highway disruption, traffic collision, and road related traffic offences were all less than would be expected based on previous years' data.



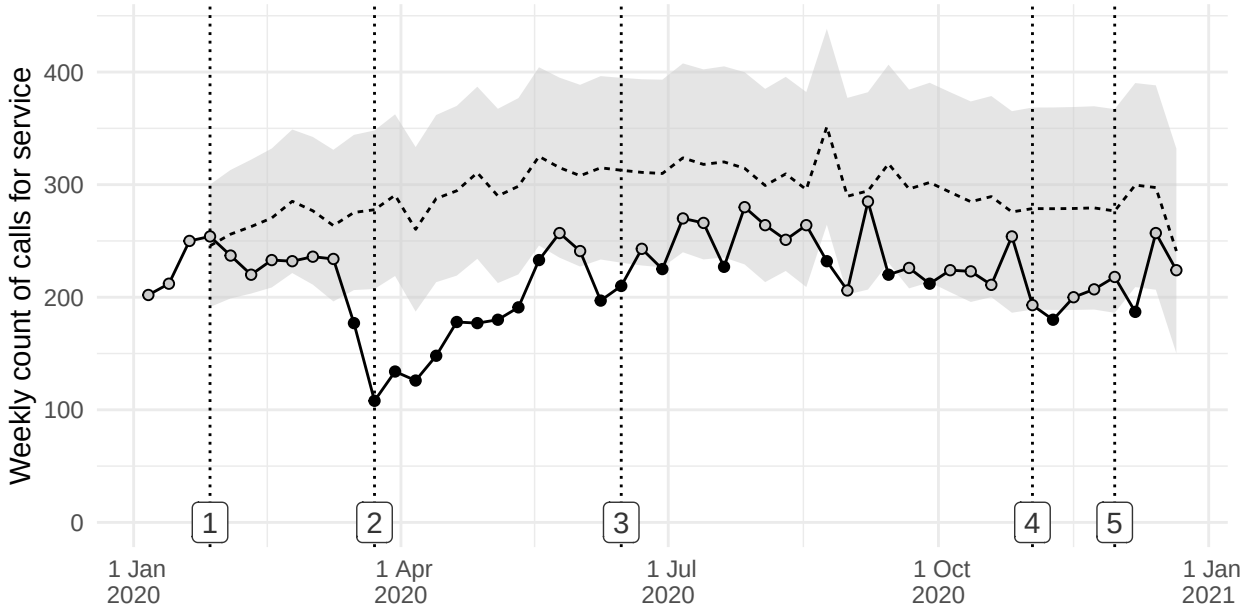
Highway Disruption



Actual response time significantly different from forecast ● TRUE ○ FALSE

Forecast calculated using data up to 31 January 2020

Road Related Traffic Offence



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Forecast calculated using data up to 31 January 2020

IMD stuff (did the callers change?)

look at IMD stuff

Discussion