

## 1.0 Overview

TII operates a comprehensive network of over 350 traffic counters and sensors across the national road network incorporating dedicated traffic monitoring units as well as barriers and camera-based sensors at PPP toll plazas, M50 Eflow and the Dublin Tunnel. This network of traffic counters provides a comprehensive overview of traffic movements across all parts of the national road network.

In response to the COVID-19 pandemic, the Government of Ireland imposed restrictions on the movement of people in order to contain the spread of the virus. This commenced with the closure of all schools and colleges from March 13<sup>th</sup> 2020. Further restrictions involving the retention of essential services only were announced on March 24<sup>th</sup> 2020. On the evening of Friday March 27<sup>th</sup> 2020, a Government announcement was made which advised all citizens to stay at home and to only leave their homes for a limited number of reasons.

On the evening of Friday May 1<sup>st</sup>, the Government published a “*Roadmap for reopening society and business*” outlining Ireland’s plan for lifting COVID-19 restrictions. This roadmap was implemented as follows:

- On Tuesday May 5<sup>th</sup> the distance that people can leave their home for the purposes of exercise was increased from 2km to 5km.
- Phase 1 commenced on Monday May 18<sup>th</sup> allowing for work in outdoor settings, people to meet outside in small groups and the reopening of certain retail businesses.
- Phase 2 commenced on Monday June 8<sup>th</sup> where personal travel was permitted anywhere within a county, all retail business reopened and people were permitted to visit each other in their homes in groups of no more than 6 people.
- Phase 3 commenced on Monday June 29<sup>th</sup> where all personal travel restrictions were lifted and childcare facilities and certain pub and restaurant businesses started to reopen.

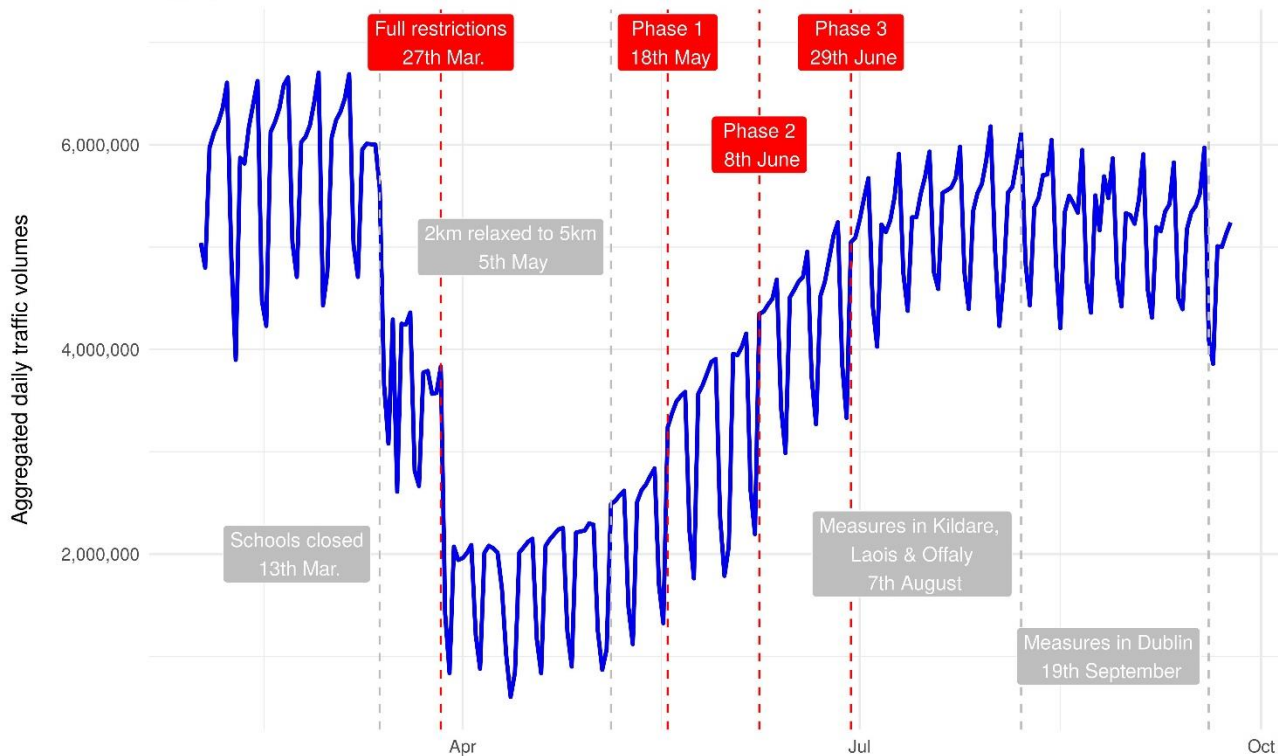
An increase in cases of COVID-19 in July led to the postponement of the move to Phase 4 of the reopening on August 4<sup>th</sup>. In response to further increases in cases nationwide, and in specific regions, the following actions were taken in August and September 2020:

- Further public health measures were implemented in the counties of Kildare, Offaly and Laois from 7<sup>th</sup> August where travel to and from these counties was restricted. The restrictions lasted until 21<sup>st</sup> August in Offaly and Laois and until 31<sup>st</sup> August in Kildare.
- On August 18<sup>th</sup>, new nationwide restrictions on indoor and outdoor gatherings of people were re-introduced, and workers were encouraged to work from home where possible.
- On September 15<sup>th</sup>, the Government announced its five-level plan for “*Living with COVID-19*” over the next six months and placed the country at Level 2 with some additional measures in Dublin.
- Following concern over a continued rise in cases in Dublin, the Government imposed Level 3 restrictions in the county. This commenced on September 19<sup>th</sup> in order to limit interaction between people and included restricting travel into and out of Dublin to essential journeys only.

This note examines the impact of the COVID-19 restrictions on national roads traffic volumes, initially in terms of the reduction in movement as a result of the restrictions. It also examines the subsequent increases in movement on the national road network during the phased easing of restrictions. Previous notes were prepared on March 27<sup>th</sup>, weekly thereafter up to June 19<sup>th</sup> and further notes issued on July 3<sup>rd</sup> and 17<sup>th</sup> and August 20<sup>th</sup>, outlining the impacts of these measures on traffic demand on the national road network.

## 2.0 Reduction in national road traffic volumes in context

The restrictions implemented by Government in order to tackle the spread of the COVID-19 virus have had significant impact on national road traffic volumes. A plot of aggregate daily traffic volumes on multiple traffic counters since February 1<sup>st</sup> 2020 is shown in Figure 1.



**Figure 1: Aggregated traffic volumes on national roads since February 1st 2020**

The plot demonstrates the scale of the reduction. Traffic volumes, since the restrictions imposed on March 27<sup>th</sup> 2020, initially reduced by 60-70%. Volumes have recovered somewhat, but still represent an aggregate reduction of approximately 10-20% from typical conditions in 2019.

Many national roads that experience a high proportion of commuter traffic typically show a reduction in overall traffic volumes during July and August in particular, with traffic dropping as a result of commuters taking annual leave. There is evidence of this seasonal effect leading to a small overall reduction of traffic volumes in the month of August. The return to schools in September has not resulted in significant impacts on daily national aggregate traffic volumes, although patterns in morning peak travel have been impacted. Regional restrictions in August and September have also led to reductions in national road traffic volumes in the locations where they have been implemented.

All of these impacts can vary by location and are described further in the following sections of this note.

## 3.0 Comparison to Typical Traffic Levels

### 3.1. General Traffic

A summary of the impacts of the restrictions on general traffic, i.e. all classes of vehicles, is provided in Figure 2. This represents an analysis at selected locations whereby traffic volumes in August 2020 are compared with the equivalent weekday in 2019 and the aggregate percentage change is plotted.

The emerging impacts of the restrictions on vehicular travel can be summarised as follows:

- Prior to the March 27<sup>th</sup> restrictions, the reduction in general traffic volumes was of the order of 40% on weekdays.
- In the week following the announcement of restrictions on Friday March 27<sup>th</sup>, there was a reduction in traffic volumes across the network of the order of 65-70%.
- There were gradual increases in traffic since the week beginning April 20<sup>th</sup> week and this continued through to week beginning April 27<sup>th</sup>.
- Following the easing of certain restrictions on Tuesday May 5<sup>th</sup>, there was a marked increase in traffic volumes.
- There was a further significant increase, as expected, since May 18<sup>th</sup> where Phase 1 of the Government “*Roadmap for reopening society and business*” commenced. This included a step change of an increase in car traffic volumes. The week-on-week increase in car traffic volumes in the week beginning Monday May 18<sup>th</sup> was approximately three times the rate of increase in any other recent week.
- Phase 2 of the Roadmap commenced on June 8<sup>th</sup> and led to another 12% week-on-week increase in traffic volumes. The week beginning June 15<sup>th</sup> there was a further 5% increase in traffic volumes and another 6% increase for the week beginning June 22<sup>nd</sup>.
- Phase 3 of the Roadmap commenced on June 29<sup>th</sup> and led to further increases in traffic volumes. However seasonal impacts associated with the summer holiday period and updated public health advice in August led to a stabilisation and slight reduction in traffic volumes in July and August.
- Since the move to Level 2 of the “*Living with Covid Plan*” on September 15<sup>th</sup>, volumes have again reduced slightly across the country.
- The implementation of Level 3 restrictions in Dublin has led to some further reductions on national roads in the county in the past week.

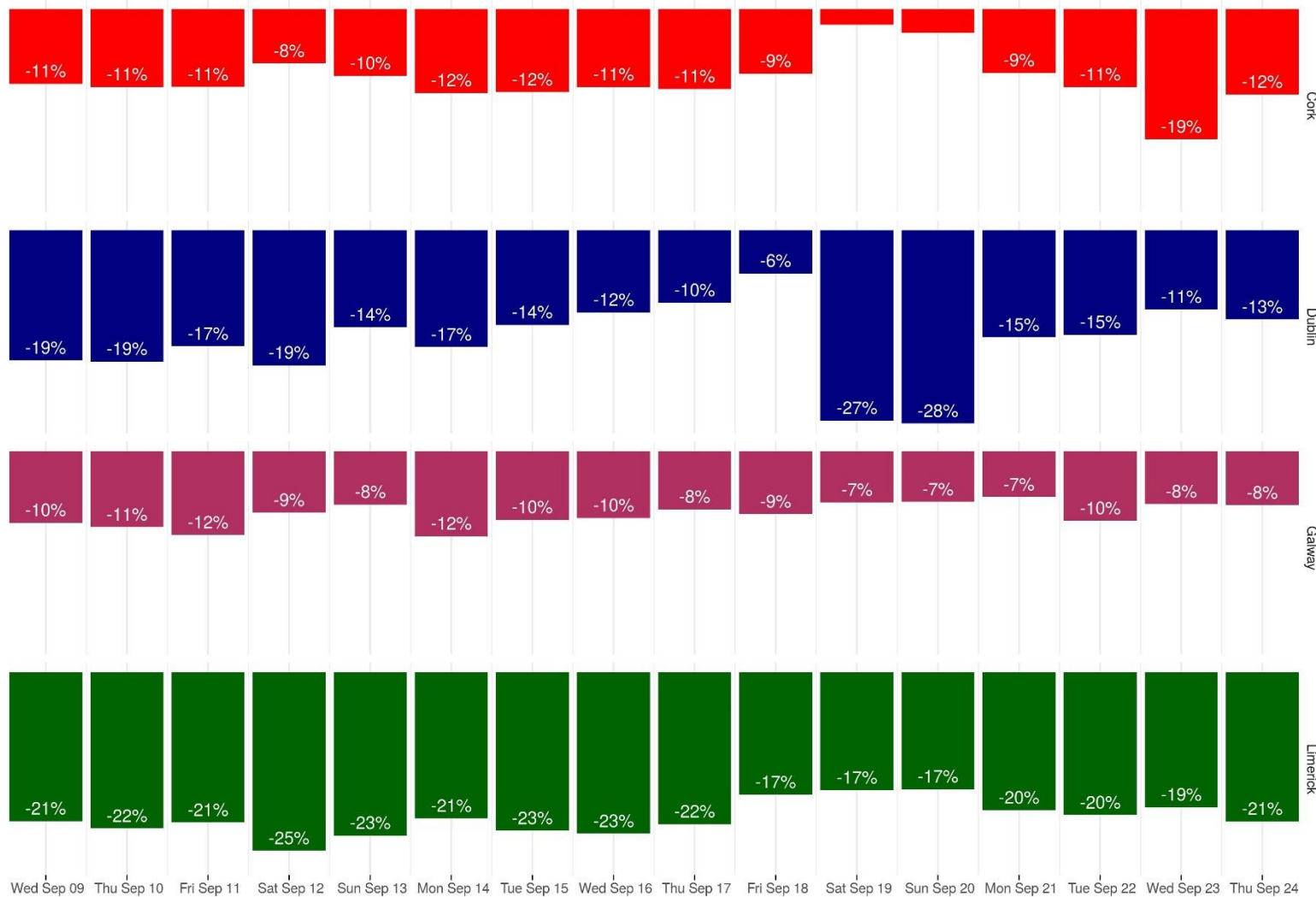
A breakdown of the impacts for heavy goods vehicles (HGV), light goods vehicles (LGV) and private cars separately is detailed in the following sections of this note, along with a summary of impacts on national road border crossings and impacts of recent regional restrictions.

# Impact of COVID-19 restrictions on general traffic volumes

Average change in traffic volumes on major routes (2020 vs 2019 equivalent weekdays)



Figure 2: General Traffic



*(Based on aggregations of traffic volumes on selected key national roads on approach to each of the major cities.)*

## 3.2. Heavy Goods Vehicles (HGVs)

A summary of the impacts of the restrictions on HGVs (> 3.5 tonnes) is provided in Figure 3.

- Since March 27<sup>th</sup> there was a clear reduction in HGV traffic volumes of the order of 30-40% which continued up to the week beginning April 27<sup>th</sup>.
- Since the easing of certain restrictions on Tuesday May 5<sup>th</sup>, HGV volumes increased.
- There was a significant increase, as expected, since May 18<sup>th</sup> where Phase 1 of the Government *“Roadmap for reopening society and business”* commenced and certain retailers and constructions sites reopened.
- There were further increases since June 8<sup>th</sup> and June 29<sup>th</sup> where the respective Phase 2 and Phase 3 of the Government *“Roadmap for reopening society and business”* commenced.
- Heavy goods vehicle volumes remained relatively stable for the months of July and August within approximately +/- 5% of 2019 levels, depending on location.
- Volumes this week beginning September 21<sup>st</sup>, ranged between 5% below volumes on the equivalent days in 2019 to 15% above these levels.

## 3.3. Light Goods Vehicles (LGVs)

A summary of the impacts of the restrictions on LGVs (<3.5 tonnes) is provided in Figure 4.

- Since March 27<sup>th</sup> volumes of LGVs have reduced by over 50%. These reductions in LGV traffic have continued up to week beginning April 27<sup>th</sup>.
- Since the easing of certain restrictions on Tuesday May 5<sup>th</sup>, LGV volumes increased.
- There was a significant increase, as expected, since May 18<sup>th</sup> where Phase 1 of the Government *“Roadmap for reopening society and business”* commenced and certain retailers and constructions sites reopened.
- There were further increases since June 8<sup>th</sup> and June 29<sup>th</sup> where the respective Phase 2 and Phase 3 of the Government *“Roadmap for reopening society and business”* commenced.
- Light goods vehicle volumes remained relatively stable for the months of July and August within approximately +/- 10% of 2019 levels, depending on location.
- Volumes this week beginning September 21<sup>st</sup>, ranged between 10% below volumes on the equivalent days in 2019 to 15% above these levels.

## 3.4. Private Cars

A summary of the impacts of the restrictions on private cars is provided in Figure 5.

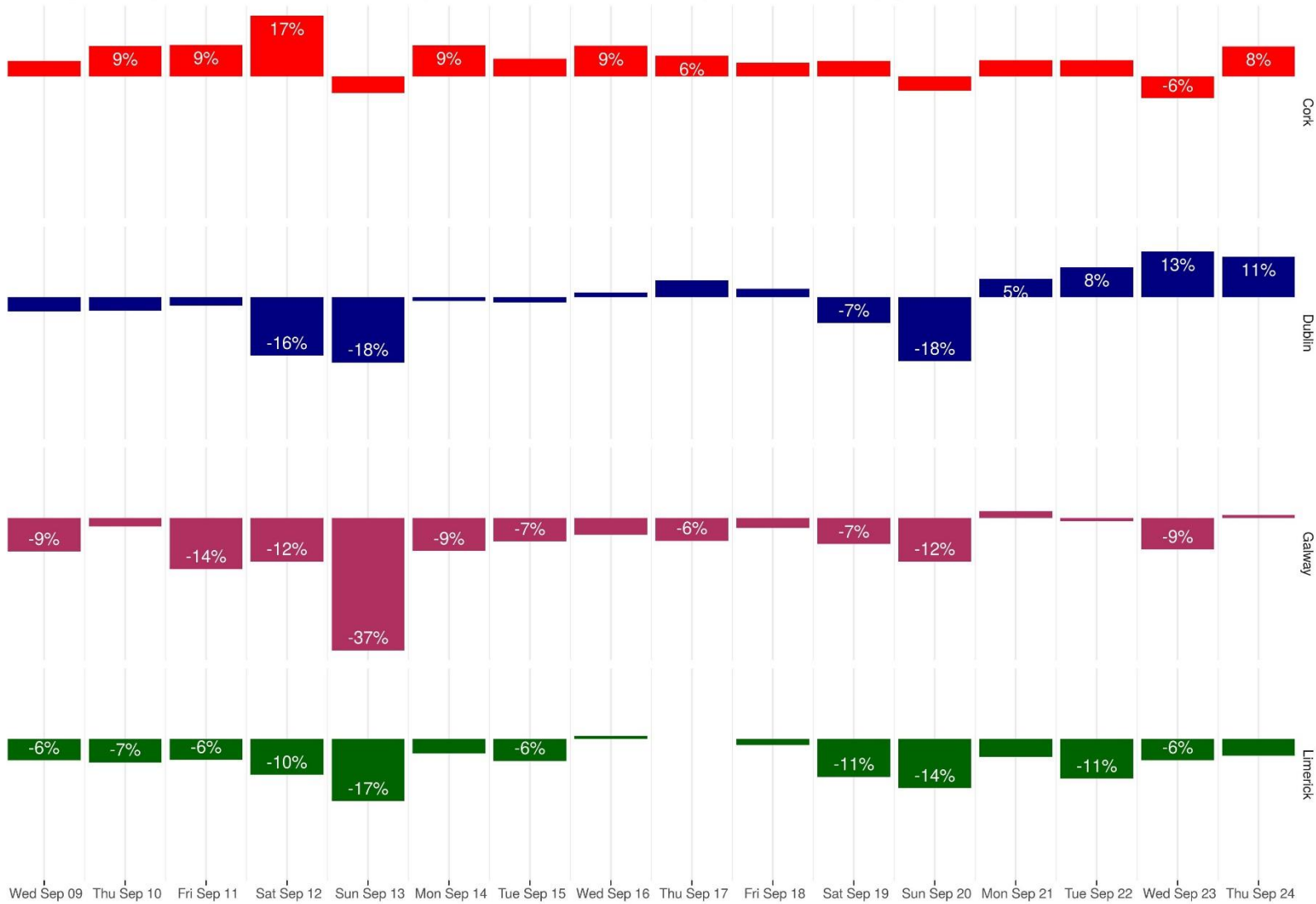
As private cars represent approximately 80 to 90% of all traffic, the reduction in private car traffic is very similar to trends for general traffic discussed above, i.e. namely a reduction in the order of 10-25% compared to 2019 figures.

# Impact of COVID-19 restrictions on heavy goods vehicles traffic volumes

Average change in traffic volumes on major routes (2020 vs 2019 equivalent weekdays)



Figure 3: Heavy Goods Vehicles



*(Based on aggregations of traffic volumes on selected key national roads on approach to each of the major cities.)*

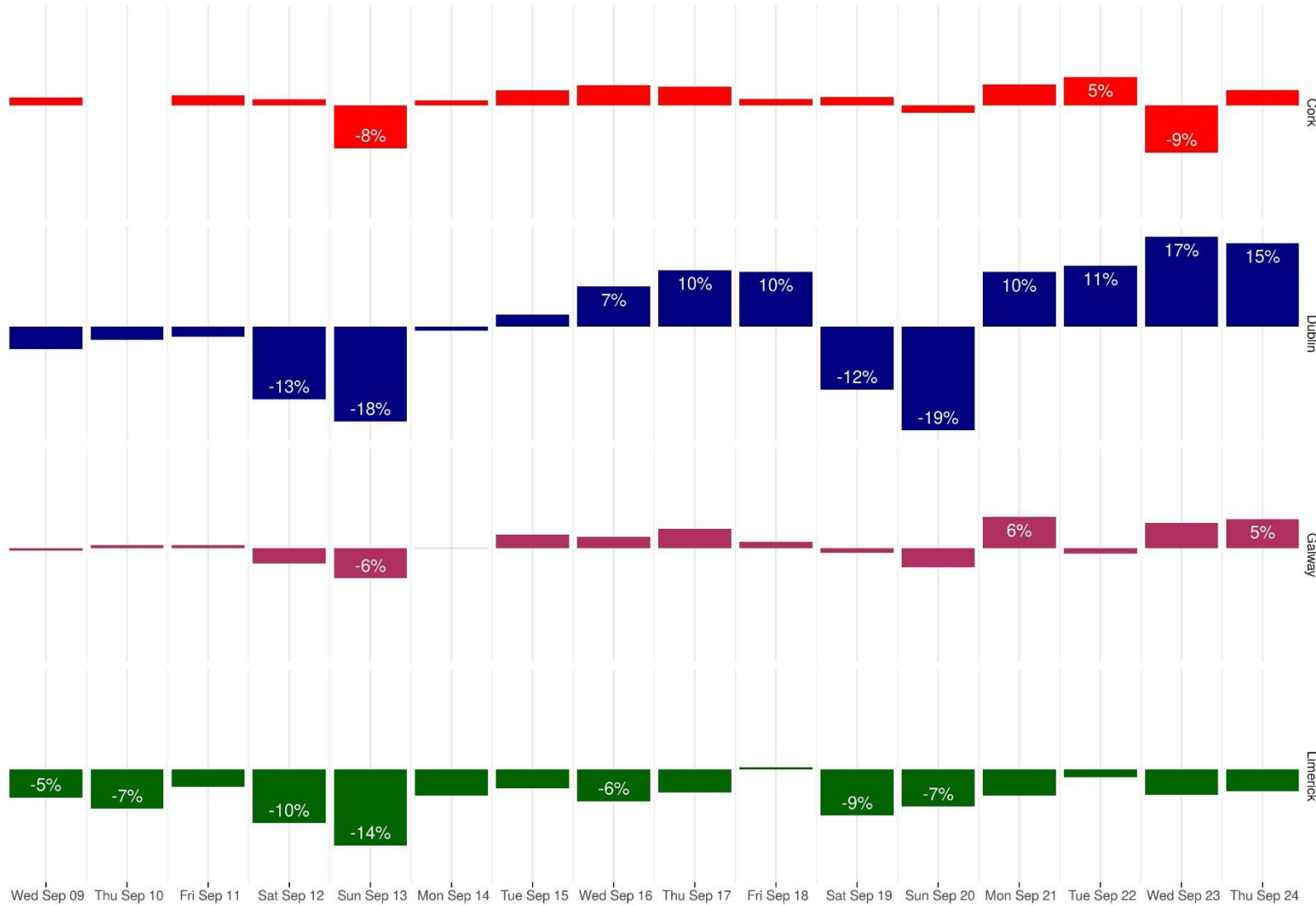
# Impact of COVID-19 restrictions on light goods vehicles traffic volumes

Average change in traffic volumes on major routes (2020 vs 2019 equivalent weekdays)



Figure 4: Light Goods Vehicles

*(Based on aggregations of traffic volumes on selected key national roads on approach to each of the major cities.)*

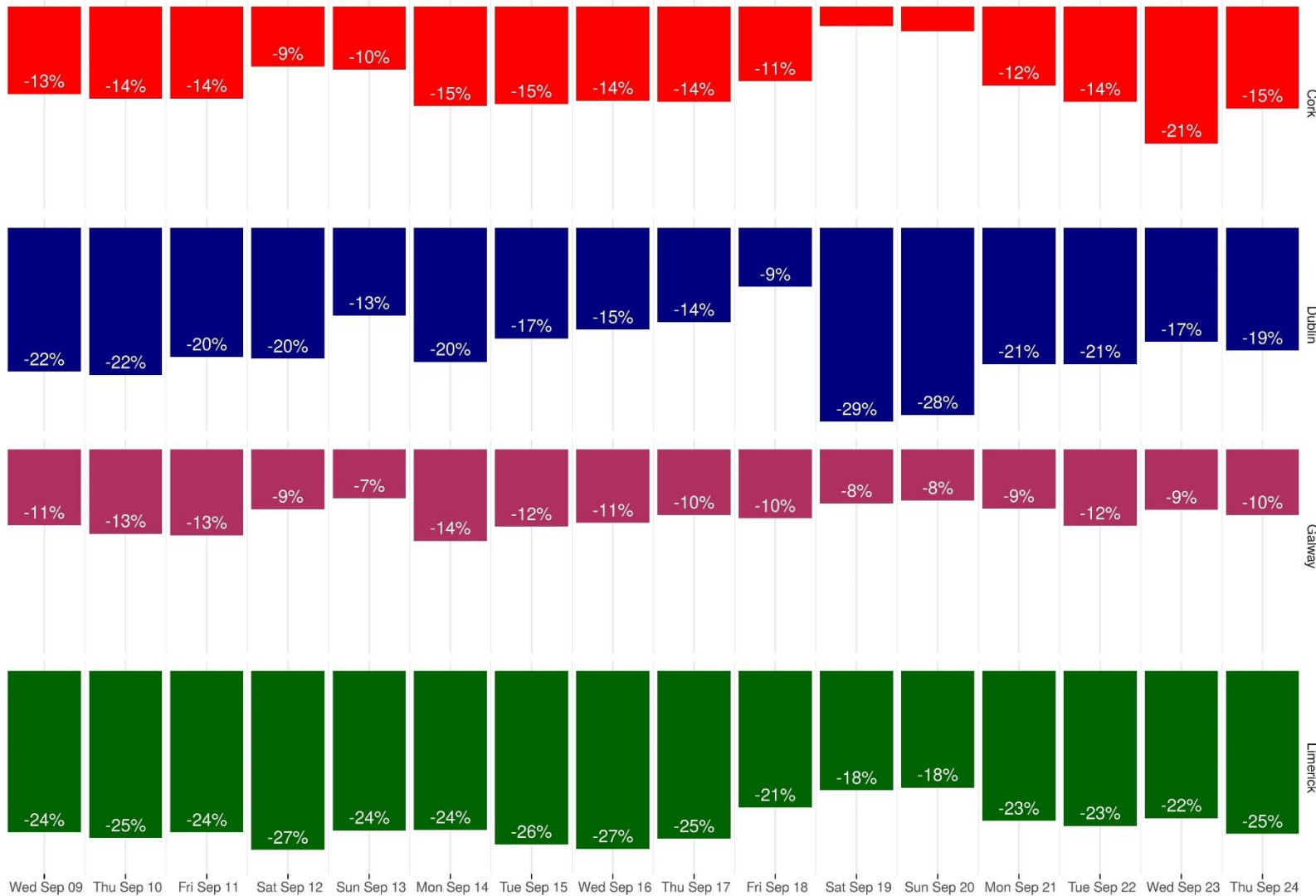


# Impact of COVID-19 restrictions on private car traffic volumes

Average change in traffic volumes on major routes (2020 vs 2019 equivalent weekdays)



Figure 5: Private Cars



*(Based on aggregations of traffic volumes on selected key national roads on approach to each of the major cities.)*



## 4.0 Dublin Tunnel

A plot of the impacts of the restrictions on weekday traffic in the Dublin Tunnel for general traffic, heavy goods vehicles and private car traffic are provided in Figure 6.

The emerging impacts of the restrictions on vehicular travel can be summarised as follows:

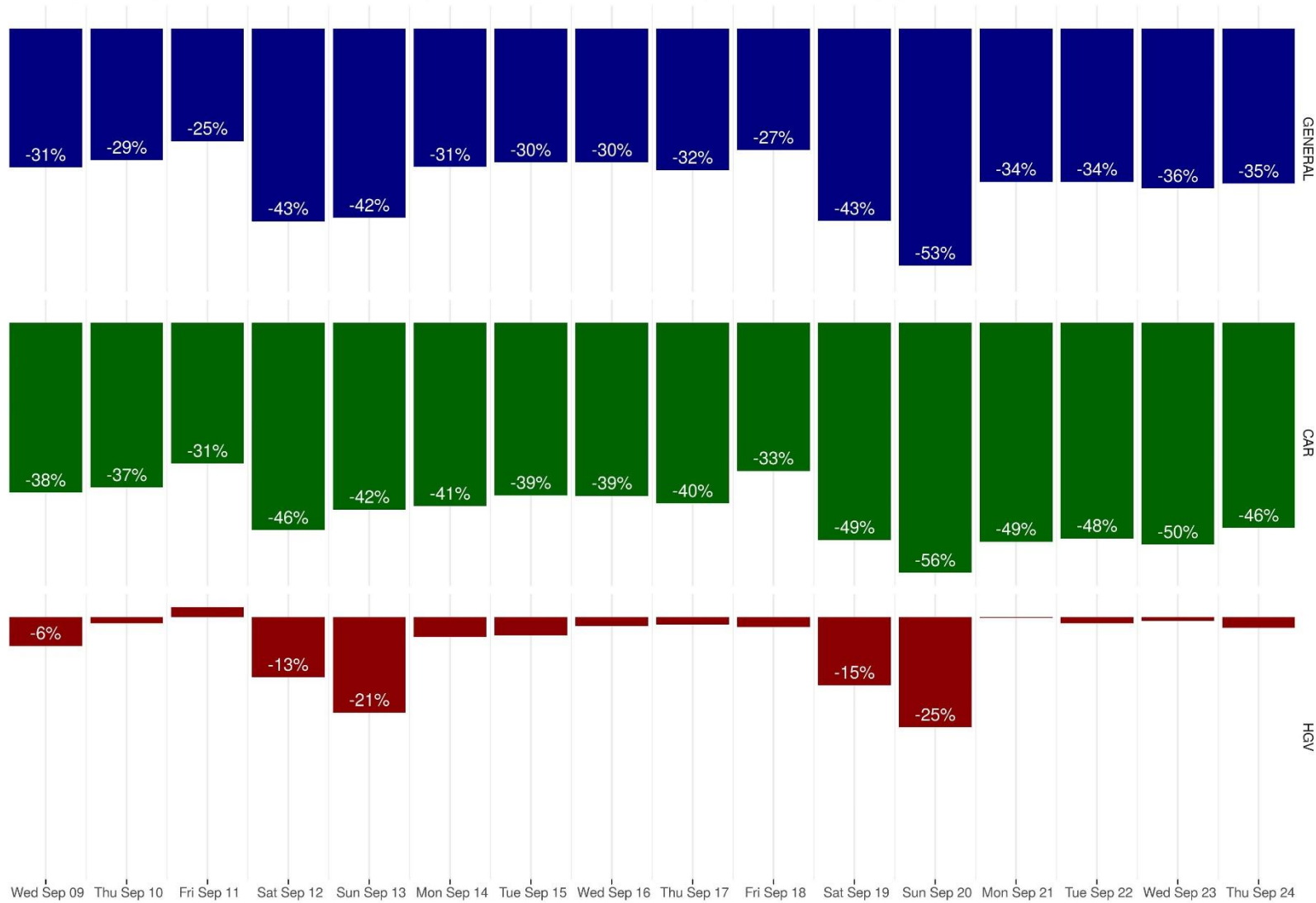
- In the Dublin Tunnel, since March 27<sup>th</sup>, TII saw reductions in general traffic exceeding 60% on weekdays relative to 2019 levels.
- Following the restrictions imposed on Friday March 27<sup>th</sup>, the reduction in weekday HGV volumes in the tunnel was in the region of 30-40% relative to 2019 levels. In the period between Monday March 30<sup>th</sup> and Friday May 1<sup>st</sup>, weekday HGV volumes through the tunnel averaged at approximately 6,500 vehicles per day.
- The restrictions resulted in a dramatic fall in the use of the tunnel by private cars. During the week commencing March 23<sup>rd</sup>, car volumes through the tunnel were approximately 5,000 – 6,000 per day as compared with normal weekday volumes of over 16,000. In the period between Monday March 30<sup>th</sup> and Friday May 1<sup>st</sup>, car volumes reduced to an average of approximately 2,450 per day, an overall reduction versus normal conditions of almost 85%.
- Following the commencement of Phase 1 of the reopening of society and business, there was a week-on-week increase of approximately 40% in car traffic volumes in the tunnel during the week beginning May 18<sup>th</sup> with a 20% increase the week beginning May 25<sup>th</sup>. The following week, beginning June 1<sup>st</sup>, there was a further 9% week-on-week increase in car traffic volumes.
- Phase 2 of the reopening of society and business commenced on June 8<sup>th</sup>. Following this there was a week-on-week increase of approximately 5% in car traffic volumes in the tunnel during the week beginning June 8<sup>th</sup> with an 8% increase the week beginning June 15<sup>th</sup>. The following week, beginning June 22<sup>nd</sup>, there was a further 7% week-on-week increase in car traffic volumes.
- Phase 3 of the reopening of society and business commenced on June 29<sup>th</sup>. Both HGV and private car traffic levels remained relatively stable in the tunnel during the months of July and August.
- There was an average of approximately 8,450 cars travelling through the tunnel per day between Monday and Thursday of this week. While car volumes are slowly increasing this still represents an approximate 45-50% reduction in car traffic volumes on the equivalent days in 2019. It should be noted that there is now less incentive for cars to use the tunnel as other routes into the city that are normally heavily congested may now be experiencing free-flow conditions.
- This week, beginning September 21<sup>st</sup>, there was an average of approximately 9,500 HGVs travelling through the tunnel per day. These volumes are comparable to HGV volumes on the equivalent days in 2019.

# Impact of COVID-19 restrictions on traffic volumes in Dublin Tunnel

Average change in traffic volumes on major routes (2020 vs 2019 equivalent weekdays)

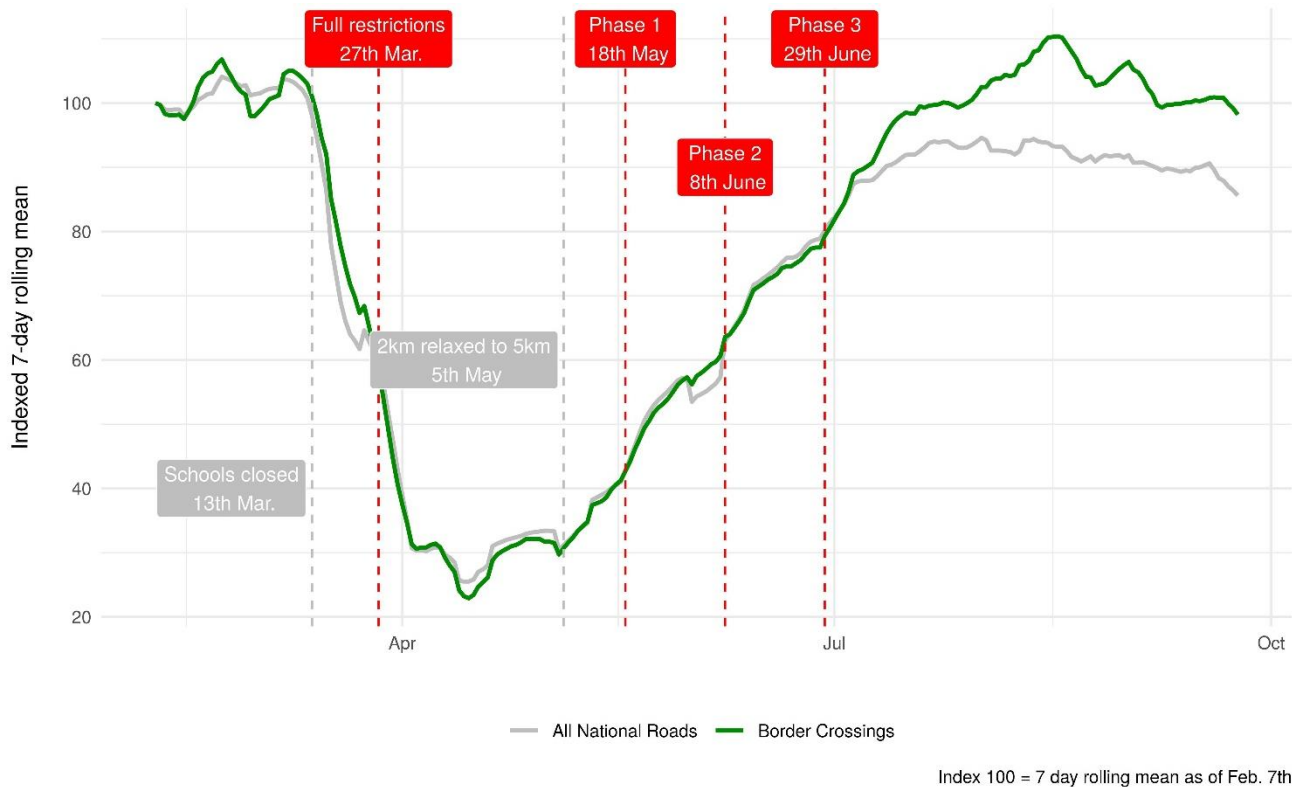


Figure 6: Dublin Tunnel traffic



## 5.0 The Border

A selection of 12 traffic counter sites on national roads close to the border were analysed. A plot of trends at the border, compared to national traffic, is provided in Figure 7. The trend is developed using an index of a 7 day rolling mean traffic flow from February 7<sup>th</sup> 2020, in order to smooth seasonal patterns.



**Figure 7: Trends in traffic at national road border crossings compared with all national roads**

The plot indicates that trends on vehicles crossing the border via national roads were very similar to the global trend across all national roads with volumes reduced to 60-70% of typical levels, over the period of restrictions between March 27<sup>th</sup> and May 5<sup>th</sup>. Since the easing of restrictions on May 5<sup>th</sup> and the Phase 1 of reopening of society and business on May 18<sup>th</sup>, volumes of traffic crossing the border were approximately 50-60% of typical levels.

Phase 2 of the reopening commenced on June 8<sup>th</sup> and by the week beginning June 22<sup>nd</sup>, volumes of border traffic were approximately 75-80% of typical levels. Phase 3 of the reopening commenced on June 29<sup>th</sup> and, at this time volumes of border traffic were approximately 80% of levels seen in February 2020. Since mid-July, increases in vehicles crossing the border via national roads have been greater than those observed on other national roads and peaked at 110% of February levels in mid-August. Since then, volumes crossing the border have reduced back to similar levels to those observed in February 2020 prior to the impact of the COVID-19 pandemic.

A further comparison between private car and heavy goods vehicle traffic volumes crossing the border on equivalent days in 2019 and 2020 is provided in Figure 8. This indicates that during this week, private car volumes are down approximately 10-20% when compared with the equivalent day of last year. Recent trends in heavy goods vehicles crossing the border show an increase in volumes of up to approximately 7% when compared to the equivalent days in 2019.

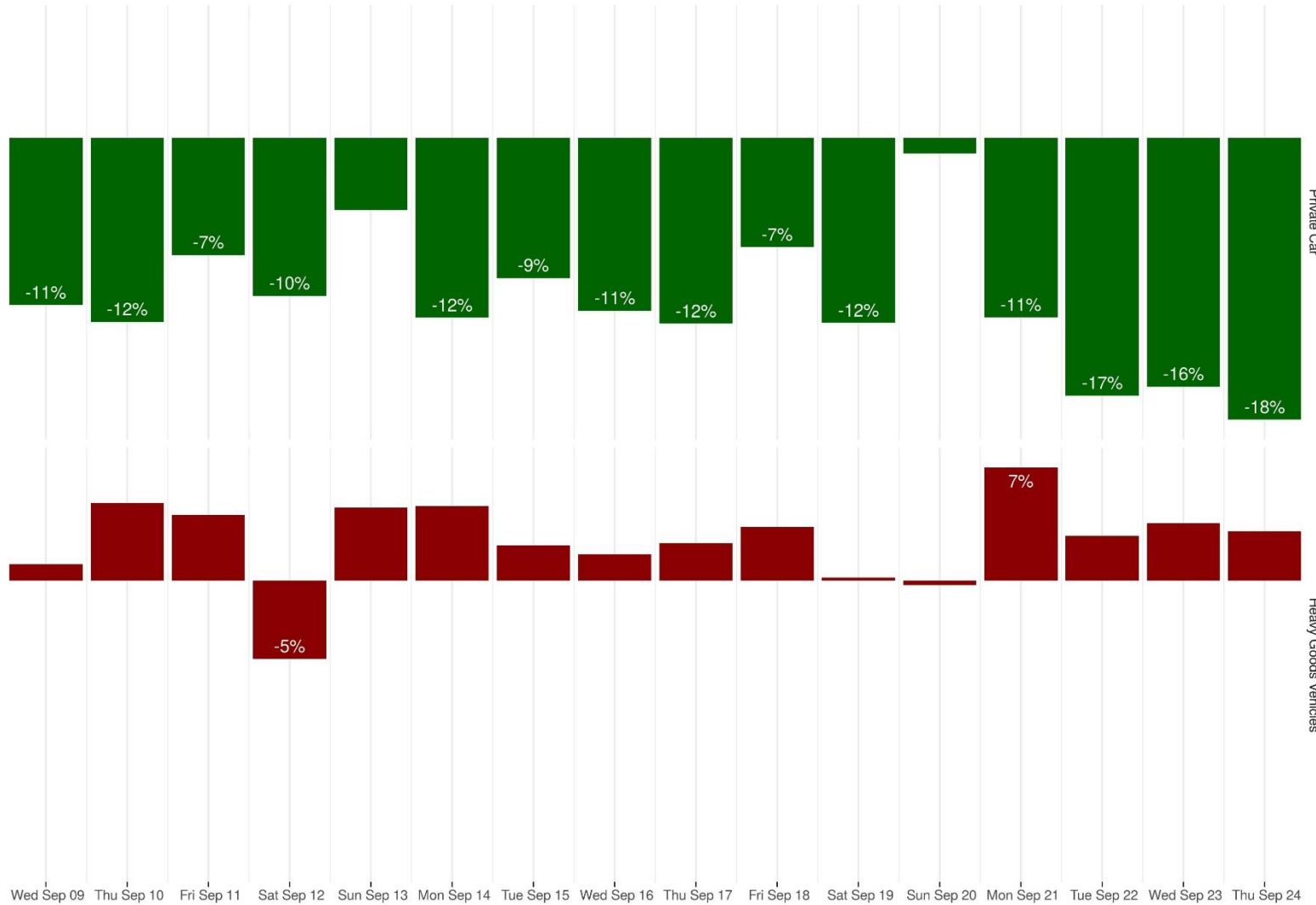
# Impact of COVID-19 restrictions on border traffic

Average change in traffic volumes on national road border crossings (2020 vs 2019 equivalent weekdays)



Figure 8: Border Crossings

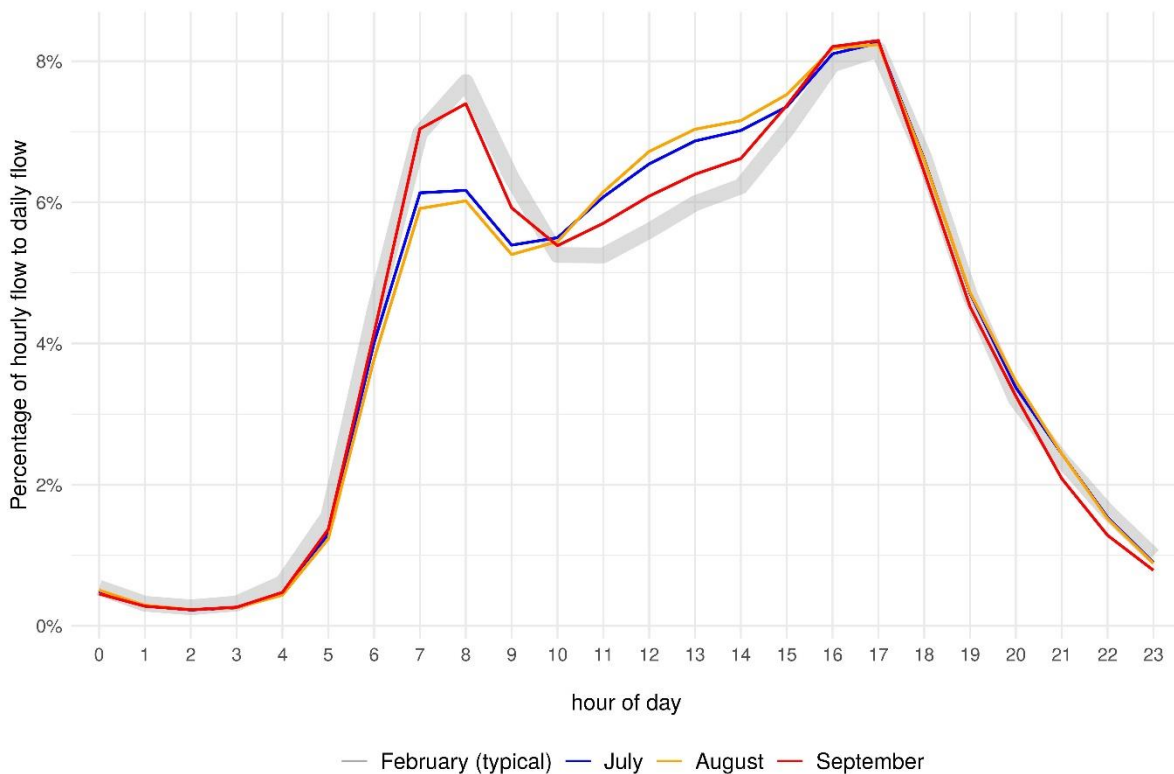
*(Based on aggregations of traffic volumes on national roads near border crossings.)*



## 6.0 Re-opening of schools

Primary and secondary schools re-opened nationwide around the first week of September 2020, having been closed since March 13<sup>th</sup>. As can be demonstrated by the daily aggregate traffic volumes on national roads plotted in Figure 1 of this report, there has been minimal impact on total daily traffic volumes.

There has, however, been an impact on the profile of traffic across a weekday, particularly the morning peak period. This can be demonstrated by a comparison of national aggregate daily traffic profiles over recent months, presented in Figure 9.



**Figure 9: National road aggregate weekday hourly traffic profiles**

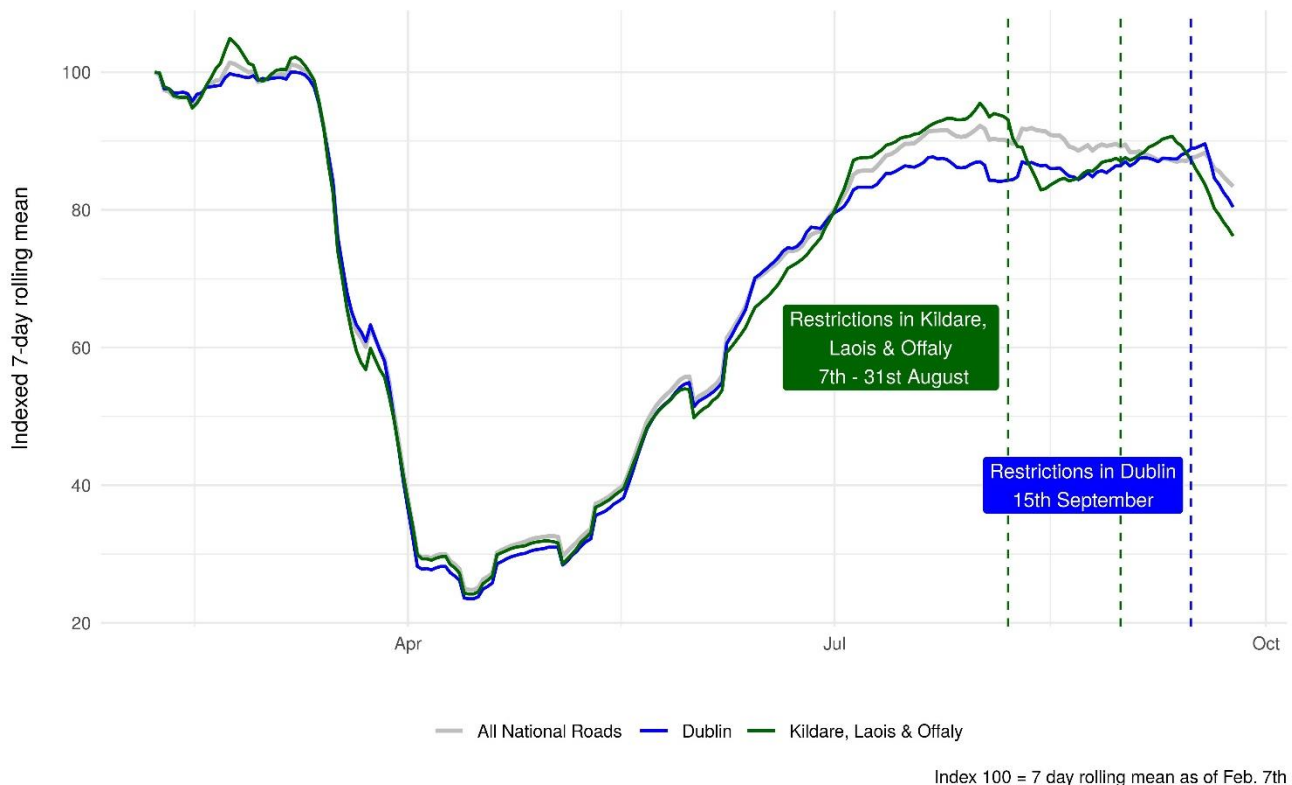
The plot shows a typical weekday profile from February 2020 in grey, with the same profile from the recent months of July, August and September (to date) shown in blue, orange and red respectively. In July and August there was a lower than typical proportion of traffic on national roads during the morning peak period (07:00-10:00). In these same months there was a higher proportion of traffic in the inter peak period (10:00-16:00) and a more typical proportion of traffic during the evening peak period (16:00-18:00).

In September, the proportion of traffic travelling in the morning peak period returned to typical levels, with an associated reduction in the proportion of traffic in the inter peak period. This suggests that schools reopening have caused a change in the daily pattern of weekday travel on the national road network.

While there have been increases in traffic volumes in the morning peak period as the schools have returned, this has not resulted in a net increase in national road traffic volumes across the full weekday, as outlined in Section 2.0. It is likely that there has been a rebalancing of trips across the day where, for example, discretionary or recreational trips in the middle of the day have reduced and been replaced by trips to and from schools.

## 7.0 Regional Impacts

A selection of traffic counter sites on national roads in the counties of Kildare, Laois and Offaly have been aggregated as a regional group in order to compare regional patterns with national patterns. A similar aggregation has been undertaken using traffic counter sites in Dublin. A plot of trends in these regions, compared to national traffic, is provided in Figure 10. The trend is developed using an index of a 7 day rolling mean traffic flow from February 7<sup>th</sup> 2020, in order to smooth seasonal patterns.



**Figure 10: Trends in traffic in Kildare, Laois and Offaly compared with all national roads**

The plot indicates that the measures introduced in August to restrict movements in Kildare, Laois and Offaly resulted in a reduction in traffic volumes on national roads in these counties. Prior to the additional measures, traffic volumes in these counties closely tracked trends on all national roads. Volumes on national roads in Kildare, Laois and Offaly dropped below 90% of typical volumes during the month of August while national aggregate volumes remained in the region of 90%. Since the August restrictions, traffic levels in this region have recovered to 90% of typical levels but have reduced in the last week. This is likely due to the recent restrictions in Dublin as many national roads in Kildare, Laois and Offaly cater for commuter traffic to and from Dublin.

In Dublin, since July, aggregate traffic volumes had been slightly below national levels, as a proportion of typical volumes. This possibly reflects the make-up of the workforce in Dublin and the proportion of workers who can continue to work from home. In the first week since the Level 3 restrictions in Dublin, aggregate traffic volumes on national roads in the county have reduced from approximately 90% of typical levels to almost 80%.