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COVID-19: Scotland's transport and travel trends during the first six months of the pandemic

Contents

Key findings

This report highlights the key trends in transport and travel in Scotland for the first six months of the coronavirus (COVID-19) pandemic. It reports on changes in travel across all main modes of transport (walking, cycling, concessionary bus, rail, road, ferry and aviation) between 9 March and 6 September 2020. This period covers Scotland's lockdown which was designed to reduce COVID-19 transmission and its subsequent emergence via the three phases of easing of COVID-19 restrictions originally set out in Coronavirus (COVID-19): Scotland's route map. Throughout this six month period, a number of activities were proscribed. Non-essential travel was not permitted for the duration of the lockdown. Use of public transport for non-essential purposes was discouraged even after easing began, so that physical distancing could be maintained. Physical distancing continued to be a concern in September.

- **Walking** levels throughout the six month period were consistently lower than on equivalent days in 2019. This can partly be explained by fewer people walking to work and educational establishments and the location of active travel counters potentially downplaying levels of recreational walking seen during the pandemic.
- **Cycling activity** was higher than in 2019 for most of the six month period. Increased cycling can be explained by a number of factors including people having more leisure time and feeling safer due to reduced road traffic, and better weather conditions.
- Within the first week of the lockdown in March, **commercial bus patronage** had declined to around 15 per cent of its pre-pandemic level. Although the frequency of bus services was not reduced immediately, by the fifth week of lockdown only 40 per cent of pre-pandemic services were running. However, by September, service levels had increased to 90 per cent of pre-pandemic levels to allow for sufficient physical distancing.
- **Concessionary bus travel** declined rapidly at the start of the pandemic, particularly among people over 70. By the end of the six month period, it had recovered to 56 per cent of equivalent 2019 levels as the publicly perceived risk of COVID-19 transmission fell and a wider range of leisure activities became available.
- The March lockdown saw a sharp decline in **rail patronage**, with passenger numbers falling to eight per cent of levels seen on equivalent weekdays in 2019, and three per cent at weekends. It was only after entering Phase 3 of the route map that patronage rose above 20 per cent of the previous year's levels. The recovery in rail passenger numbers was affected by the Stonehaven derailment and Glasgow-Edinburgh via Falkirk High line closure in mid-August.
- There was a sharp decline in **ferry use** early in lockdown with CalMac and Northlink passenger numbers both falling to less than four per cent of equivalent 2019 levels, and remaining below five per cent until easing began. However, as tourism reopened, the number of cars carried increased rapidly with CalMac carrying nearly as many cars as in 2019 and Northlink just below 80 per cent of the previous year's levels.

- **Flight numbers** fell rapidly at the start of lockdown to around 10 per cent of equivalent 2019 levels. By the end of the six month period, flights had increased to 40 per cent of 2019 levels despite the requirement for passengers to quarantine upon returning from many popular tourist destinations.
- **Car traffic** levels dropped to around 25 per cent of 2019 levels, but had recovered to 91 per cent of 2019 levels by the end of the six month period. Car traffic on tourist routes fell to a lower minimum level, but recovered more than on non-tourist routes once tourism reopened.
- At the start of the March lockdown the number of **Heavy Goods Vehicles (HGVs)** on Scottish roads did not fall as much as cars because HGVs were more likely to be involved in essential activity. By the end of six months, HGV traffic was at 96 per cent of 2019 levels.
- Glasgow **Subway** patronage followed a similar pattern to national rail patronage. **Tram** travel in Edinburgh rebounded more slowly than either rail or subway use.
- Partly as a result of changing work patterns, the **morning peak** for road traffic has become less pronounced than before the pandemic. Car traffic levels were heavier between 10 am and 3 pm at the end of the six month period than they were in early March.

1: Introduction

This report has been compiled using data collated for a trends report produced by Transport Scotland on a weekly basis to inform the Scottish Government's COVID-19 response and assess its attendant economic impact. Unless stated otherwise, the data covers the period from 9 March to 6 September 2020.

Section 2 outlines the timing of measures directed by the Scottish Government which have affected transport use during the COVID-19 pandemic. These are also outlined in greater detail in Annex A. Section 3 briefly describes the methodology used with associated detail including data sources found in Annex B. Section 4 compares the impact of COVID-19 and related restrictions on common travel modes over the six month period noted above and section 5 forms the main body of the report, taking a more detailed look at usage trends for individual modes over the same period.

Section 6 considers changes in peak travel times since COVID-19 restrictions have affected daily travel patterns. Sub-national trends are the focus of section 7 which covers subway and tram travel, cross border road traffic and regionalised mobility. Section 8 investigates the effects of both the local lockdown in Aberdeen and the nationwide reopening of schools in August. The final section briefly looks at relevant results from a survey of public attitudes to the use of transport in Scotland carried out during the same time period.

2: Timeline of key dates

16 March - Limit social contact

23 March - Stay at home unless essential

29 May - Lockdown easing begins

19 June - Phase two of easing begins

10 July - Phase three begins

15 July - Tourism reopens

from 11 August - School reopening commences

12 August - Weather related rail incidents near Stonehaven and Polmont

A more detailed overview of the key dates is given in Annex A.

3: Methodology and caveats

Where available, trends data is collected for each mode of transport on a daily basis and compared with the equivalent day in 2019, such that a day with an identical level of travel to its counterpart the year before would score 100. This resulting index provides a baseline which highlights how travel patterns have diverged from pre-pandemic expectations.

In order to construct such indices it is necessary to have access to data from the same sources going back to March 2019. Patchy data availability for many active travel counters in 2019 rendered such an approach impractical for measuring levels of walking and cycling. Instead an average of the daily levels of walking and cycling between 3 and 30 June 2019 was used as a baseline for each of the days in the six month period. This had the additional advantage of eliminating short term weather effects from the 2019 data. However, this approach means there is a greater likelihood that seasonal effects will have impacted the active travel indices than the other indices presented in this report.

Similarly, commercial bus travel is indexed to the equivalent day of the week beginning 2 March 2020, shortly before the pandemic started to have a significant impact on travel choices, because of a lack of comparable 2019 data.

Where stated, indices are presented using equivalent weekly averages. The equivalent weekly average for a given day is the average of its daily index and those of the three days both before and after it. This smooths trend lines, reducing the volatility associated with factors such as weather or in-week effects (where a mode is more or less popular on particular days of the week).

Ferry data is presented on a weekly basis and indexed to the equivalent week in 2019 since Transport Scotland does not have access to adequate daily data.

4: Summary of national trends

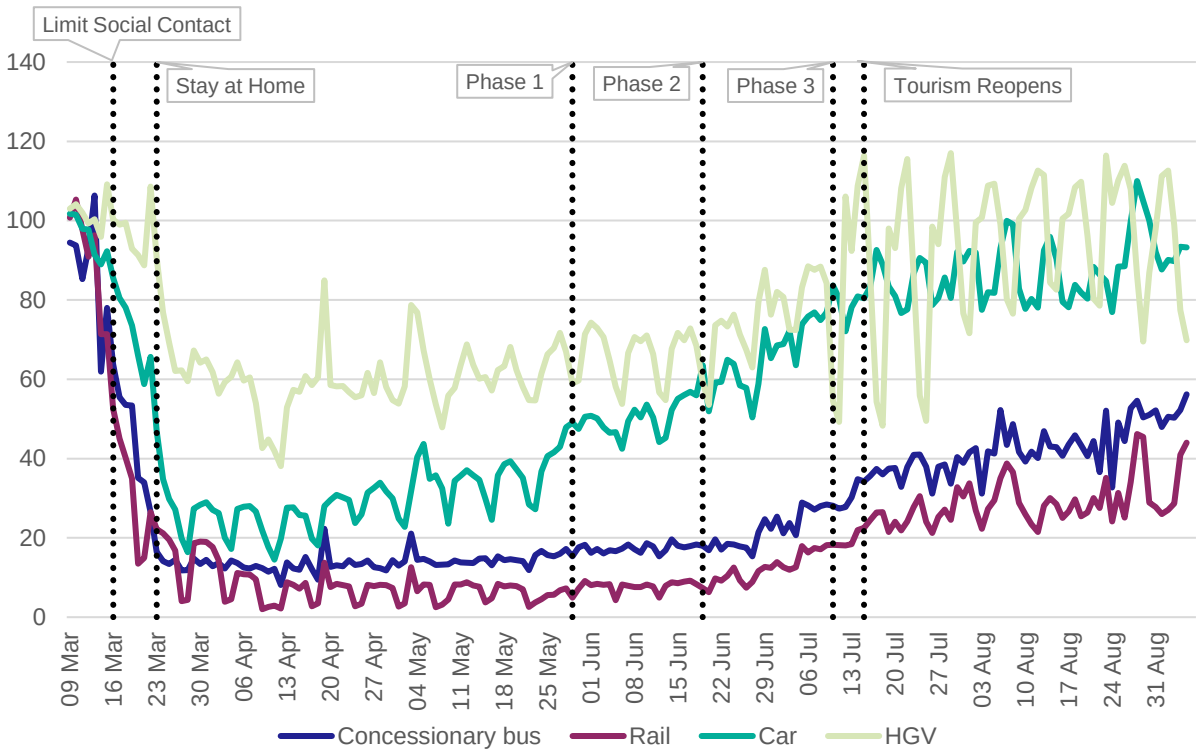

Figure 1 Daily trends by mode (equivalent day in 2019 = 100)

Figure 1 shows six monthly trends in daily car and HGV use, and in rail and concessionary bus patronage compared to equivalent days in 2019. As noted in the previous section, it has not been possible to construct strictly comparable indices for transport modes where Transport Scotland does not have access to equivalent 2019 data.

This comparison shows that the decline in HGV traffic was more modest than the decline in other modes of travel. Public transport patronage fell earlier than car use because both the fear of COVID-19 transmission and advice to limit social contact were more applicable to public transport in advance of the stay at home order. It also fell further and has been slower to rebound for the same reasons.

All four modes display patterns of weekly fluctuations which change considerably over the timespan under consideration. These are smoothed using weekly averaging in figure 2. This chart also includes ferry passenger traffic where data is collected on a weekly basis. Ferry patronage fell to an even lower level than bus and rail travel because of strict restrictions on who was permitted to travel on ferries during the lockdown period. However, indexed to equivalent 2019 patronage, it rose much more rapidly than bus and rail patronage in July and August as restrictions on leisure activities eased and Scotland reopened for tourism.

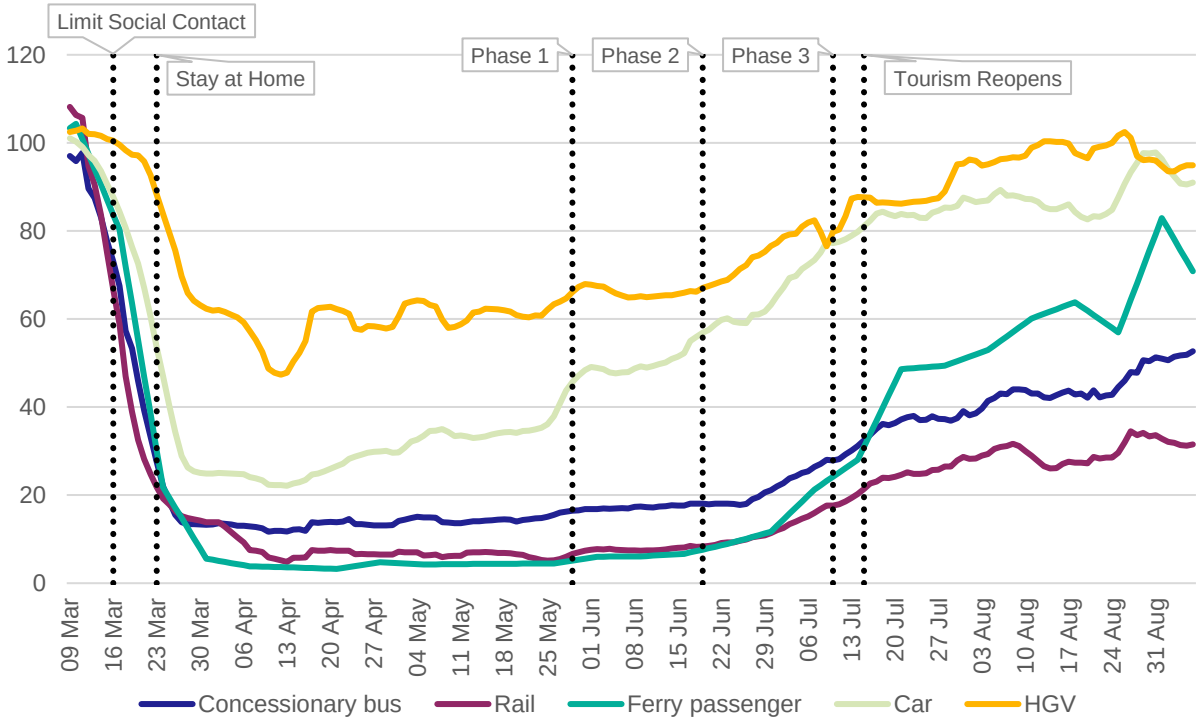

Figure 2 Seven day average trends by mode (equivalent weekly average in 2019 = 100)

5: National trends by mode

Walking

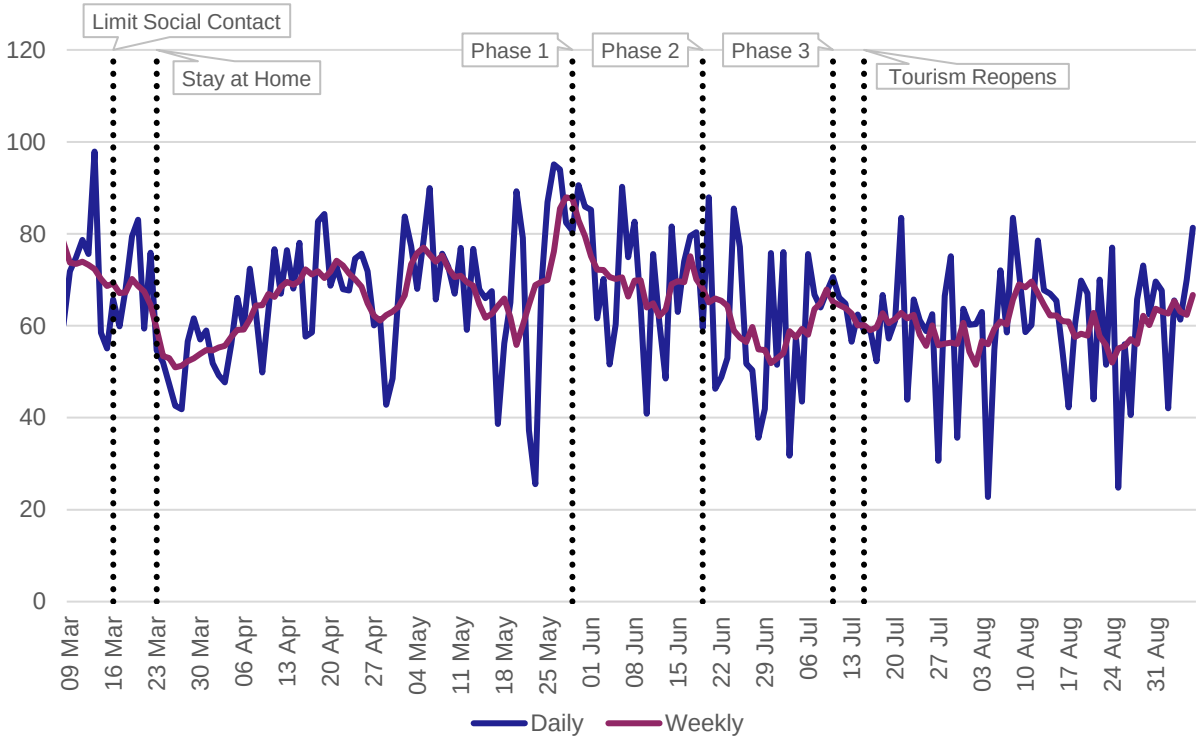

Figure 3 Walking index (June 2019 = 100)

Active travel data is collected counters monitoring pedestrian and cycling traffic across Scotland. However the number of active travel counters is limited, with variability between counters due to a number of factors outlined below.

As noted in section 3, walking and cycling activity are both indexed against their respective June 2019 average levels rather than their levels on the equivalent day in 2019.

Weekly averaging smooths daily fluctuations in walking levels due to changing weather, but long spells of dry or wet weather will still have affected weekly averages.

Outlying days of particularly low walking activity clearly coincided with inclement weather. For example, the daily index fell to 26 per cent of its baseline level on 23 May when Scotland was struck by the remnants of Tropical Storm Arthur, dropped to 23 per cent of its baseline level when persistent rain affected the Central Belt on 4 August and fell to 25 per cent of its baseline level when Storm Francis struck Scotland on 25 August as shown in figure 3.

Some seasonal impact on walking numbers may be anticipated. Since the index is based on June 2019 activity, it is plausible that a seasonal effect is partly responsible for the difference in walking between June 2019 and both the early and most recent stages of the pandemic. However, the index remaining consistently below the activity

level of June 2019 suggests behavioural changes including an increase in working from home due to the pandemic must also have had a considerable impact on the propensity to walk.

Walking fell sharply in the early stages of the pandemic with the weekly index hitting its lowest point in the six month period on 27 March. It rose during the strictest lockdown period, perhaps as many people became accustomed to exercising outdoors daily as permitted by the lockdown rules. On 28 May, the day before lockdown easing began, the weekly index reached 88 per cent of its baseline level, its highest during the six month period. A reduction in walking to attend work and educational facilities may be partly responsible for the index remaining below its 2019 benchmark.

The index fell sharply during phase one and the first half of phase two of easing, declining to 52 per cent of its baseline level at the end of June. This may have been driven by the increasing availability of other leisure options beyond the home. It recovered slightly before the beginning of phase three of easing and has since remained largely unchanged despite Scotland reopening for tourism.

Averages by day of the week vary very little suggesting that volatility in the daily figures during the pandemic is not caused by a greater tendency for people to walk on particular days of the week, but rather due to changes in weather.

Cycling

In stark contrast to walking, levels of cycling were higher than during the June 2019 baseline period for much of the first six months of the pandemic. Weekly levels of cycling stayed above June 2019 levels between 7 April and 25 July as shown in figure 4.

The only extended period when weekly cycling levels were lower than in June 2019 was before 7 April when the weather was generally less conducive to cycling than it had been in June 2019. Hence it appears reasonable to conclude that cycling increased as a result of behavioural changes due to the pandemic.

Weekly cycling levels peaked on 28 May, when they were almost double what they had been in June 2019, coinciding with the peak in walking. Weekly cycling levels fell during the first two phases of easing, again possibly reflecting a widening variety of leisure opportunities.

The data shows little variation in activity on different days of the week across the whole six month period. However, in the shorter period from early May to early July, the popularity of cycling during weekdays peaked more clearly than the popularity of cycling during weekends. This may be due to daylight having a greater impact on opportunities to cycle on weekdays – when many more people work – than at the weekend. Also it may be because more people were working from home or furloughed between early May and early July than in later months and because there were fewer alternative weekend leisure options than after restrictions were further eased.

As with walking, cycling is clearly affected by daily weather fluctuations with the three weather events mentioned above also having a deleterious impact on cycling numbers. There is a strong correlation (r = 0.82) between the daily walking and cycling indices over the period under examination.

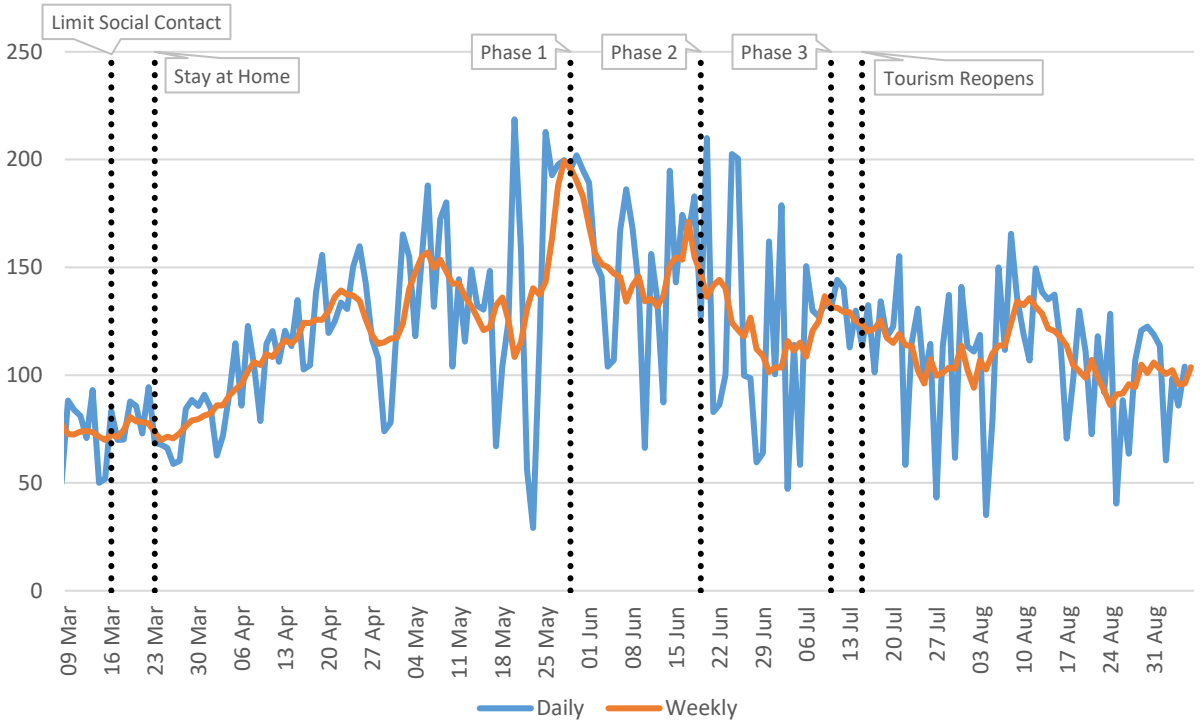

Figure 4 Cycling index (June 2019 = 100)

Bus

Commercial bus travel

Figure 5 tracks both bus service levels and passenger demand. Here each day is indexed to the equivalent day in the week beginning 2 March 2020 as noted in section 3. Ticketer provides data from most major bus operators in Scotland, but not Stagecoach and Lothian Buses, so their services are not taken into account.

In the week before lockdown, bus demand fell precipitously as advice to limit social contact and avoid public transport as much as possible was rapidly adopted. Demand was already down to a third of its normal level as Scotland entered lockdown and within a week had settled at around 15 per cent of its normal level.

In contrast, the number of services in operation did not decline until the day Scotland entered lockdown. Within five weeks, they had settled at around 40 per cent of the pre-pandemic level. The weekly peaks in service during the lockdown reflect a higher relative level of service on Sundays. Sunday service levels settled at 52 per cent of their pre-pandemic level. This may be because there was less scope for reducing the less frequent Sunday timetable while maintaining a service which would meet the needs of key workers.

The number of passengers stayed below 20 per cent of its early March level until easing began, with the sole exception of the VE Day bank holiday. The rise in the number of passengers per service before easing began was caused largely by a reduction in services rather than an increase in demand.

The first phase of easing saw a very modest increase in both demand and services. There was a step change in bus provision on 28 June with the number of services in operation increasing to 68 per cent of its early March level, while the number of passengers steadily increased to reach 30 per cent of its early March level by the start of phase three.

After tourism reopened in phase three, the passenger index peaked each weekend, suggesting the growth in use is primarily associated with leisure activities rather than commuting. However, there was very little weekly variation in the service index after the late June step change, so passenger loads on buses rose to nearer their early March level at weekends.

There was a second step change in service provision on 3 August with the number of services in operation reaching 86 per cent of the pre-pandemic level. This rose to around 90 per cent of that level by the end of the six month period, with bus use remaining below 60 per cent of its early March level.

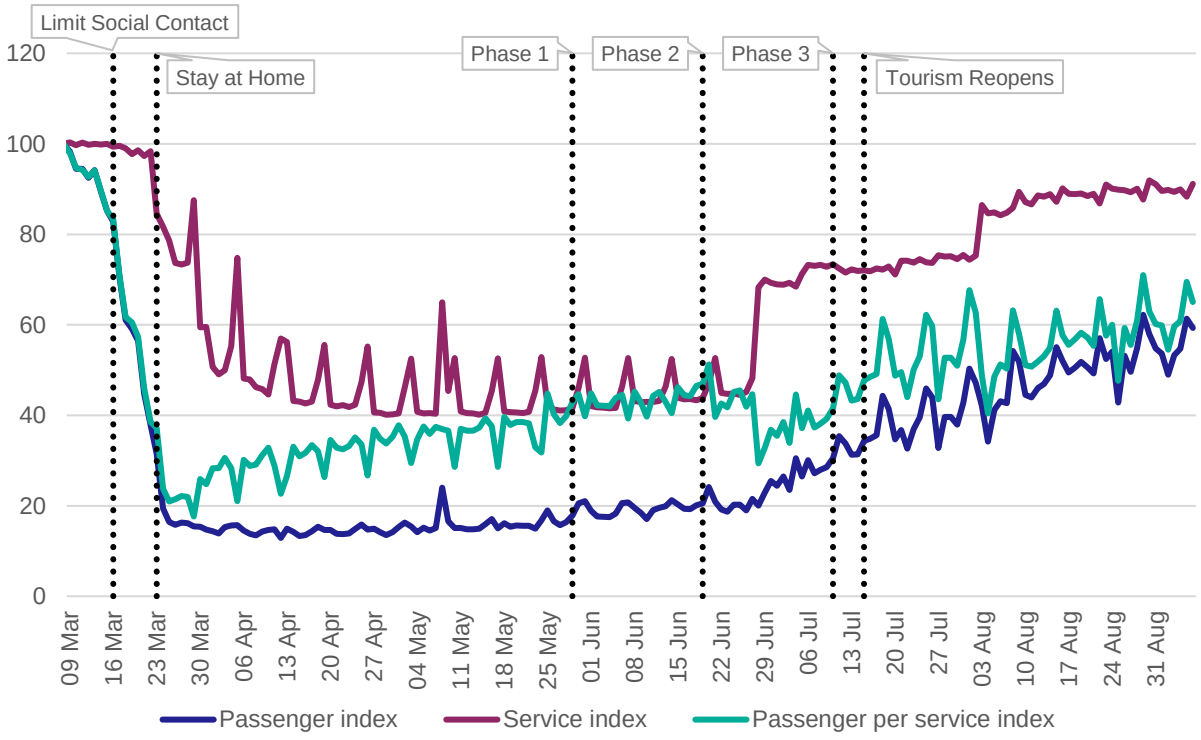

Figure 5 Bus indices (equivalent day in week beginning 2 Mar = 100)

Concessionary bus travel

Scottish residents who are either over 60 or have a disability can obtain a National Entitlement Card to access free bus travel in Scotland. Their concessionary bus use is indexed to the equivalent day in 2019 in figure 6 below. This means the small peaks on 20 April and 4 May reflect bank holidays occurring in 2019 which occurred

on different days this year and should not be interpreted as genuine peaks in demand.

The concessionary bus travel trajectory shown in figure 6 is remarkably similar to that for fare paying passengers outlined in the previous section, with a rapid decline in concessionary bus travel. This settled below 15 per cent of its 2019 baseline level shortly after the start of the lockdown. There was only a minor increase in concessionary bus travel before phase two of easing.

Both the step change in bus services mentioned in the previous section and the advent of phase three seem to have led to more significant increases in concessionary bus travel. Concessionary bus passenger numbers reached 56 per cent of their 2019 baseline on 6 September, the highest level since 17 March, the day after people living in Scotland were advised to limit social contact.

Unsurprisingly bus travel among people over 70 dropped more precipitously than for younger concessionary users, with the over 70 index falling to around half the level of the 60-64 index for the strictest period of lockdown and remaining lower than the 60-64 index since easing began. Bus travel by those over 70 between 10 August and 6 September averaged 43 per cent of its 2019 baseline, whereas bus travel by people aged 60-64 averaged 48 per cent of its baseline.

This greater reduction in use by older consumers presumably reflects both the greater risk associated with contracting COVID-19 as people age and a greater likelihood of people in older age groups being advised to shield due to underlying health conditions.

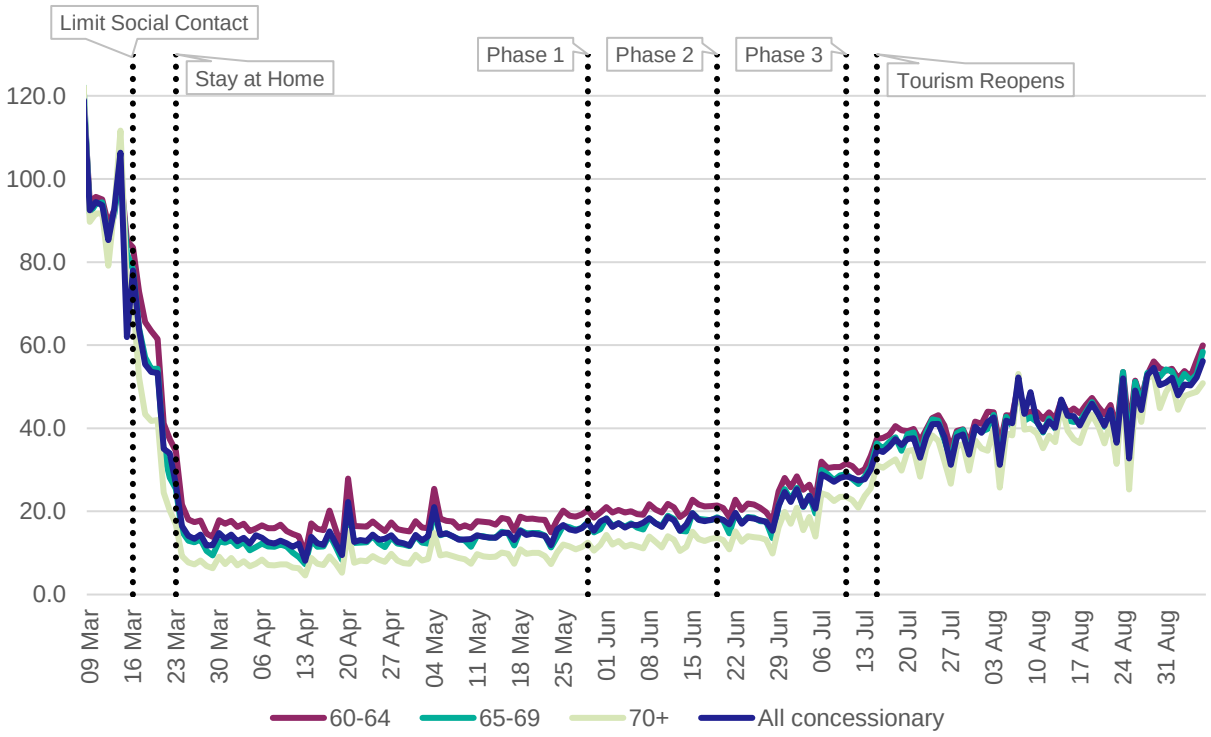

Figure 6 Concessionary bus trips (equivalent day in 2019 = 100)

Rail

Rail patronage showed a more marked decline with the advent of lockdown than bus travel. Journeys fell to around eight per cent of the level seen on equivalent weekdays in 2019 and around three per cent of 2019 levels during weekends as shown in figure 7. Patronage began to increase in earnest in phase two of the restriction easing process, with passenger numbers rising to above 20 per cent of their 2019 levels early in phase three.

After tourist businesses were allowed to reopen, the index started to peak during weekends, following a similar pattern to the commercial bus passenger index. It is unclear whether increased tourism was intrinsic to this rise or whether other leisure pursuits newly available in phase three of easing were largely responsible.

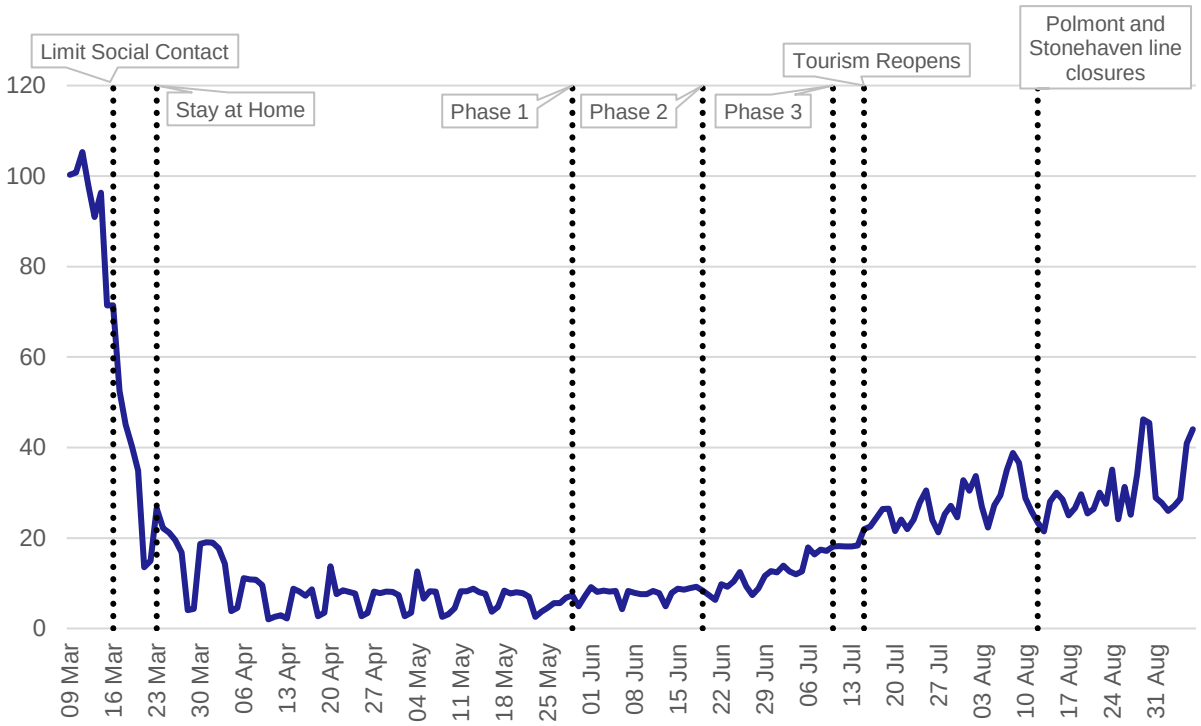

Figure 7 Scotrail daily passenger index (equivalent day in 2019 = 100)

Figure 8 below smooths fluctuations in the daily passenger index shown in figure 7 by comparing patronage with that of 2019 on a weekly basis. Variation in service provision is shown alongside weekly patronage to give an idea of how full trains were on average compared to in 2019. The derived patronage per service index should only be considered a rough guide to passenger spacing since the type of rolling stock and number of carriages will have changed for some services.

It suggests that social distancing on busier services was becoming increasingly difficult as passenger numbers rose from 10 per cent of comparable 2019 levels in the week ending 28 June to 30 per cent in the week ending 9 August. However, a big increase in the number of train services operating from 60 per cent to 90 per cent of the pre-pandemic baseline due to the introduction of a new timetable on 3 August stemmed the rise in passengers per service.

The increase in the patronage index slowed in August although this was partly because of line closures due to the tragic derailment near Stonehaven and flooding damage to the Edinburgh-Glasgow via Falkirk line near Polmont. The impact of these incidents on the patronage per service index renders it less representative of the passenger experience on unaffected lines and particularly on alternative lines between Glasgow and Edinburgh.

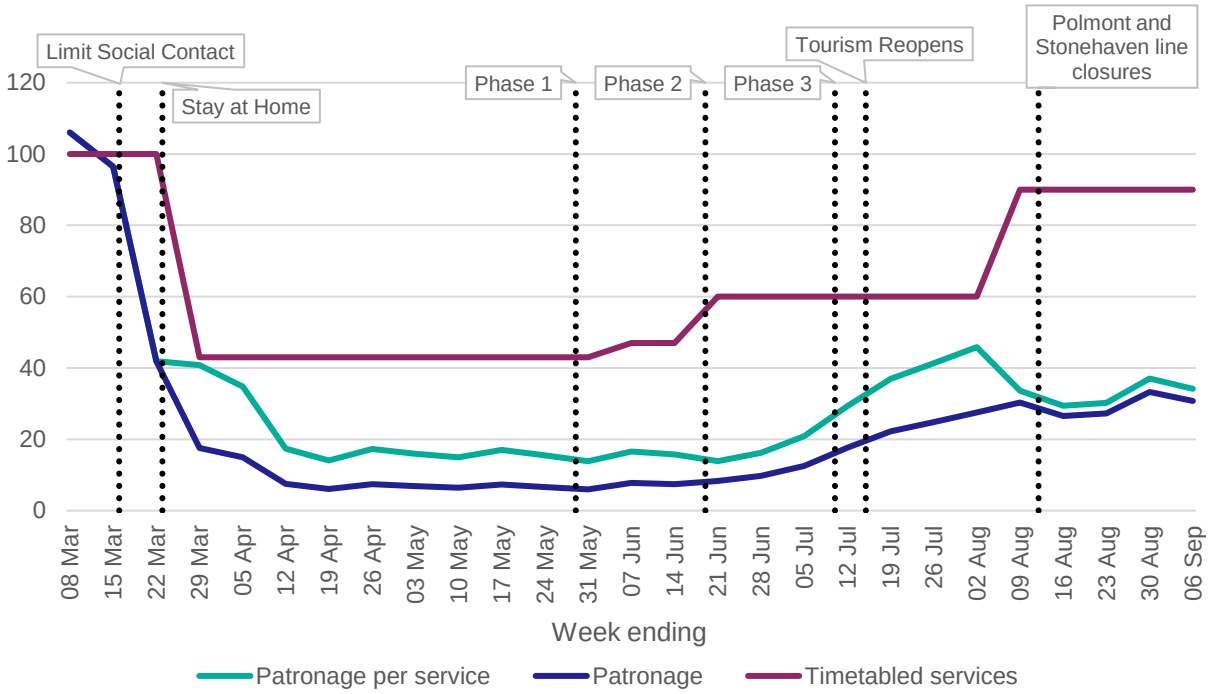

Figure 8 Scotrail weekly patronage and timetabled service (patronage: equivalent week in 2019 = 100; services: pre-pandemic timetable = 100)

Ferry

Ferry data presented below covers CalMac and NorthLink services only. Figure 9 shows the number of passengers travelling on ferries per week indexed to the equivalent week in 2019.[1]

Passenger numbers on both CalMac and NorthLink services fell to below four per cent of their respective 2019 baselines early in the lockdown and remained below five per cent until easing began. The subsequent increase in patronage has been significantly greater for CalMac than for NorthLink. Both Calmac and NorthLink saw strong recoveries after tourism reopened and Scotland entered phase three, with passenger numbers increasing from around 20 per cent of 2019 levels to around 85 per cent and 55 per cent respectively. The lifting of restrictions on non-essential ferry travel and the reopening of the tourist industry clearly played significant roles in this increase.

[1] The sharp rise in the CalMac index between the weeks ending 28 August and 4 September is misleading as it results largely from a week of bad weather with vessels out of service for necessary repair work in 2019 rather than any week on week increase in 2020 passenger numbers.

The seasonal nature of much ferry travel means that comparing weekly passenger numbers to equivalent 2019 data fails to capture passenger numbers having risen to approximately double their pre-lockdown level. By combining the passenger numbers for the two companies, Figure 10 shows that weekly patronage fell from around 56,000 passengers in early March to a low of below 4,900 during April, but exceeded 125,000 in the second week of August.

Changes in the number of cars being conveyed by ferry were slightly less extreme, with a fall from 18,500 to 2,700 cars per week followed by an August peak of over 36,500. Additionally, the number of passengers in each car fell from an average of 3.1 in early March to a low of 1.8 during lockdown and rose as high as 3.4 during August. This may reflect a number of factors, including changes in the mix of journey purposes, increased reluctance to use buses or trains for ongoing travel due to the risk of COVID-19 transmission and passengers being happier to travel on ferries when they are permitted to remain within the relative safety of their own cars.

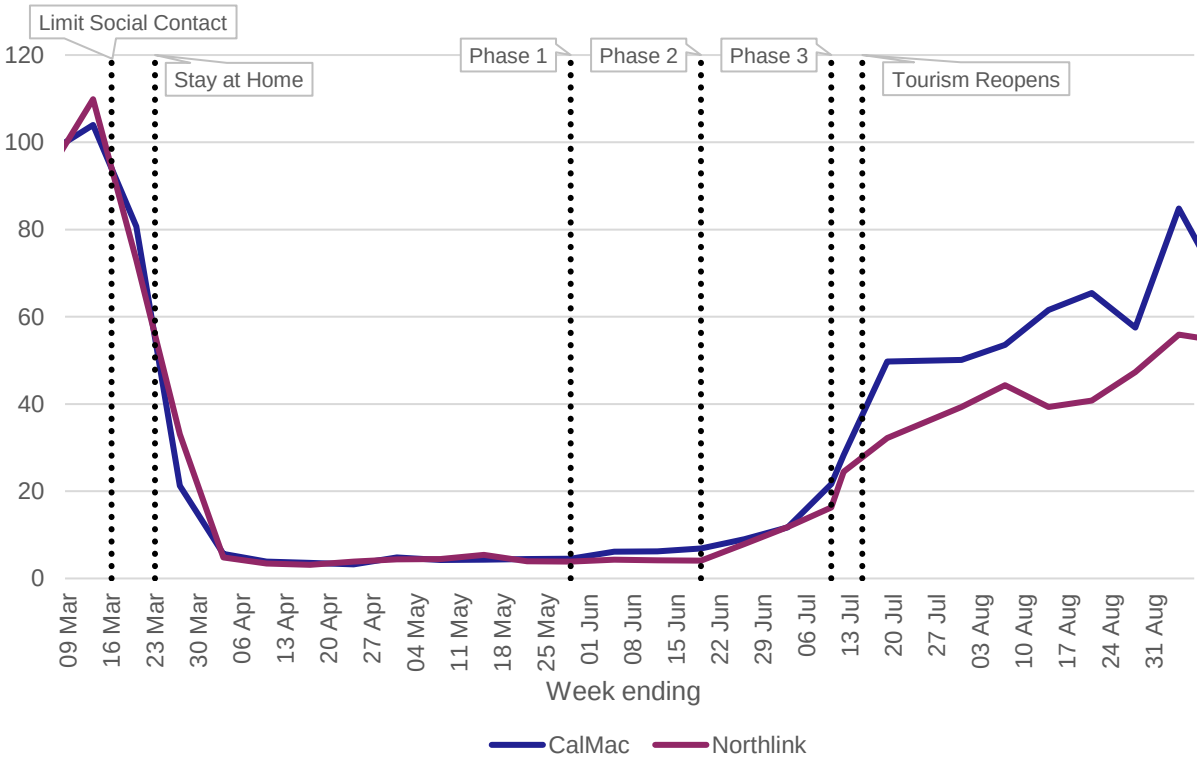

Figure 9 Ferry passengers carried weekly (equivalent week in 2019 = 100)

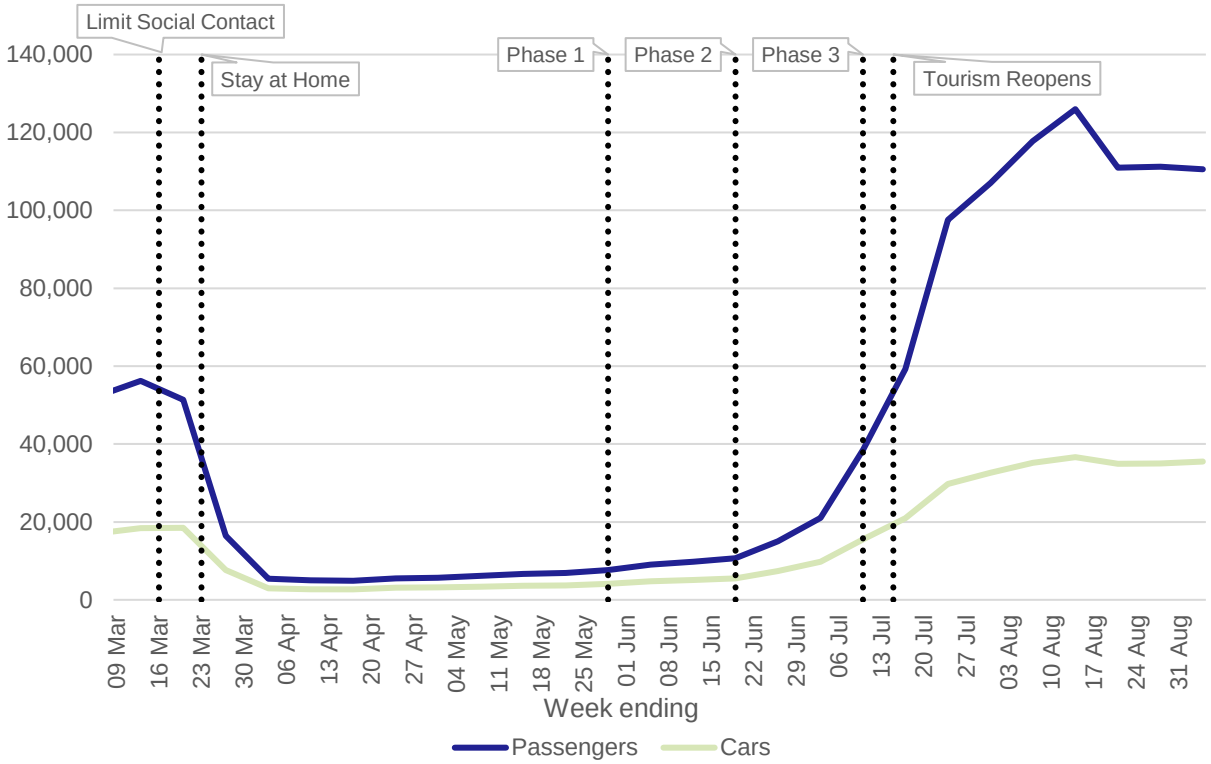

Figure 10 Actual ferry passengers and cars carried weekly

Figure 11 shows that NorthLink experienced a sharper fall than CalMac in the number of cars conveyed aboard their ferries compared to in 2019. NorthLink has also recovered more slowly, carrying less than 80 per cent of its 2019 car numbers at the end of the six month period, whereas CalMac was carrying almost as many cars as in 2019 at that time. Similarly, NorthLink was carrying less than 80 per cent as many. This reflects NorthLink's slower recovery in passenger numbers compared to 2019. Although NorthLink experienced a lower level of car conveyance compared to 2019 than CalMac during the strictest lockdown period, this was not reflected in a similar difference in passenger travel trends.

Both figures 11 and 12 show that the number of commercial vehicles conveyed by ferry during the six month period was much less affected by the pandemic because of the role of commercial vehicles in providing essential supplies, particularly to island communities.

The combined number of commercial vehicles conveyed by the two ferry companies fell by around 40 per cent during the lockdown. While it has since returned to its pre-pandemic level, it remains somewhat below the level seen at the end of the summer of 2019. This shortfall is largely due to a reduction in the number of coaches being conveyed by ferry, a phenomenon which has a larger impact on CalMac. In the first nine weeks following tourism reopening, ferries carried less than a tenth of the number of coaches they carried a year earlier, but 96 per cent of other commercial vehicles. CalMac experienced a bigger proportional fall in commercial vehicle numbers than NorthLink during the strictest period of lockdown. This was largely

driven by a greater proportional fall in goods vehicles being carried by CalMac rather than by the coach number changes because goods vehicles normally outnumber coaches.

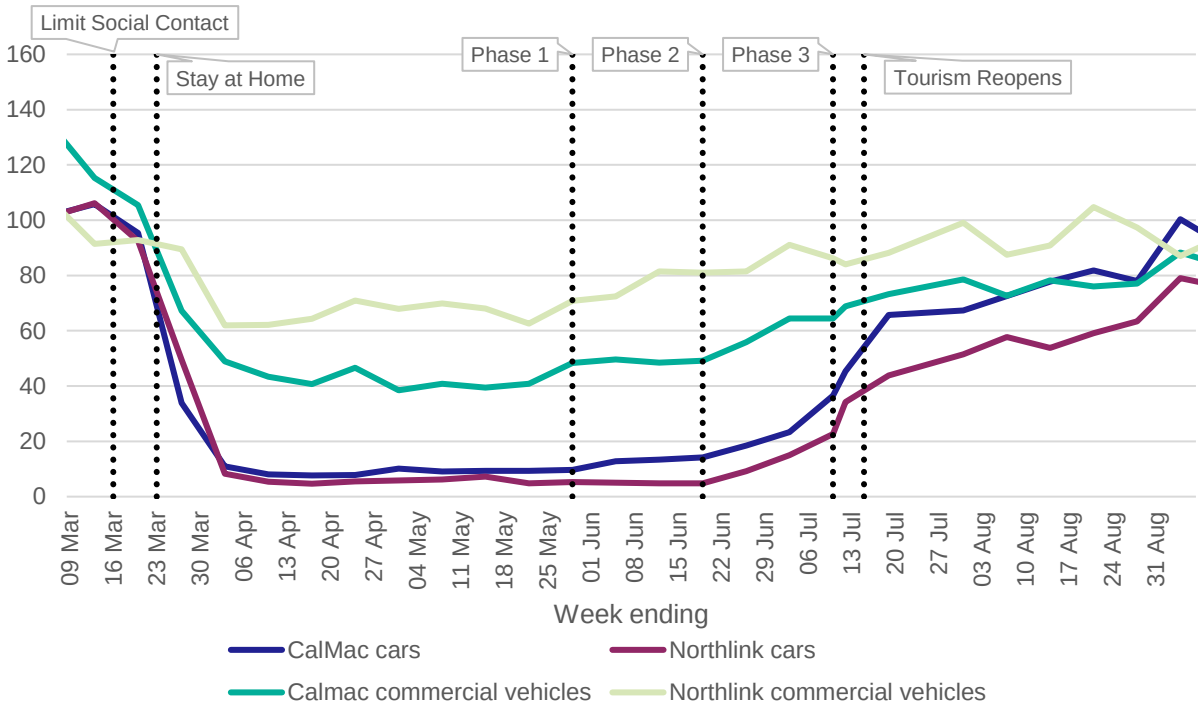

Figure 11 Cars and commercial vehicles carried by ferry weekly (equivalent week in 2019 = 100; commercial vehicles includes coaches)

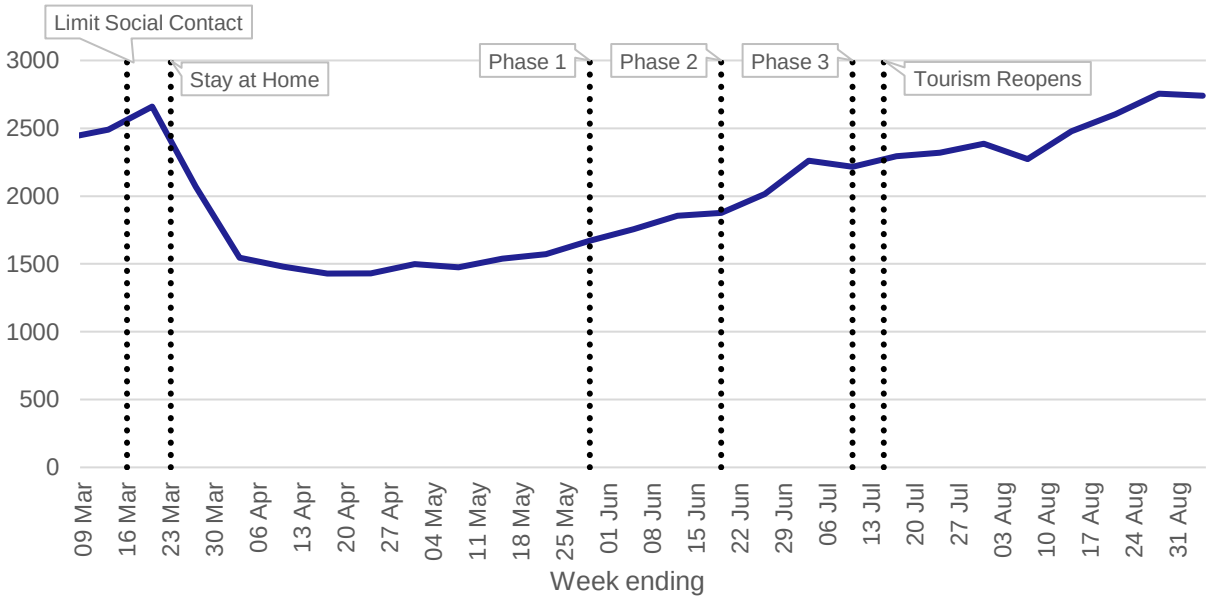

Figure 12 Actual commercial vehicles carried by ferry weekly

Air

Scottish Area Control flight data covers flights arriving in, leaving from or passing through the airspace monitored by Scottish Area Control. This covers maritime areas and part of Northern England as well as Scotland, but should provide a more accurate proxy for landings and departures at Scottish airports than wider UK data. It does not offer any indication of how many passengers are being carried on these flights and is therefore not strictly comparable with most of the other indices tracked in this report.

Flight numbers fell rapidly as Scotland entered lockdown in March, settling in April at around 10 per cent of their 2019 level as shown in figure 13. The number of flights into and out of the Scottish Area control airspace were consistently lower at weekends during lockdown, perhaps suggesting that leisure travel was even more negatively affected by lockdown than business travel.

After a slow increase, flight numbers began to rise more rapidly at the end of June and had reached around a quarter of 2019 levels as Scotland entered phase three of easing. By the end of the six month period, the number of flights had risen to 40 per cent of its 2019 level as Scotland reopened for tourism and some residents took the opportunity to holiday abroad. In late July and August, the weekly pattern seen during lockdown was inverted with the index peaking each weekend, replicating the pattern seen above in bus and train patronage. This suggests a bigger rebound in leisure travel.

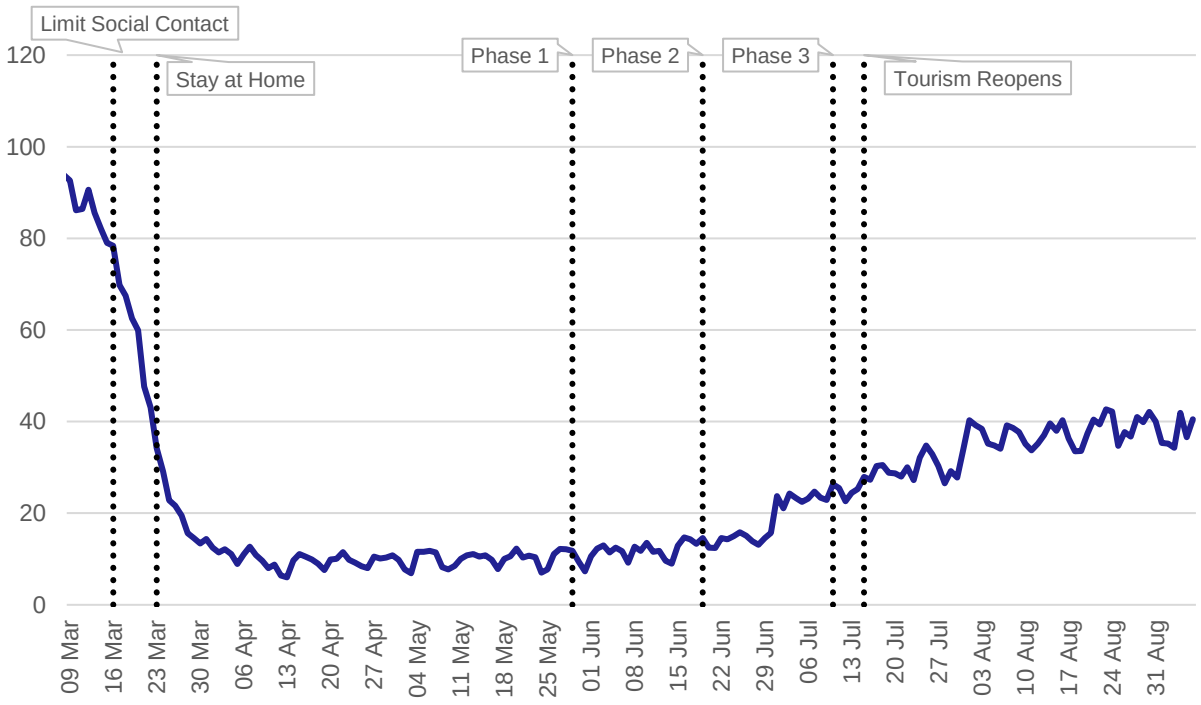

Figure 13 Scottish Area Control flight index (equivalent day in 2019 = 100)

Road traffic

The number of vehicles travelling on Scotland's roads is estimated using a selection of traffic counters on trunk roads around Scotland and indexed to the equivalent day in 2019. Therefore, the number of vehicles rather than the number of passengers in those vehicles is tracked. Although this is different from the criteria used for public transport, the index should still be broadly comparable with public transport indices.

Car travel became much less prevalent as Scotland entered lockdown. The number of cars on Scotland's roads fell to slightly above a quarter of its 2019 level on weekdays early in the lockdown as shown in figure 14, but below a fifth of its 2019 level during weekends, with the car index showing weekly lows on Sundays. The car index did not fall as low as public transport indices, indicating some degree of adherence to the official advice to avoid non-essential public transport journeys.

The car index rose before public transport indices. It first exceeded 40 per cent of 2019 levels in early May, and has been above that level since 26 May. From its lowest level during lockdown, the car index doubled from its early lockdown low before any significant rebound in bus or rail use. It rose rapidly during the first two phases of easing, beginning phase three at 77 per cent of the previous year's level, while concessionary bus usage and train patronage remained subdued at 28 per cent and 18 per cent of their respective 2019 levels.

The weekly pattern of lower car numbers compared to 2019 at weekends than on weekdays persisted through the first two phases of easing. This pattern was abruptly inverted following the reopening of tourism, with peaks each weekend in July and on all except one weekend in August. This additional weekend traffic may have been due to wider changes in leisure opportunities during phase three of easing as well as the unlocking of tourist traffic.

Since a large proportion of HGV traffic is concerned with the supply of essential goods, HGV numbers on Scotland's roads did not fall as significantly as car numbers as Scotland entered lockdown. HGV activity fluctuated around 60 per cent of its 2019 level before easing began. A clear pattern of midweek highs and weekend lows in the HGV index had become apparent by that point.

The number of HGV movements increased markedly during phase two of easing, reflecting the reopening of shops specialising in non-essential items as well as a wider increase in business activity. The HGV index entered phase three at roughly the same level as the car index.

The weekly pattern in the HGV index became much more accentuated during phase three, with midweek highs sometimes more than double weekend lows. This may result from HGV drivers anticipating or reacting to weekend tourist and leisure traffic returning more rapidly to normal than weekday commuter traffic as many erstwhile commuters remained furloughed or continued to work from home.

At the end of the six month period, weekly car traffic was at 91 per cent of equivalent 2019 levels while the weekly number of HGVs index was at 95 per cent as shown in figure 2. Although traffic levels had largely recovered from their decrease during lockdown, roads were still less busy than a year earlier.

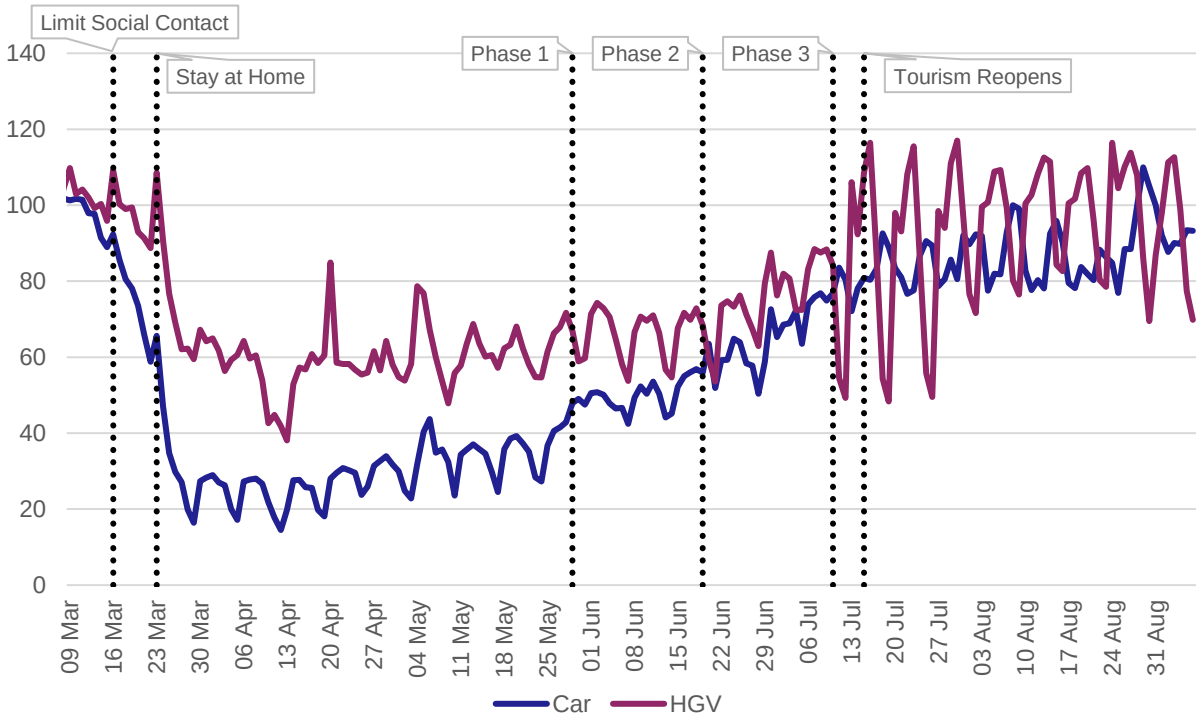

Figure 14 Trunk road traffic (equivalent day in 2019 = 100)

Car traffic on tourist routes

A further selection of counters on trunk roads were used to create a car traffic index for rural areas that are particularly popular with tourists. Although they are popular with tourists, these roads are also used for other purposes, so this measure is not a proxy for levels of tourism, but it gives some indication of how measures impacting tourism affected road traffic.

Unfortunately data is unavailable for most of these counters before 25 June 2019. Therefore, figure 15 shows car traffic across the whole six month period indexed to the average day in the week beginning 2 March 2020.

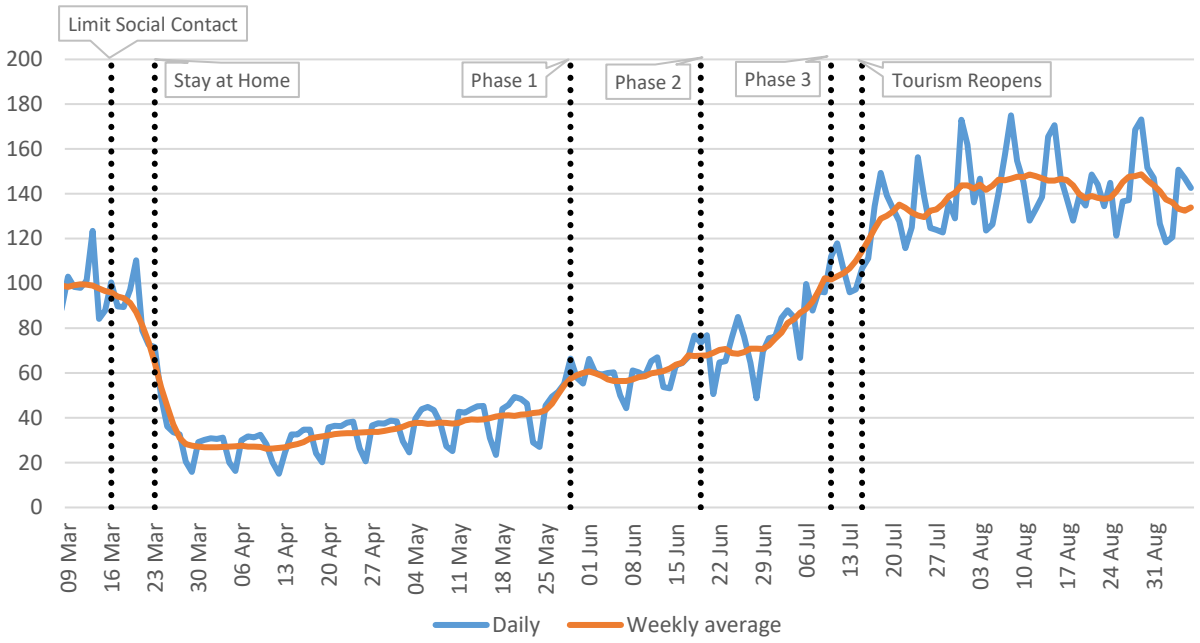

Figure 15 Tourist route car traffic (average in week beginning 2 March = 100)

Car traffic on these routes had already fallen to 72 per cent of its early March level by the time Scotland entered lockdown. It subsequently decreased rapidly to a weekly average of 27 per cent of its early March level by the end of that month. Tourist route traffic rose steadily during the second half of April and May and grew particularly quickly as easing was about to begin.

After averaging around 60 per cent of its early March level for much of phase two of easing, tourist route traffic returned to around the early March level by the start of phase three (in early July). After the tourist industry reopened, the weekly average index peaked at 48 per cent above its early March level in mid-August and again at the end of the month.

Once tourism resumed, travel on these routes clearly peaked each weekend, whereas beforehand the daily index dipped each Sunday. This suggests these roads are used more for tourism and local leisure activities than for commuting during the summer months.

Figure 16 indexes traffic since 23 June against the equivalent day in 2019. This coincides with the period in which travel on these routes increased significantly in actual terms. At the end of June, car traffic on these tourist routes was at around half of its 2019 level and at its first peak in mid-August it was at 97 per cent of the 2019 level, suggesting that tourist traffic was approaching normal levels. As it reached a second peak later in the month, 2020 traffic on tourist routes was still rising relative to 2019. This may suggest a slight extension of the tourist season after a later than usual start, but it could also reflect better weather than in the equivalent week in 2019.

Figure 16 also shows how traffic on tourist roads has recovered compared to traffic on the busier roads used to compute the trunk road car traffic index also shown in

Figure 14. Before tourist businesses reopened, the tourist route index consistently lagged the equivalent trunk roads index, but after tourist businesses reopened the two indices became very similar for the next three weeks. Tourist roads were more popular relative to the previous year than trunk roads during most of August.

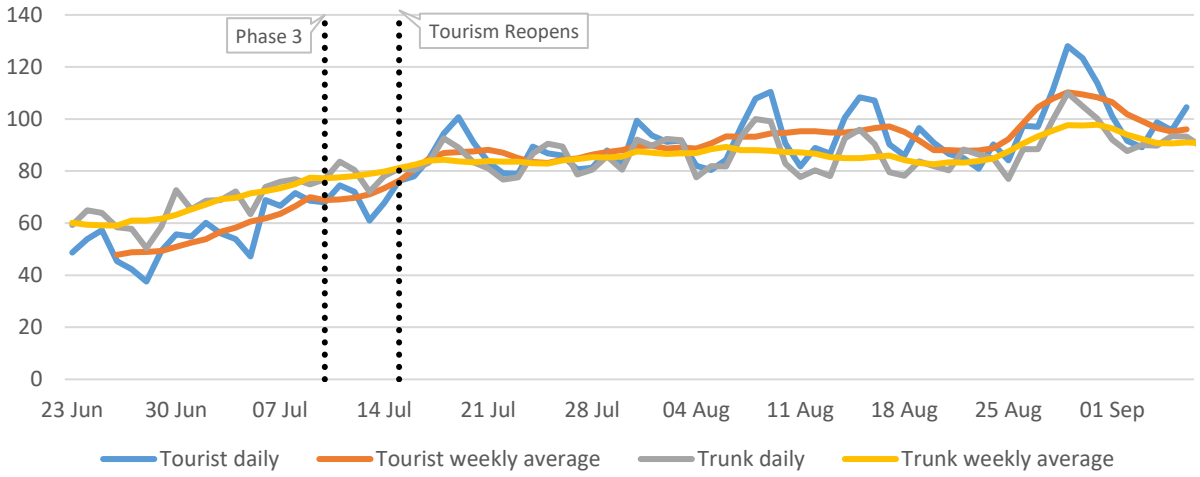

Figure 16 Tourist route car traffic (equivalent day in 2019 = 100)

6: Changes in peak travel times

Data from a subset of the traffic counters used above has been analysed to assess changes in the distribution of road traffic across the day. These changes are shown in figures 17, 18 and 19 for weekdays and figure 20 for weekend days.

These charts cover daily averages taken from five periods: 2 – 15 March (pre-lockdown), 30 March – 12 April (lockdown), 1 – 7 June (phase one of easing), 13 – 26 July (phase three of easing) and 24 August – 6 September (after schools had reopened).

Figure 17 shows that pre-lockdown there was a distinctive commuting pattern with peaks between 7 am and 9 am and between 4 pm and 6 pm. Although weekday car traffic returned to close to its pre-lockdown level by the end of August, the morning peak has become much less marked. Car traffic has instead become heavier between 10 am and 3 pm and slightly lighter during the evening peak than before the lockdown.

It appears likely that reductions in peak travel are driven by the increased propensity to work from home since lockdown began. Higher traffic during the middle of the day may reflect those working from home taking advantage of greater flexibility to undertake trips during a workday no longer bookended by commuting, furloughed staff being able to travel during the middle of the day and also seasonal effects with the weather affecting the attractiveness of leisure activities.

Although it is difficult to isolate the effect of the return to school on the morning and evening peaks, this data tentatively suggests school travel is likely to have had a relatively minor impact on them.

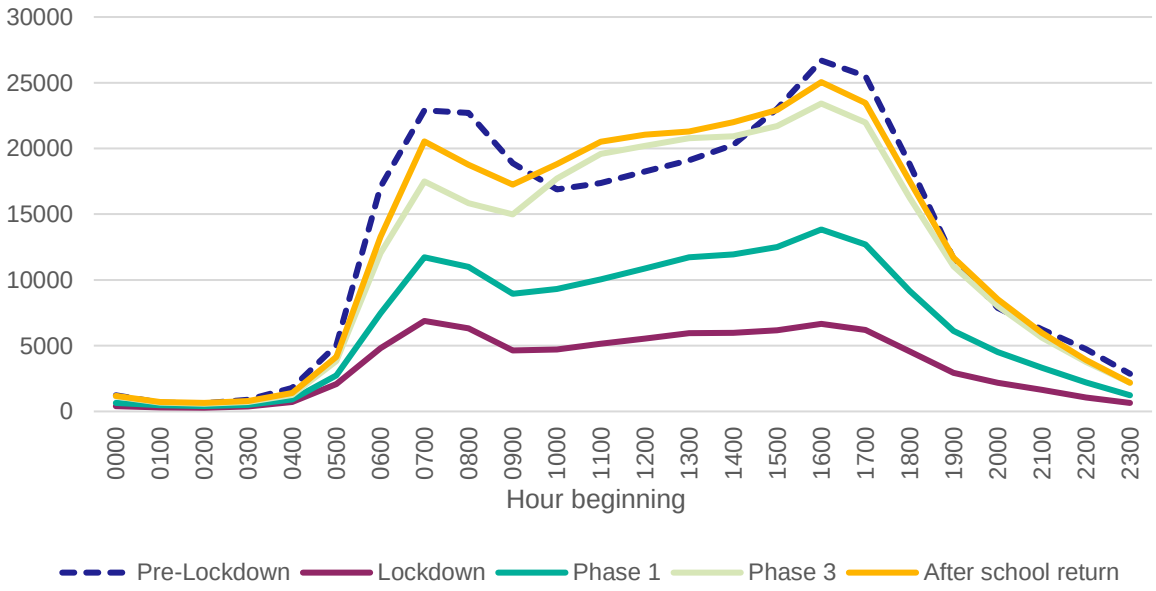

Figure 17 Average number of cars passing selected counters on weekdays

Figure 18 shows very little difference in the 24 hour distribution of weekday HGV traffic between the pre-lockdown period and once HGV traffic had returned to normal

levels after lockdown. It is possible that HGV traffic was higher during the morning peak in late July and August than pre-lockdown because the post-lockdown flattening of the morning peak among car drivers meant that HGV drivers had less reason to avoid congestion by not travelling then.

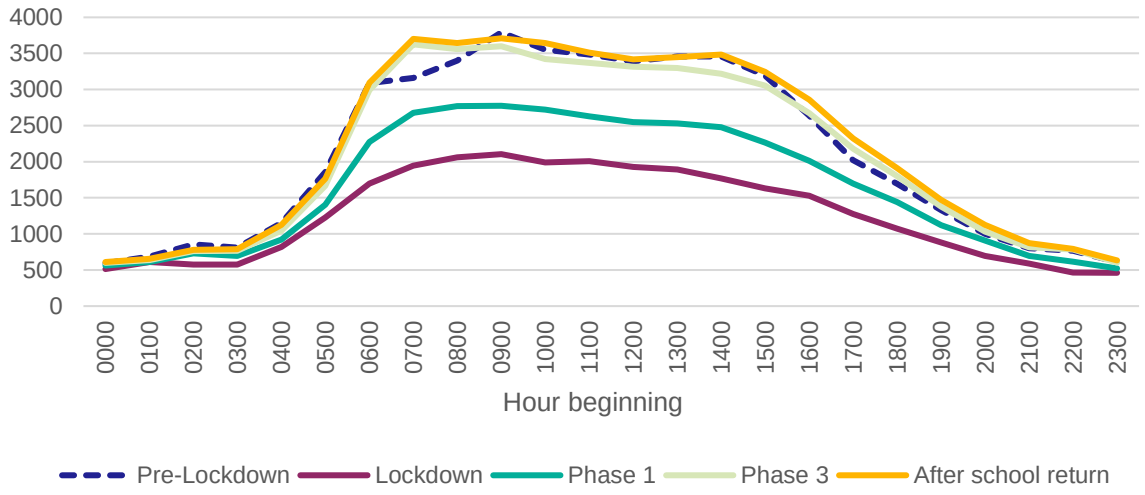

Figure 18 Average number of HGVs passing selected counters on weekdays

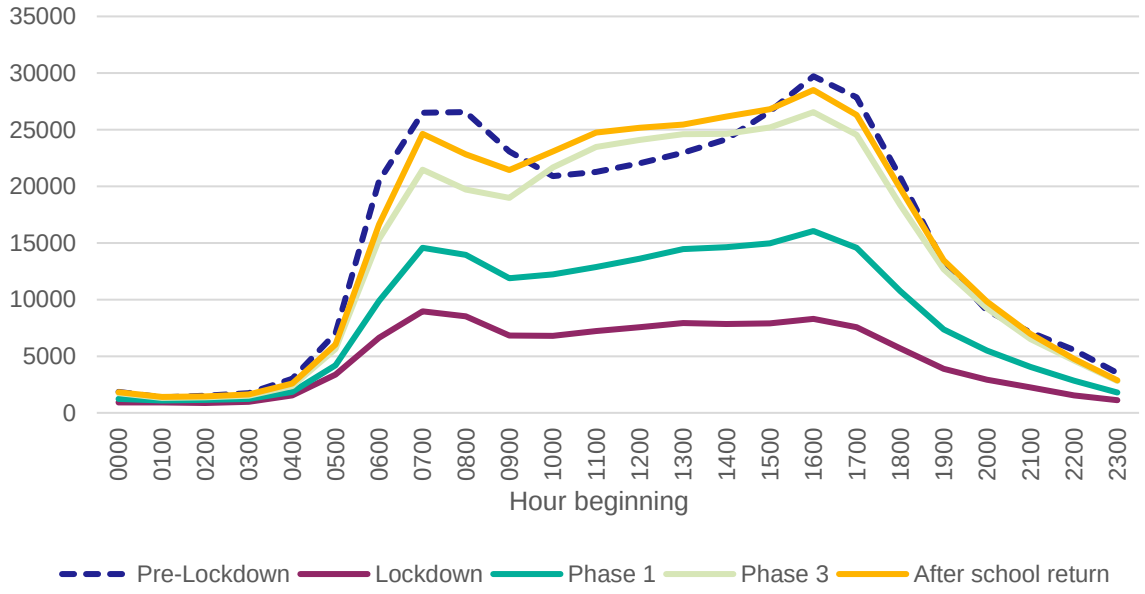

Figure 19 Average number of vehicles passing selected counters on weekdays

Figure 19 which covers all vehicles on weekdays looks very similar to figure 17 since car travel forms the vast majority of daytime traffic. Again there is a distinctive pre-lockdown peak which does not fully recover, but traffic numbers in the middle of the day rise above the pre-lockdown level by the end of August. However, it starkly

contrasts with figure 20 which shows that there is only one peak on weekend days and that the shape of this distribution has changed very little. The increase in weekend traffic since the pre-lockdown period is probably largely a seasonal effect.

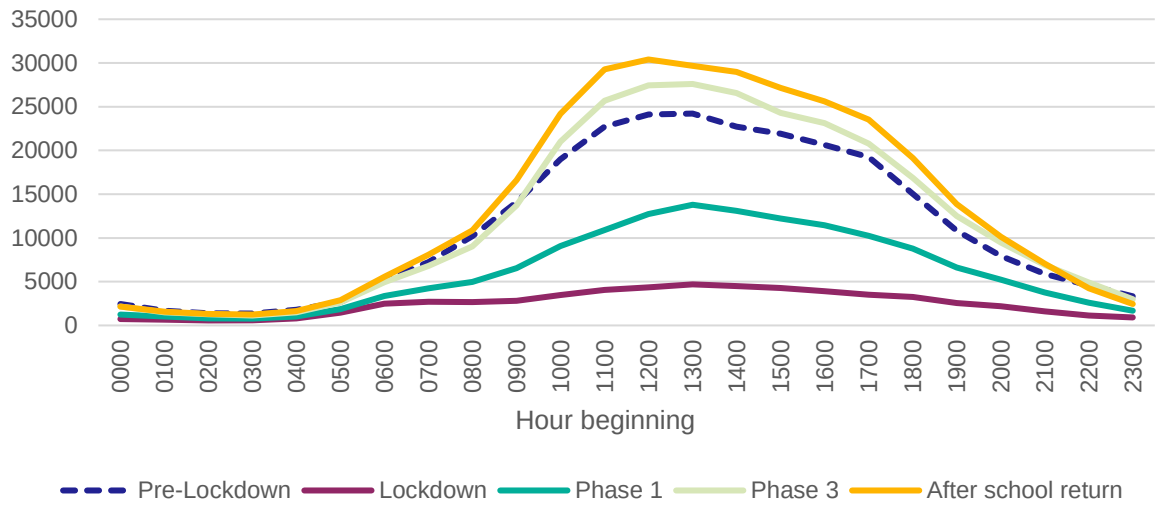

Figure 20 Average number of vehicles passing selected counters on weekend days

7: Sub-national trends

Glasgow Subway

Figure 21 shows Glasgow subway patronage indexed to the equivalent day in 2019. The number of people travelling on the subway followed a similar pattern to bus and rail passenger numbers early in the pandemic with patronage below 20 per cent of its 2019 level by the time strict measures came into force in late March, and weekly average patronage briefly falling below 3 per cent in April.[2] Patronage rose slowly during the first phase of easing and more rapidly in phase two. Subway patronage entered phase three of easing at 18 per cent of its 2019 level. This rose to 38 per cent by the end of the six month period.

Edinburgh Trams

Figure 21 also shows Edinburgh tram patronage indexed to the equivalent week in 2019. Edinburgh tram patronage followed a similar trajectory to Glasgow subway patronage until the easing of restrictions began. It subsequently recovered significantly more slowly, rising to 27 per cent of its 2019 level by late August. Possible explanations for this difference include a higher proportion of Edinburgh commuters working in occupations allowing working from home, and Edinburgh's greater reliance on international tourism coupled with the cancellation of its summer festival season.

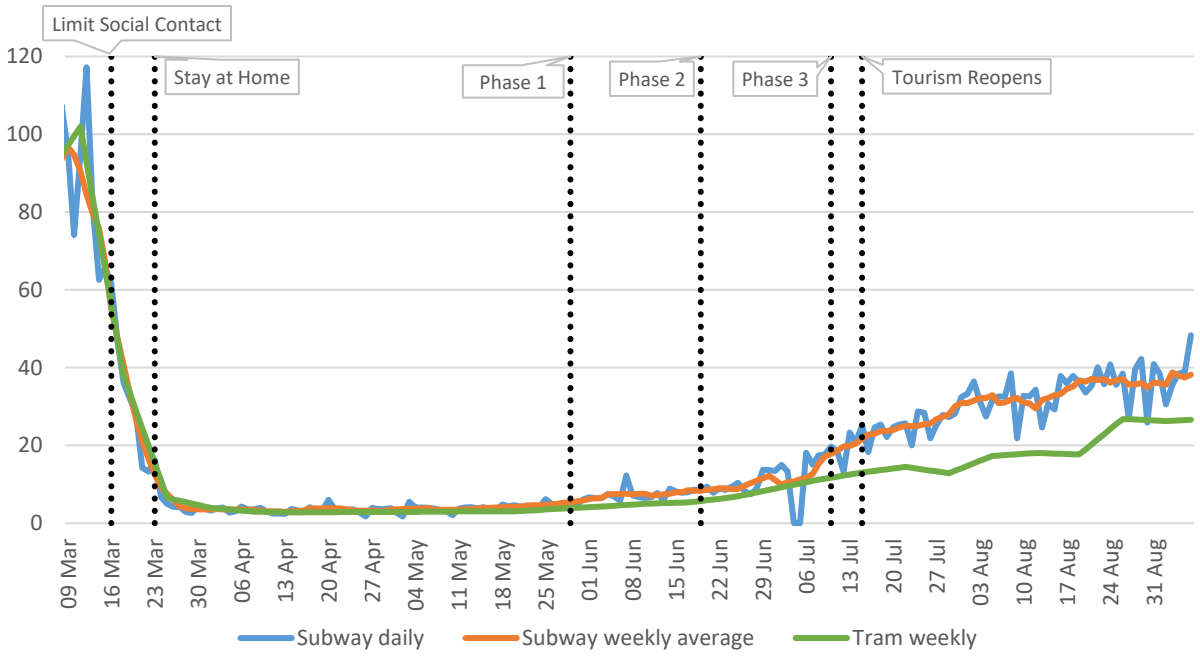

Figure 21 Glasgow Subway and Edinburgh Tram patronage (2019 equivalent = 100)

[2] The daily index also fell to 0 on 4 and 5 July because the subway was closed for essential network maintenance operations.

Cross border road traffic

The indices in figure 22 show how often cars and HGVs passed a small selection of traffic counters near the most frequently used road crossings on the border with England. Weekly averages are used to smooth the daily lines on this chart because daily freight trends are particularly affected by bank holidays falling at different times. In addition to those at Easter and VE Day replacing May Day, border traffic was affected by the English bank holiday at the end of August falling a week later than in 2019.

The trends in figure 22 are very similar to those for trunk road traffic in figure 14, with a steeper decline during lockdown for car travel than for HGV travel. Cross border car traffic was slightly more affected by lockdown than trunk road traffic across Scotland as a whole. The weekly number of cars fell to a low of 14 per cent of equivalent 2019 levels on 13 April, whereas the weekly HGV index hit a low of 52 per cent a day earlier. Cross border HGV traffic levels were similar to HGV traffic levels across Scotland at this point.

Both car and HGV cross border indices rose considerably before easing began and climbed steadily through the first three phases of easing before returning to their 2019 levels. Although weekly fluctuations in the cross border data have generally reflected those in wider road traffic data, the extreme weekly fluctuations in wider road freight have not been replicated to the same degree in the cross border data.

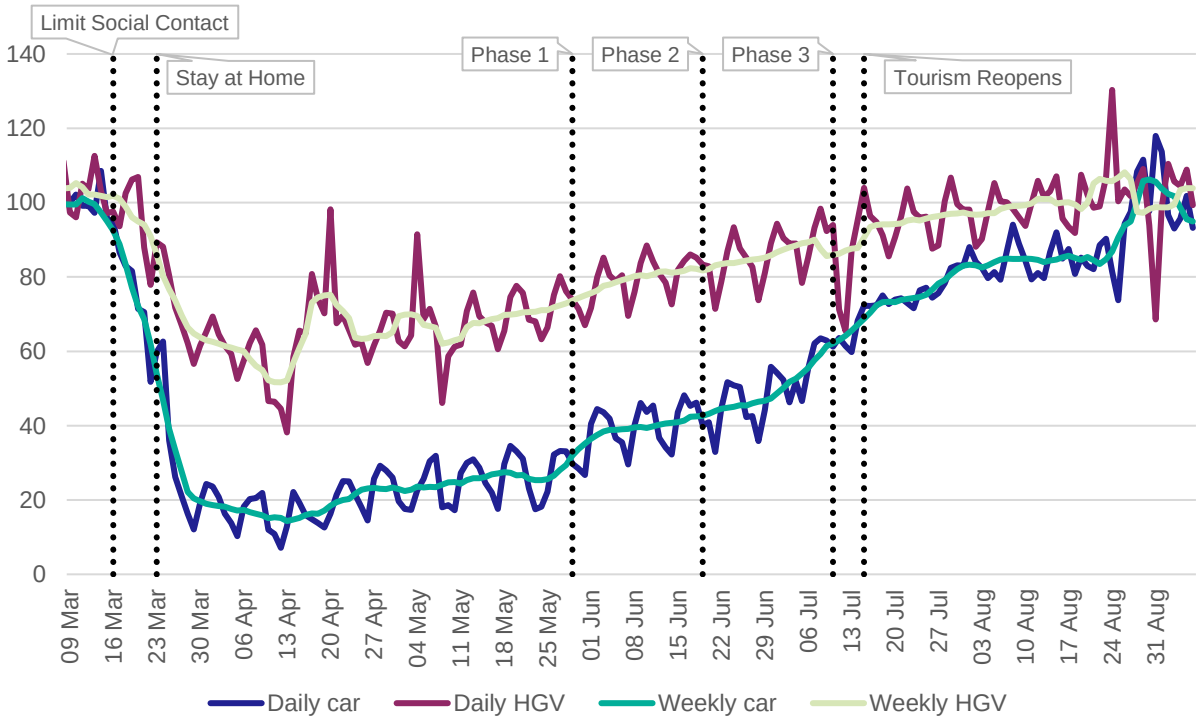

Figure 22 Cross border road traffic indices (2019 equivalent =100)

Mobility

This subsection is based on data collected by Google which monitors the movements of mobile phone users at certain locations. Aggregate movements are indexed by Google to the median of equivalent days between 3 January and 6 February this year.

Local authority level data has been aggregated into five regional areas based loosely on the domains of regional transport partnerships.[3] There are some gaps in the data where Google has not reported for a constituent local authority, so some lines in figures 23, 24 and 25 are discontinuous. Data for the three island local authorities is too sparse to allow for their inclusion.

In figure 23, the regional workplace mobility indices exhibit a consistent pattern of peaking each weekend, presumably because a higher proportion of those working at the weekend are key workers and a lower proportion of those who normally work at the weekend are able to work from home.

This difference became more marked after tourism reopened which unsurprisingly appears to have had a particularly strong impact on the Highlands workplace mobility index. Despite low regional variation, the Strathclyde and Highlands workplace mobility indices are consistently higher than their North-East and South-East counterparts on weekdays perhaps due to lesser scope for working from home.

Weekday workplace mobility across Scotland fell to around 30 per cent of its pre-lockdown level early in the lockdown before gradually rising to around 60 per cent in August. In contrast, weekend workplace activity fell to a low of above 40 per cent and had returned to around 90 per cent of its pre-lockdown level by August.

[3] Strathclyde covers the SPT travel area excluding Helensburgh and Lomond and also includes Dumfries and Galloway. South-East comprises the SESTran local authority areas, North-East comprises Aberdeen and Aberdeenshire, and Tayside and Central comprises Angus, Perth and Kinross, Dundee and Stirling. Highlands covers Argyll and Bute, Highland and Moray, but excludes Na h-Eileanan Siar, Orkney and Shetland.

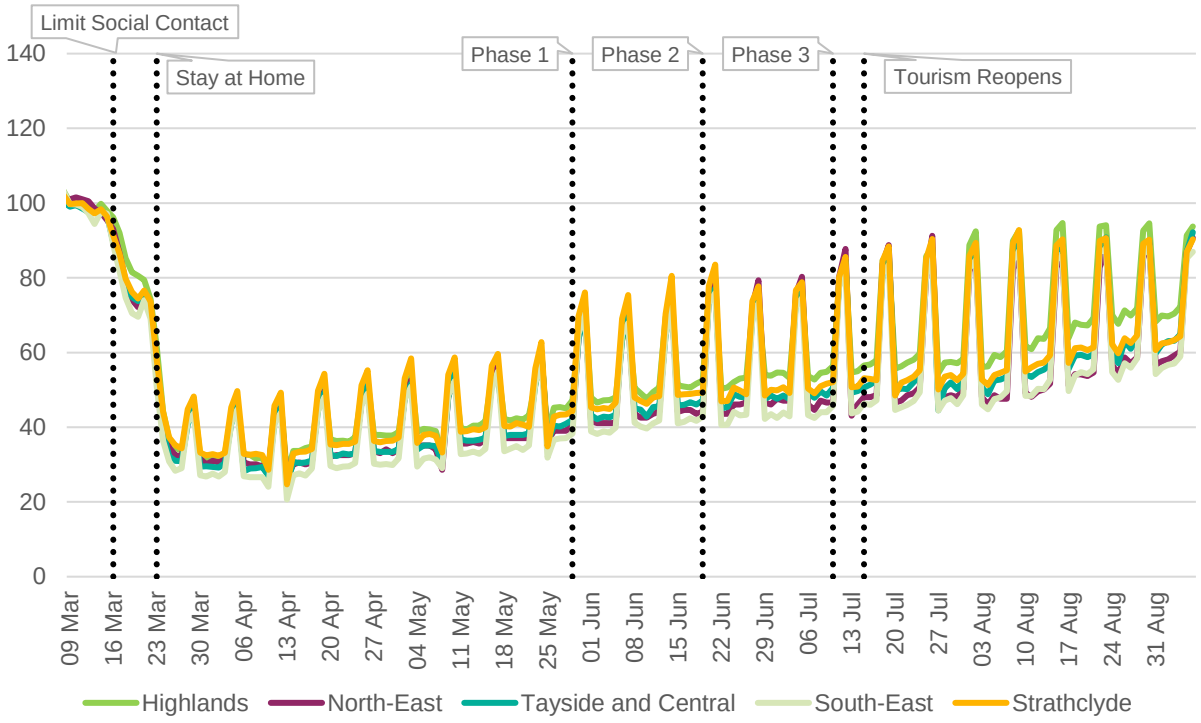

Figure 23 Workplace movements (Median of equivalent days between 3 Jan and 6 Feb = 100)

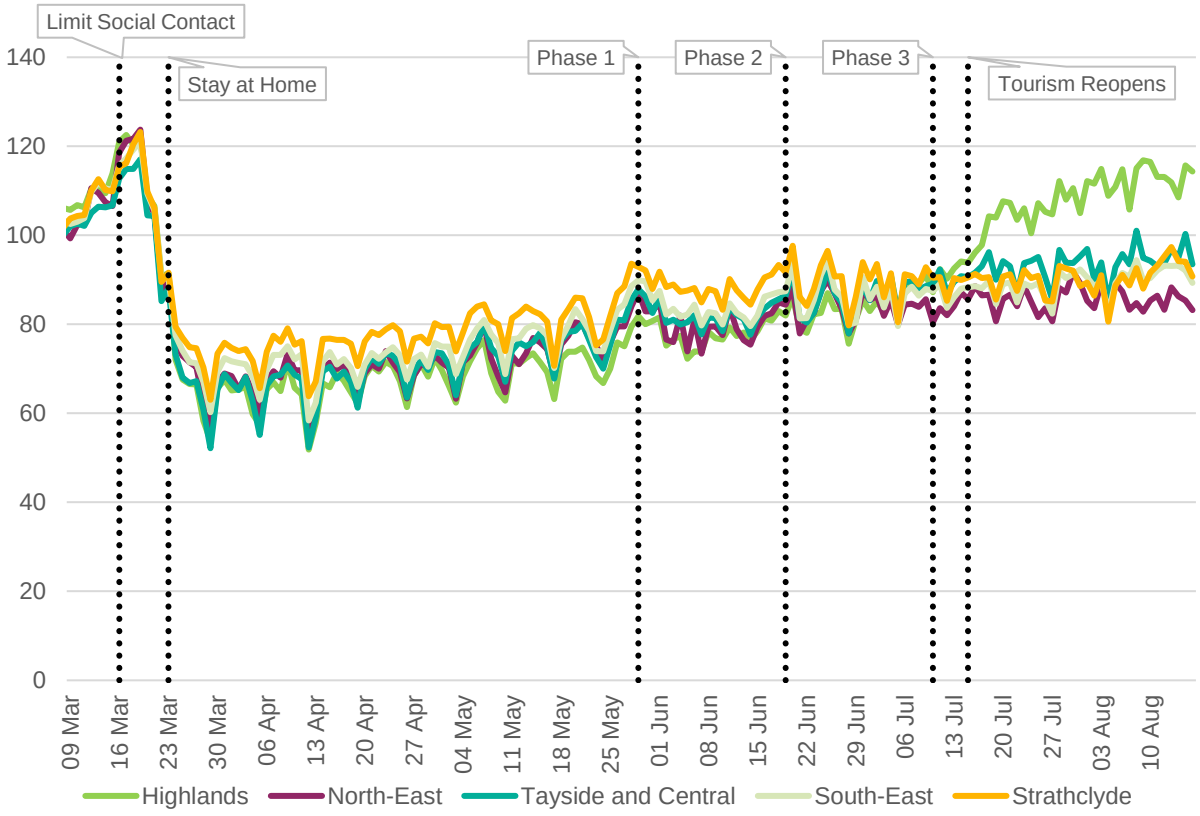

Figure 24 Grocery and pharmacy movements (Median of equivalent day 3 Jan - 6 Feb = 100)

Data for grocery and pharmacy, and retail and recreation mobility shown in figures 24 and 25 only cover the period to 16 August because Google released no data for the period from 17 August to 8 September pending the introduction of a change in their methodology.

Figure 24 shows that grocery and pharmacy mobility fell to around 70 per cent of its pre-lockdown level across Scotland on weekdays early in the lockdown period and around 60 per cent on Sundays. Presumably with fewer people at work and queues to enter supermarkets, shopping became spread more evenly across the week than was the case previously. This followed an initial flurry of activity as shoppers stockpiled before lockdown, driving the regional grocery and pharmacy mobility indices to around 120 per cent of their winter baseline levels.

Grocery mobility rose steadily until settling at between 85 and 90 per cent of its pre-lockdown level during phase three of easing. There was little regional variation in grocery mobility until tourism reopened, although Strathclyde consistently saw the highest level of activity before then. After tourist businesses reopened, the mobility figure for the Highlands rose to well above its pre-lockdown level, presumably indicating a temporarily higher population shopping for groceries during the tourist season. The Tayside and Central region appears to have experienced a much more modest increase in shopping mobility for the same reason.

With non-essential retail closed during lockdown and mobility for recreation limited to daily exercise, the regional retail and recreation mobility indices, which include mobility within restaurants, cafes, shopping centres, theme parks, museums, libraries and cinemas, fell even lower than the workplace mobility indices during the lockdown as shown in figure 25. Across Scotland, the indices fell to around 20 per cent of baseline levels during early lockdown weekends and below 30 per cent on weekdays. The incomplete data for Strathclyde appears to indicate retail and recreation mobility was higher relative to the pre-lockdown period than in the other regions at this stage.

The regional retail and recreation indices continued to show weekly lows at weekends as the lockdown was eased and tourism reopened, perhaps reflecting some continuing limitations on leisure activities and wariness of unnecessary social interaction affecting recreational choices.

By the beginning of phase three the regional retail and recreation indices were generally above 60 per cent of their winter baseline levels on weekdays. After the reopening of tourism, the regional indices diverged with the Highlands index eventually exceeding its pre-lockdown level while the North-East was affected by the Aberdeen local lockdown in August. The latter also appears to have negatively affected the North-East grocery and pharmacy regional index.

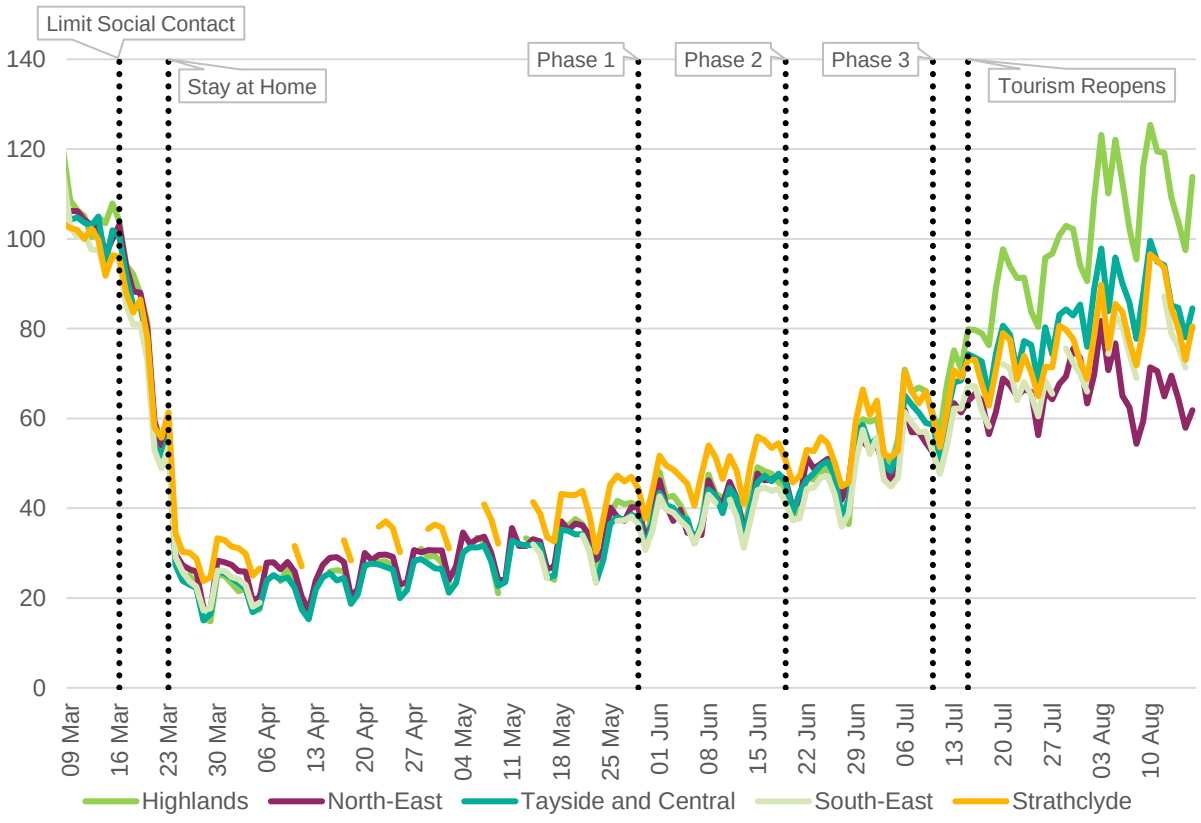

Figure 25 Retail and recreation movements (Median of equivalent day 3 Jan - 6 Feb = 100)

8: Key events

Aberdeen local restrictions

Additional restrictions came into force in Aberdeen on 5 August. These included a number of restrictions which affected travel both within the city and to and from it. People in Aberdeen were asked not to meet other households indoors or travel more than five miles for leisure or recreational purposes. These travel restrictions remained in place until 24 August, while the city's hospitality sector did not reopen until 26 August.

Figure 26 compares changes in road traffic levels and in both rail and concessionary bus travel patronage in the Aberdeen area. It also plots changes in Scotland as a whole over the period affected by the local restrictions.

All the data in figure 26 is indexed to the daily average from the working week starting 27 July. This means weekend lows are experienced for all modes.

Road traffic levels in Aberdeen were estimated using a selection of traffic counters within and in close proximity to Aberdeen. The resulting Aberdeen road traffic index stayed below the Scotland road traffic index for the duration of the local restrictions, averaging 18 per cent lower than the national index, but immediately recovered to track the national index very closely once travel restrictions were lifted.

The Aberdeen rail patronage index was based on journeys where the origin or final destination was Aberdeen. The Aberdeen rail patronage index was affected by the tragic derailment near Stonehaven on 12 August, but it was an average of 54 per cent lower than the national rail patronage index prior to the resulting line closure, suggesting the travel restrictions had a greater impact on rail travel than road travel.

After the line closure, the Aberdeen rail patronage index was an average of 57 per cent lower than the national index before local travel restrictions were lifted and 32 per cent lower for the remainder of the period to 5 September. Much of the latter shortfall is presumably explained by the loss of a direct rail link to the Central Belt (a replacement bus service to Dundee was available allowing for onward travel).

Concessionary bus travel data for Aberdeen and Aberdeenshire (where many services run to or from Aberdeen) was used to allow a comparison with concessionary bus use in Scotland as a whole. The Aberdeen concessionary bus index was lower than its national equivalent for the duration of the local restrictions and remained below it for the rest of the period covered by this report. It was an average of 31 per cent lower than the national index during the local restrictions and 16 per cent lower than the national index in the following fortnight, suggesting wariness of COVID-19 transmission among elderly bus users remained elevated after the restrictions were lifted.

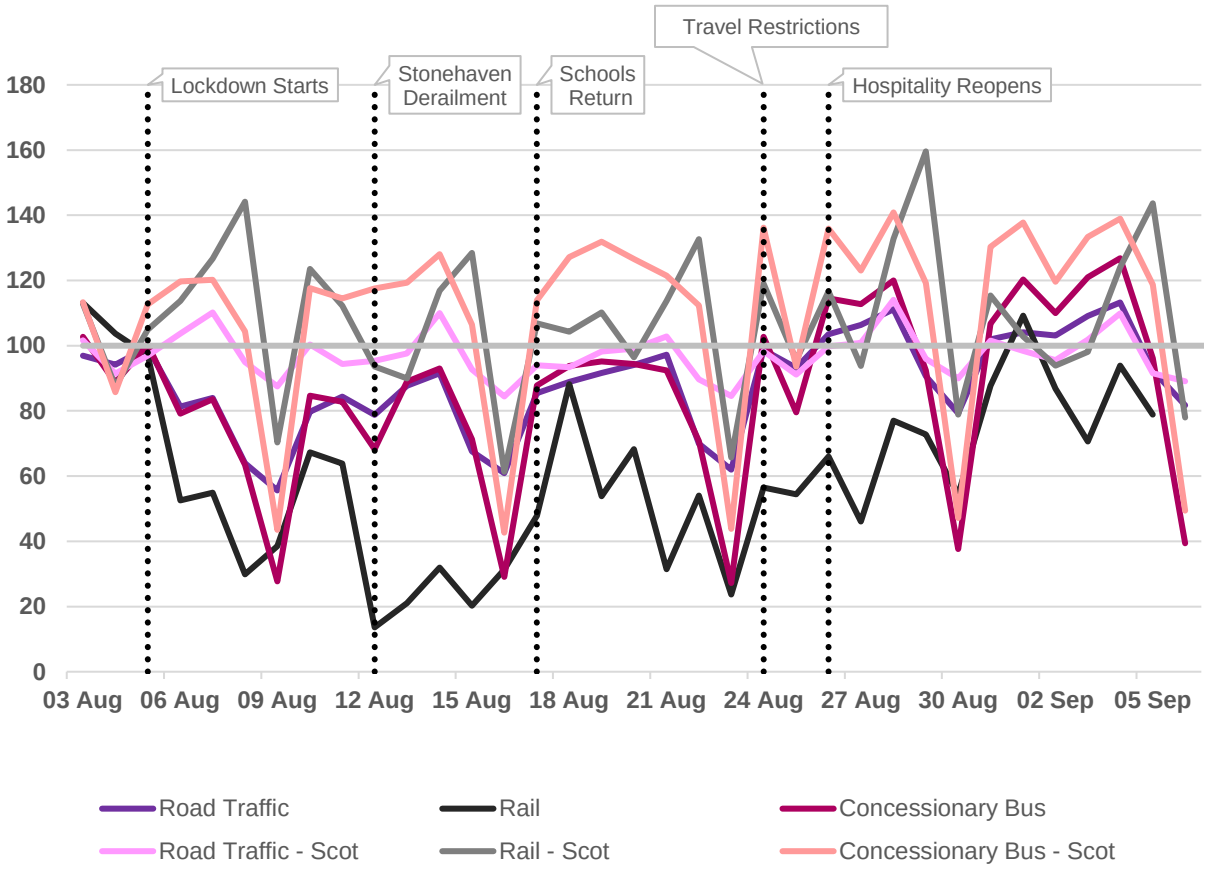

Figure 26 Aberdeen restrictions (27-31 Jul average =100)

Return to school

Attempts have been made to isolate the impact of the nationwide reopening of schools in August on transport use through close examination of the data behind the trends discussed earlier in this report. This effort was complicated by multiple issues: schools did not all reopen at the same time and had not all returned at the same time in 2019; schools adopted a variety of protocols in order to safely reopen, which included phased returns by year group or phased pick-up and drop-off times; and the return to school coincided with a period in which non-school related transport use patterns were also changing as people increasingly embraced the opportunities provided by the third phase of easing of COVID-19 restrictions. Insufficient data granularity makes isolating changes in school travel from these wider changes very challenging.

These issues make it impossible to draw firm conclusions about the changing nature of school travel. There was no apparent change in the school travel share of rail compared to a year earlier. There appears to have been a small shift from bus travel to private car use for school attendance, particularly in rural areas where alternatives are more scarce, but even this modest conclusion should be treated as tentative.

9: Public attitudes survey

Transport Scotland commissioned a survey to monitor changes in public attitudes to transport use due to the COVID-19 pandemic. Seven waves of this survey were run during the period covered by the trends data presented above, with the first wave in early May.

Comparison of survey results with the pre-pandemic 2019 Scottish Household Survey suggests some modal shift from public transport to car for many journey types during the pandemic. Evidently this shift has been somewhat outweighed by the reduction in the number of trips taken across all modes since that survey was taken, so roads have not become more congested than in 2019.

The public attitudes survey also corroborates findings of increased road traffic since the lockdown. The proportion of respondents saying they were travelling less by car than prior to the lockdown fell from 62 per cent in late May to 32 per cent in late August.

The survey appears to contradict the trends data finding of reduced walking. In late August, 38 per cent of respondents said they were walking or wheeling more than before the lockdown while only 10 per cent said they were walking or wheeling less.

This apparent discrepancy could be due to respondents comparing their summer walking activity with their walking during the immediate pre-lockdown period in the winter months, whereas the trends data compares pandemic walking levels with the previous June when walking was more popular. It is also possible that survey respondents are less likely to take into account walking which they previously did in the course of wider travel including walking to access public transport, but are more likely to recall walking for recreational purposes which appears to have grown in popularity during the lockdown period.

Another possibility is that the counters used to estimate walking activity for the trends data presented above are biased towards commuter and other city walking and therefore have failed to sufficiently capture a significant increase in recreational walking in rural and residential areas.

The survey shows the decline and subsequent muted growth in public transport use has been informed by concerns related to COVID-19. Figure 27 shows 81 per cent of respondents were fairly or very concerned about virus transmission on trains and 75 per cent on buses in early May, falling in both cases to 61 per cent in late July.

In contrast, only 41 per cent of respondents indicated a similar level of concern regarding the risk of transmission while walking or wheeling and 27 per cent while travelling by private car or van in early May. These statistics fell to 17 per cent and 12 per cent respectively in late July.

Figure 28 shows that concern about being able to maintain physical distancing of at least a metre is much higher for public transport than it is for travelling in private vehicles, walking or wheeling. Concern about physical distancing peaked at 84 per cent of respondents for train travel and 78 per cent of respondents for bus travel in late May.

The level of concern about physical distancing was lower for each mode in late August than it had been in May, but still relatively high at 70 per cent for rail travel and 59 per cent for bus travel. This presumably provides the key explanation for the disparity between public transport and private modes shown in figure 27.

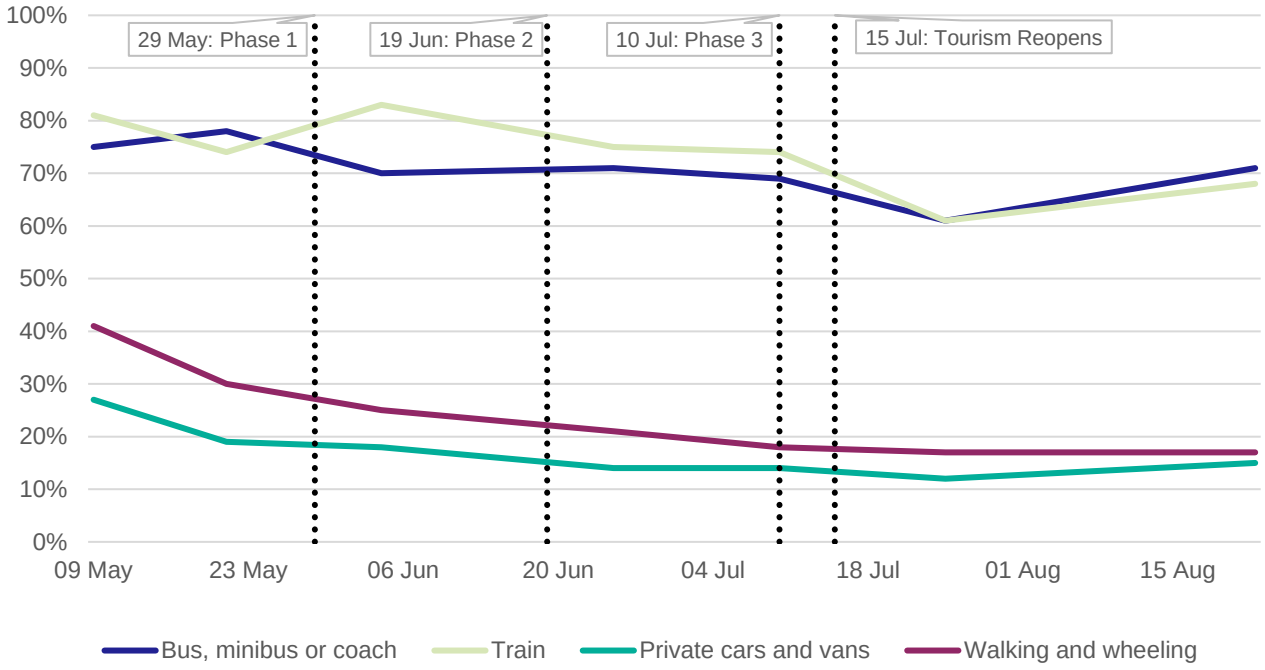

Figure 27 Respondents very or fairly concerned about COVID-19 transmission by mode

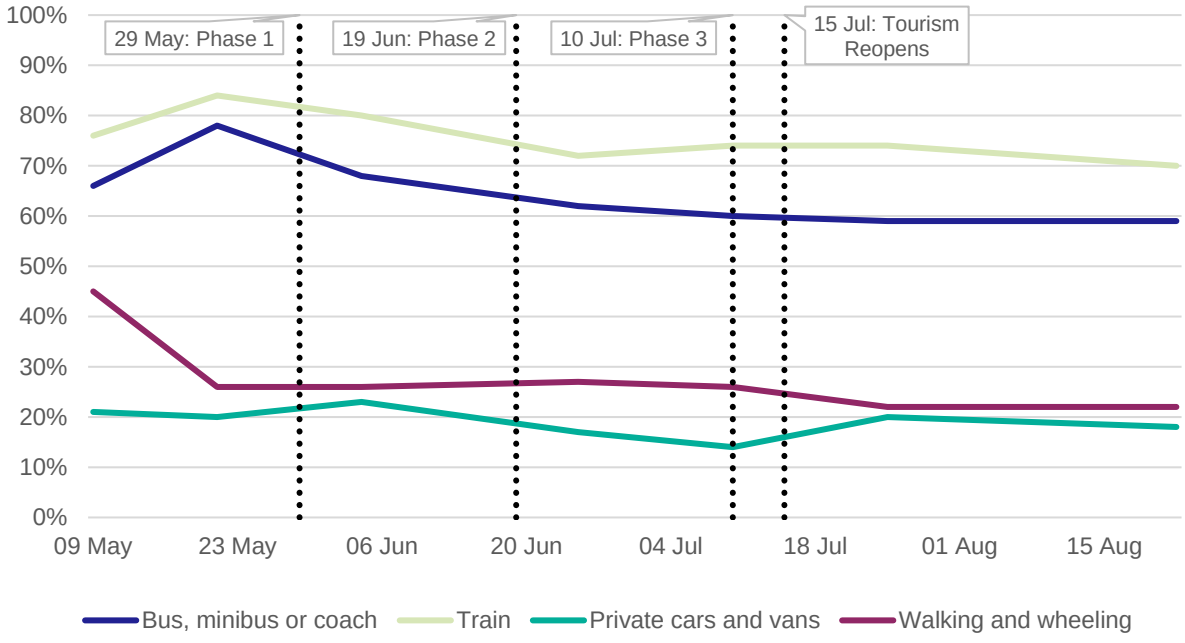

Figure 28 Respondents very or fairly concerned about physical distancing by mode

Annex A: Timeline of public messages and government measures

(Scotland only except where stated)

- 16 March – No gatherings of over 500 people
- 16 March – Work from home where possible guidance (PM statement)
- 16 March – Social distancing advice including on essential travel (UK)
- 20 March – All pubs, bars and restaurants closed
- 22 March – Advice on shielding for those with serious health conditions (UK)
- 22 March – Further advice on essential travel
- 23 March – Travel restricted to essential work, shopping for food and medicine, caring for others and limited exercise
- 23 April – COVID-19 framework for decision making published
- 11 May – Outdoor exercise multiple times daily no longer discouraged
- 21 May – Scotland's route map published
- 26 May – Transport Transition Plan published
- 29 May – Scotland entered phase one of lockdown easing
- 19 June – Scotland entered phase two of lockdown easing
- 19 June – Households with one adult allowed to form extended household group with one other one adult household
- 22 June – Face coverings became mandatory on public transport
- 29 June – Some non-essential shops allowed to reopen
- 3 July – Guidance on not travelling more than five miles for leisure purposes dropped
- 10 July – Scotland entered phase three of lockdown easing
- 10 July – Up to five households (max 15 people) allowed to meet outdoors
- 13 July – Non-essential shops within shopping centres allowed to reopen
- 15 July – Tourism sector allowed to reopen
- 15 July – Pubs, bars and restaurants allowed to reopen
- 15 July – Childcare venues, hairdressers, places of worship, museums, galleries and libraries allowed to reopen
- 5-24 August – Travel restrictions in Aberdeen
- from 11 August – Schools reopened
- 1 September – Additional restrictions in Glasgow, East Renfrewshire and West Dunbartonshire

Annex B: Data sources and baselines used

Active travel

Sources – Local authorities (Argyll & Bute, East Dunbartonshire, Edinburgh, Glasgow, North Ayrshire, Perth & Kinross and Stirling) and Cycling Scotland.

Automatic counters record pedestrians and cyclist numbers passing fixed locations across Scotland.

Baseline: 3 – 30 June 2019 average = 100

Commercial bus

Source – Ticketer

National bus ticket sales for operators using Ticketer machines. This includes most major operators, but not Stagecoach or Lothian Buses.

Baseline: Equivalent day in week ending 2 March = 100

Concessionary bus

Source – Fareshare

Fareshare is the system used to reimburse concessionary bus journeys.

Baseline: Equivalent day in 2019 = 100

Rail

Source – ScotRail

Only covers ScotRail passengers. Cross border services run by other operators are excluded.

Patronage baseline: Equivalent day in 2019 = 100

Service level baseline: Pre-pandemic timetable level = 100

Ferry

Sources – CalMac and Serco Northlink

Passenger and vehicle data is only available on a weekly basis. Ferry services run by other operators are excluded.

Patronage baselines: Equivalent week in 2019 = 100

Air

Source – Eurocontrol

Scottish Area Control flight data covers flights arriving in, leaving from or passing through the space monitored by Scottish Area Control. This covers maritime areas and part of Northern England as well as Scotland.

Baseline: Equivalent day in 2019 = 100

Road

Source – National Traffic Data System (NTDS)

Automatic traffic counters measure the number of vehicle movements and are able to discriminate between vehicle types. Counters close to the English border are used to monitor cross border traffic levels. Counters near popular rural tourist locations are used to monitor traffic on routes suspected to be heavily influenced by tourism.

Baseline: Equivalent day in 2019 = 100

(2 – 8 March 2020 = 100 is also used for tourist routes.)

Glasgow Subway

Source – Strathclyde Partnership for Transport

Baseline: Equivalent day in 2019 = 100

Edinburgh Trams

Source – Edinburgh Trams Ltd.

Baseline: Equivalent week in 2019 = 100

Mobility

Source – Google COVID-19 Community Mobility Reports

Baseline: Median of equivalent days from 3 January 2020 to 6 February 2020 = 100

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