

COVID-19

Local authority travel and transport data

Weekly digest



*ITS UK Project of the Year
Award 2020 Winner*

Week Commencing

7th December 2020

Introduction

Since the imposition of travel restrictions designed to help dramatically reduce the spread of Covid-19, the Transport Technology Forum has led the collation of transport data from local authorities into information used to understand changes in travel behaviour.

Authorities from cities, towns and counties across England are sharing urban traffic control and automated traffic counter data from the roadside, as well as information on cycling and car parks. Industry has also supplied video analytics and floating vehicle data patterns. This sits alongside data the Department receives about rail and air, public transport, freight and maritime to summarise how, where and when people and goods are moving around the country.

The Transport Technology Forum is able to publish outcomes from this data set for interested parties, not least those bodies who went above and beyond the call to share their data with us.

About the Forum

This document has been prepared by the Transport Technology Forum as part of its remit to drive more effective and efficient management of existing and new road networks, as a key national opportunity before, during and after the current Covid-19 emergency.

Road transport will remain a key pillar of how people and goods move across the nation, not just on strategic roads. Improving road travel through technology is a core aim of the Forum.

The Forum promotes a collaborative culture to open up the opportunity and address the caution which has historically impeded efficiency and innovation.

About this Report

The report provides an ongoing snapshot of travel, summarising weekly, daily and hourly changes based on information shared by:

- Traffic – 29 data providers, geographically covering approximately 107 local authority districts.
- Cycling – 16 data providers, geographically covering approximately 84 local authority districts including nationwide canal and river paths.

This provides an overview of how public behaviour is changing and what new patterns are being experienced. Local Authorities can benefit by being able to compare what is happening in their areas with the national picture, allowing local and national comparisons to be drawn.

Weekly highlights summary

The following provides a high-level summary of the key findings within the data:

Traffic Flow

- For the week commencing 30th November, overall daily traffic flows have remained at 23% below baseline levels (Figure 1). Traffic levels briefly saw an increase of 7% on Wednesday 2nd December, when England moved from a national lockdown into a tiered local restriction system, and maintained an increase of approximately 2-6% throughout the rest of the week.
- Figure 3 shows that traffic levels have overall shown a slight recovery since the second national lockdown ended, but traffic volumes remain below baseline levels.
- Figure 4.1 and Figure 4.2 show that average weekday and weekend traffic volumes for the w/c 30th November are consistent in trend with previous weeks in November at all hours of the day but have decreased overall.
- Figure 5.1 shows that weekday car volumes have shown some recovery from 18% below baseline levels during the second national lockdown, to 2-4% below baseline after England moved back to tiered local restriction levels on 2nd December. By comparison, during the first national lockdown, car volumes decreased to an all-time low of 78% below baseline levels. Weekday motorcycle use has declined significantly in the last week. Weekend car and bus/coach volumes have returned to baseline levels (Figure 5.2).
- Figure 8 presents the change in hourly average weekday traffic flows for the Local Highway Authorities of Birmingham, Derbyshire, Hampshire, Suffolk, York and Leicestershire. LHAs which have moved from national lockdown restrictions to tier 3 (high alert) restrictions have shown little change in traffic flows. Those which have moved to tier 2 restrictions have shown a slight increase in traffic levels, except for Hampshire which has shown a slight decrease during the interpeak.

Cycling

- For the week commencing 30th November, overall cycling volumes have decreased significantly to 23% below baseline levels (Figure 2), an 18% decrease compared to the previous week. Thursday, 3rd December and Sunday 6th December saw the most significant decreases of 34% and 50% respectively. This is most likely due to winter wet weather.
- On weekdays (Figure 10.1) of the week commencing 30th November, cycling volumes have decreased during the interpeak, but remain above baseline levels. Cycling during the AM and PM peaks remain largely below baseline.
- On the weekend (Figure 10.2), cycling levels remain consistent with previous weeks. AM and PM cycling levels are well below baseline levels, but remain on par with the baseline during the interpeak.

Comparing traffic levels during the first and second national lockdown

Lockdown 1: 23 March – 11 May (49 days)

Lockdown 2: 5 November – 2 December (28 days)

Key findings within the data comparing lockdown 1 with lockdown 2:

- Figure 11 shows that lockdown 1 caused a much more severe reduction in traffic levels than lockdown 2, which proportionally experienced 32-38% more traffic than lockdown 1. Comparing the local authority data collected by the TTF to the DfT's COVID-19 strategic road network data¹, collected from 275 strategic and local network level automatic traffic count sites across Great Britain, the overall trend seen in both datasets aligns closely. This means that the combined local traffic movements during the COVID-19 pandemic are also representative of movements at a national scale.
- Figure 12 shows the same overall average data as Figure 11, but split out by vehicle class. Both car and HGV/LGV traffic experienced a surge in traffic levels before lockdown 2, while the lead into lockdown 1 saw a gradual decline. Car traffic was only about 30% below baseline levels during lockdown 2, while they were 60-65% below the baseline during lockdown 1. Similarly, HGV/LGV traffic only 0-8% below baseline levels during lockdown 2 and 42-50% below baseline levels during lockdown 1 (excluding the large decrease during the Easter weekend and other public holidays).
- Weekday traffic levels remain consistent at 23-25% below baseline levels during lockdown 2 and 56%-61% below baseline during lockdown 1 (Figure 13). Fridays saw the highest traffic levels during lockdown 2, while Mondays experienced the highest traffic levels during lockdown 1. Weekend traffic levels were up to 9% lower than weekdays during lockdown 2 and 13% lower than weekday levels during lockdown 1.
- Figure 14 shows that hourly traffic levels were lower during the interpeak and PM peak the week before lockdown 1 compared to the week before lockdown 2. Hourly traffic flows during the first week of lockdown 2 were almost the same as the average hourly flows over the entire period of lockdown 2. Hourly traffic flows during the first week of lockdown 1 were higher during the AM peak compared to the average hourly flows over the entire period of lockdown 1. This is most likely due to increased variation during lockdown 1 because the duration was much longer than lockdown 2. Overall, Figure 14 shows that there is very little change in the AM and PM peaks, while interpeak traffic was much higher during lockdown 1 than lockdown 2.
- Figure 15 shows that hourly traffic flows on the weekend before lockdown 2 were much higher than the weekend before lockdown 1, especially at midday. Lockdown 2 experienced a slight dip in traffic flows around 14:00 during the first week, and on average across the entire lockdown period. Lockdown 1 saw the lowest weekend traffic flows, with comparatively decreased levels at all hours of the day.

¹ <https://www.gov.uk/government/statistics/transport-use-during-the-coronavirus-covid-19-pandemic>

Observations on differences between the two lockdowns:

- It's important to note that these two lockdowns were not identical events. Lockdown 1 was far more restrictive, with a wider closures of services, shops and businesses across the country. During lockdown 2 certain services remained open, such as schools, which is potentially reflected in the limited impact lockdown 2 had on the AM and PM peaks as school run traffic remained. It is also notable that lockdown 2 traffic levels dropped to the same level that traffic had recovered to after lockdown 1 when schools reopened in June (-30% of baseline).
- Lockdown 1 was also far more of a shock to the system, with the whole population slowly adapting to what the lockdown meant in terms of what they could and couldn't do, should they travel and if so how could it be done safely, and how social distancing would impact each aspect of everyday life. By lockdown 2 however, the population had a far greater understanding of how lockdown life was going to impact them, and how they could continue to make personal or work journeys in compliance with lockdown rules.
- In terms of businesses and services, at the start of lockdown 1 there were no solutions to how these could remain open and functional. Over the course of lockdown, they had to slowly design and implement new ways to operate while ensuring the safety of employees, users and customers. In addition, large numbers of employees were furloughed, taking those commuter journeys off the roads. In contrast, by lockdown 2, measures had been successfully implemented to allow large numbers of businesses and services to reopen, bringing back workers in some instances. The levels of furloughing seen in lockdown 1 also did not transpire in lockdown 2.
- Interestingly, lockdown 2 actually observed a greater initial reduction in traffic levels from the 4th to the 5th November (start of lockdown 2), a drop of approximately 30 percentage points. The drop from the 23rd March to the 24th March (start of lockdown 1) was only approximately 20 percentage points.
- There are a number of identifiable causes for this in the data; firstly the 4th of November (day before lockdown 2) experienced a significant spike in traffic levels (+5% of baseline) which may reflect people making last minute supply runs and appointments given they understood the impact lockdown was going to have this time. This in turn created a greater drop in traffic flows when lockdown started the next day. In contrast, by March 23rd (day lockdown 1 announced) traffic flows overall were already -30% of baseline, as services and businesses had already started to shut and discourage travel. This meant that the drop in traffic flows between the 23rd and 24th March was not as great as lockdown 2, but the overall drop in traffic flows over the weeks before and after was more significant at the start of lockdown 1.
- This is also reflected in the LA vs DfT data comparison where at a local level in the days leading up to lockdown 2 car traffic spiked considerably in the LA local road data, while the same spike was not seen in the DfT strategic and local roads data. This suggests greater numbers of local trips, possibly supply runs to stock up prior to lockdown, but no observed change in inter-urban trips.
- Figures 16a-f provide a summary of the differences between lockdown 1 and 2 across our chosen six Local Highway Authorities.

Figure 1 – Overall daily traffic flow change compared to baseline
(1-7 Feb 2020)

Week	1. Monday	2. Tuesday	3. Wednesday	4. Thursday	5. Friday	6. Saturday	7. Sunday	Total
30/11/2020	📉 -25.23%	📉 -23.02%	📉 -17.37%	📉 -19.45%	📉 -18.93%	📉 -24.63%	📉 -24.86%	-22.66%
23/11/2020	📉 -21.05%	📉 -23.46%	📉 -24.62%	📉 -23.37%	📉 -20.86%	📉 -27.77%	📉 -30.74%	-24.01%
16/11/2020	📉 -21.31%	📉 -25.63%	📉 -23.05%	📉 -19.21%	📉 -18.07%	📉 -29.78%	📉 -20.52%	-22.22%
09/11/2020	📉 -26.71%	📉 -25.96%	📉 -25.27%	📉 -24.62%	📉 -25.62%	📉 -32.52%	📉 -38.14%	-27.06%
02/11/2020	📉 -5.43%	📉 -4.25%	📈 2.81%	📉 -27.33%	📉 -25.53%	📉 -32.77%	📉 -37.18%	-17.87%
26/10/2020	📉 -11.13%	📉 -14.51%	📉 -10.04%	📉 -14.06%	📉 -9.43%	📉 -13.48%	📉 -8.39%	-11.35%
19/10/2020	📉 -11.72%	📉 -11.29%	📉 -11.96%	📉 -15.33%	📉 -14.72%	📉 -13.06%	📉 -14.26%	-12.94%

The lowest levels were seen during the w/c 6th April, which saw levels 65% below baseline overall and a record 76% below baseline on Sunday, 12th April.

Figure 1: Key dashboard figures showing change in average daily traffic volumes compared to the baseline (first week of February 2020)

Figure 2 – Overall daily cycling change compared to baseline (1-7 Feb 2020)

Week	1. Monday	2. Tuesday	3. Wednesday	4. Thursday	5. Friday	6. Saturday	7. Sunday	Total
30/11/2020	📉 -21.35%	📉 -7.97%	📉 -18.18%	📉 -45.82%	📉 -37.12%	📉 -19.93%	📈 5.07%	-22.87%
23/11/2020	📉 -8.02%	📉 -10.57%	📉 -26.32%	📉 -11.76%	📉 -9.09%	📈 19.91%	📈 55.46%	-5.33%
16/11/2020	📉 -19.10%	📉 -15.38%	📉 -29.41%	📉 -5.00%	📉 -20.34%	📈 28.64%	📈 88.34%	-8.00%
09/11/2020	📉 -7.47%	📉 -14.83%	📉 -25.48%	📉 -8.44%	📉 -6.88%	📉 -36.66%	📉 -7.96%	-14.83%
02/11/2020	📉 -16.81%	📉 -17.45%	📉 -7.86%	📉 -7.16%	📈 12.62%	📈 51.85%	📈 10.34%	1.43%
26/10/2020	📉 -1.71%	📉 -32.33%	📉 -32.36%	📉 -40.77%	📉 -14.03%	📉 -11.43%	📉 -14.29%	-25.05%
19/10/2020	📈 5.06%	📈 3.16%	📉 -36.23%	📉 -0.34%	📉 -3.63%	📉 -25.93%	📉 -3.45%	-7.65%

The highest levels were seen during the w/c 25th May, which saw levels 94% above baseline overall and a record 220% above baseline on Sunday, 31st May.

Figure 2: Key dashboard figures showing change in average daily cycle volumes compared to the baseline (first week of February 2020)

Figure 3 – Overall daily average traffic flow change from baseline

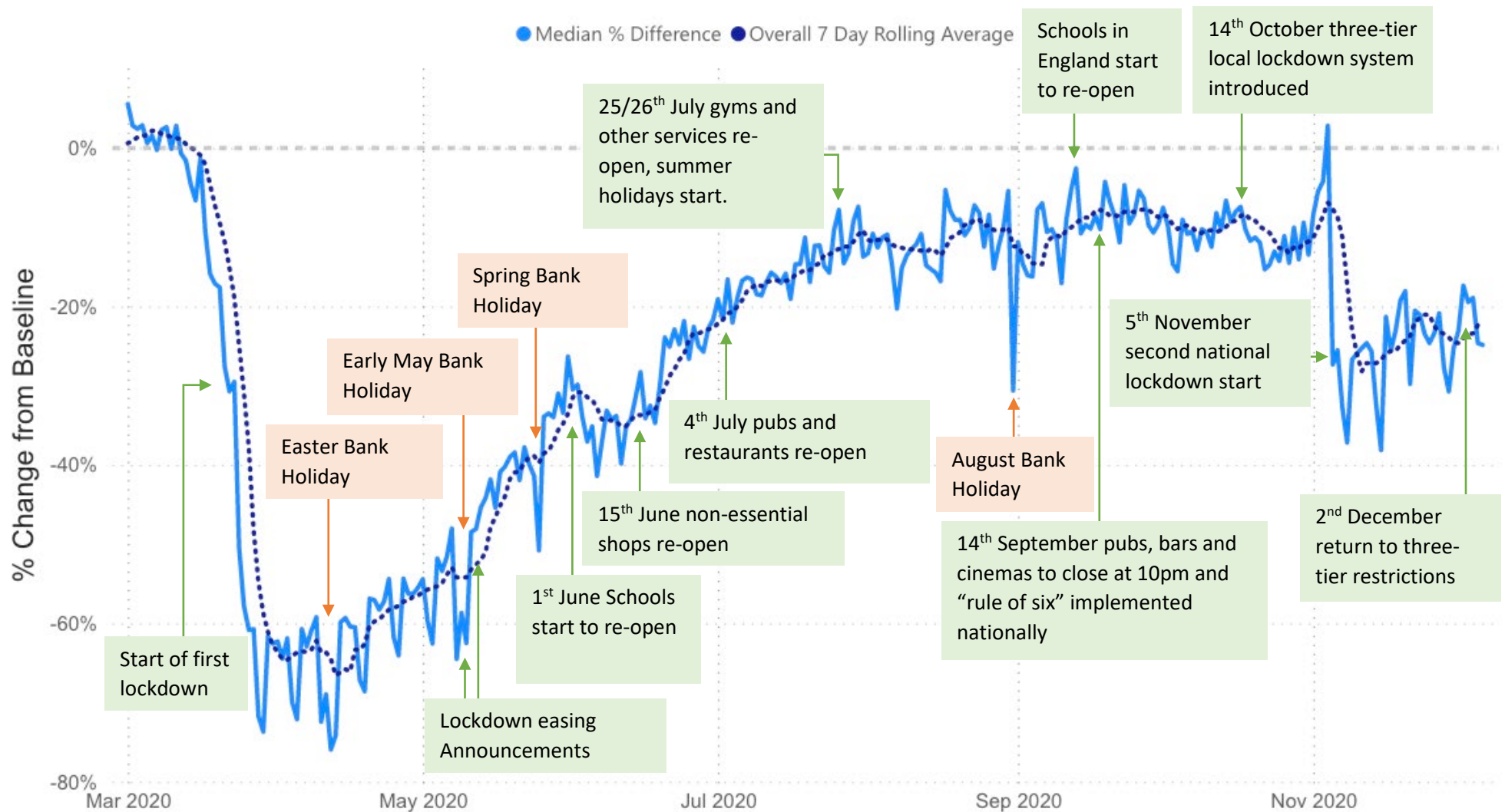


Figure 3: Change in overall daily average traffic volumes since 01st March across all sources compared to the baseline (first week of February 2020)

Figure 4.1 – Overall comparison of average hourly weekday traffic by week

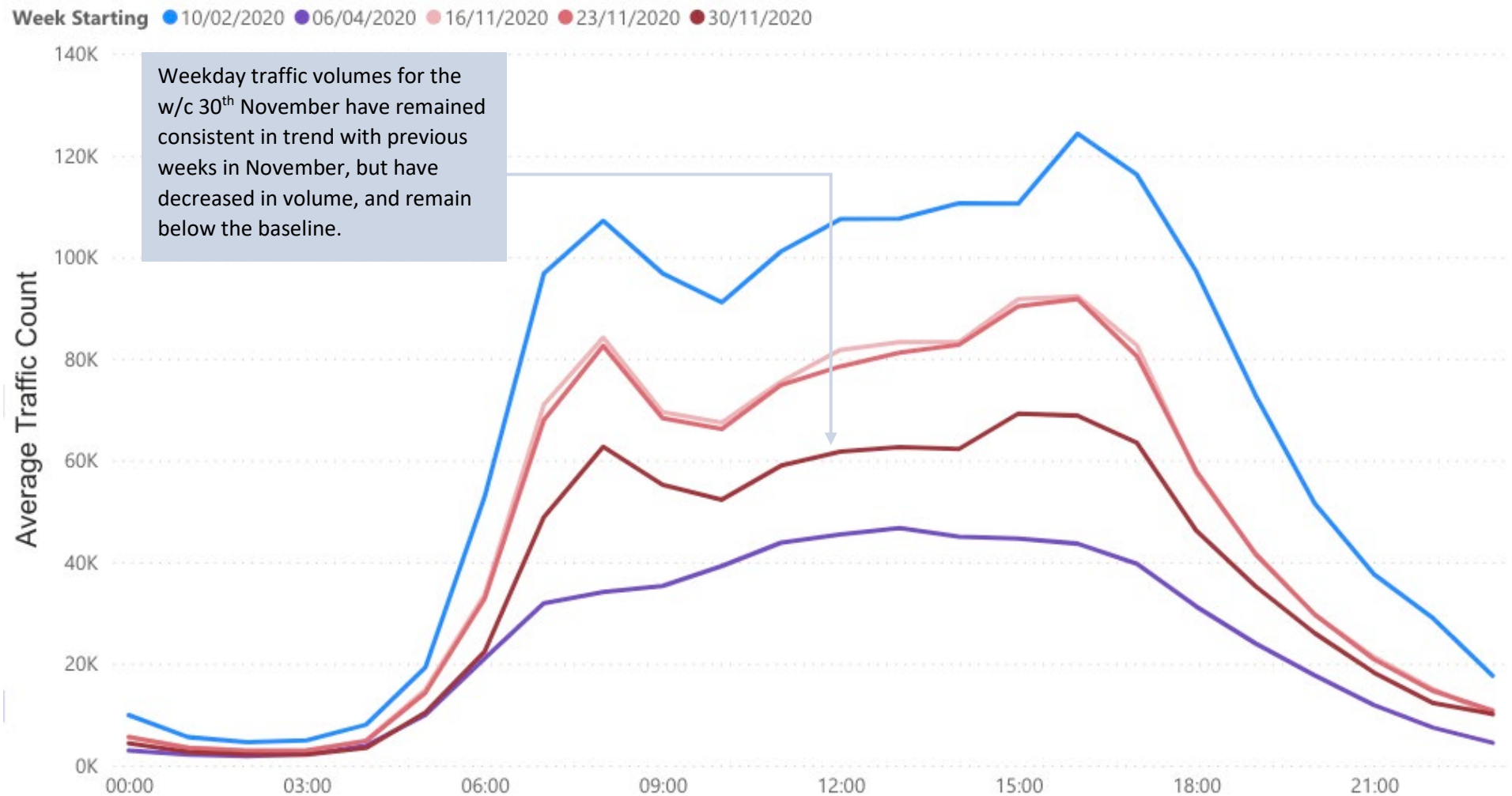


Figure 4.1: Weekday traffic volumes compared to pre-lockdown (10/02/20) and early lockdown (06/04/20) across all datasets. Note- this may not reflect the patterns observed in Figures 1 and 3 as the hourly average is calculated at sensor level, not Local Highway Authority (LHA) level.

Figure 4.2 – Overall comparison of average hourly weekend traffic by week

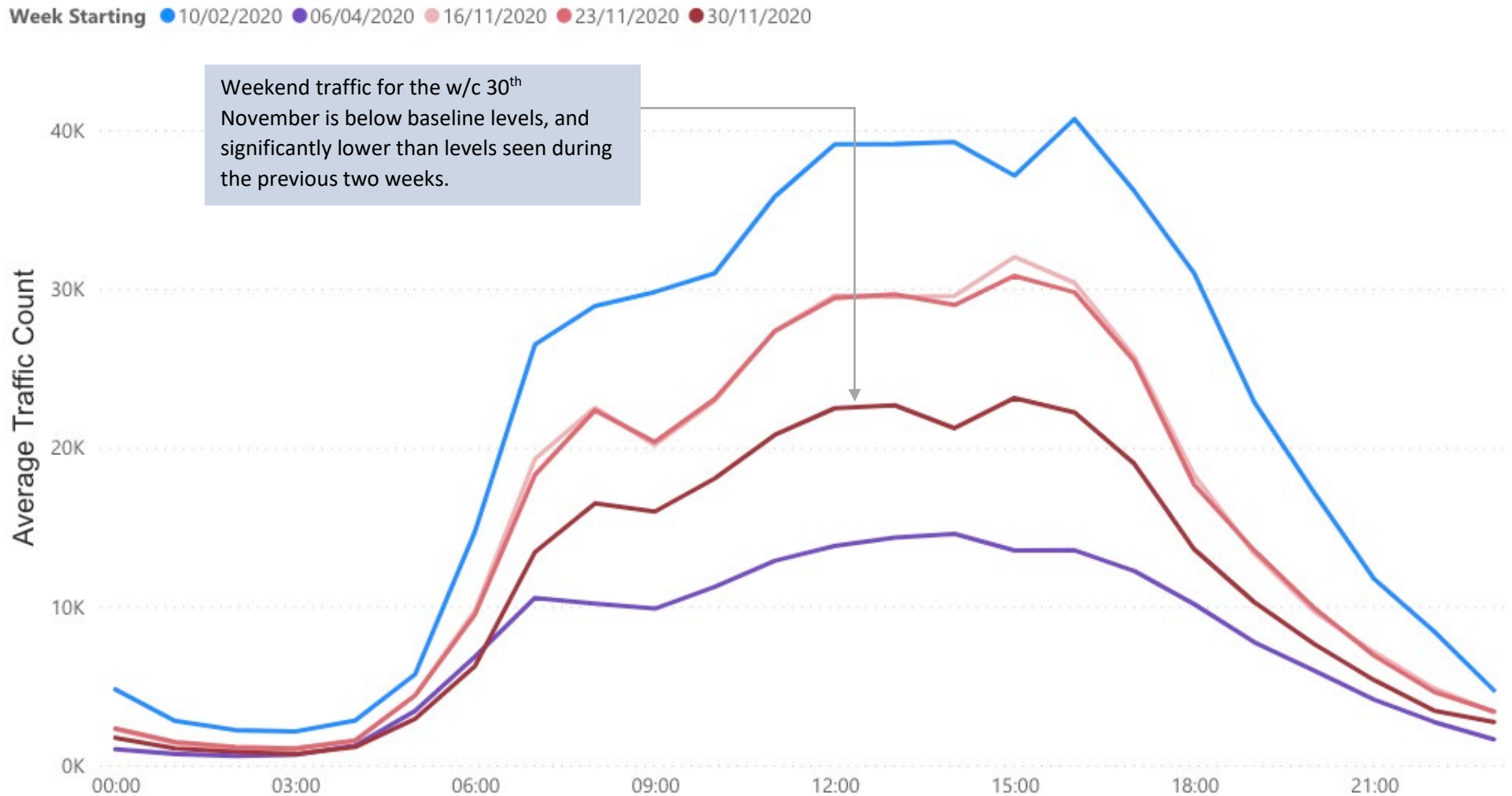


Figure 4.2: Weekend traffic volumes compared to pre-lockdown (10/02/20) and early lockdown (06/04/20) across all datasets. Note- this may not reflect the patterns observed in Figures 1 and 3 as the hourly average is calculated at sensor level, not Local Highway Authority (LHA) level.

Figure 5.1 – Overall weekday change in traffic flows by vehicle class

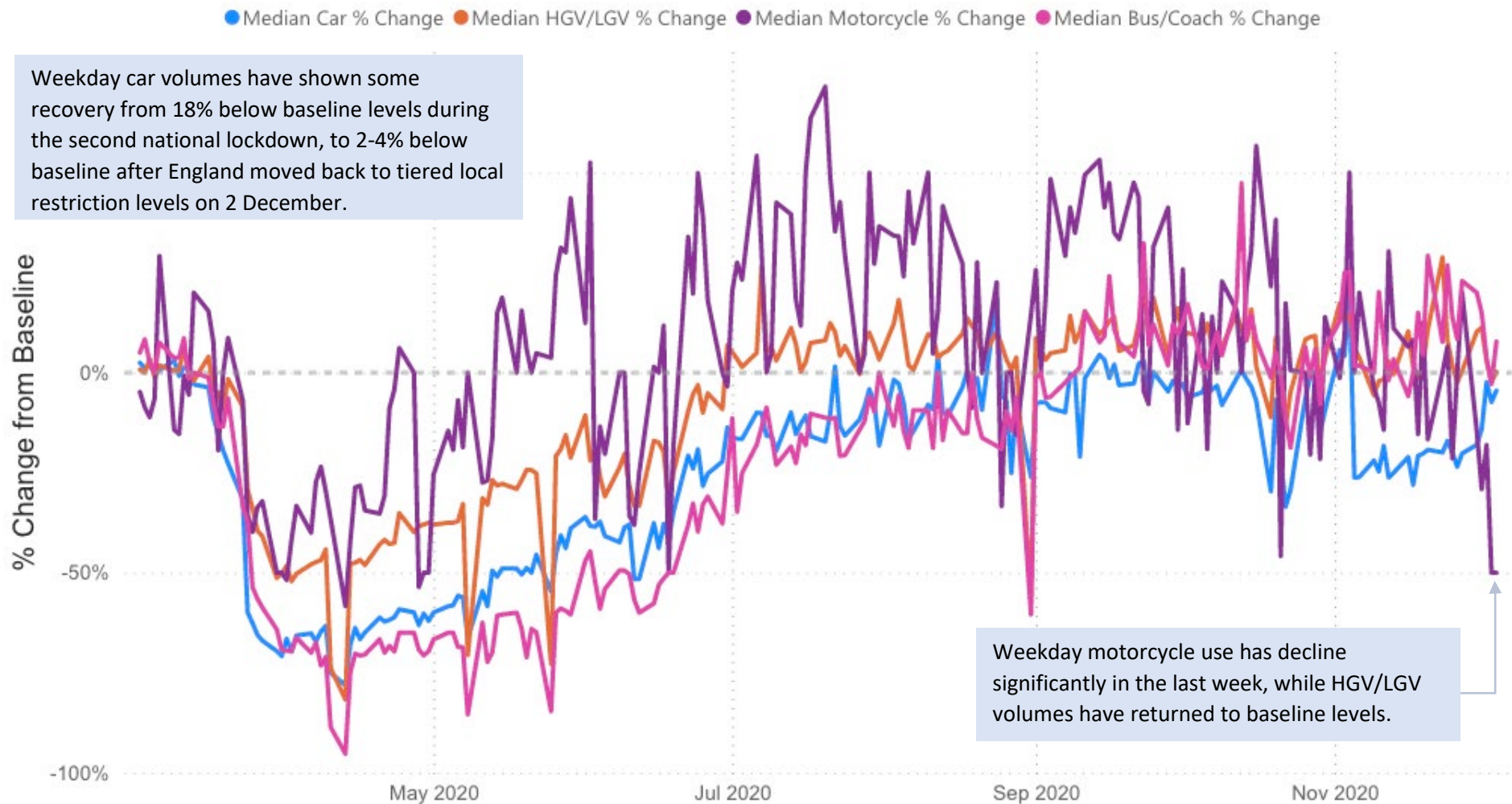


Figure 5.1: Change in average vehicle trips by vehicles class where available in the source dataset (note this data is measured at sensor level so sources with large numbers of sensors will have a greater contribution to the average)

Figure 5.2 – Overall weekend change in traffic flows by vehicle class

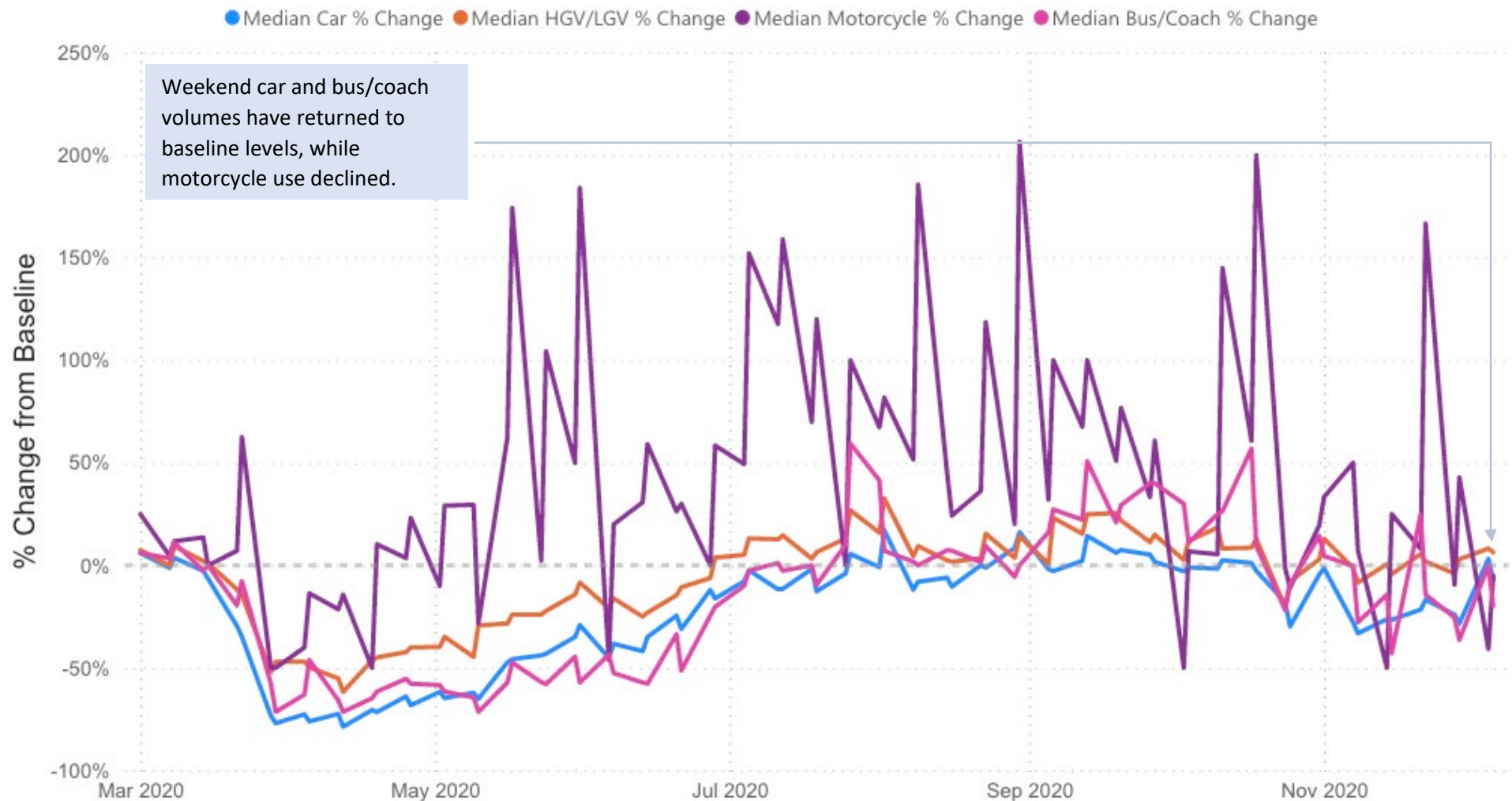
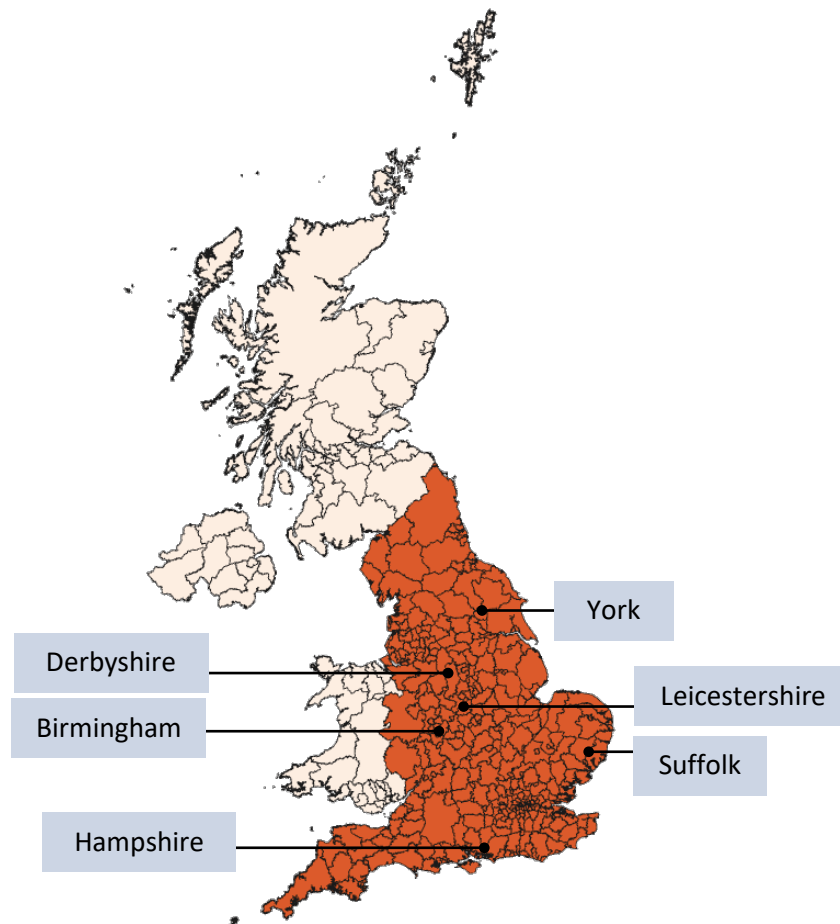


Figure 5.2: Change in average vehicle trips by vehicles class where available in the source dataset (note this data is measured at sensor level so sources with large numbers of sensors will have a greater contribution to the average)

Figure 6 – Map of national lockdown and focus areas in England (updated 10/11/20)

In this section of the report, we examine 5 local areas: Birmingham, Derbyshire, Hampshire, Leicestershire, Suffolk and York. They provide a good geographic spread of areas for comparison.



Outside England
National Lockdown

Figure 6: Tiered local COVID-19 restrictions in England.
Data has been provided by:

- Birmingham City Council (tier 1>2 14/20/20)
- City of York Council (tier 1>2 17/10/20)
- Suffolk County Council (tier 1)
- Hampshire County Council (tier 1)
- Derbyshire County Council (tier 1>2 31/10/20)
- Leicestershire County Council (tier 1 – excludes city of Leicester)

<https://www.gov.uk/guidance/local-covid-alert-levels-what-you-need-to-know/>

Figure 7 – Change in daily average weekday traffic flow across a sample of Local Highway Authorities

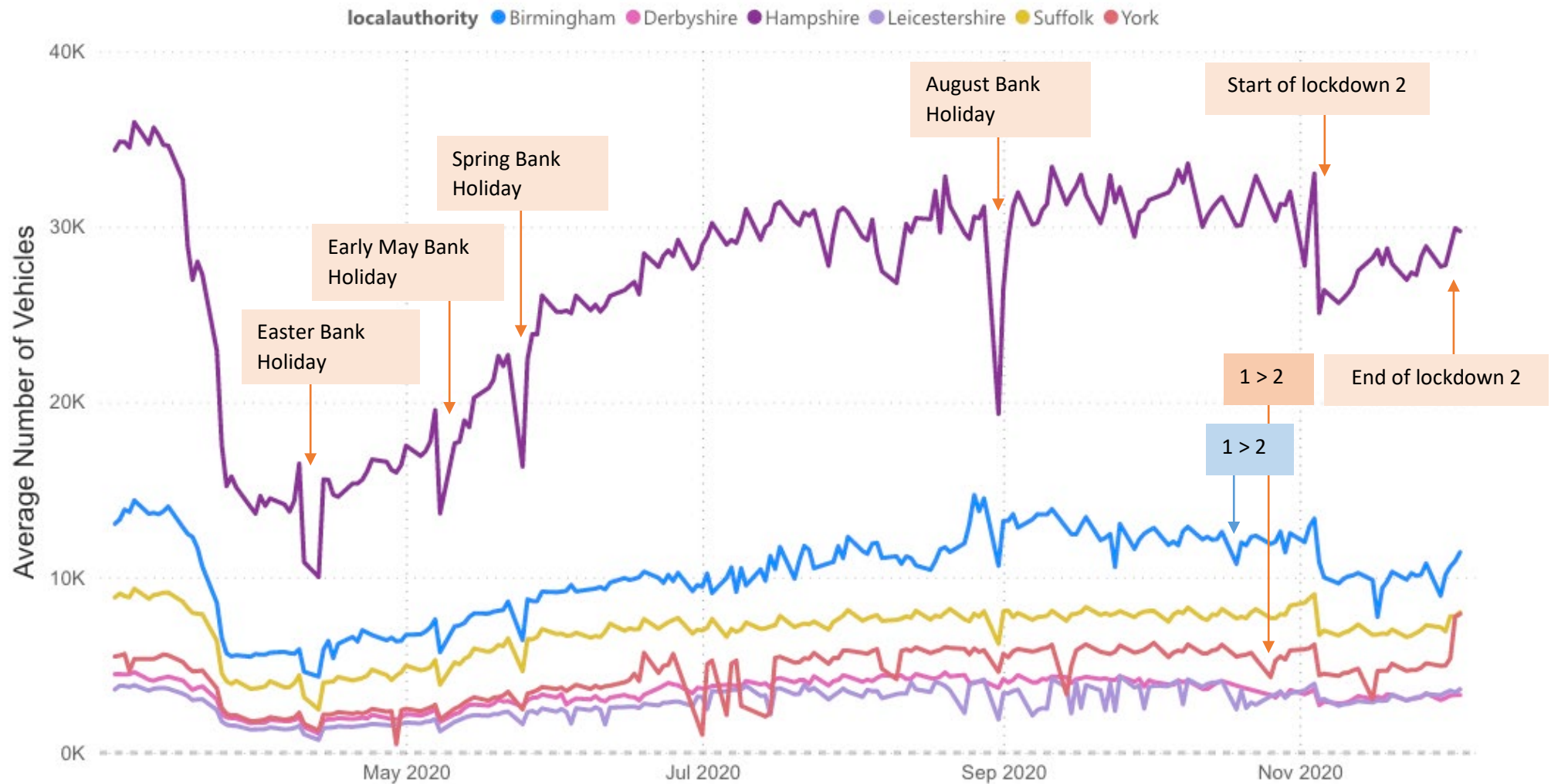


Figure 7: Change in daily average weekday traffic volumes for a selection of local authorities since 01st March compared to the baseline (first week of February 2020).

Figure 8 – Weekday traffic volumes for a selection of local authorities

Comparing pre-lockdown (10/02/20), with early lockdown (06/04/20) and recent weeks

Week Starting ● 10/02/2020 ● 06/04/2020 ● 16/11/2020 ● 23/11/2020 ● 30/11/2020

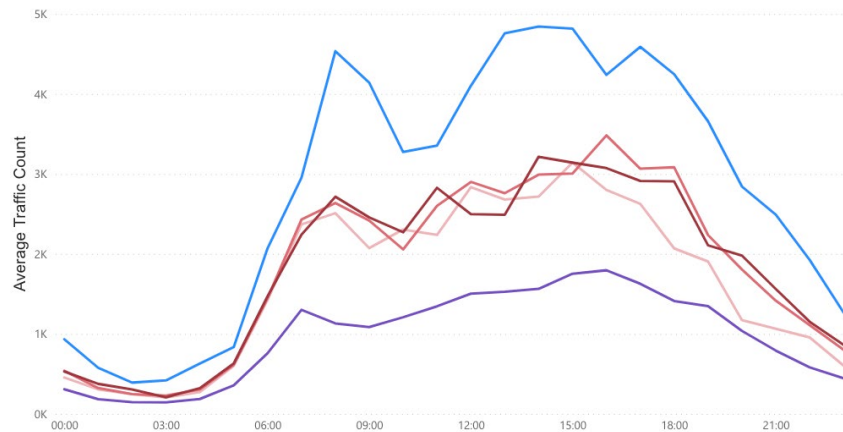


Figure 8a: Birmingham

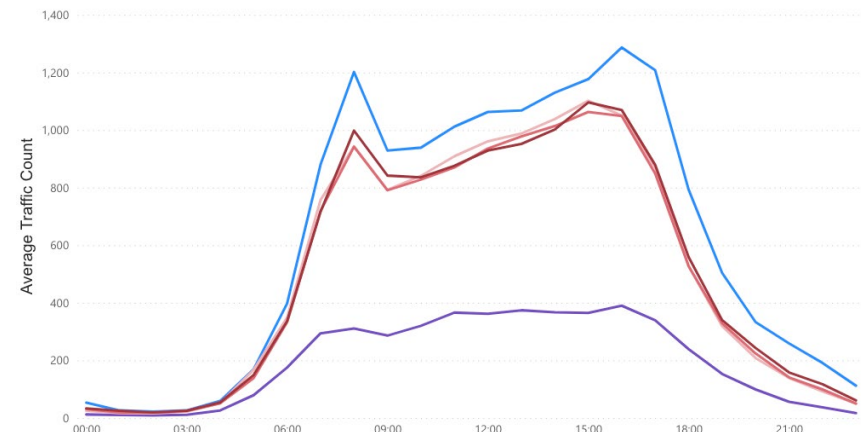


Figure 8b: Derbyshire

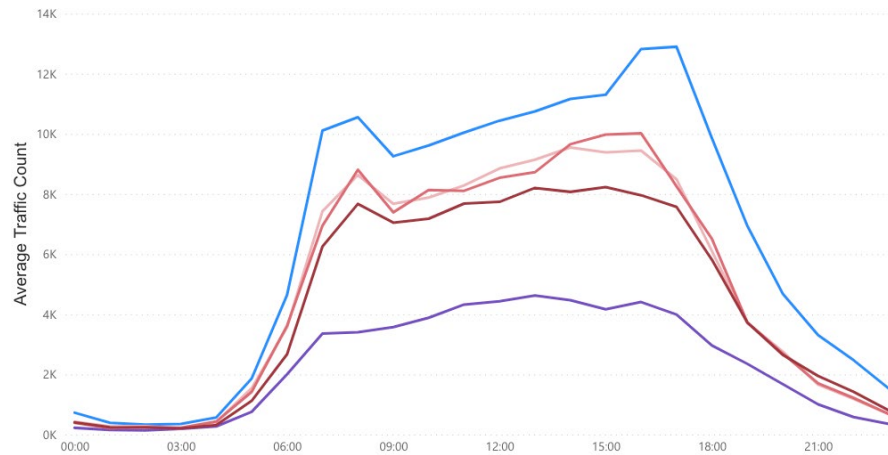


Figure 8c: Hampshire

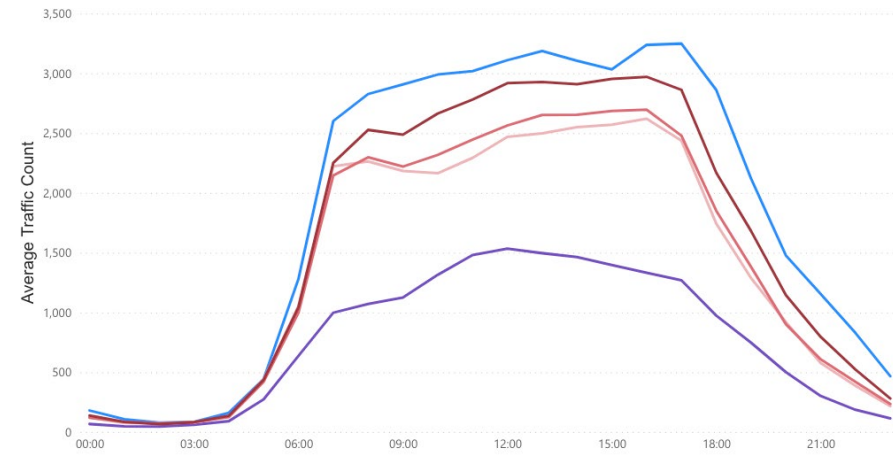


Figure 8d: Suffolk

Week Starting ● 10/02/2020 ● 06/04/2020 ● 16/11/2020 ● 23/11/2020 ● 30/11/2020

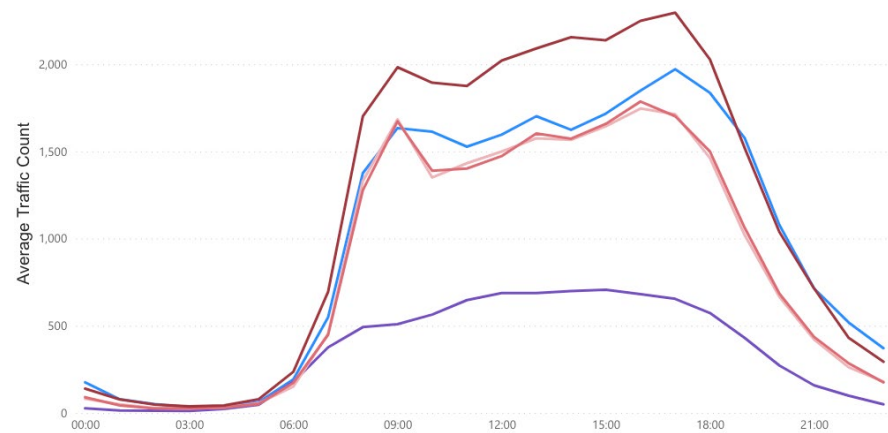


Figure 8e: City of York

Local Highway Authority analysis shows the differences between emerging traffic patterns across the country.

- In Birmingham (8a) and Derbyshire (8b), which remain under tier 3 (high alert) restrictions, weekday traffic levels for the week commencing 30th November showed little change with the hourly traffic levels similar in trend to the previous two weeks.
- In Hampshire (8c), which has moved to tier 2 restrictions, weekday traffic levels were slightly lower compared to previous weeks in November, especially during the interpeak and late afternoon.
- In Suffolk (8d), which is currently under tier 2 of restrictions, weekday traffic levels have increased, particularly during the interpeak, since the end of the second national lockdown.

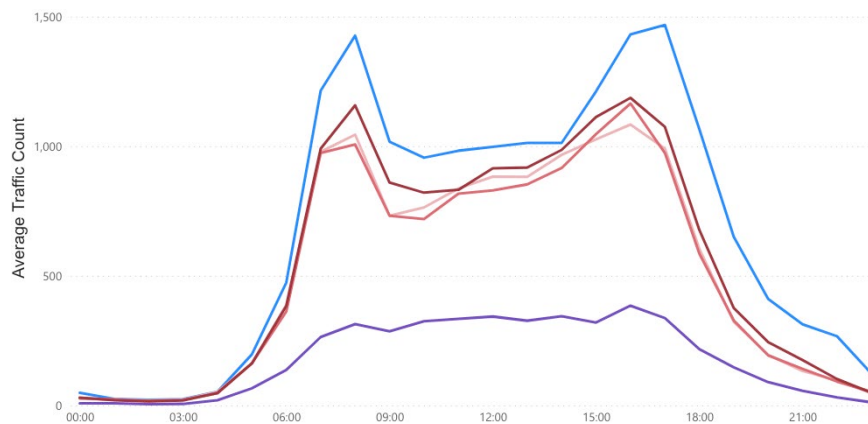


Figure 8f: Leicestershire (excluding Leicester)

- In the City of York (8e), weekday traffic flows have increased significantly above baseline levels at all hours of the day, possibly as a result of the city moving to tier 2 restrictions.
- In Leicestershire (8f), weekday traffic flows have remained below baseline and are on par with previous weeks in November now that the area is under tier 3 restrictions.

Figure 9 – Overall average daily cycling change from baseline

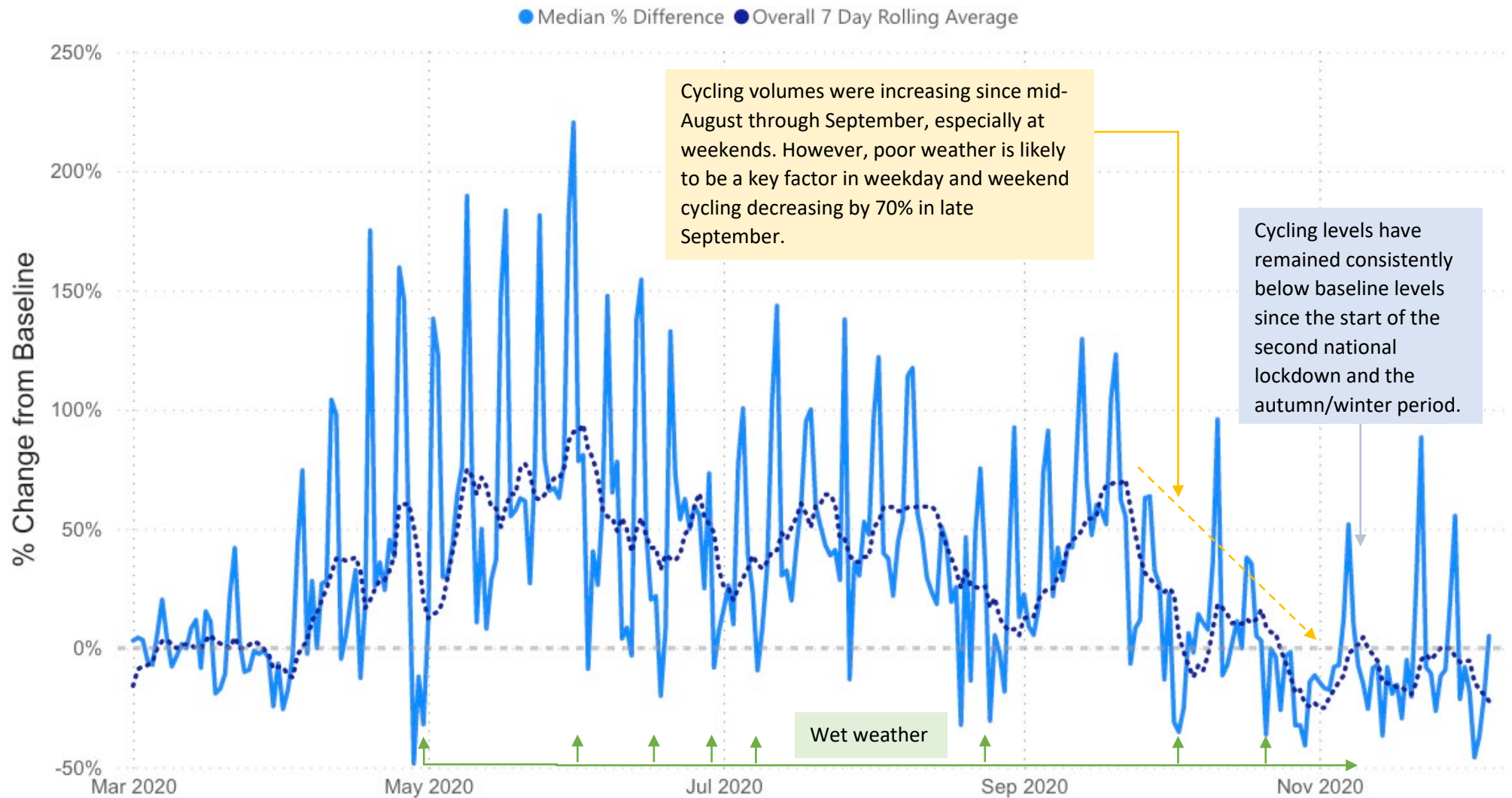


Figure 9: Change in average daily cycling volumes since 01st March (start of lockdown) across all sources compared to the baseline (first week of February 2020)

Figure 10.1 – Overall weekday hourly cycling comparison by week

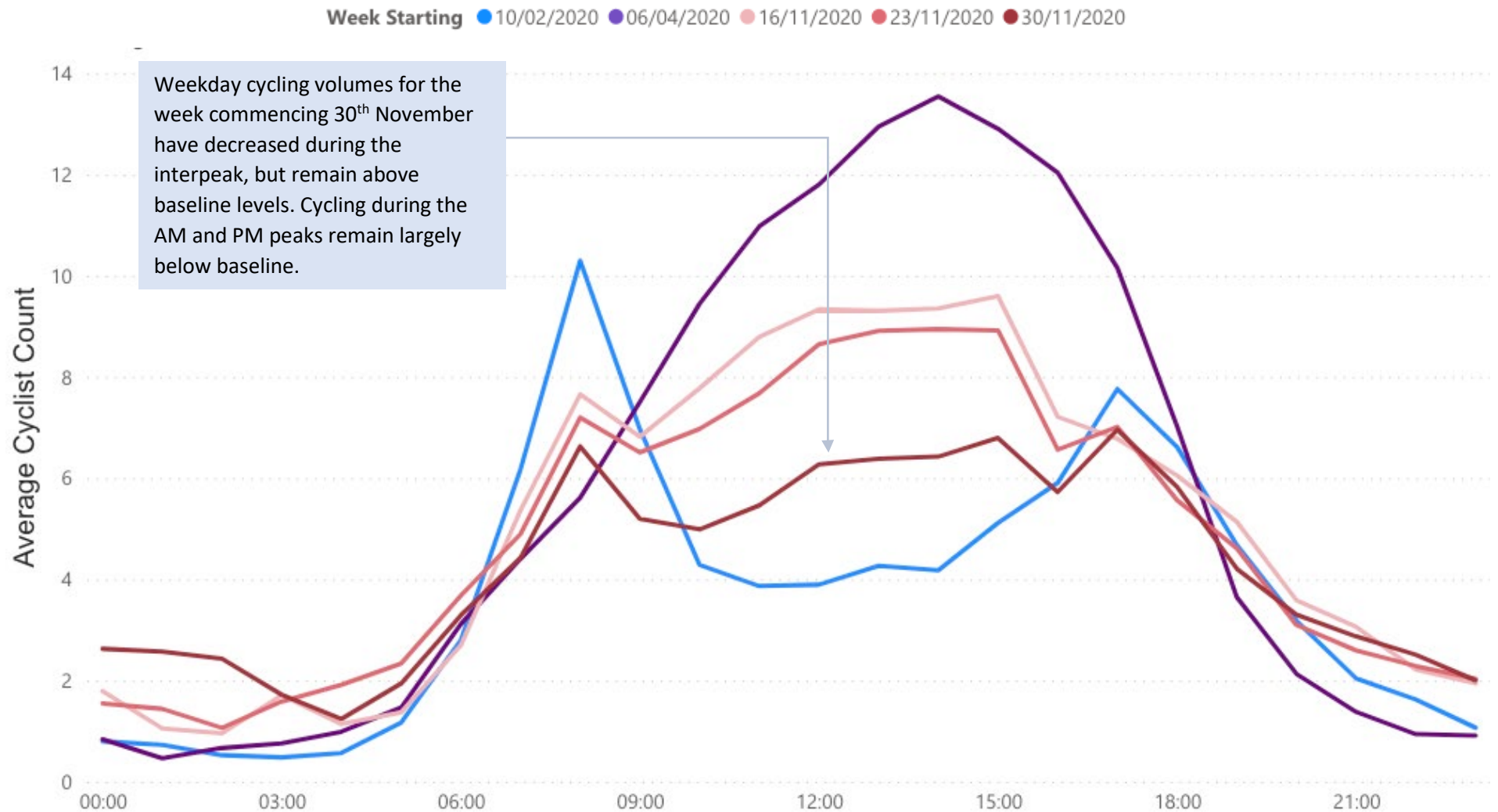


Figure 10.1: Change in average weekday (mean) hourly cycling volumes comparing pre-lockdown (10/02/20) with early lockdown (06/04/20) and the latest three weeks.

Figure 10.2 – Overall weekend hourly cycling comparison by week

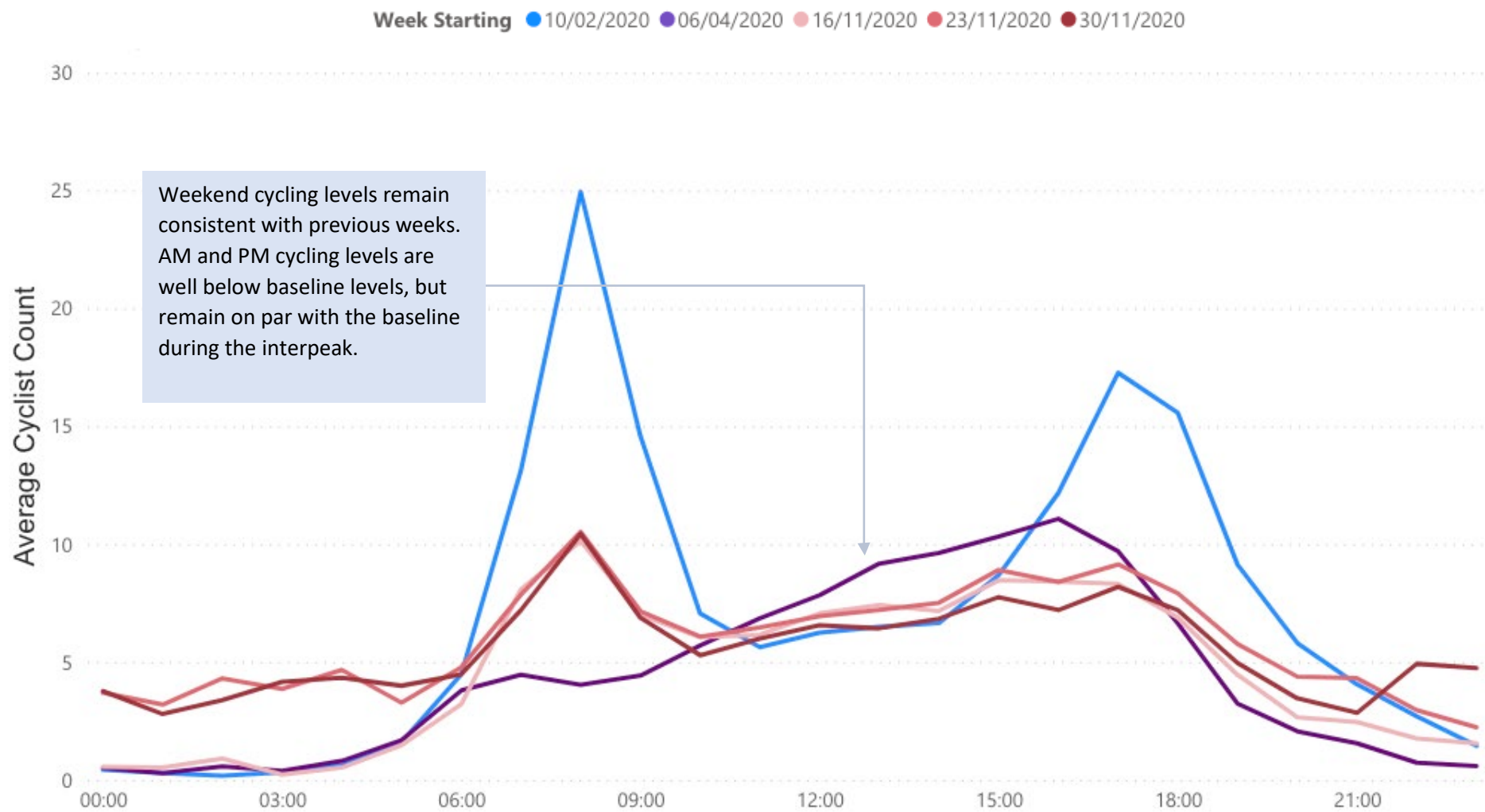


Figure 10.2: Change in average weekend (mean) hourly cycling volumes comparing pre-lockdown (10/02/20) with early lockdown (06/04/20), the latest week (12/10/20) and the latest three weeks

Figure 11 – Comparing the average percentage change from the baseline for the first and second national lockdowns over time

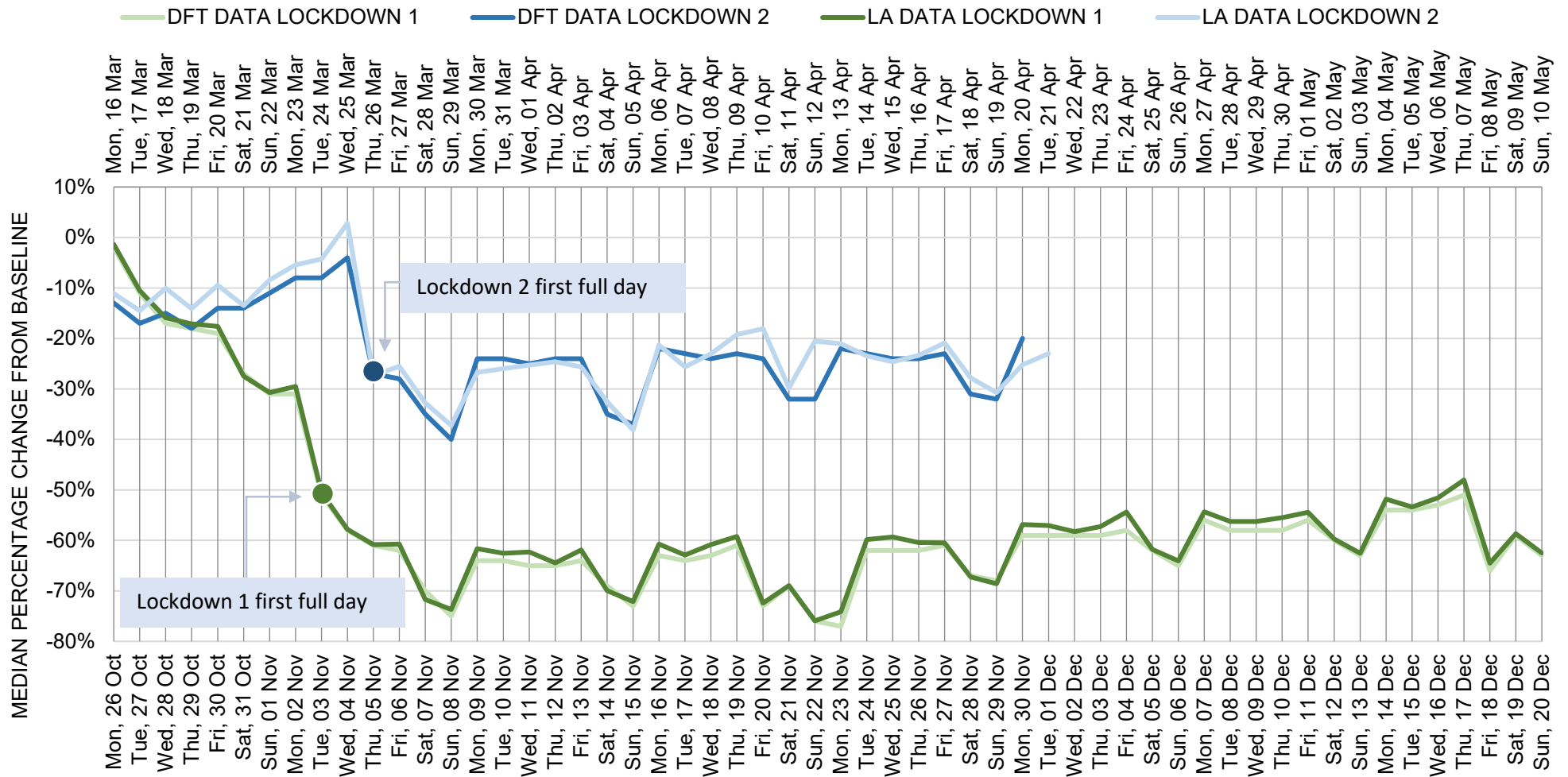


Figure 11: Median (LA) and average (DfT) percentage change from the baseline (first week of Feb) for the first and second lockdowns

Figure 12 – Comparing the average percentage change from the baseline by vehicle class for the first and second national lockdowns over time

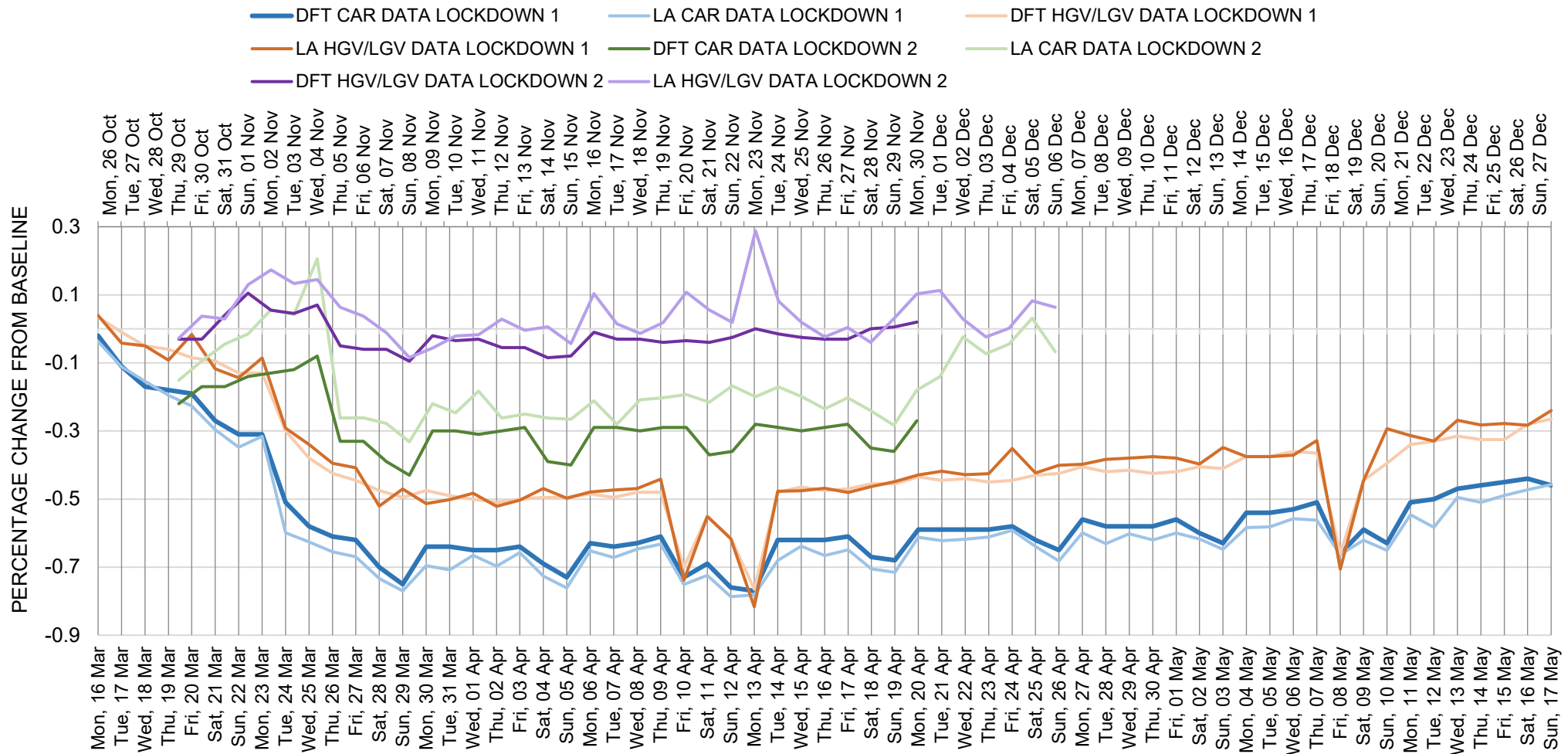


Figure 13: Median (LA) and average (DfT) percentage change from the national baseline (first week of Feb) for car and HGV/LGV traffic during the first and second lockdowns in England

Figure 13 – Comparing average day of the week traffic flows during the first and second national lockdown

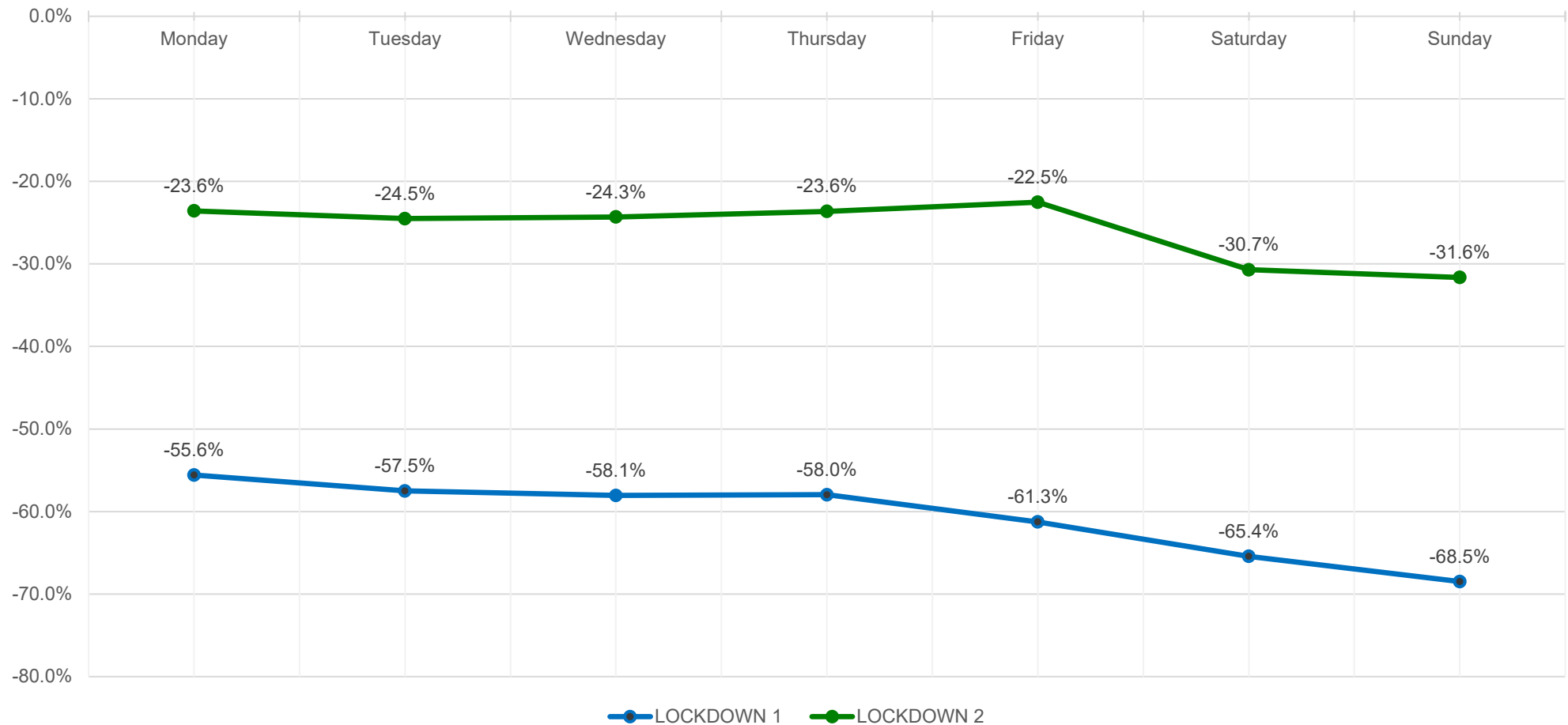


Figure 13: Average daily traffic flows for each day of the week during the first and second national lockdowns in England

Figure 14 – Comparing average hourly weekday flows during the first and second national lockdown

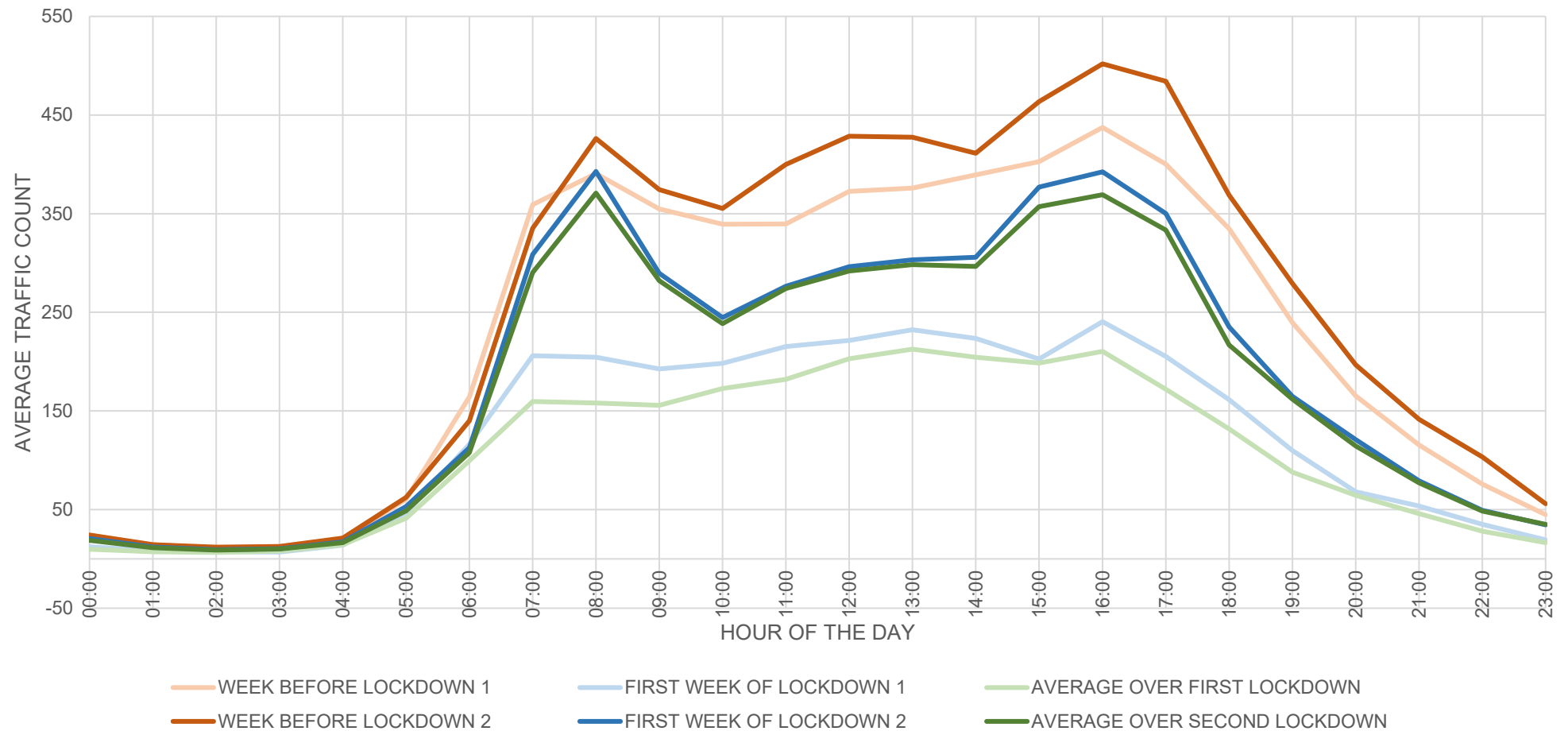


Figure 14: Hourly average weekday traffic flows comparing the week before, first week and average for each lockdown

Figure 15 – Comparing average hourly weekend flows during the first and second national lockdown

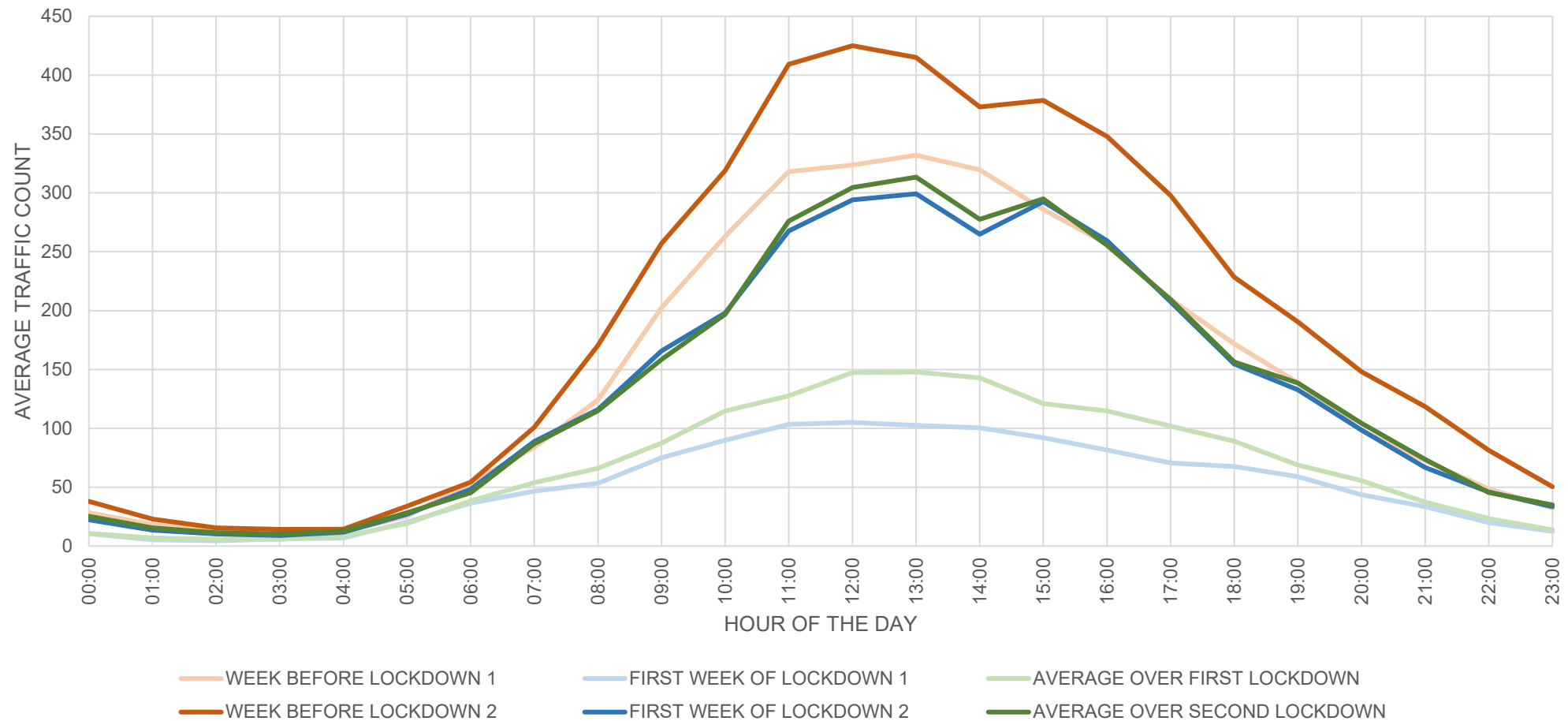


Figure 15: Hourly average weekend traffic flows comparing the week before, first week and average for each lockdown

Figure 16a – Birmingham lockdown comparison

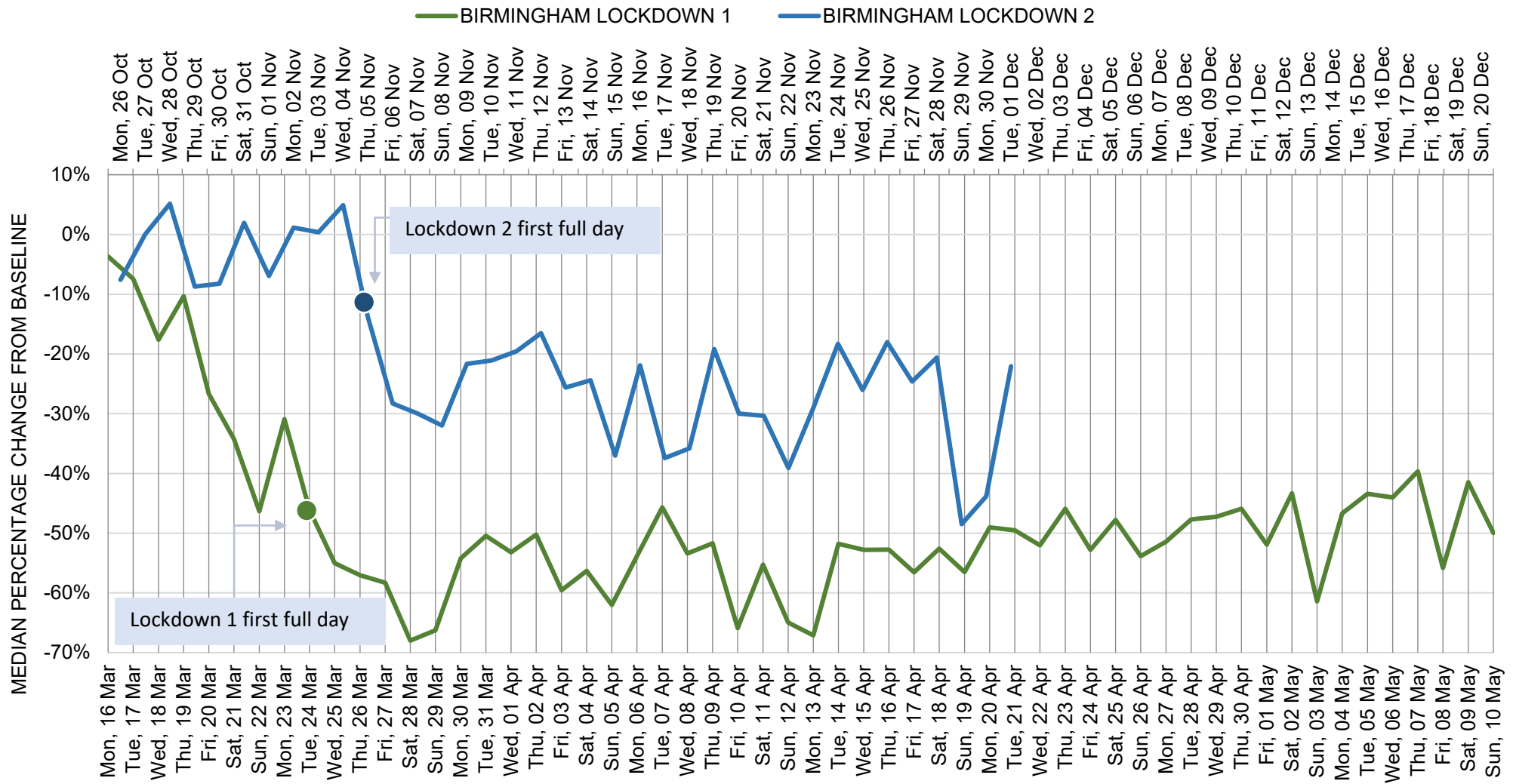


Figure 16b – Derbyshire lockdown comparison

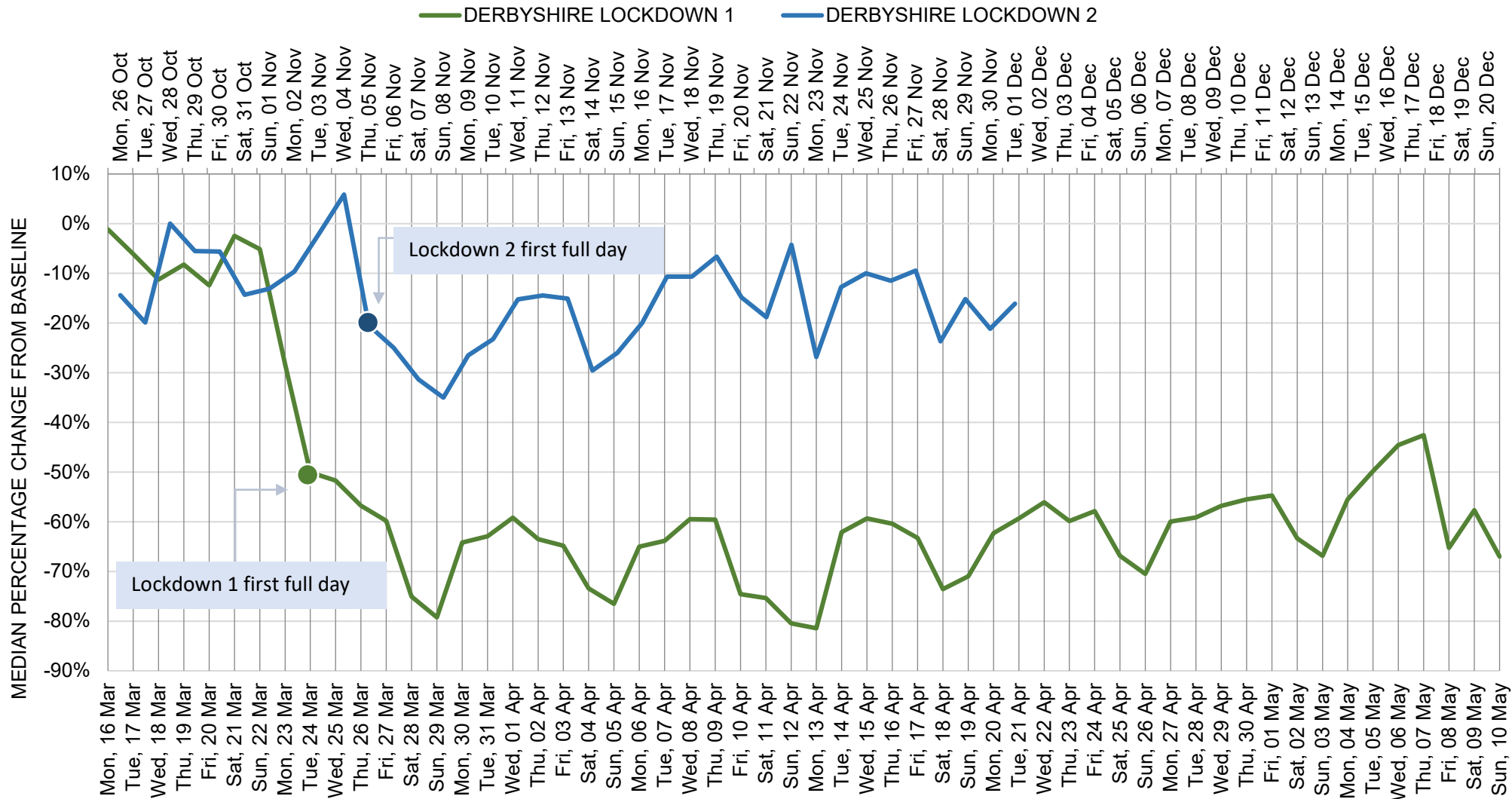


Figure 16c – Hampshire lockdown comparison

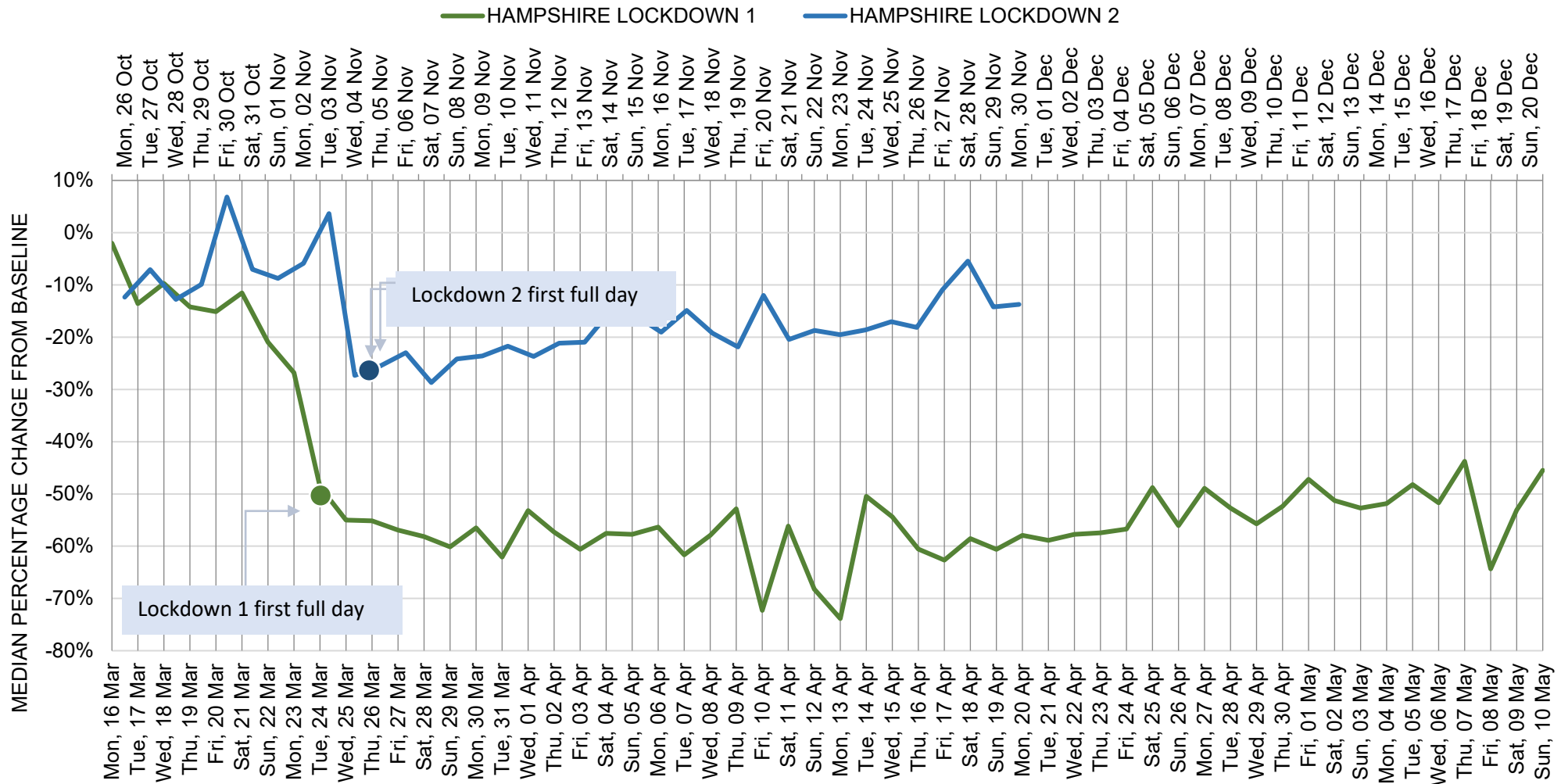


Figure 16d – Suffolk lockdown comparison

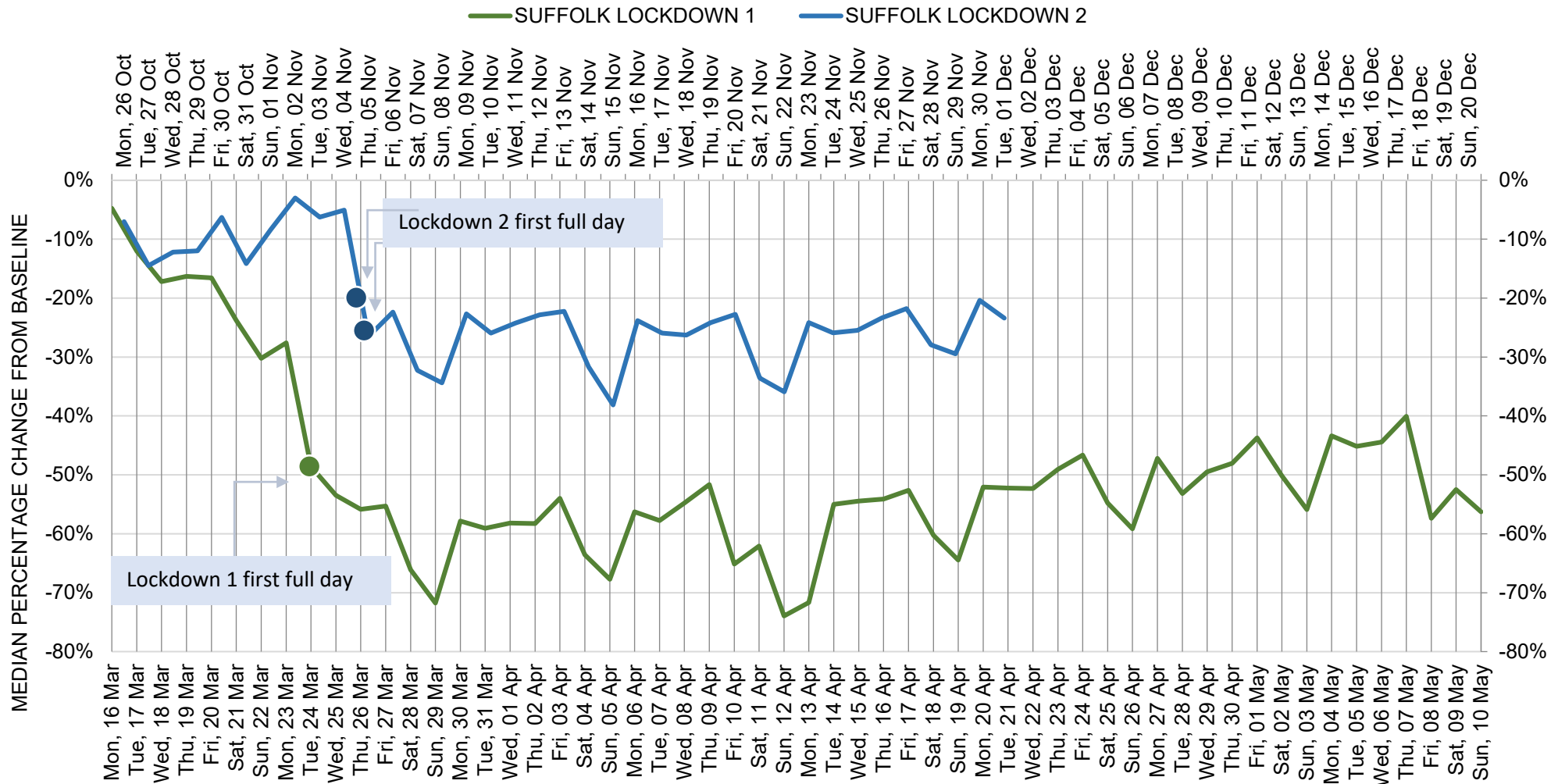


Figure 16e – City of York lockdown comparison

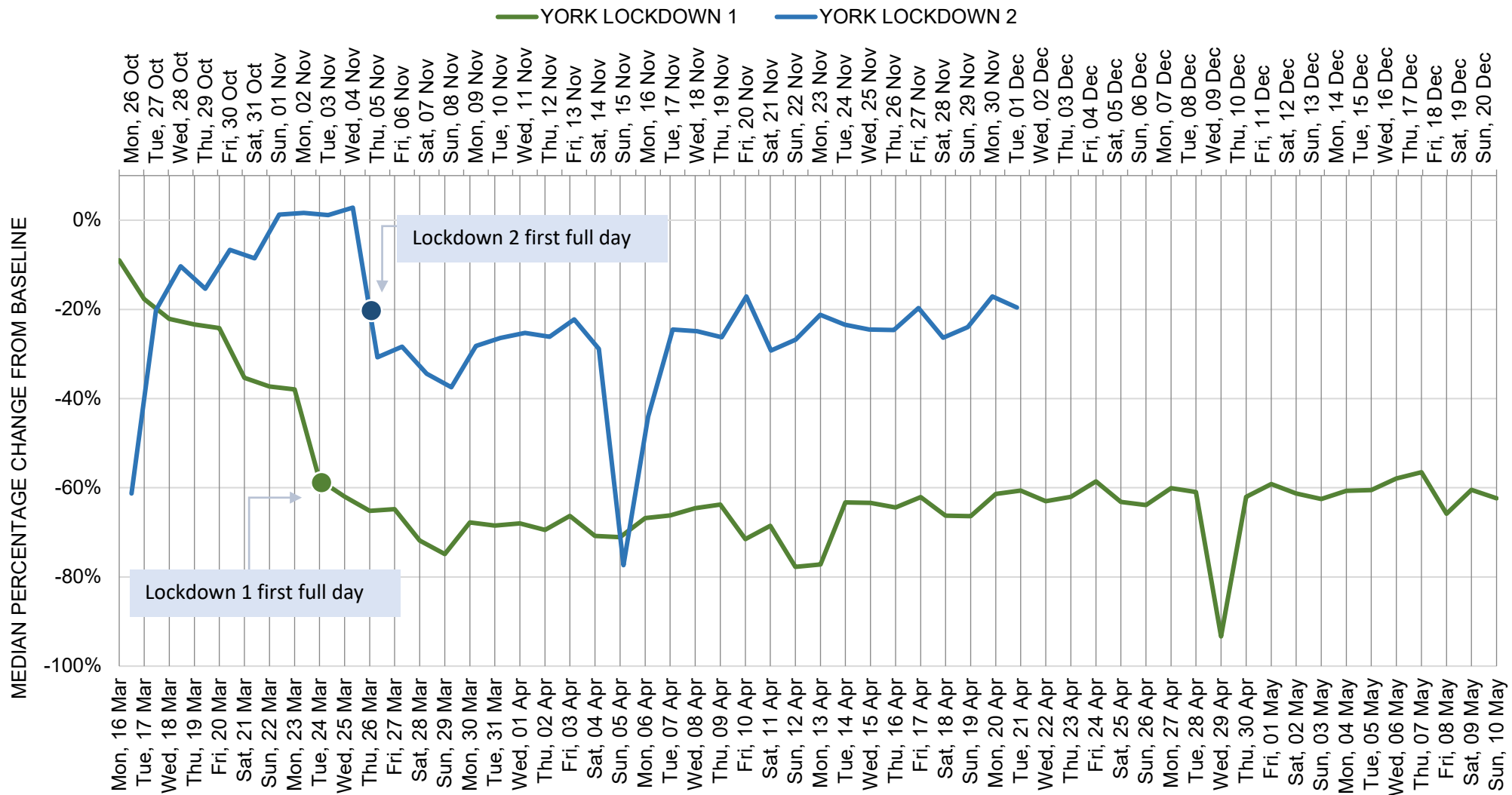
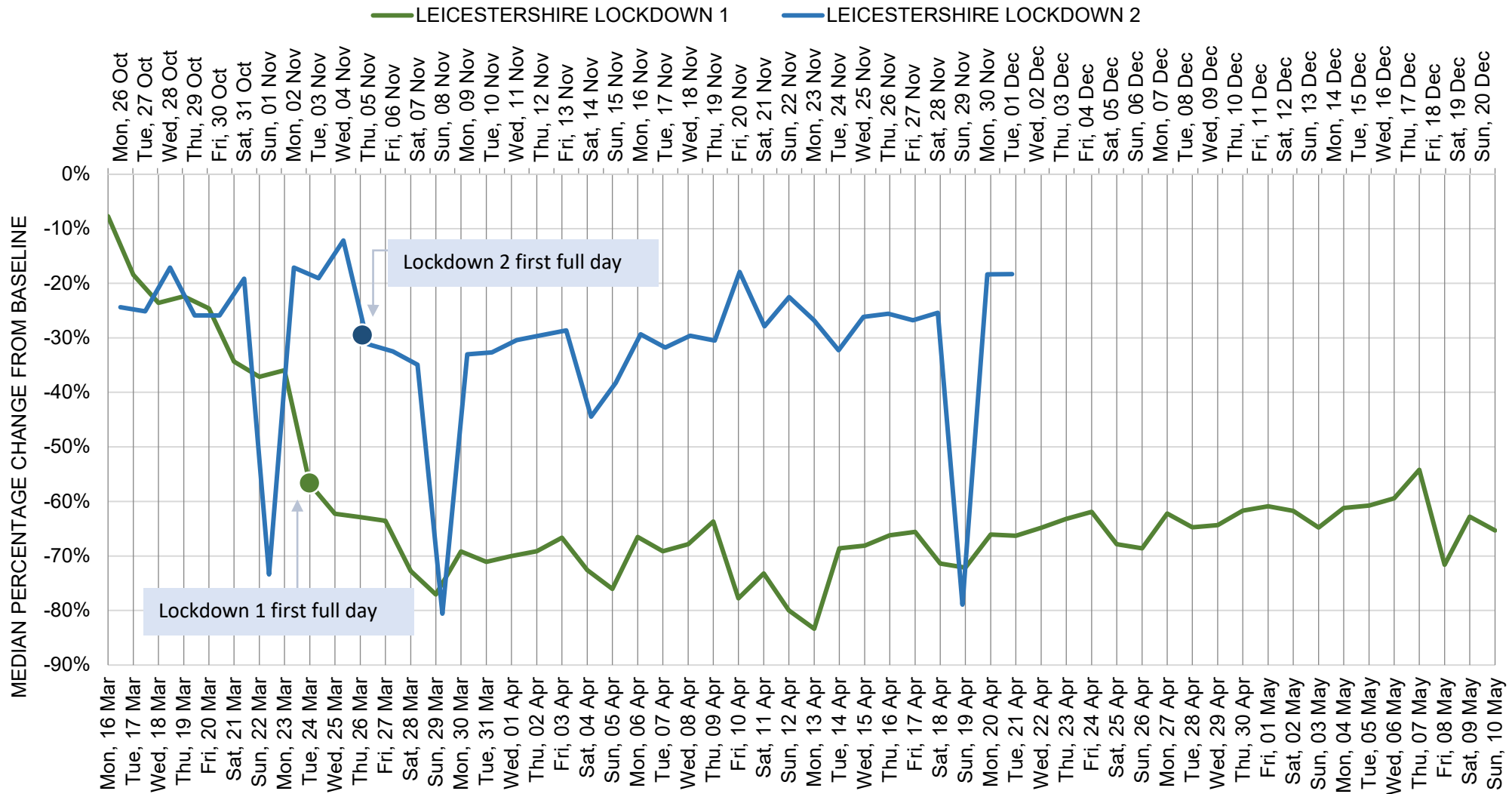


Figure 16f Leicestershire (excluding Leicester) lockdown comparison



Data Method

The following provides some detail behind how the data has been analysed:

- The baseline has been defined as the first week of February 2020 (1st February – 7th February) for the following reasons:
 - This is consistent with national reporting.
 - Not all data sources can provide baseline data from previous years.
 - The first week of February is considered a normal working week unaffected by poor weather and half term dates later in February.
- Each day of the week has its own baseline.
- Only those datasets for which data was available for the first week of February have been included in the baseline comparison outputs.
- Baseline comparisons at aggregated Local Highway Authority (LHA) level have only been calculated using traffic/cycling sensors that contributed to the baseline to reduce the impact of new sensors being added to data sources
- Average daily traffic volumes have been used to minimise the impact of individual sensors changing between active and inactive states.
- Averages have been calculated using the median (50th percentile) to reduce the impact of outliers (with the exception of Figures 10.1 & 10.2 which are a mean average)

Please note that each week not all datasets that contribute to our analysis are available when this report is produced. Therefore, as we add new datasets when they become available, enhance validation of those we've received and refine the underlying methodology, the overall values may change, however we expect the trends to remain the same.

COVID-19 Timeline

FEBRUARY 2020	
04/02/2020	China Advice - All UK citizens advised to leave China
MARCH 2020	
10/03/2020	Italy Air Travel - Majority of flights to and from Italy suspended
12/03/2020	7-day Isolation - 7-day self-isolation for individuals presenting symptoms
16/03/2020	Social Distancing - Households to self-isolate for 14-days if symptoms present. Work from home where possible. Avoid pubs, clubs, theatres etc. 12-week isolation for elderly and vulnerable (commencing end of week)
17/03/2020	UK Foreign Travel 1 - Foreign Secretary advises against all non-essential travel overseas
21/03/2020	Schools Closed - Schools to remain closed until further notice (exception for key workers)
23/03/2020	UK Lockdown - Guidance provided for essential travel only. All non-essential businesses required to close. Public events banned
23/03/2020	UK Foreign Travel 2 - Foreign Secretary advises all British travellers to return to the UK
28/03/2020	PM's Letter - Prime Minister issues guidance letter to all UK households
APRIL 2020	
16/04/2020	NPCC Guidance - NPCC issues guidance clarifying reasonable excuses for leaving home
MAY 2020	
10/05/2020	Those who cannot work from home are encouraged to return to work. Avoid public transport where possible and instead walk or cycle.
11/05/2020	Relaxation Document - The UK government publishes a 50-page document setting out further details of the phases for lifting the lockdown restrictions.
13/05/2020	Individuals can undertake unlimited exercise (and can travel to do so). Individuals can meet someone from another household providing it is on a one-to-one basis. All garden centres are allowed to open. House moves and viewings are now permitted.
18/05/2020	Rail Operators - Rail operators begin running more train services.
JUNE 2020	
01/06/2020	Schools re-open for some pupils. Groups of up to six people from different households allowed to meet outside
15/06/2020	All non-essential retailers and zoos in England reopened
19/06/2020	UK's COVID-19 Alert Level is lowered from Level 4 (severe risk, high transmission) to Level 3 (substantial risk, general circulation)
JULY 2020	

Local authority travel and transport data weekly digest

04/07/2020	Further relaxation of social distancing and reopening of pubs, restaurants, hotels and hairdressers on 4 th July
25/07/2020	Gyms and other indoor services reopen in England

AUGUST 2020	
21/08/2020	Driving tests are approved to go ahead
SEPTEMBER 2020	
01/09/2020	Large number of schools across England re-open for the autumn term.
08/09/2020	All schools across England have re-opened
14/09/2020	Rule of six comes into effect to tackle coronavirus, where any social gatherings of more than six people will be against the law
OCTOBER 2020	
14/10/2020	Tiered level restrictions were implemented across different local areas in England. Liverpool placed on highest alert (Tier 3).
NOVEMBER 2020	
05/11/2020	England goes into second National Lockdown
02/12/2020	Second national lockdown in England ends and three-tiered local restriction system is re-implemented.

Contact us

All authorities are encouraged to share best practice for inclusion in this report. Authorities not yet contributing but who still have data to share are encouraged to do so.

Please contact info@ttf.uk.net

Thank you to...

All local authorities and their consultancies and contractors who have shared data with the Transport Technology Forum to enable this report to be collated, and those in the wider industry who also provided data directly. The TTF, which is sponsored by the Department for Transport and Innovate UK is grateful to ITS (UK) and its members for their swift support in recruiting Local Authorities to participate.

The 'Understanding Travel Patterns during COVID-19' project has been awarded the **ITS UK - Project of the Year Award 2020** which would not have been possible without all of your support. The judges were impressed that this project demonstrated how the industry can come together, and underlined how the TTF can coordinate a collaborative front with Local Authorities and commercial data suppliers to collect, process and visualise over 16 million travel movements during the lockdown period and beyond.

This report provides regularly updated intelligence and findings from the Transport Technology Forum COVID-19 Local Authority Travel Data Project. This project is collecting and analysing traffic and travel data from local highway authorities across England to present a national picture of travel patterns and behaviour, and local authority responses to the COVID-19 crisis.