

NESTRANS

ELLON TRAFFIC SURVEYS

TRAFFIC SURVEY REPORT

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1. INTRODUCTION

1.1 Background

- 1.1.1 SYSTRA Ltd (SYSTRA) was commissioned by Nestrans in August 2021 to undertake analysis of traffic surveys at locations on the edge of Ellon.
- 1.1.2 The surveys are being undertaken to monitor traffic flows around the town and on the main A90 corridor following the Covid-19 outbreak and associated lockdowns and ongoing restrictions.
- 1.1.3 The surveys were undertaken in May 2021 and have been compared against surveys undertaken before the pandemic in October 2019 and February 2020.

2. TRAFFIC SURVEYS

2.1 Junction Turn Count and Queue Length Surveys

- 2.1.1 Junction turn count and queue length monitoring surveys were undertaken at three locations on the A90 corridor between 07:00 and 19:00 on Tuesday 25th May 2021.
- 2.1.2 The surveyed locations were as follows:
- Site 1 A90/B9005
 - Site 2 A90/A948/Lintmill Brae
 - Site 3 A90/Toll of Birness
- 2.1.3 Figure 2.1 below shows the locations of the traffic surveys.



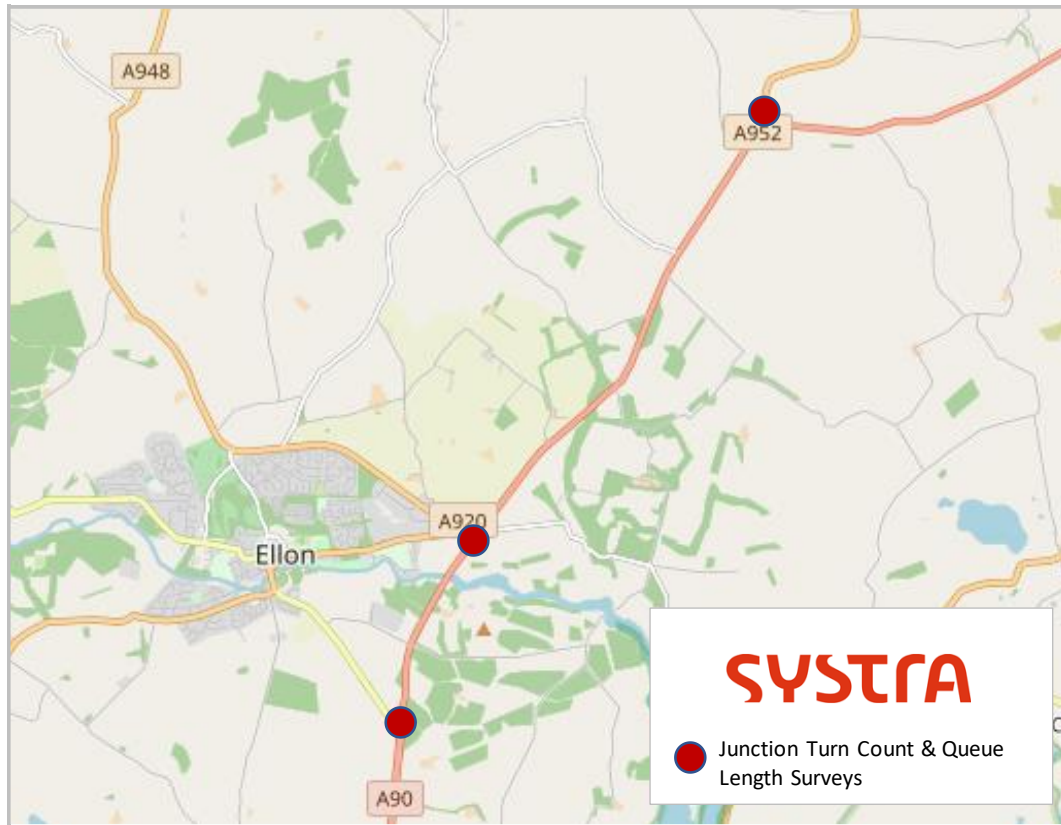


Figure 2.1 : A90 Ellon Junction Turn Count & Queue Length Survey Locations

2.1.4 The results of the traffic surveys were aggregated into three time periods as follows:

- AM Peak Period (07:00-10:00)
- Inter Peak Period (10:00-15:00)
- PM Peak Period (15:00-19:00)

2.2 ATC Surveys

2.2.1 Automatic Traffic Counter (ATC) surveys were undertaken at seven locations between 00:00 and 23:59 on Tuesday 25th May 2021.

2.2.2 The surveyed locations were as follows:

- Site 1 A952 north of Toll of Birness
- Site 2 A90 north of Toll of Birness
- Site 3 A90 south of Toll of Birness, north of A90/A948 roundabout
- Site 4 A90 between A948 roundabout and B9005 roundabout
- Site 5 A948 – west of A90 roundabout
- Site 6 A90 north of Longhaven
- Site 7 B9005 west of A90 roundabout

2.2.3 Figure 2.2 below shows the locations of the traffic surveys.





Figure 2.2 : A90 Ellon ATC Survey Locations



3. SURVEY DATA ANALYSIS

3.1 Changes in Traffic Flows

Comparison with Previous Datasets

3.1.1 The surveyed junction turn counts and queue length surveys were compared to previous datasets collected to inform the development of Aberdeenshire Council’s Ellon Microsimulation Traffic Model.

- October 2019 – Junction Turn Counts (0700 to 1900hrs)
- October 2019/February 2020 – Queue Length Surveys (0700 to 1900hrs)
- October 2019 – Transport Scotland ATC Data (0000 to 2359hrs)

3.1.2 The following sections provide a comparison of the all vehicle turn counts and queue lengths between the May 2021 observed data and historical data for each of the junctions on the A90 corridor.

Site 1 – A90/B9005 Turn Counts

3.1.3 Figure 3.1 to Figure 3.4 below summarise the all vehicle turn counts at the A90/B9005 roundabout in the AM Peak, Inter Peak, PM Peak and 12 hour period respectively.

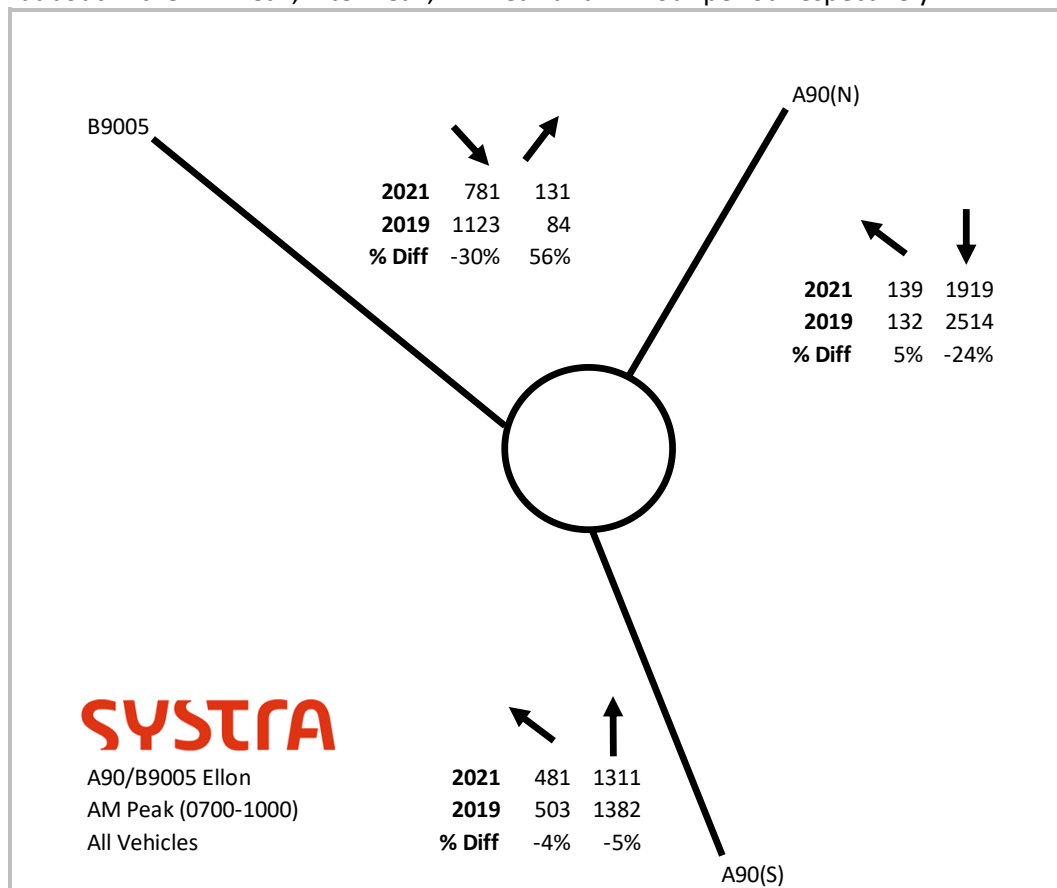


Figure 3.1 : A90/B9005 Turn Counts – AM Peak (07:00-10:00)

3.1.4 Figure 3.1 shows that the A90 flow southbound in the AM peak was around 24% lower in May 2021 when compared against the October 2019 survey. The flow from the north into Ellon is comparable with the previous survey. From the south, both the flow into Ellon and northbound on the A90 are within 5% of the previous survey. Traffic heading out of Ellon on



the B9005 is higher heading north, but around 30% lower heading south towards Aberdeen. Figure 3.2 presents the same information for the inter peak period (10:00-15:00).

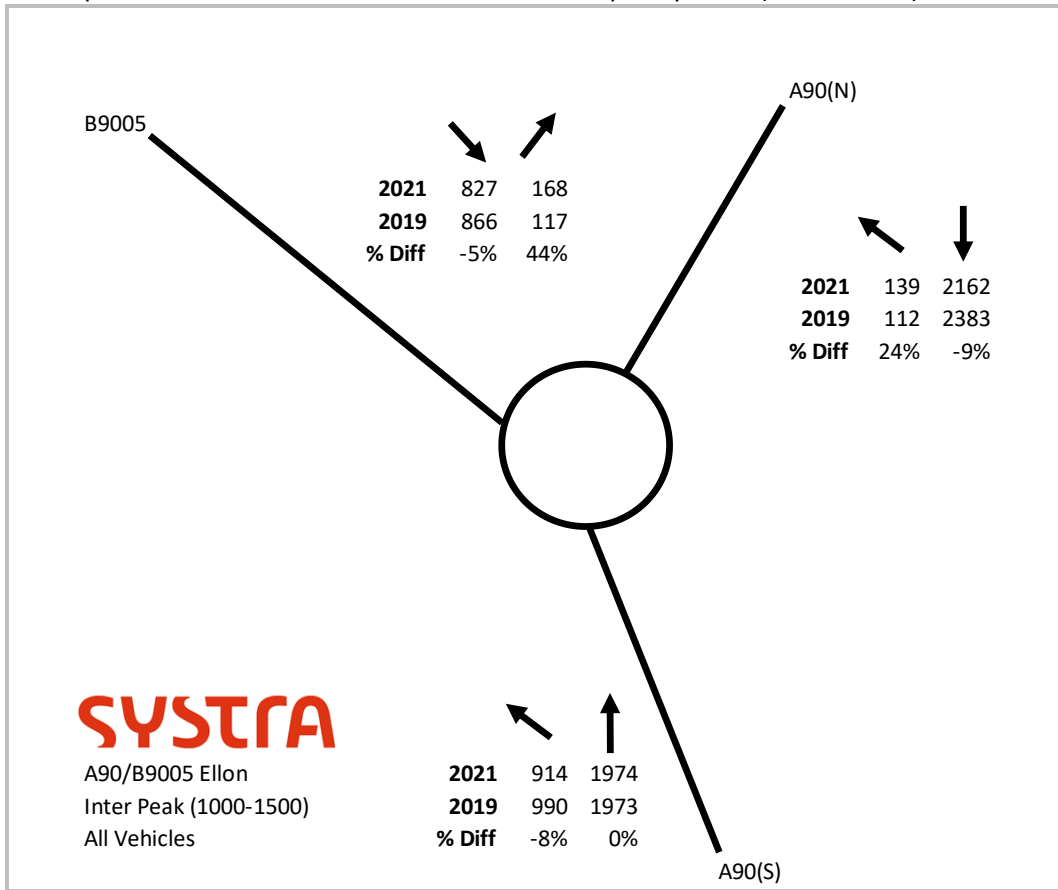


Figure 3.2 : A90/B9005 Turn Counts – Inter Peak (10:00-15:00)

3.1.5 Figure 3.2 shows that the A90 flow southbound in the Inter peak was around 9% lower in May 2021 when compared against the October 2019 survey. The flow from the north into Ellon is slightly higher than the previous survey. From the south, the flow into Ellon is slightly higher, and northbound on the A90 is the same as the previous survey. Traffic heading out of Ellon on the B9005 is around 10 vehicles an hour higher heading north, and within 40 vehicles heading south towards Aberdeen. Figure 3.3 presents the same information for the PM peak period (15:00-19:00).



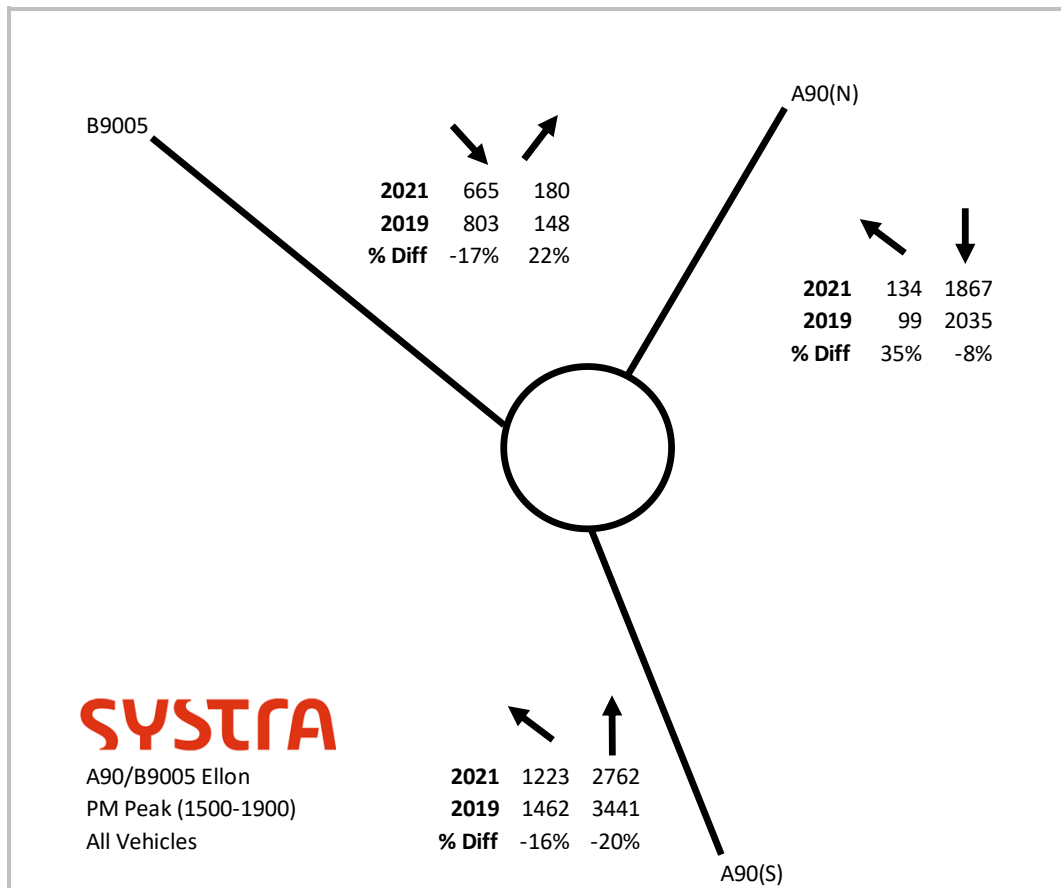


Figure 3.3 : A90/B9005 Turn Counts – PM Peak (15:00-19:00)

3.1.6 Figure 3.3 shows that the A90 flow southbound in the PM peak was around 8% lower in May 2021 when compared against the October 2019 survey. The flow from the north into Ellon is again slightly higher than the previous survey. From the south, the flow into Ellon and northbound on the A90 are around 20% lower than October 2019. Traffic heading out of Ellon on the B9005 is again around 10 vehicles an hour higher heading north (22% over 4 hours), and around 20% lower heading south towards Aberdeen. Figure 3.4 presents the same information for the full period (07:00-19:00).



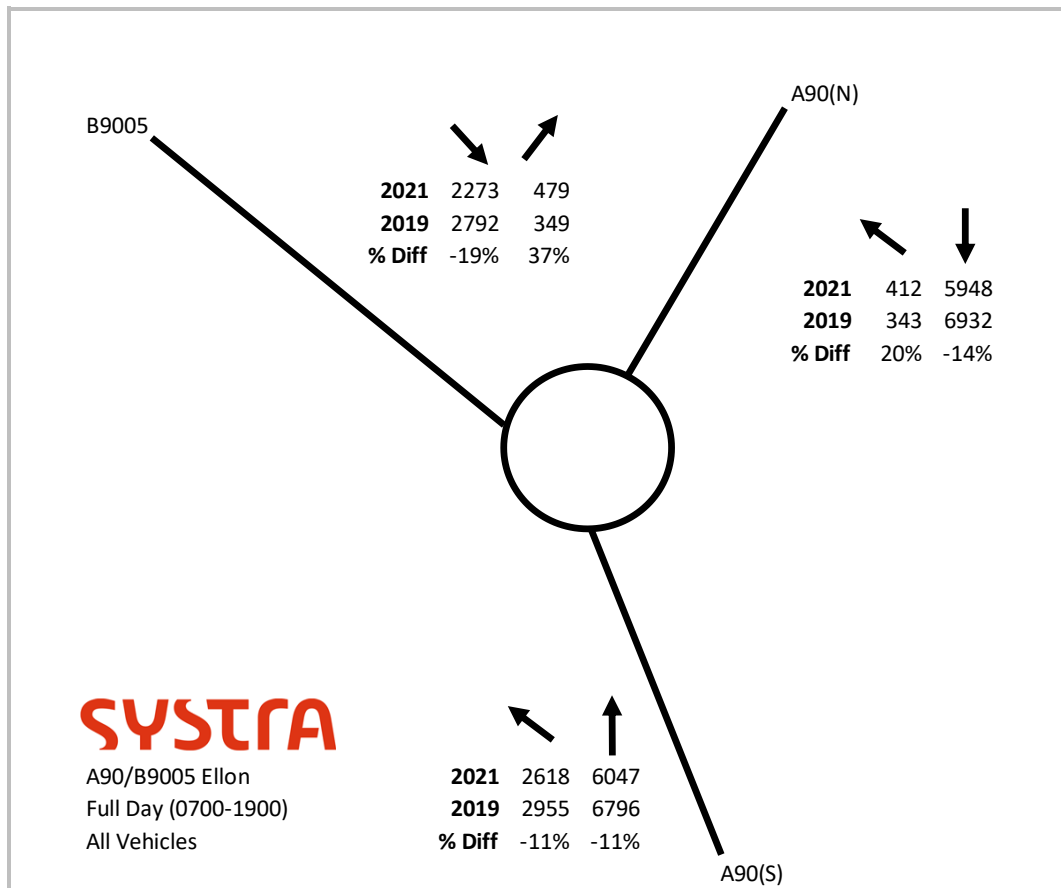


Figure 3.4 : A90/B9005 Turn Counts – Full Period (07:00-19:00)

- 3.1.7 Figure 3.4 shows that the A90 flow southbound across the day was around 14% lower in May 2021 when compared against the October 2019 survey. The flow from the north into Ellon is around 20% higher. From the south, the flow into Ellon and northbound on the A90 are around 11% lower than October 2019. Traffic heading out of Ellon on the B9005 is 37% higher heading north, and around 19% lower heading south towards Aberdeen.
- 3.1.8 Table 3.1 summarises the light and heavy vehicle flows on each approach to the junction, across the 3 time periods and across the 12 hour period.



Table 3.1 : A90/B9005 - Traffic Flow Comparisons

Approach/Class/Year	AM Peak	%	IP Peak	%	PM Peak	%	12 Hrs	%
A90 North Approach Light Vehicles 2019	2,451	-	2,144	-	1,971	-	6,566	-
A90 North Approach Light Vehicles 2021	1,811	74%	1,906	89%	1,816	92%	5,533	84%
A90 South Approach Light Vehicles 2019	1,666	-	2,624	-	4,704	-	8,994	-
A90 South Approach Light Vehicles 2021	1,513	91%	2,512	96%	3,750	80%	7,775	86%
B9005 Approach Light Vehicles 2019	1,161	-	919	-	909	-	2,989	-
B9005 North Approach Light Vehicles 2021	854	74%	904	98%	789	87%	2,547	85%
A90 North Approach Heavy Vehicles 2019	193	-	351	-	161	-	705	-
A90 North Approach Heavy Vehicles 2021	221	115%	378	108%	168	104%	767	109%
A90 South Approach Heavy Vehicles 2019	206	-	324	-	185	-	715	-
A90 South Approach Heavy Vehicles 2021	249	121%	343	106%	198	107%	790	110%
B9005 Approach Heavy Vehicles 2019	40	-	54	-	33	-	127	-
B9005 North Approach Heavy Vehicles 2021	41	103%	70	130%	26	79%	137	108%

3.1.9 Table 3.1 shows that light vehicle traffic flows were, on average, around 79% of pre-Covid levels during the AM peak, around 94% in the Inter-Peak and around 86% in the PM Peak. Looking at the 12 hour period as a whole, traffic flows were currently around 85% of pre Covid-19 levels.

3.1.10 Heavy vehicle traffic flows were, on average, around 113% of pre-Covid levels during the AM peak, around 114% in the Inter-Peak and around 97% in the PM Peak. Looking at the 12 hour period as a whole, heavy vehicle traffic flows were currently around 109% of pre Covid-19 levels

Site 2 – A90/A948/Lintmill Brae Turn Counts

3.1.11 Figure 3.5 to Figure 3.8 below summarise the all vehicle turn counts at the A90/A948/Lintmill Brae roundabout in the AM Peak, Inter Peak, PM Peak and 12 hour period respectively.

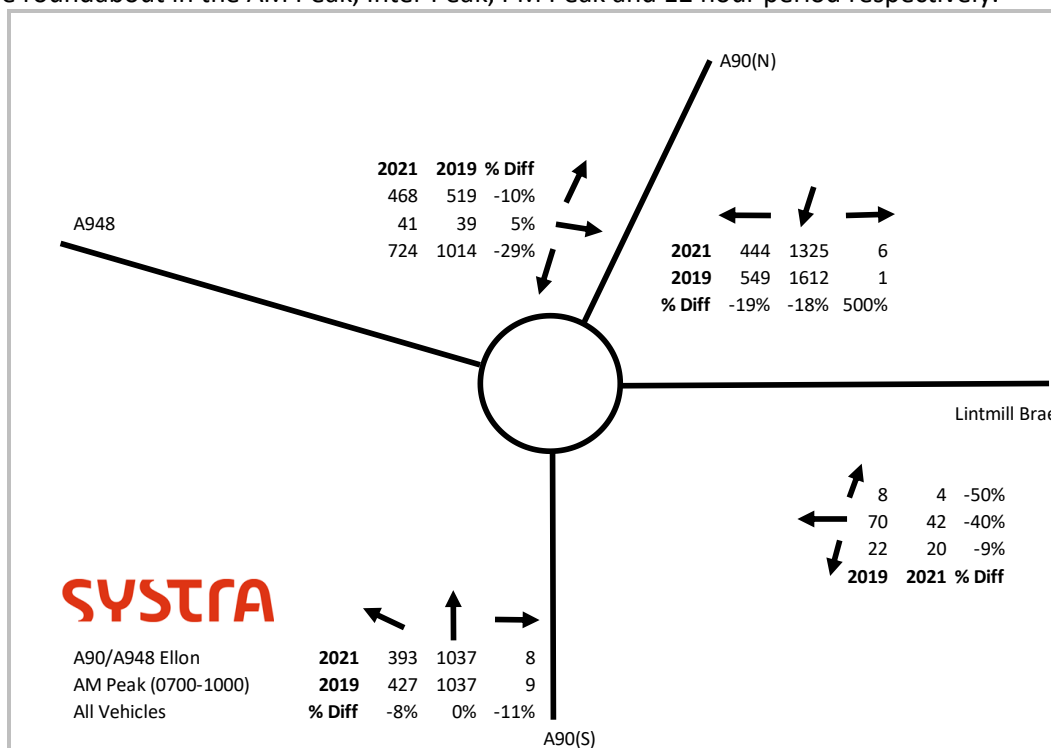


Figure 3.5 : A90/A948/Lintmill Brae Turn Counts – AM Peak (07:00-10:00)

3.1.12 Figure 3.5 shows that the A90 flow southbound in the AM peak was around 18% lower in May 2021 when compared against the October 2019 survey. The flow from the north into Ellon is around 19% lower and the flow into Lintmill Brae is slightly higher. From the south, the flow into Ellon is around 8% lower, and northbound on the A90 is consistent with the previous survey, as is the flow into Lintmill Brae. Traffic heading out of Ellon on the A948 is between 10% and 30% lower than in 2019. The flow out of Lintmill Brae is around 30% lower in 2021. Figure 3.6 presents the same information for the inter peak period (10:00-15:00).

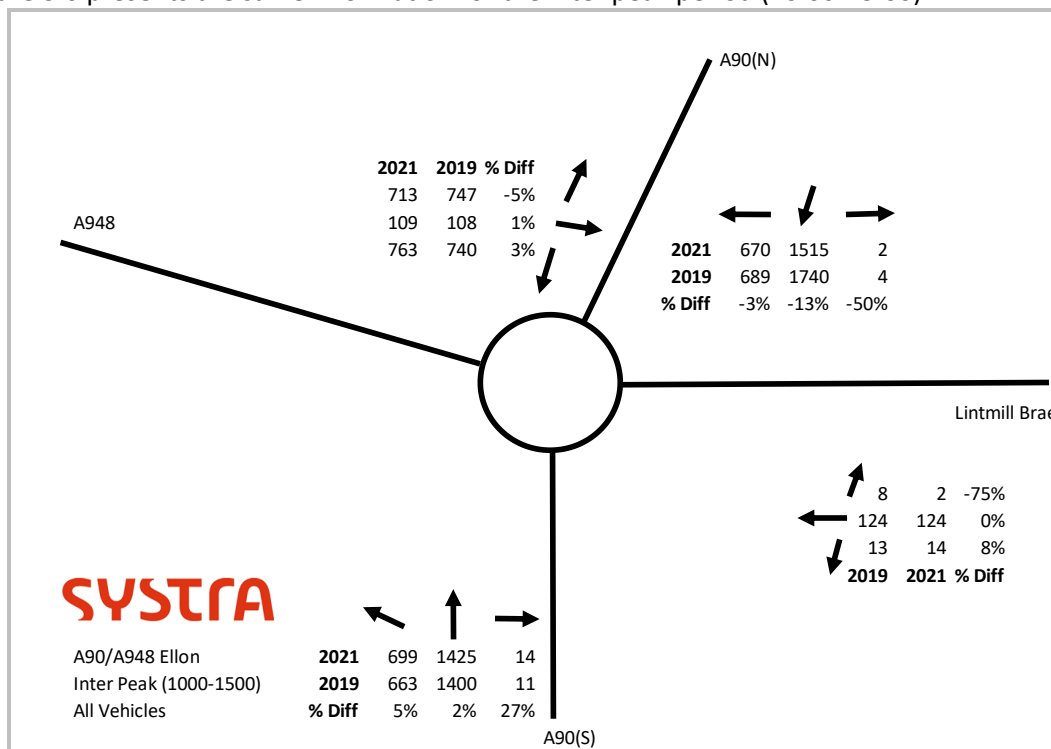


Figure 3.6 : A90/A948/Lintmill Brae Turn Counts – Inter Peak (10:00-15:00)

3.1.13 Figure 3.6 shows that the A90 flow southbound in the Inter peak was around 13% lower in May 2021 when compared against the October 2019 survey. The flow from the north into Ellon and Lintmill Brae is comparable with the previous survey. From the south, the flow into Ellon is slightly higher, and northbound on the A90 is the same as the previous survey, as is the flow into Lintmill Brae. Traffic heading out of Ellon on the A948 and out of Lintmill Brae is very similar to the previous survey. Figure 3.7 presents the same information for the PM peak period (15:00-19:00).

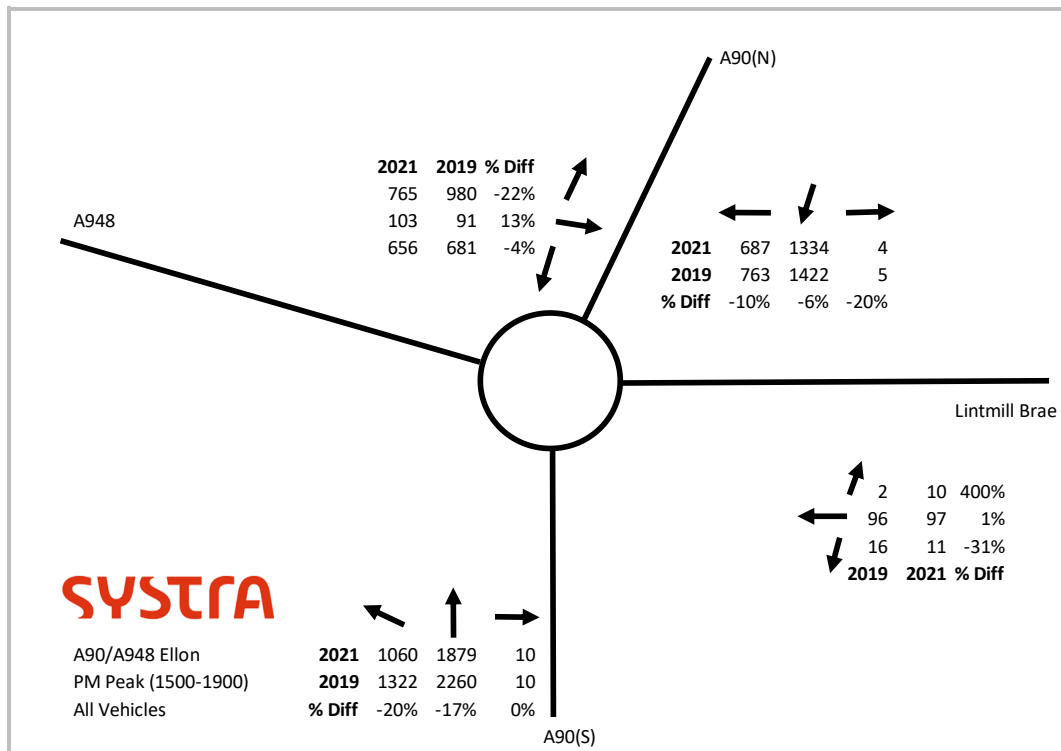


Figure 3.7 : A90/A948/Lintmill Brae Turn Counts – PM Peak (15:00-19:00)

3.1.14 Figure 3.7 shows that the A90 flow southbound in the PM peak was around 6% lower in May 2021 when compared against the October 2019 survey. The flow from the north into Ellon is again slightly lower than the previous survey. From the south, the flow into Ellon and northbound on the A90 are around 20% lower than October 2019. Traffic heading out of Ellon on the A948 is around 14% lower than October 2019. The flows into and out of Lintmill Brae are very similar. Figure 3.8 presents the same information for the full period (07:00-19:00).

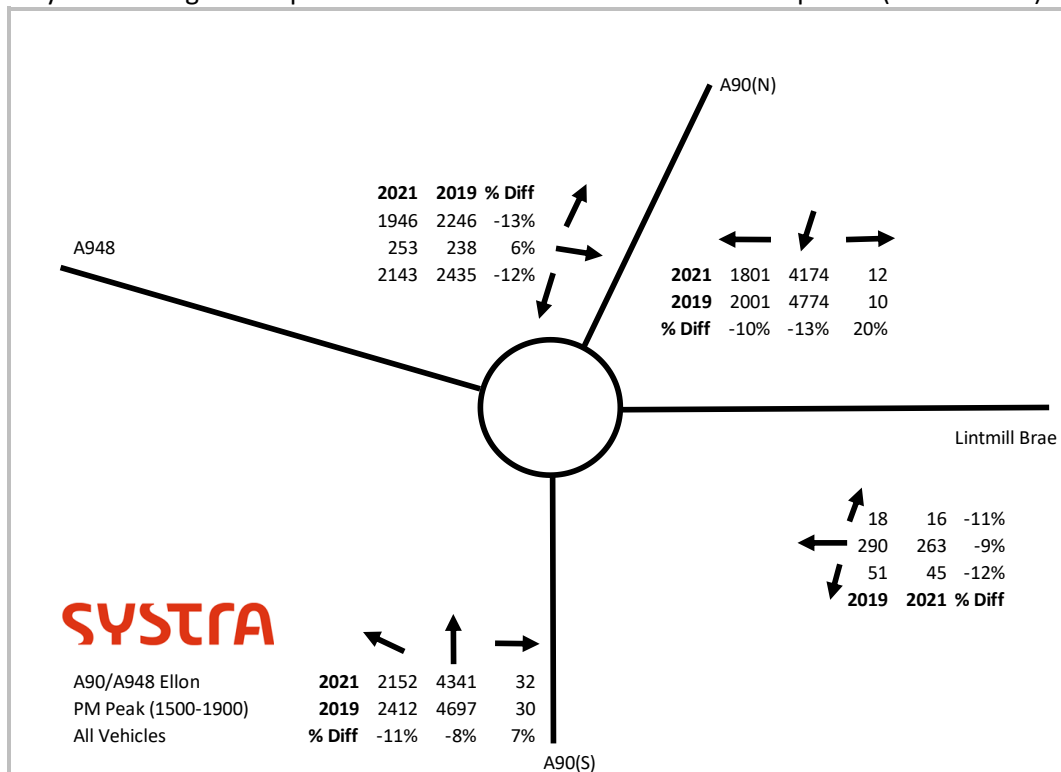


Figure 3.8 : A90/A948/Lintmill Brae Turn Counts– Full Period (07:00-19:00)



- 3.1.15 Figure 3.8 shows that the A90 flow southbound across the day was around 12% lower in May 2021 when compared against the October 2019 survey. From the south, the flow into Ellon and northbound on the A90 are around 10% lower than October 2019. Traffic heading out of Ellon on the A948 is 13% lower heading north, and around 12% lower heading south towards Aberdeen. Flows to and from Lintmill Brae are very similar.
- 3.1.16 Table 3.2 summarises the light and heavy vehicle flows on each approach to the junction, across the 3 time periods and across the 12 hour period.

Table 3.2 : A90/B9005 - Traffic Flow Comparisons

Approach/Class/Year	AM Peak	%	IP Peak	%	PM Peak	%	12 Hrs	%
A90 North Approach Light Vehicles 2019	1,974	-	2,110	-	2,047	-	6,131	-
A90 North Approach Light Vehicles 2021	1,533	78%	1,800	85%	1,831	89%	5,164	84%
Lintmill Brae Approach Light Vehicles 2019	96	-	137	-	113	-	346	-
Lintmill Brae Approach Light Vehicles 2021	62	65%	131	96%	112	99%	305	88%
A90 South Approach Light Vehicles 2019	1,281	-	1,791	-	3,417	-	6,489	-
A90 South Approach Light Vehicles 2021	1,189	93%	1,774	99%	2,721	80%	5,684	88%
A948 Approach Light Vehicles 2019	1,474	-	1,475	-	1,670	-	4,619	-
A948 North Approach Light Vehicles 2021	1,114	76%	1,401	95%	1,427	85%	3,942	85%
A90 North Approach Heavy Vehicles 2019	185	-	320	-	141	-	646	-
A90 North Approach Heavy Vehicles 2021	217	117%	360	113%	167	118%	744	115%
Lintmill Brae Approach Heavy Vehicles 2019	4	-	6	-	1	-	11	-
Lintmill Brae Approach Heavy Vehicles 2021	2	50%	6	100%	3	300%	11	100%
A90 South Approach Heavy Vehicles 2019	190	-	282	-	172	-	644	-
A90 South Approach Heavy Vehicles 2021	233	123%	347	123%	196	114%	776	120%
A948 Approach Heavy Vehicles 2019	94	-	116	-	75	-	285	-
A948 North Approach Heavy Vehicles 2021	91	97%	148	128%	70	93%	309	108%

- 3.1.17 Table 3.2 shows that light vehicle traffic flows were, on average, around 78% of pre-Covid levels during the AM peak, around 94% in the Inter-Peak and around 88% in the PM Peak. Looking at the 12 hour period as a whole, traffic flows were currently around 86% of pre Covid-19 levels.
- 3.1.18 Heavy vehicle traffic flows (excluding Lintmill Brae due to low numbers) were, on average, around 112% of pre-Covid levels during the AM peak, around 121% in the Inter-Peak and around 109% in the PM Peak. Looking at the 12 hour period as a whole, heavy vehicle traffic flows were currently around 115% of pre Covid-19 levels

Site 3 – A952/A90 (Toll of Birness) Turn Counts

- 3.1.19 Figure 3.9 to Figure 3.12 below summarise the all vehicle turn counts at the A90/A948/Lintmill Brae roundabout in the AM Peak, Inter Peak, PM Peak and 12 hour period respectively.



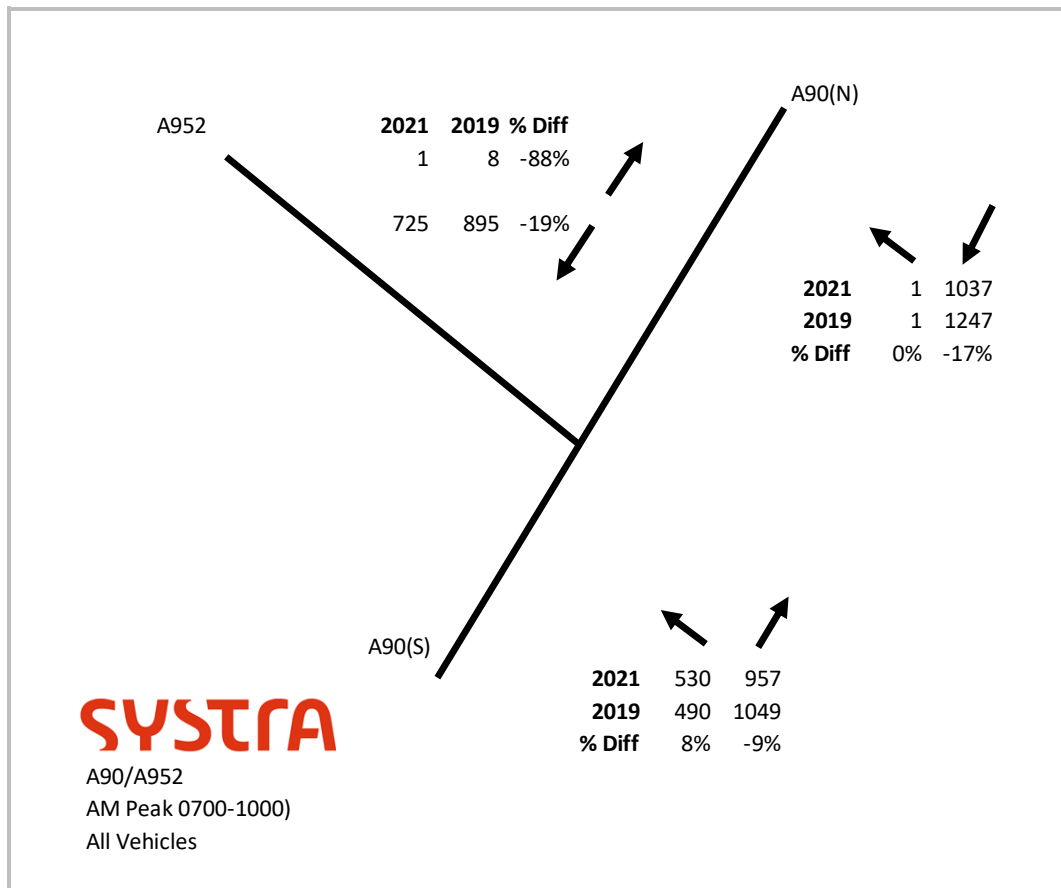


Figure 3.9 : A90/A952 Turn Counts – AM Peak (07:00-10:00)

3.1.20 Figure 3.9 shows that the A90 flow southbound in the AM peak was around 17% lower in May 2021 when compared against the October 2019 survey. From the south, the flow to the A952 is around 8% higher, and northbound on the A90 is around 9% lower than the previous survey. Traffic heading from the A952 is around 20% lower than in 2019. Figure 3.10 presents the same information for the inter peak period (10:00-15:00).



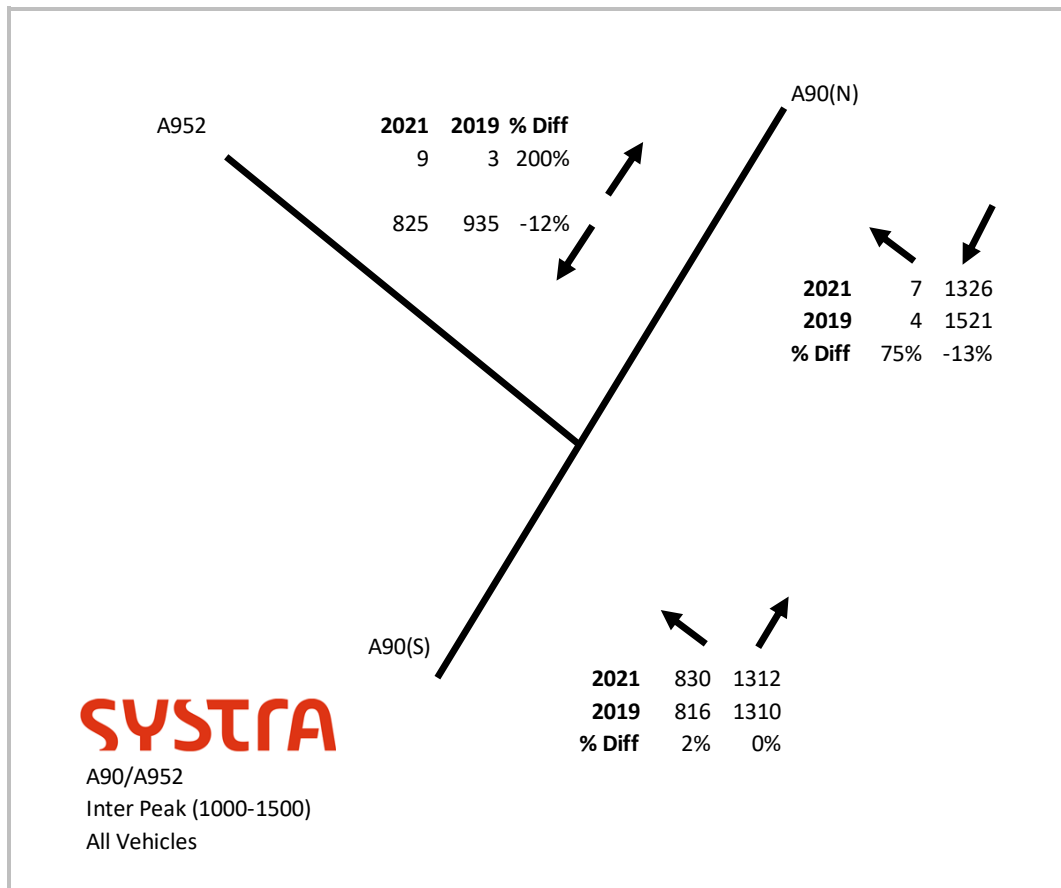


Figure 3.10 : A90/A952 Turn Counts – Inter Peak (10:00-15:00)

3.1.21 Figure 3.10 shows that the A90 flow southbound in the Inter peak was around 13% lower in May 2021 when compared against the October 2019 survey. From the south, the flow onto the A952 is slightly higher, and northbound on the A90 is the same as the previous survey. Traffic heading from the A952 is around 12% lower than the previous survey. Figure 3.11 presents the same information for the PM peak period (15:00-19:00).



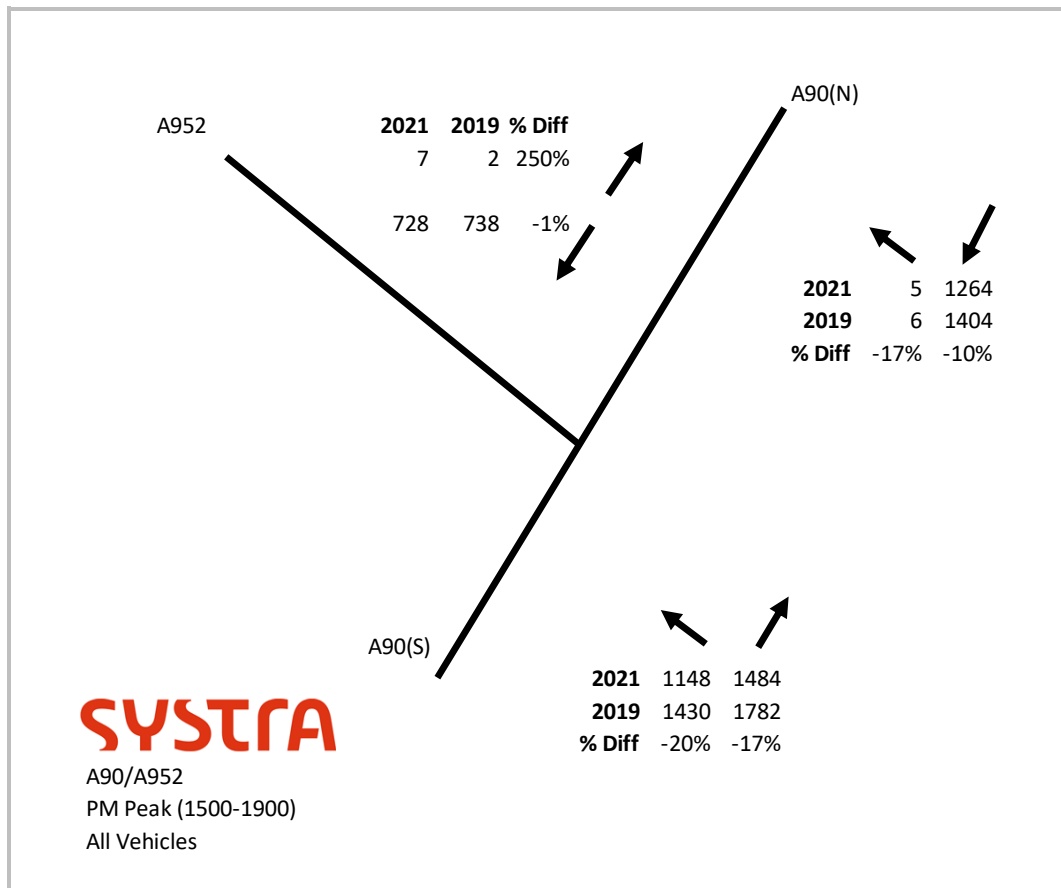


Figure 3.11 : A90/A952 Turn Counts – PM Peak (15:00-19:00)

3.1.22 Figure 3.11 shows that the A90 flow southbound in the PM peak was around 10% lower in May 2021 when compared against the October 2019 survey. From the south, the flow onto the A952 and northbound on the A90 are around 20% lower than October 2019. Traffic heading out of the A952 is very similar to October 2019. Figure 3.12 presents the same information for the full period (07:00-19:00).



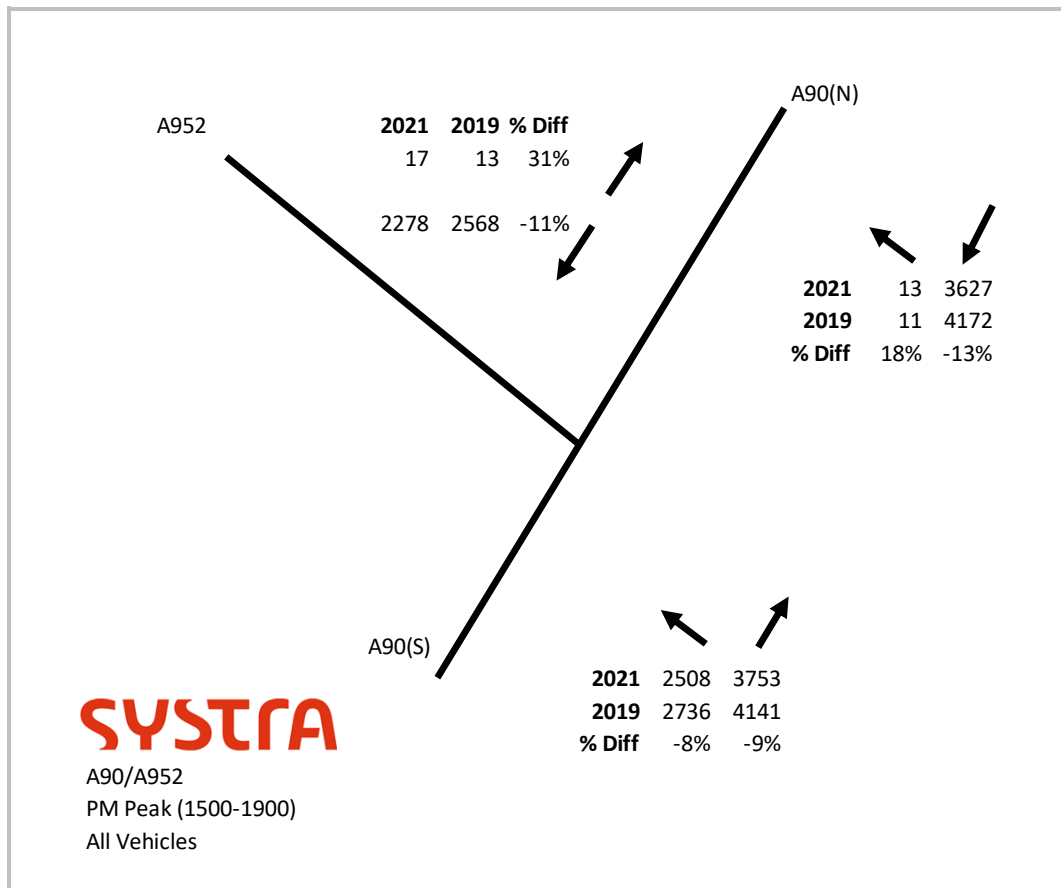


Figure 3.12 : A90/A952 Turn Counts– Full Period (07:00-19:00)

3.1.23 Figure 3.12 shows that the A90 flow southbound across the day was around 13% lower in May 2021 when compared against the October 2019 survey. From the south, the flow onto the A952 and northbound on the A90 are around 9% lower than October 2019. Traffic heading out of the A952 is around 11% lower heading south towards Ellon and Aberdeen.

3.1.24 Table 3.3 summarises the light and heavy vehicle flows on each approach to the junction, across the 3 time periods and across the 12 hour period.

Table 3.3 : A90/A952 - Traffic Flow Comparisons

Approach/Class/Year	AM Peak	%	IP Peak	%	PM Peak	%	12 Hrs	%
A90 North Approach Light Vehicles 2019	1,110	-	1,285	-	1,312	-	3,707	-
A90 North Approach Light Vehicles 2021	857	77%	1,064	83%	1,150	88%	3,071	83%
A90 South Approach Light Vehicles 2019	1,333	-	1,850	-	3,034	-	6,217	-
A90 South Approach Light Vehicles 2021	1,254	94%	1,788	97%	2,404	79%	5,446	88%
A952 Approach Light Vehicles 2019	849	-	838	-	689	-	2,376	-
A952 North Approach Light Vehicles 2021	656	77%	710	85%	669	97%	2,035	86%
A90 North Approach Heavy Vehicles 2019	237	-	237	-	96	-	570	-
A90 North Approach Heavy Vehicles 2021	166	70%	249	105%	105	109%	520	91%
A90 South Approach Heavy Vehicles 2019	273	-	273	-	173	-	719	-
A90 South Approach Heavy Vehicles 2021	218	80%	223	82%	194	112%	635	88%
A952 Approach Heavy Vehicles 2019	53	-	100	-	50	-	203	-
A952 North Approach Heavy Vehicles 2021	60	113%	112	112%	57	114%	229	113%

3.1.25 Table 3.3 shows that light vehicle traffic flows were, on average, around 83% of pre-Covid levels during the AM peak, around 88% in the Inter-Peak and around 88% in the PM Peak. Looking at the 12 hour period as a whole, traffic flows were currently around 85% of pre Covid-19 levels.

3.1.26 Heavy vehicle traffic flows were, on average, around 88% of pre-Covid levels during the AM peak, around 100% in the Inter-Peak and around 112% in the PM Peak. Looking at the 12 hour period as a whole, heavy vehicle traffic flows were currently around 97% of pre Covid-19 levels.

Site 1 – A90/B9005 Queue Length Comparison

3.1.27 Figure 3.13 to Figure 3.15 below summarise the change in all vehicle queue lengths on each approach to the A90/B9005 roundabout across the 12 hour period (07:00-19:00), between February 2020 and May 2021.

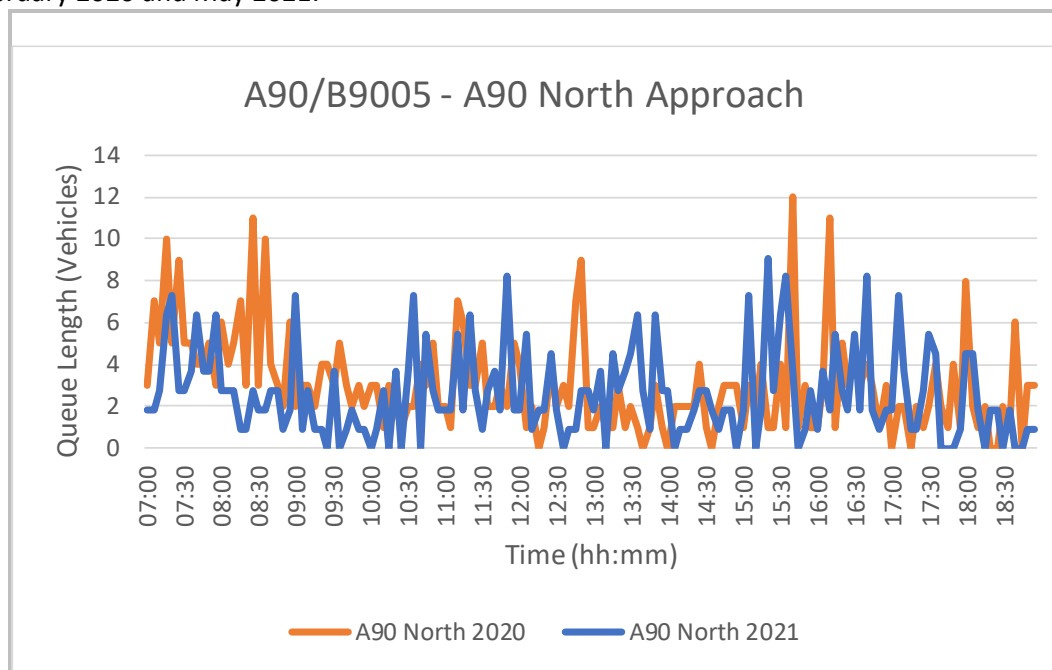


Figure 3.13 : A90/B9005 Queue Length – A90 North Approach (07:00-19:00)

3.1.28 Figure 3.13 shows that the queue length has remained relatively consistent between 2020, and 2021, the biggest difference is seen in the AM peak, the queue in 2021 being slightly shorter than that observed in 2020. Figure 3.14 presents the same information for the B9005.

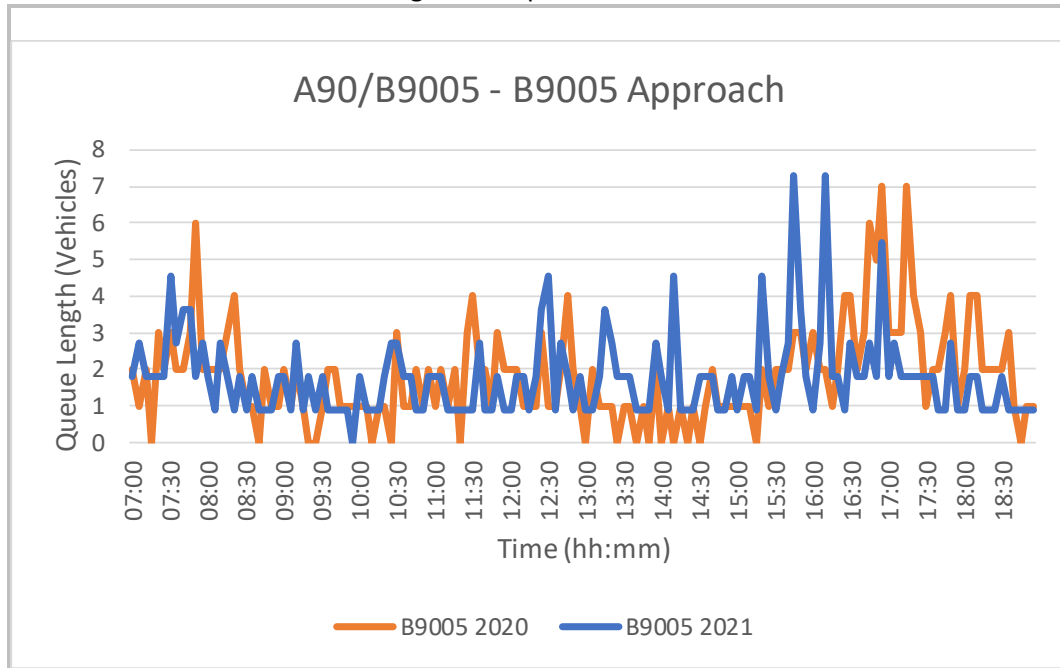


Figure 3.14 : A90/B9005 Queue Length – B9005 Approach (07:00-19:00)

3.1.29 Figure 3.14 shows that the queue lengths on the B9005 approach have remained similar to the levels seen in 2020. Figure 3.15 below presents the results of the A90 South approach.

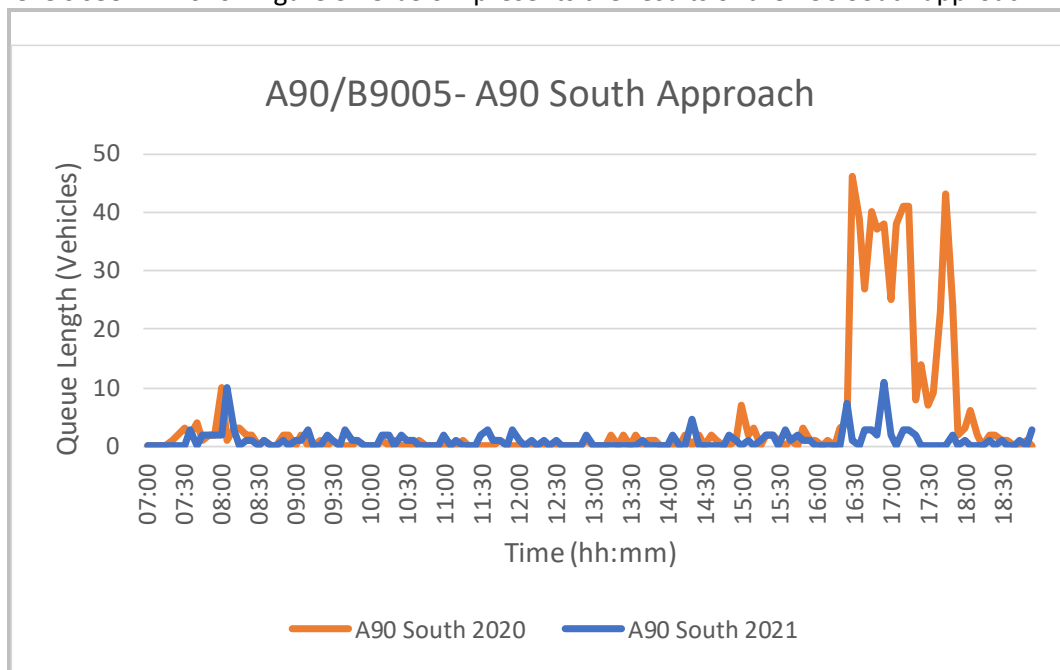


Figure 3.15 : A90/B9005 Queue Length – A90 South Approach (07:00-19:00)

3.1.30 Figure 3.15 shows that for the majority of the day the queue lengths between 2020 and 2021 are consistent, apart from the PM peak between 16:30 and 18:00 when the 2021 results show considerably shorter results.

Site 2 – A90/A948/Lintmill Brae Queue Length Comparison

3.1.31 Figure 3.16 to Figure 3.19 below summarise the change in all vehicle queue lengths on each approach to the A90/A948/Lintmill Brae roundabout across the 12 hour period (07:00-19:00), between February 2020 and May 2021.

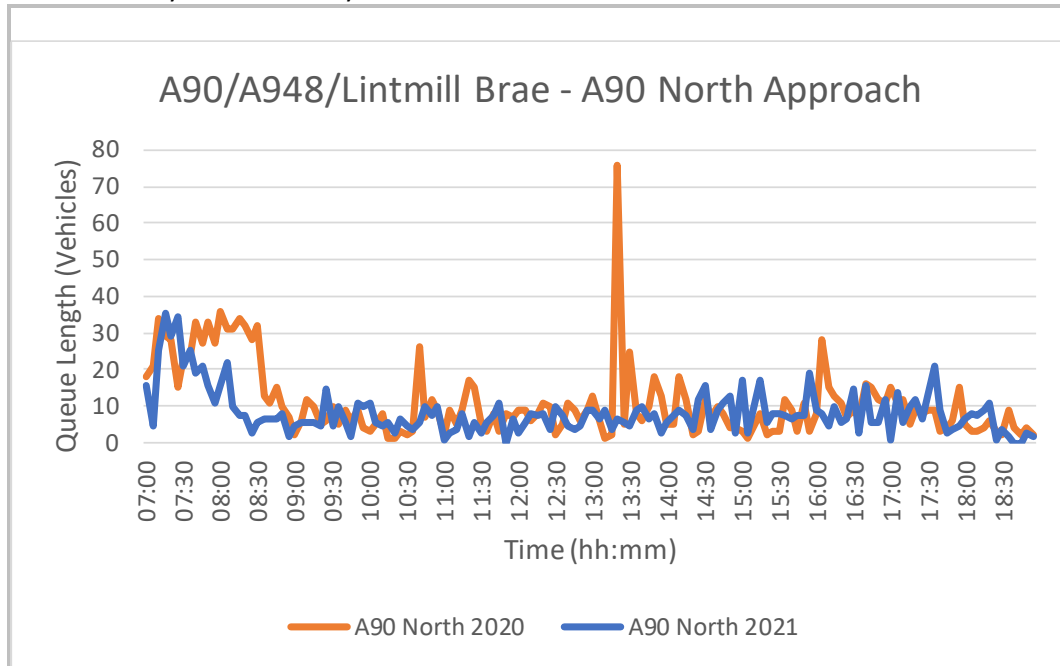


Figure 3.16 : A90/A948/Lintmill Brae Queue Length – A90 North Approach (07:00-19:00)

3.1.32 Figure 3.16 shows that the queue length has remained relatively consistent between 2020, and 2021, the biggest difference is seen in the AM peak, the queue in 2021 being of the same magnitude but dissipating quicker than that observed in 2020. Figure 3.17 presents the same information for the A948.

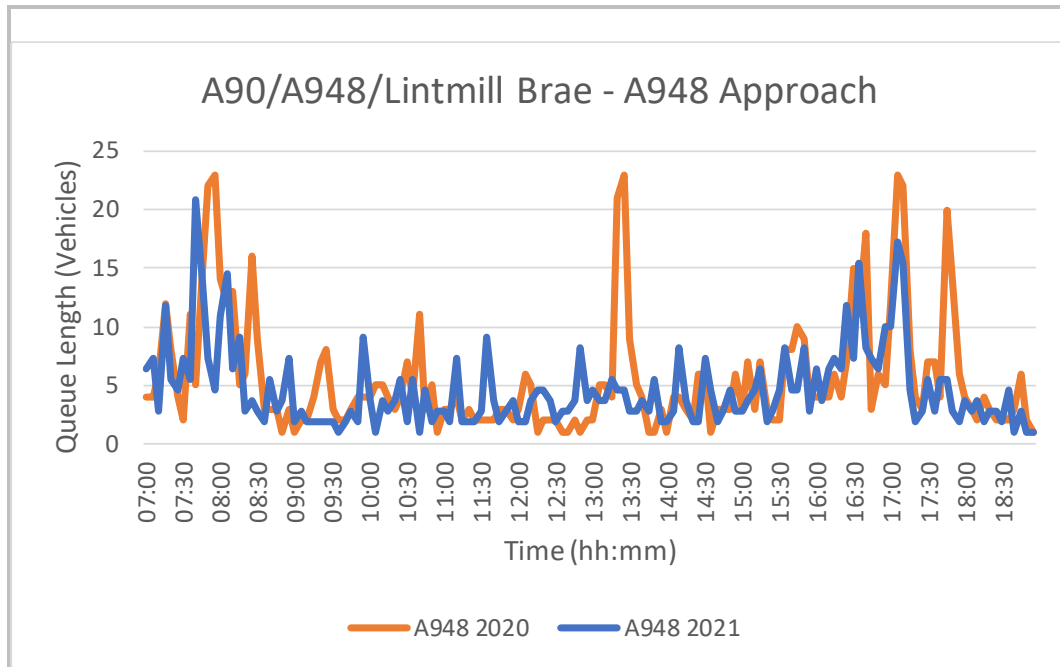


Figure 3.17 : A90/A948/Lintmill Brae Queue Length – A948 Approach (07:00-19:00)

3.1.33 Figure 3.17 shows that the queue lengths on the A948 approach have remained similar to the levels seen in 2020. Figure 3.18 below presents the results of the A90 South approach.

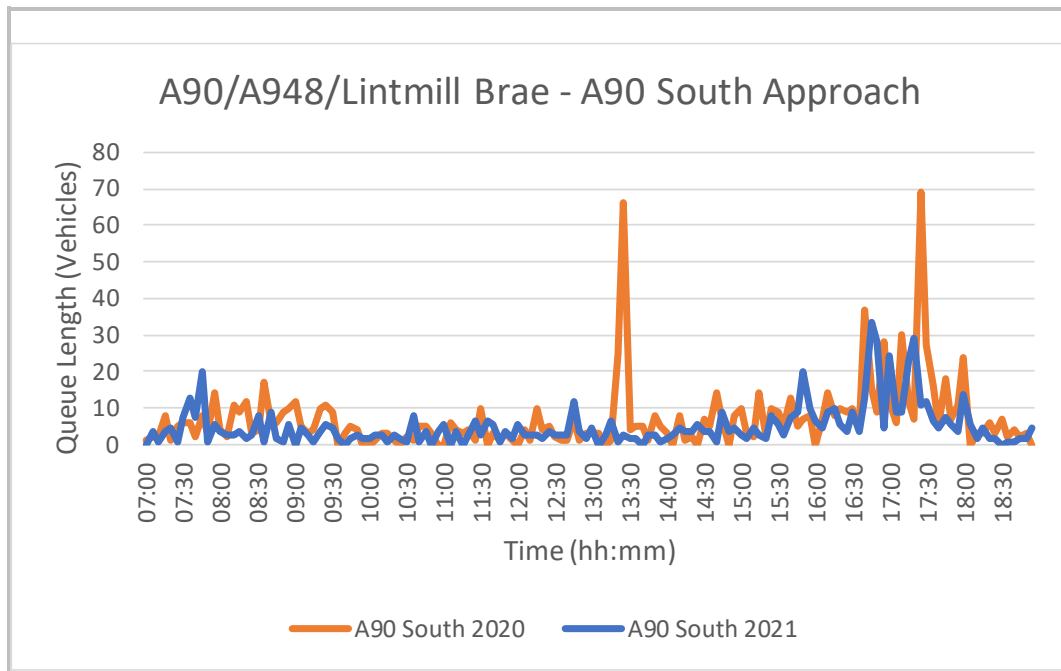


Figure 3.18 : A90/A948/Lintmill Brae Queue Length – A90 South Approach (07:00-19:00)

3.1.34 Figure 3.18 shows that for the majority of the day the queue lengths between 2020 and 2021 are consistent, apart from the PM peak around 17:30 when the 2021 results show considerably shorter results. Figure 3.19 presents the results for the Lintmill Brae approach.

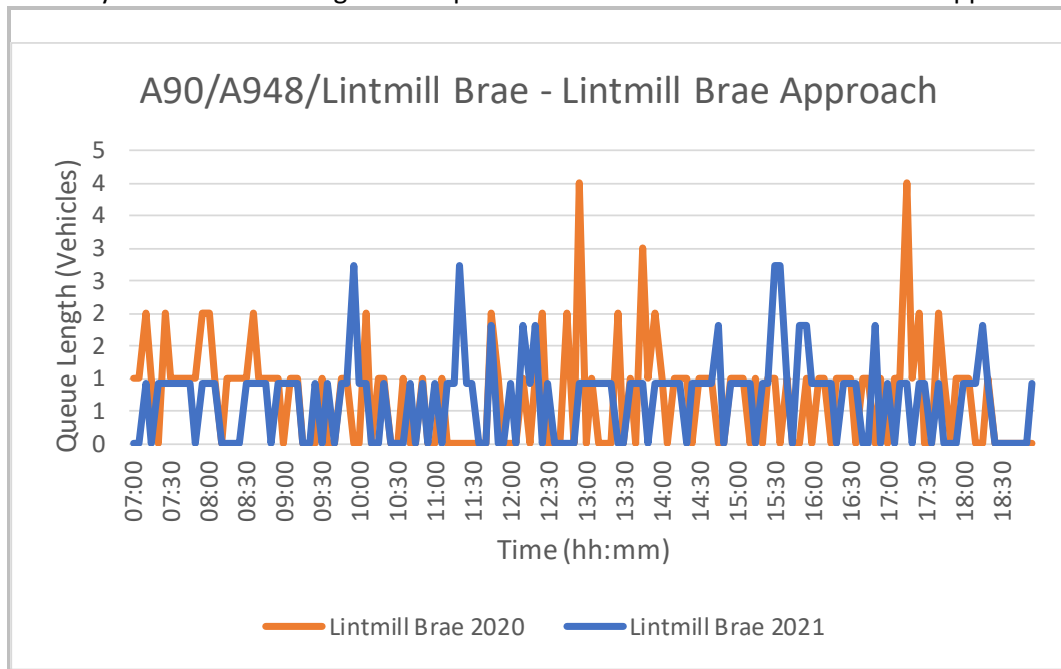


Figure 3.19 : A90/A948/Lintmill Brae Queue Length – Lintmill Brae Approach (07:00-19:00)

3.1.35 Figure 3.19 shows that the queue lengths on the Lintmill Brae have remained consistent between 2020 and 2021.

Site 3 – A90/A952 Queue Length Comparison

3.1.36 Figure 3.20 to Figure 3.22 below summarise the change in all vehicle queue lengths on each approach to the A90/A952 junction across the 12 hour period (07:00-19:00), between October 2019 and May 2021.

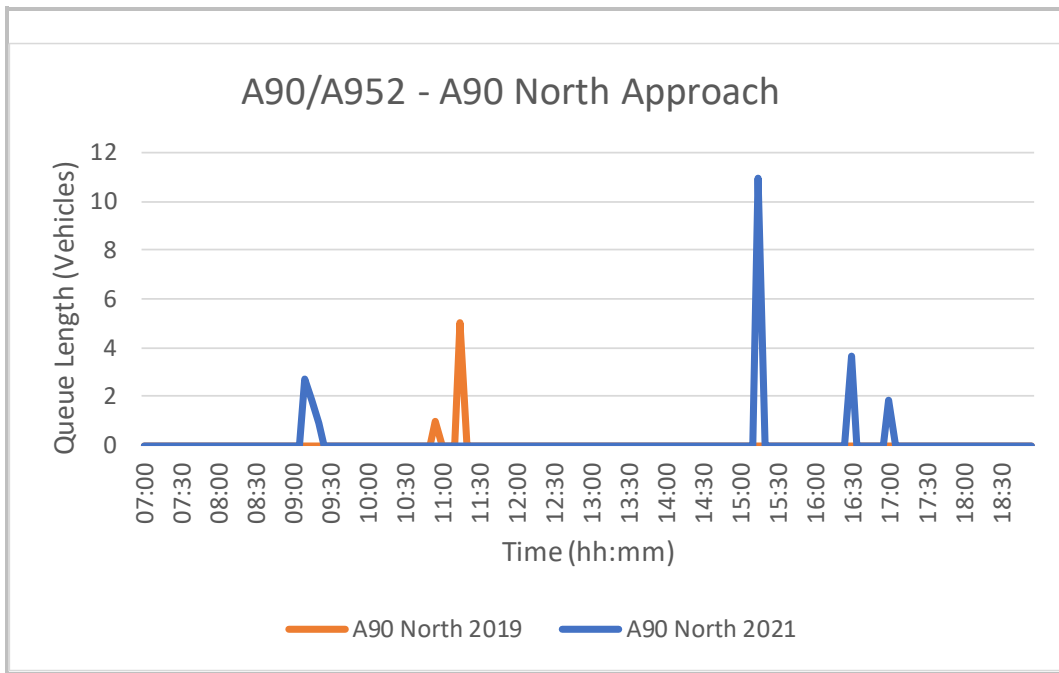


Figure 3.20 : A90/A952 Queue Length – A90 North Approach (07:00-19:00)

3.1.37 Figure 3.20 shows that the queue length has remained relatively consistent between 2019, and 2021, the biggest difference is seen around 15:00, the queue in 2021 being slightly longer for a short period of time than that observed in 2019. Figure 3.21 presents the same information for the B9005.

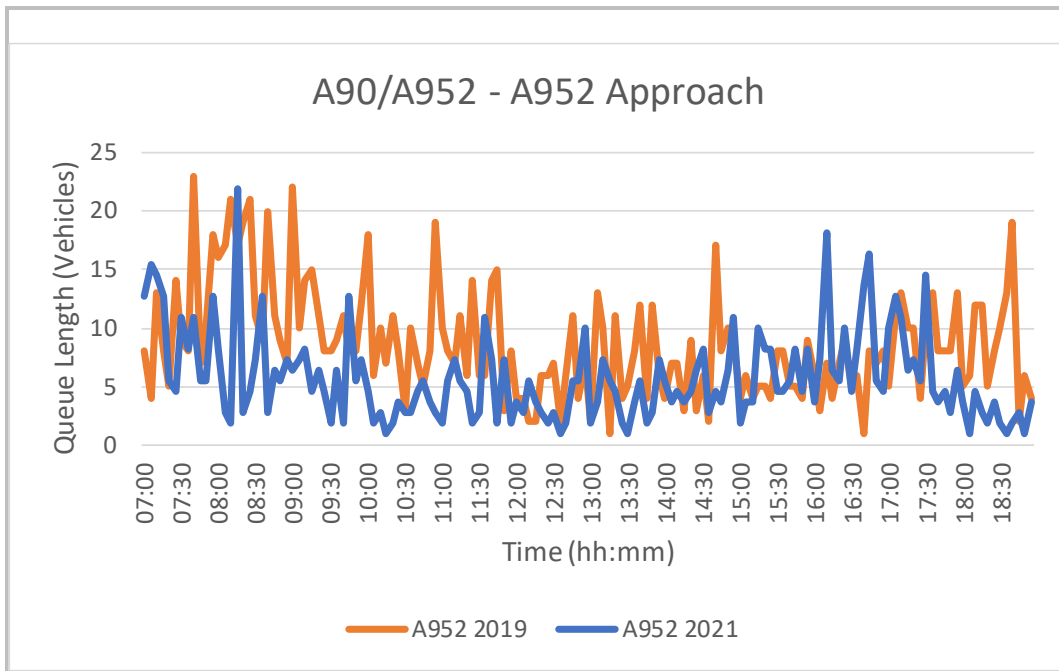


Figure 3.21 : A90/A952 Queue Length – A952 Approach (07:00-19:00)

3.1.38 Figure 3.21 shows that the queue lengths on the A952 approach have remained similar to the levels seen in 2019, albeit slightly lower queue lengths were observed in the AM peak in 2021. Figure 3.22 below presents the results of the A90 South approach.

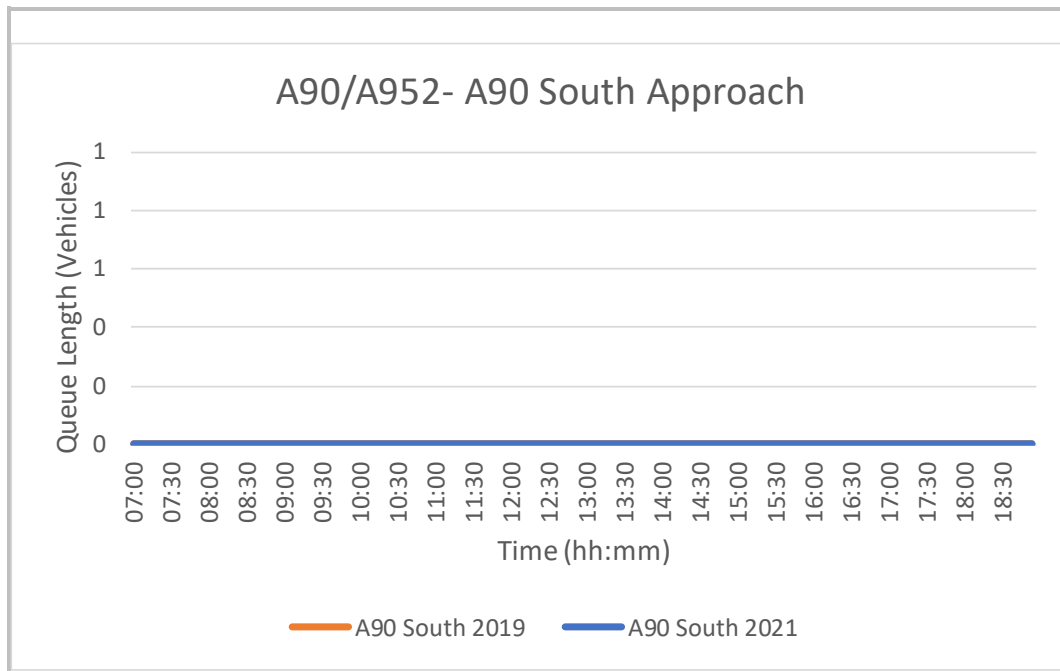


Figure 3.22 : A90/A952 Queue Length –A90 South Approach (07:00-19:00)

3.1.39 Figure 3.22 shows that as would be expected there are no queues on the south approach to the junction.

3.2 Changes in Traffic Profiles

Comparison with Previous Datasets

3.2.1 The surveyed ATC sites were compared to previous datasets collected to inform the development of Aberdeenshire Council’s Ellon Microsimulation Traffic Model or Transport Scotland ATC sites to monitor the change in traffic profile across the day. ATC surveys were undertaken at the following locations:

- Site 1 A952 north of Toll of Birness
- Site 2 A90 north of Toll of Birness
- Site 3 A90 south of Toll of Birness, north of A90/A948 roundabout
- Site 4 A90 between A948 roundabout and B9005 roundabout
- Site 5 A948 – west of A90 roundabout
- Site 6 A90 north of Longhaven
- Site 7 B9005 west of A90 roundabout

3.2.2 The following sections provide a comparison of the all vehicle traffic profiles and heavy vehicle traffic profiles across the day between October 2019 and May 2021.

Site 1 – A952 North of Toll of Birness

3.2.3 Figure 3.23 and Figure 3.24 below present a comparison of the traffic profile between October 2019 and May 2021 in a northbound direction for all vehicles and heavy vehicles only. The October 2019 data used was the 12 hour turn count data, hence a comparison is only available between 07:00 and 19:00.



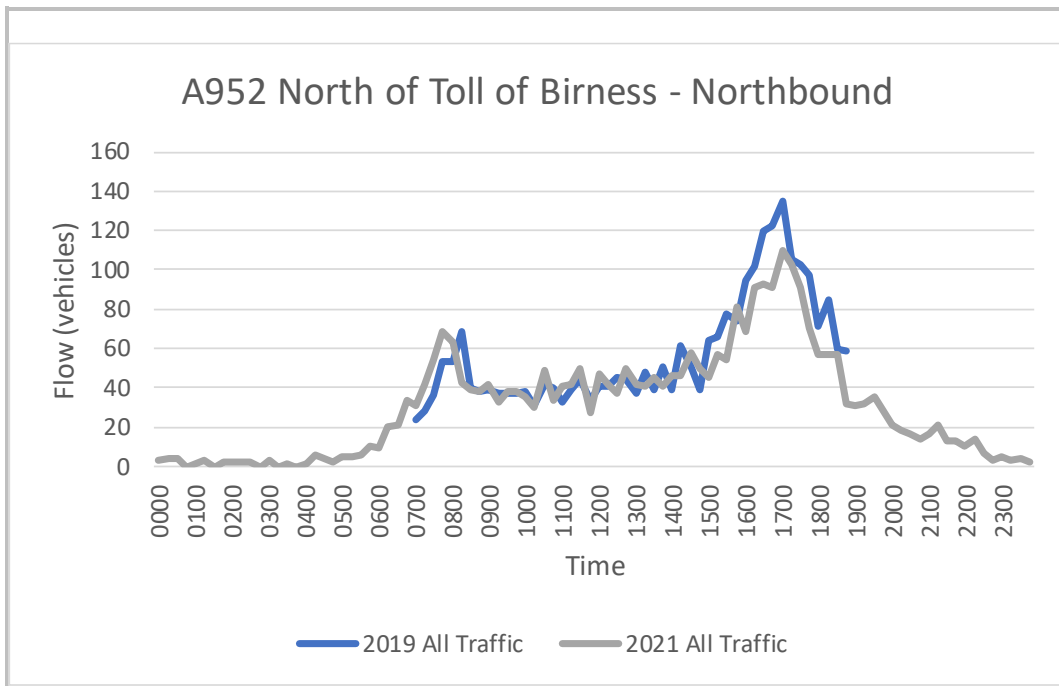


Figure 3.23 : A952 North of Toll of Birness northbound Traffic Profile Comparison (All Vehicles 07:00-19:00)

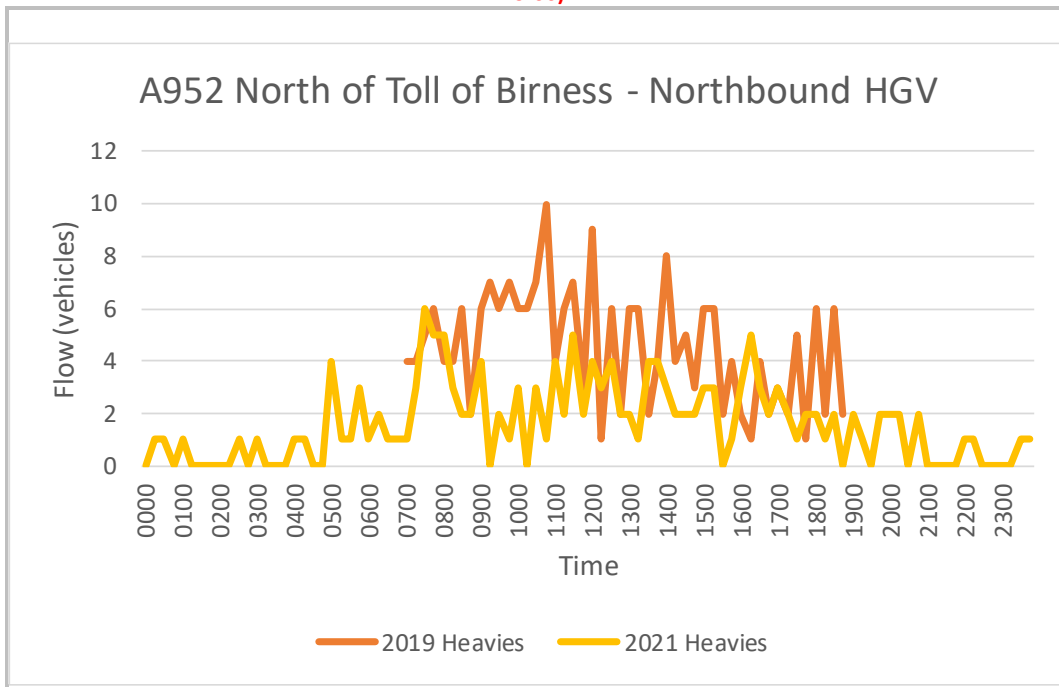


Figure 3.24 : A952 North of Toll of Birness northbound Traffic Profile Comparison (Heavies 07:00-19:00)

3.2.4 Figure 3.23 shows that the profiles are similar, although the volume of traffic observed in May 2021 is lower than October 2019. The heavies profile shown in Figure 3.24 is also similar, although it should be remembered that the data is comparing a 2019 classified turn count survey with a 2021 ATC survey so there may be slight differences in the classification of vehicles. Figure 3.25 and Figure 3.26 present the same information for the southbound direction.



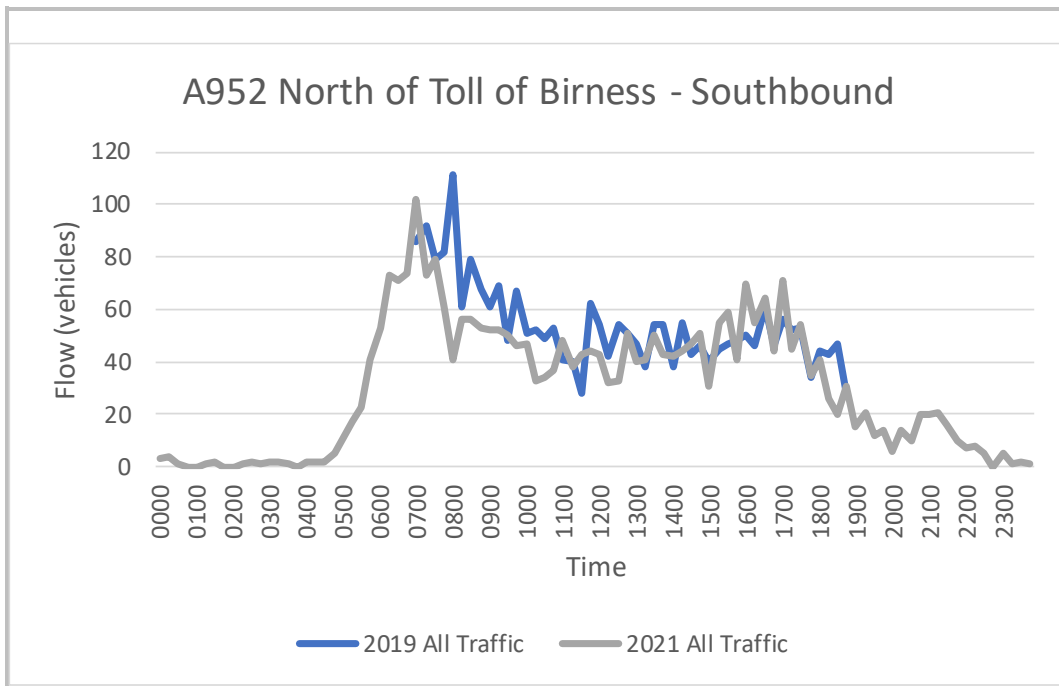


Figure 3.25 : A952 North of Toll of Birness southbound Traffic Profile Comparison (All Vehicles 07:00-19:00)

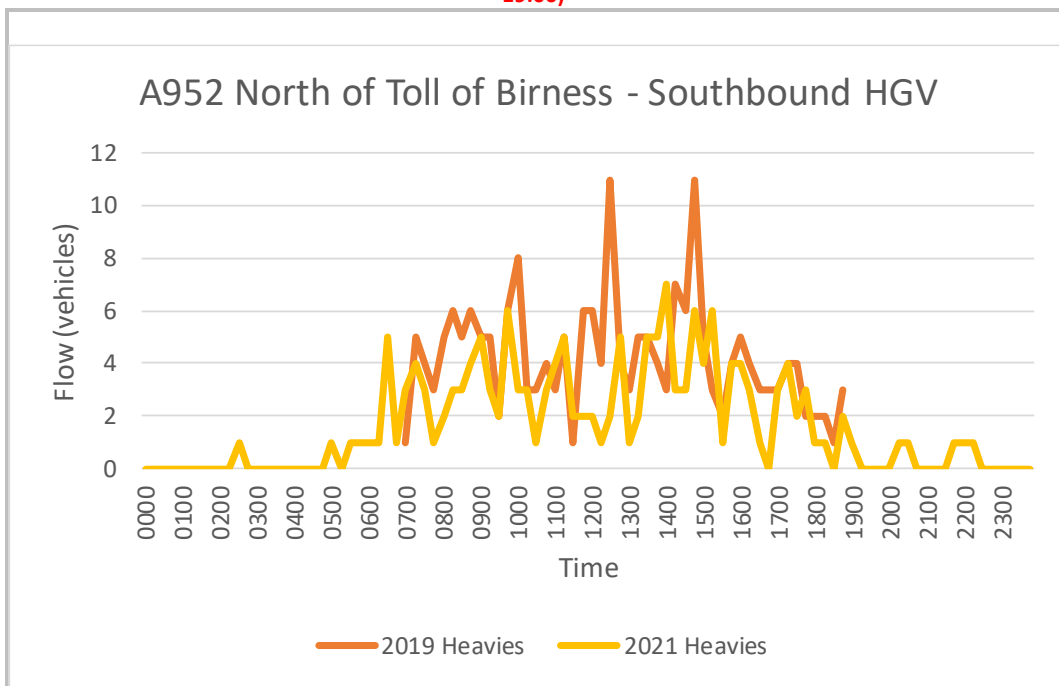


Figure 3.26 : A952 North of Toll of Birness southbound Traffic Profile Comparison (Heavies 07:00-19:00)

3.2.5 Figure 3.25 shows that the AM peak profile was slightly lower in May 2021, however between around 15:00 and 18:00 the volumes observed in May 2021 are slightly higher than October 2019. The heavy vehicle profile shown in Figure 3.26 indicates very little difference between 2019 and 2021.

Site 2 – A90 North of Toll of Birness

3.2.6 Figure 3.27 below presents a comparison of the all vehicle traffic profile between October 2019 and May 2021 in a northbound direction, and Figure 3.28 presents the same information for heavy vehicles. The October 2019 used was the 12 hour turn count data, hence a comparison is only available between 07:00 and 19:00.

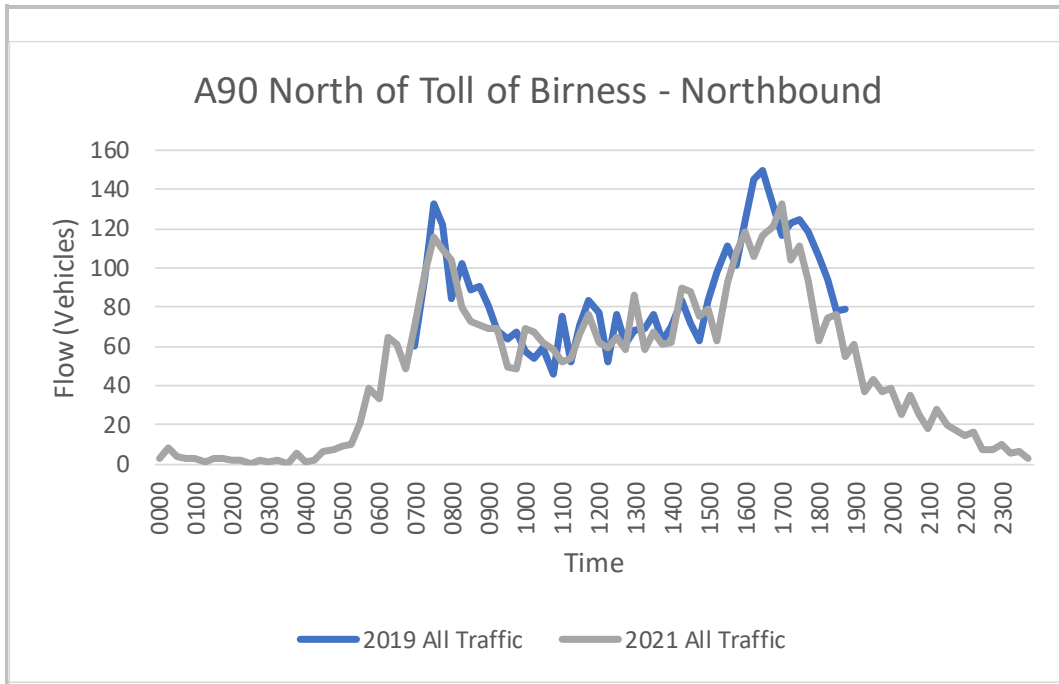


Figure 3.27 : A90 North of Toll of Birness northbound Traffic Profile Comparison (All vehicles 07:00-19:00)

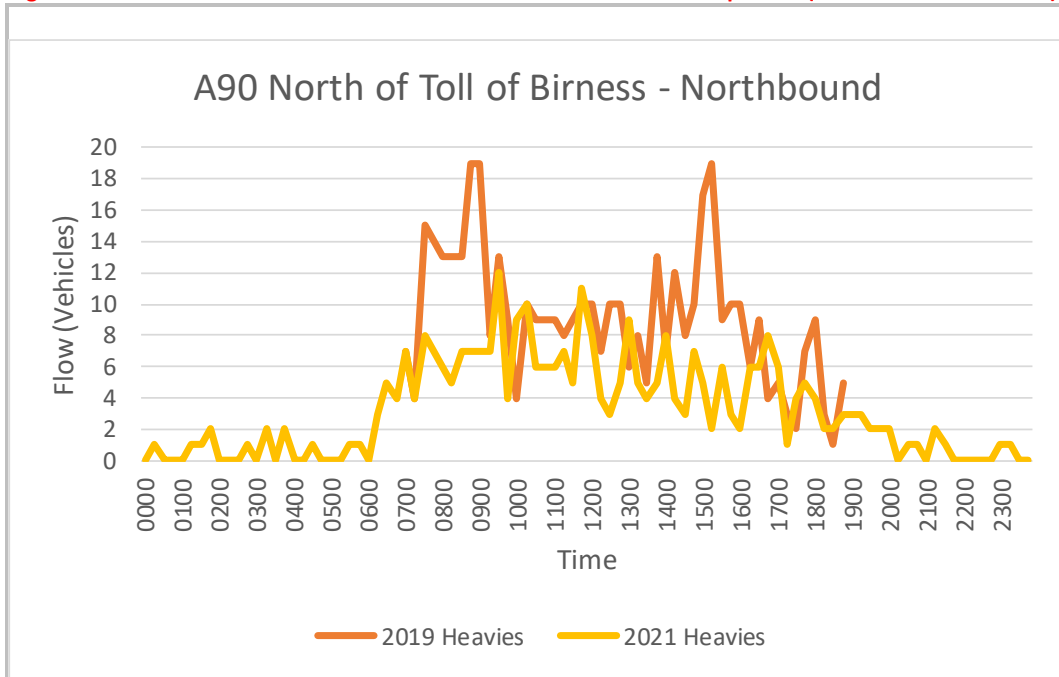


Figure 3.28 : A90 North of Toll of Birness northbound Traffic Profile Comparison (Heavies 07:00-19:00)

3.2.7 Figure 3.27 shows that the profiles are similar, although the volume of traffic observed in May 2021 is lower than October 2019. The heavies profile in Figure 3.28 is also similar, although it should be remembered that the data is comparing a 2019 classified turn count survey with a 2021 ATC survey so there may be slight differences in the classification of vehicles. Figure 3.29 and Figure 3.30 present the same information for the southbound direction.



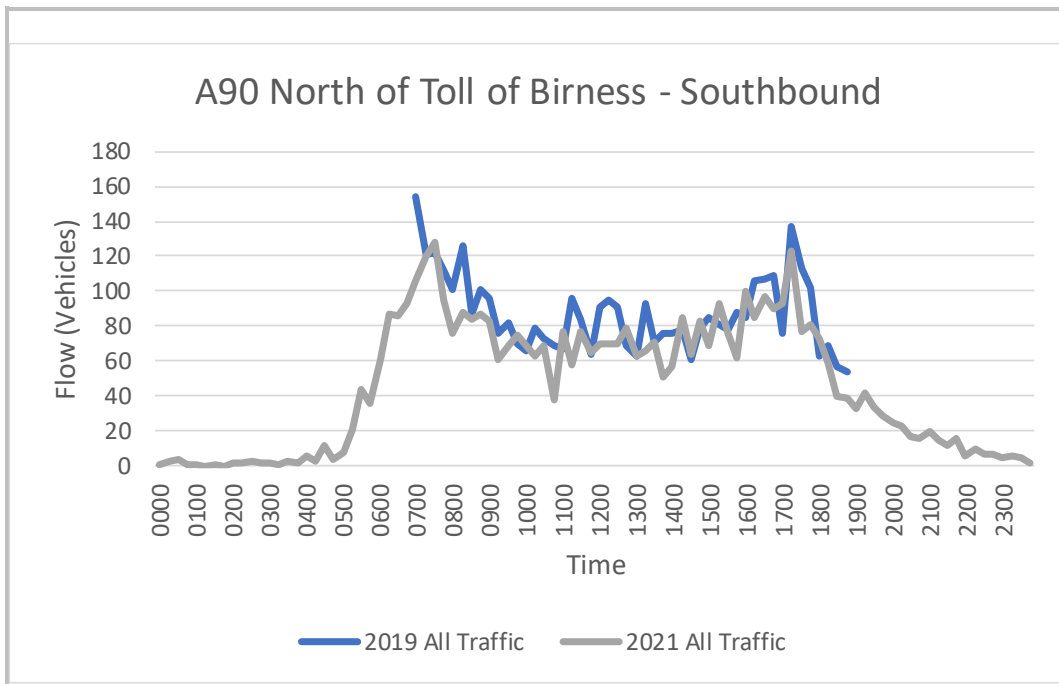


Figure 3.29 : A90 North of Toll of Birness southbound Traffic Profile Comparison (All Vehicles 07:00-19:00)

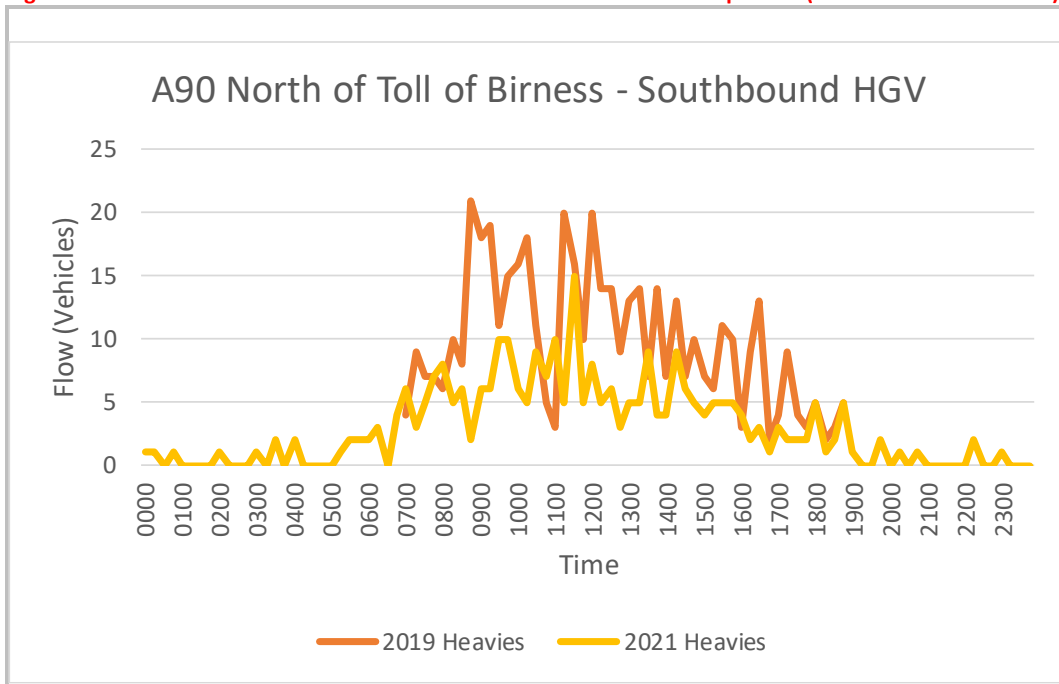


Figure 3.30 : A90 North of Toll of Birness southbound Traffic Profile Comparison (Heavies 07:00-19:00)

3.2.8 Figure 3.29 and Figure 3.30 show that the traffic profile was slightly lower in May 2021.

Site 3 – A90 South of Toll of Birness

3.2.9 Figure 3.31 below presents a comparison of the traffic profile between October 2019 and May 2021 in a northbound direction for all vehicles and Figure 3.32 presents the same information for heavy vehicles only. The October 2019 used was the 12 hour turn count data, hence a comparison is only available between 07:00 and 19:00.



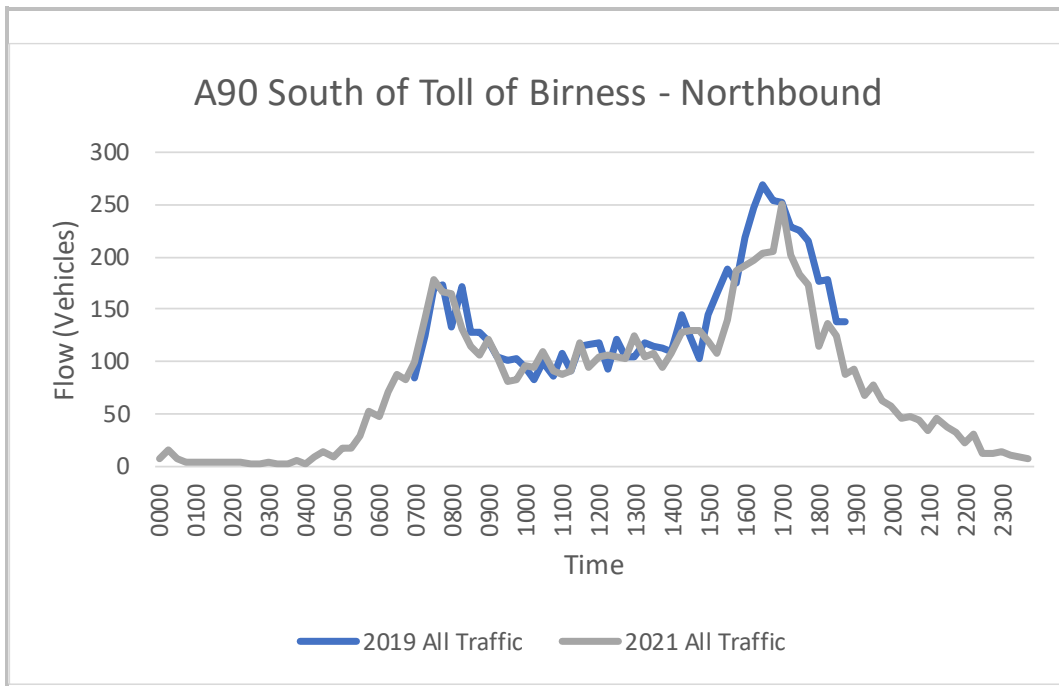


Figure 3.31 : A90 South of Toll of Birness northbound Traffic Profile Comparison (All Vehicles 07:00-19:00)

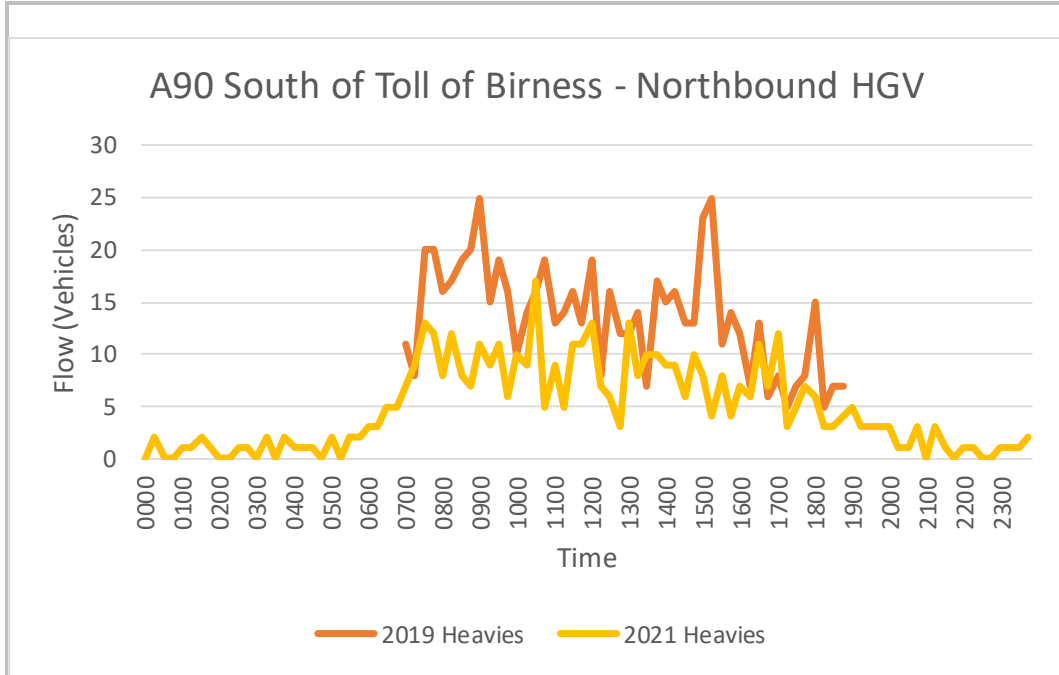


Figure 3.32 : A90 South of Toll of Birness northbound Traffic Profile Comparison (Heavies 07:00-19:00)

3.2.10 Figure 3.31 shows that the profiles are similar, although the volume of traffic observed in May 2021 is lower than October 2019 in the PM peak. The heavies profile in Figure 3.32 is also similar, although it should be remembered that the data is comparing a 2019 classified turn count survey with a 2021 ATC survey so there may be slight differences in the classification of vehicles. Figure 3.33 and Figure 3.34 present the same information for the southbound direction.



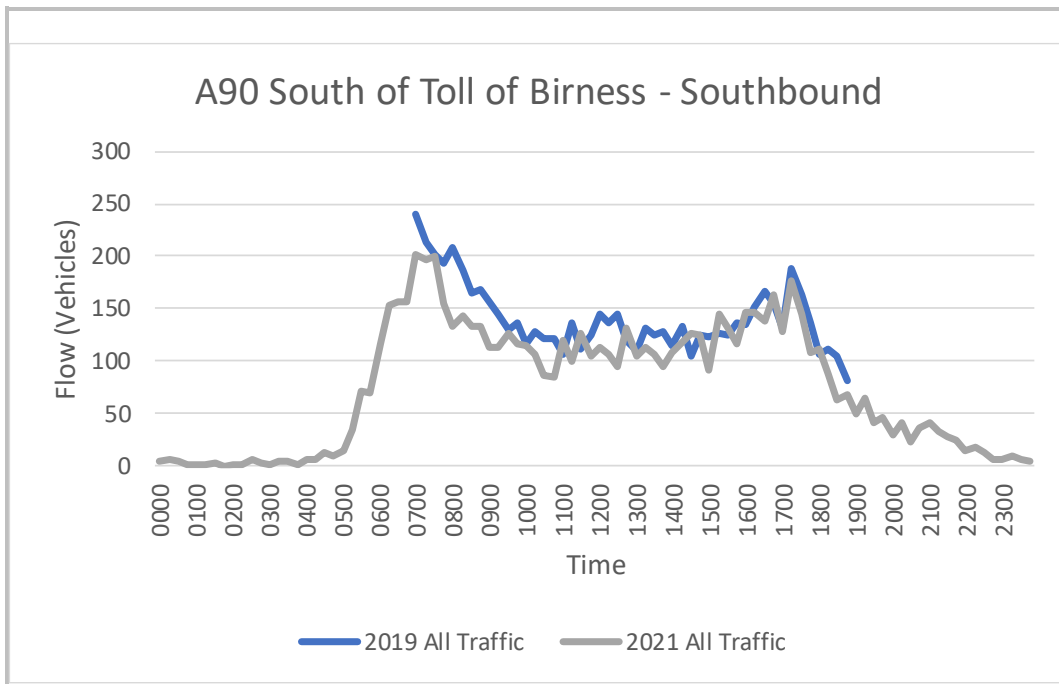


Figure 3.33 : A90 South of Toll of Birness southbound Traffic Profile Comparison (All Vehicles 07:00-19:00)

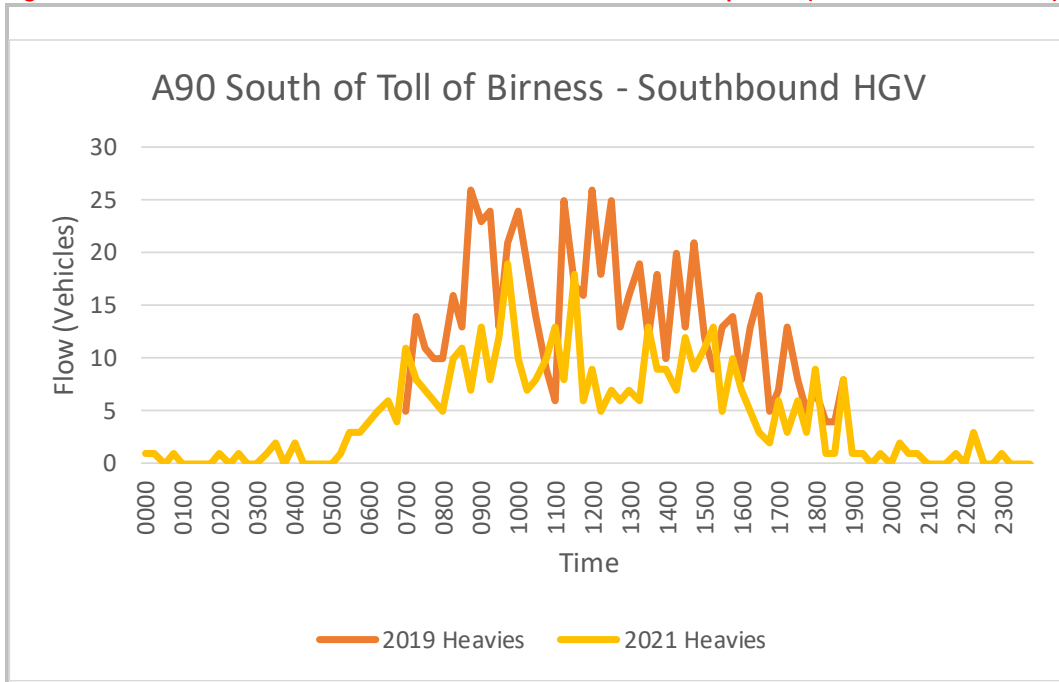


Figure 3.34 : A90 South of Toll of Birness southbound Traffic Profile Comparison (Heavies 07:00-19:00)

3.2.11 Figure 3.33 and Figure 3.34 show that the traffic profile was slightly lower in May 2021, particularly in the AM peak.

Site 4 – A90 South of A948

3.2.12 Figure 3.35 and Figure 3.36 below present a comparison of the traffic profile between October 2019 and May 2021 in a northbound direction for all vehicles and heavy vehicles respectively. The October 2019 used was the 12 hour turn count data, hence a comparison is only available between 07:00 and 19:00.



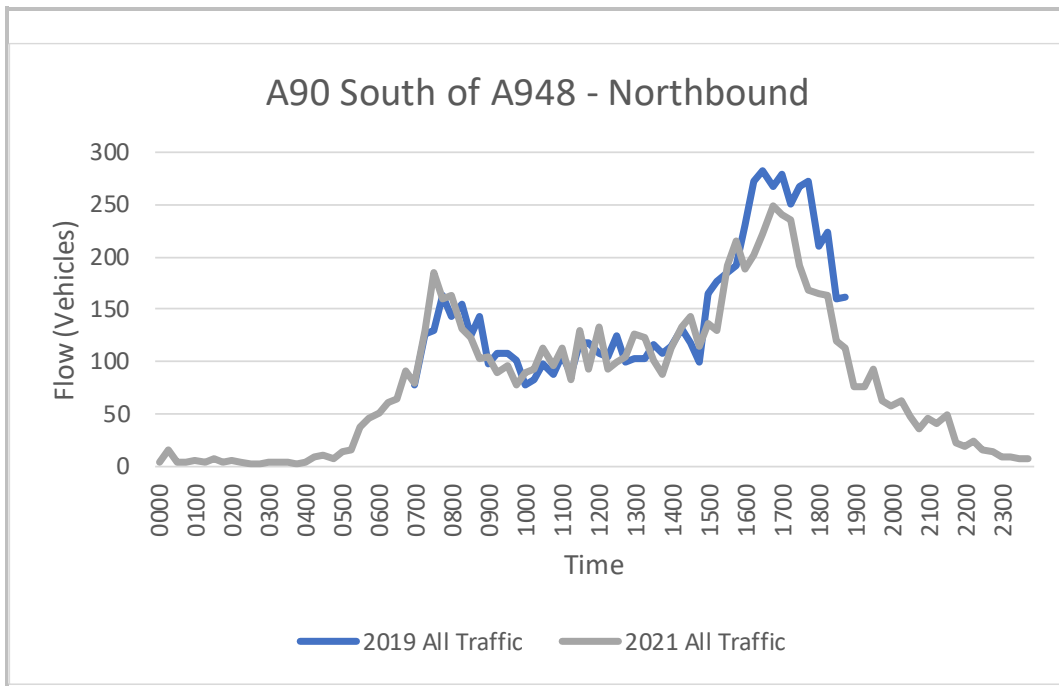


Figure 3.35 : A90 South of A948 northbound Traffic Profile Comparison (All Vehicles 07:00-19:00)

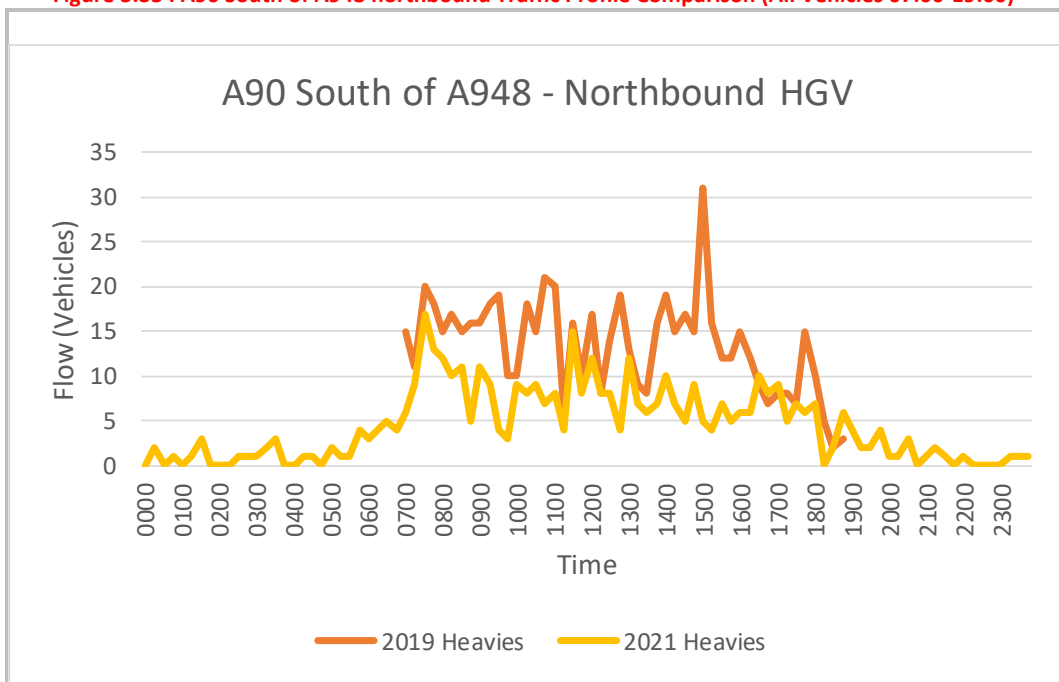


Figure 3.36 : A90 South of A948 northbound Traffic Profile Comparison (Heavies 07:00-19:00)

3.2.13 Figure 3.35 shows that the all vehicle profile is similar, although the volume of traffic observed in May 2021 is lower than October 2019 in the PM peak. The heavies profile in Figure 3.36 is also similar, although it should be remembered that the data is comparing a 2019 classified turn count survey with a 2021 ATC survey so there may be slight differences in the classification of vehicles. Figure 3.37 and Figure 3.38 present the same information for the southbound direction.

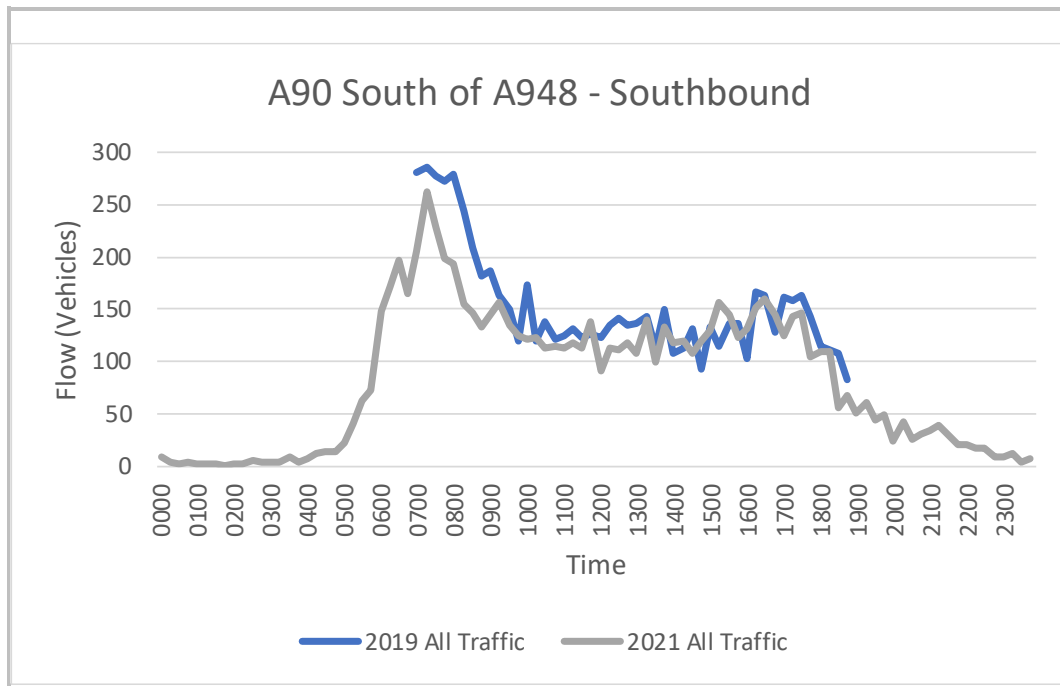


Figure 3.37 : A90 South of A948 southbound Traffic Profile Comparison (All Vehicles 07:00-19:00)

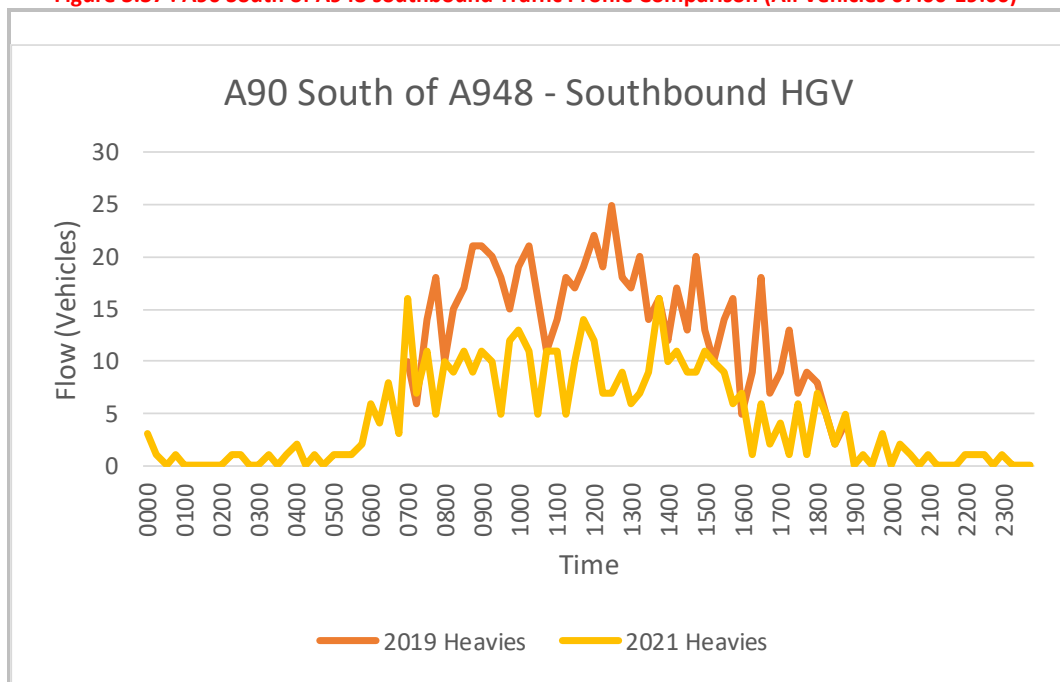


Figure 3.38 : A90 South of A948 southbound Traffic Profile Comparison (Heavies 07:00-19:00)

3.2.14 Figure 3.37 shows that the traffic profile was slightly lower in May 2021, particularly in the AM peak. Throughout the rest of the day they were very similar. Figure 3.38 indicated that heavy vehicle flows were slightly lower in 2021, although it should be remembered that the data is comparing a 2019 classified turn count survey with a 2021 ATC survey so there may be slight differences in the classification of vehicles.

Site 5 – A948 West of A90

3.2.15 Figure 3.39 below presents a comparison of the traffic profile between October 2019 and May 2021 in an eastbound direction for all vehicles and Figure 3.40 presents the same information for heavy vehicles. The October 2019 used was the 12 hour turn count data, hence a comparison is only available between 07:00 and 19:00.

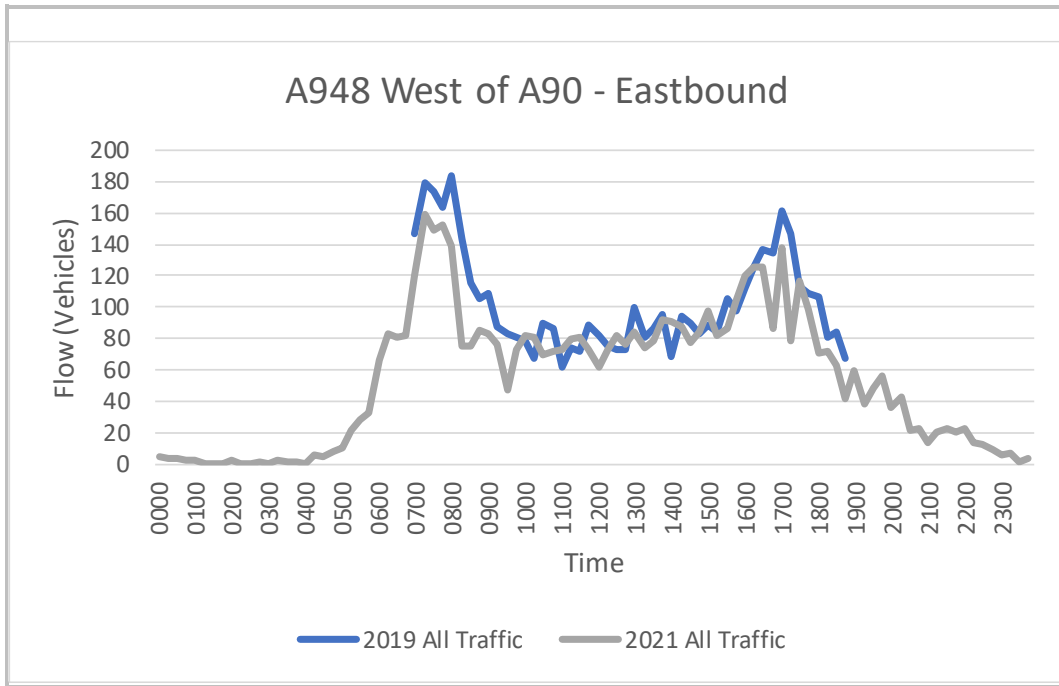


Figure 3.39 : A948 West of A90 eastbound Traffic Profile Comparison (All Vehicles 07:00-19:00)

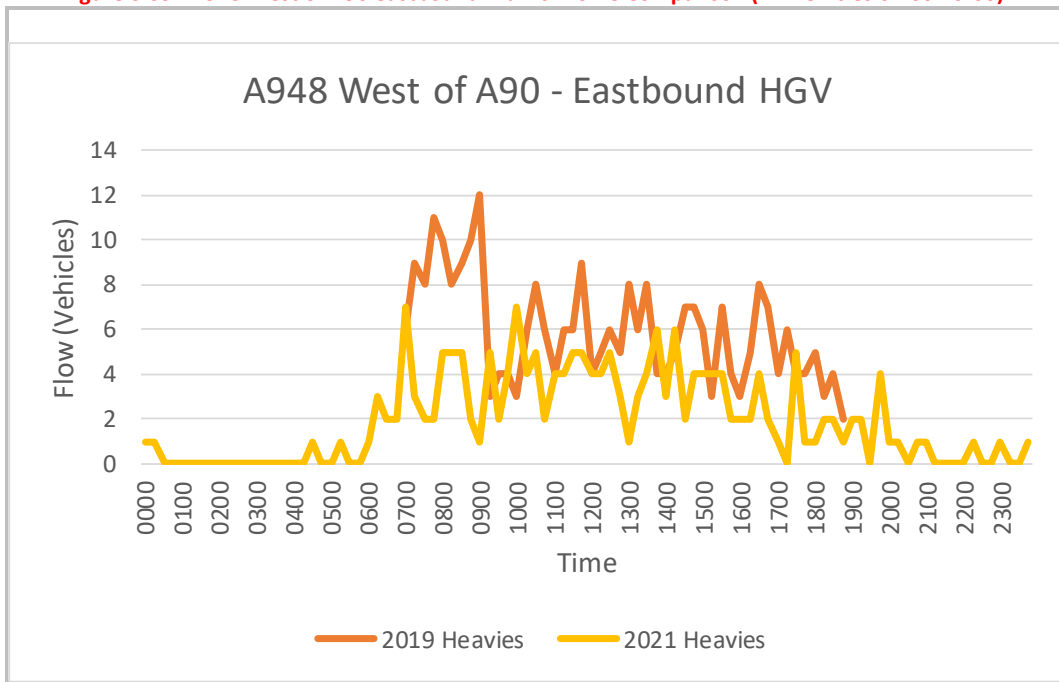


Figure 3.40 : A948 West of A90 eastbound Traffic Profile Comparison (Heavies 07:00-19:00)

3.2.16 Figure 3.39 show that the profiles are similar, although the volume of traffic observed in May 2021 is lower than October 2019 in both the AM and PM peak periods heading towards the A90. The heavies profile in Figure 3.40 is also similar, although it should be remembered that the data is comparing a 2019 classified turn count survey with a 2021 ATC survey so there may be slight differences in the classification of vehicles. Figure 3.41 and Figure 3.42 present the same information for the westbound direction.



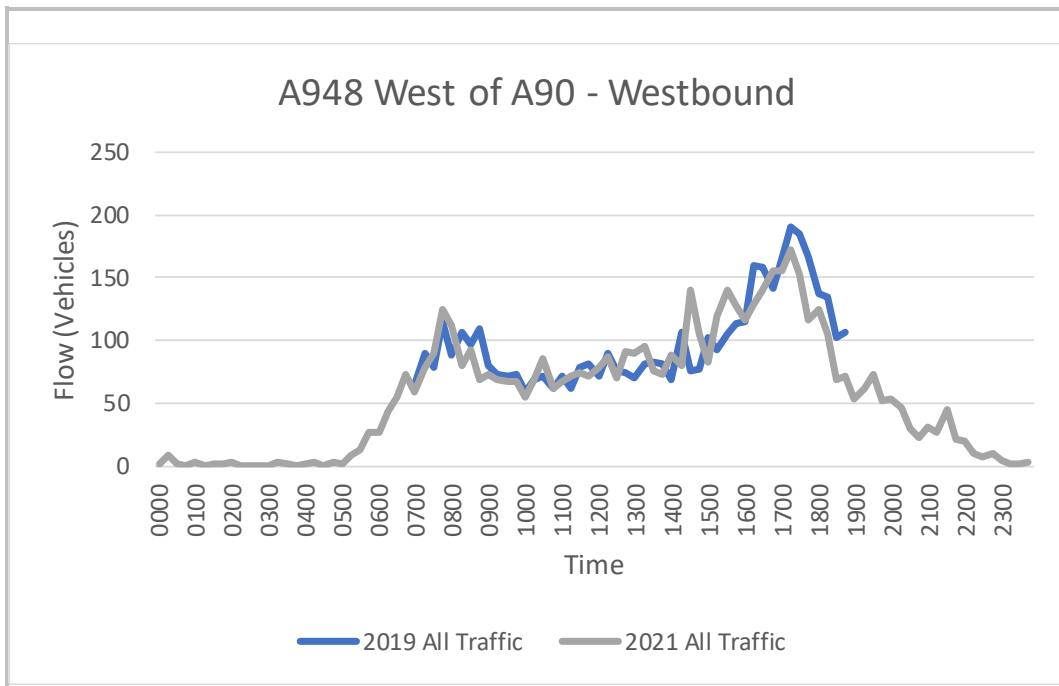


Figure 3.41 : A948 West of A90 westbound Traffic Profile Comparison (All Vehicles 07:00-19:00)

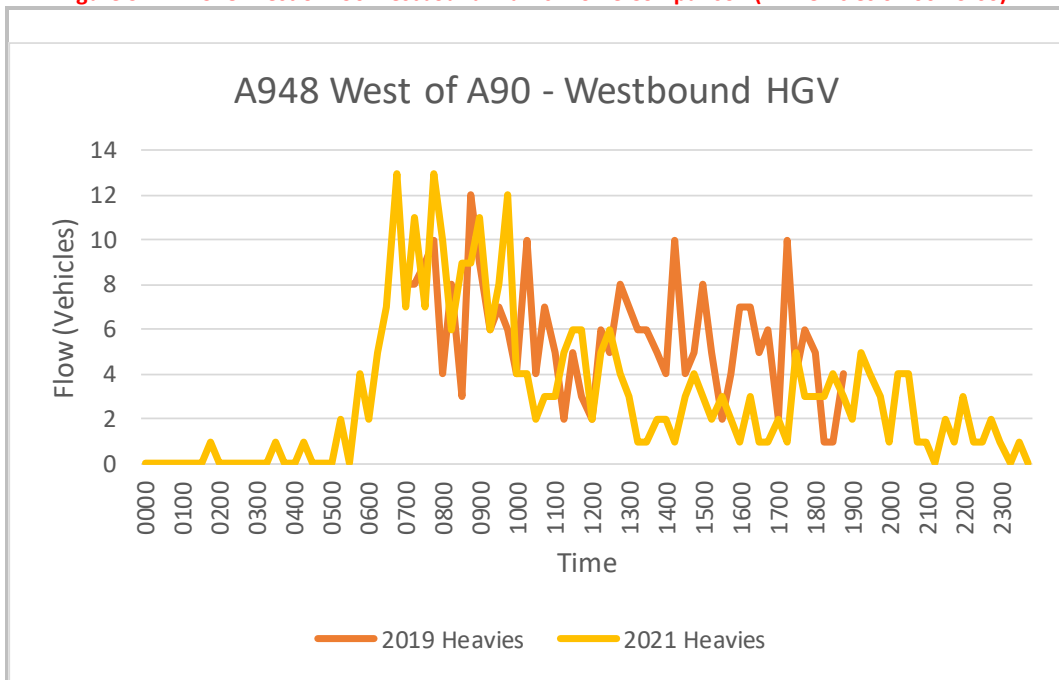


Figure 3.42 : A948 West of A90 westbound Traffic Profile Comparison (Heavies 07:00-19:00)

3.2.17 Figure 3.41 and Figure 3.42 show that the traffic profile was very similar between 2019 and 2021, a very slight drop in flows in the PM peak was the only noticeable change.

Site 6 – A90 North of Longhaven

3.2.18 Figure 3.43 and Figure 3.44 below present a comparison of the traffic profile between October 2019 and May 2021 in a northbound direction for all vehicles and heavy vehicles respectively. The October 2019 data was from the nearest Transort Scotland ATC site, located at Cruden Bay, south of Longhaven.

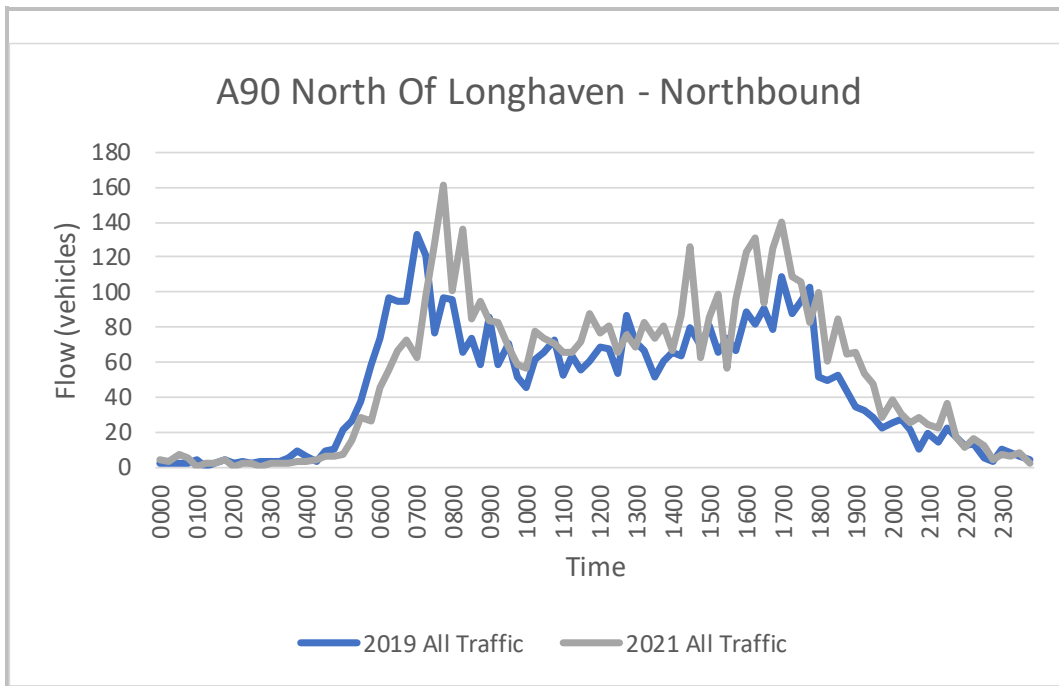


Figure 3.43 : A90 North of Longhaven northbound Traffic Profile Comparison (All Vehicles 07:00-19:00)
 *2019 Data is from the nearest Transport Scotland Site (A90 Cruden Bay), South of Longhaven

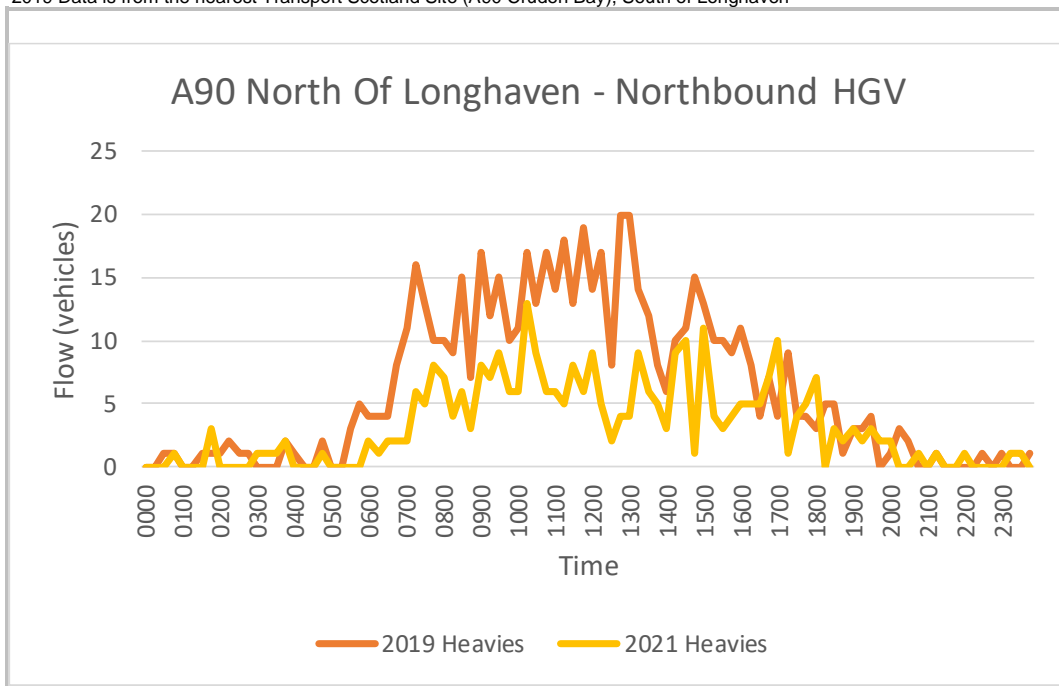


Figure 3.44 : A90 North of Longhaven northbound Traffic Profile Comparison (Heavies 07:00-19:00)
 *2019 Data is from the nearest Transport Scotland Site (A90 Cruden Bay), South of Longhaven

3.2.19 Figure 3.43 and Figure 3.44 show that the profiles are similar, although the volume of traffic observed in May 2021 is higher than October 2019, possibly due to the locations of the ATC counters. Figure 3.45 and Figure 3.46 present the same information for the westbound direction.

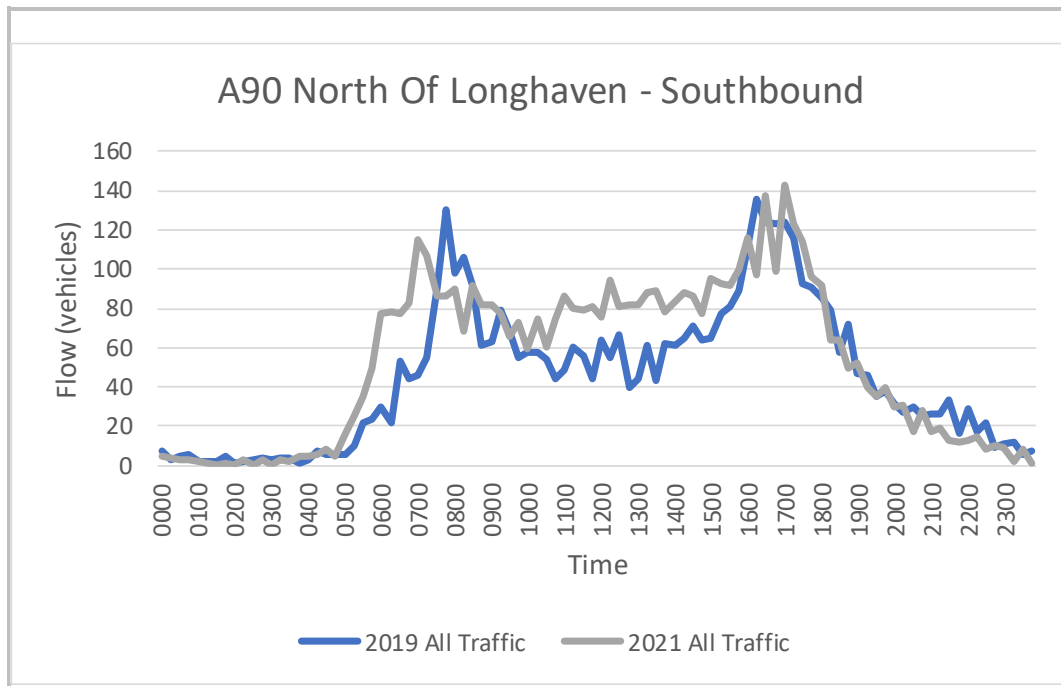


Figure 3.45 : A90 North of Longhaven southbound Traffic Profile Comparison (All Vehicles 07:00-19:00)
 *2019 Data is from the nearest Transport Scotland Site (A90 Cruden Bay), South of Longhaven

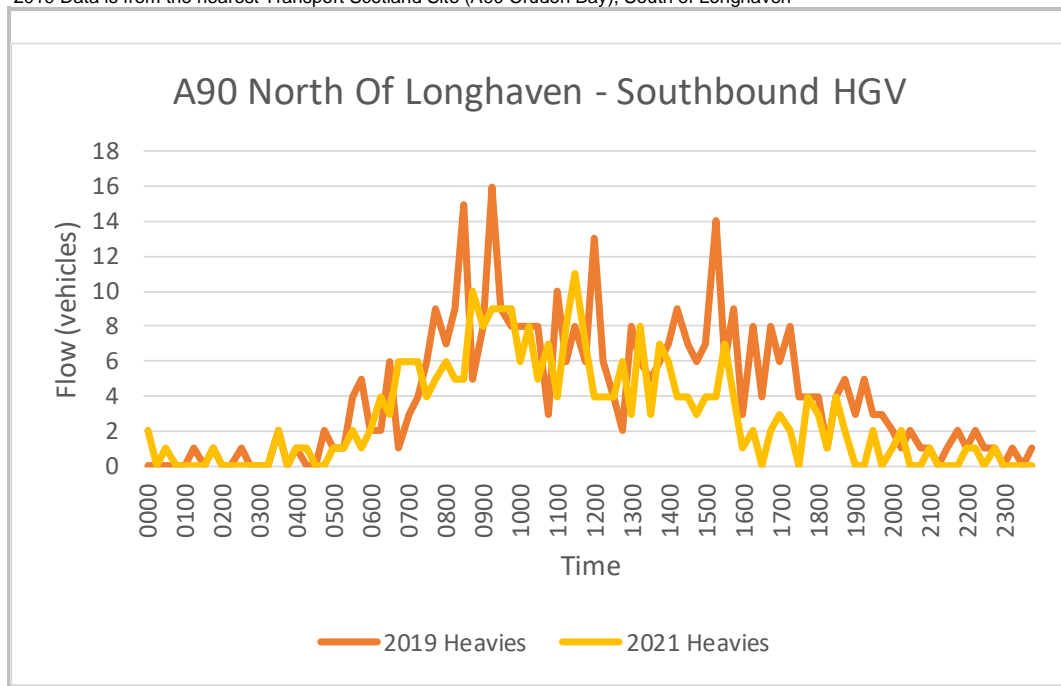


Figure 3.46 : A90 North of Longhaven southbound Traffic Profile Comparison (Heavies 07:00-19:00)
 *2019 Data is from the nearest Transport Scotland Site (A90 Cruden Bay), South of Longhaven

3.2.20 Figure 3.45 and Figure 3.46 show that the traffic profile was relatively similar between 2019 and 2021, albeit the sites are at different locations on the A90, this could account for the slight difference in the traffic profile.

Site 7 – B9005 West of A90

3.2.21 Figure 3.47 and Figure 3.48 below present a comparison of the traffic profile between October 2019 and May 2021 in a northbound direction for all vehicles and heavy vehicles respectively. The October 2019 used was the 12 hour turn count data, hence a comparison is only available between 07:00 and 19:00.

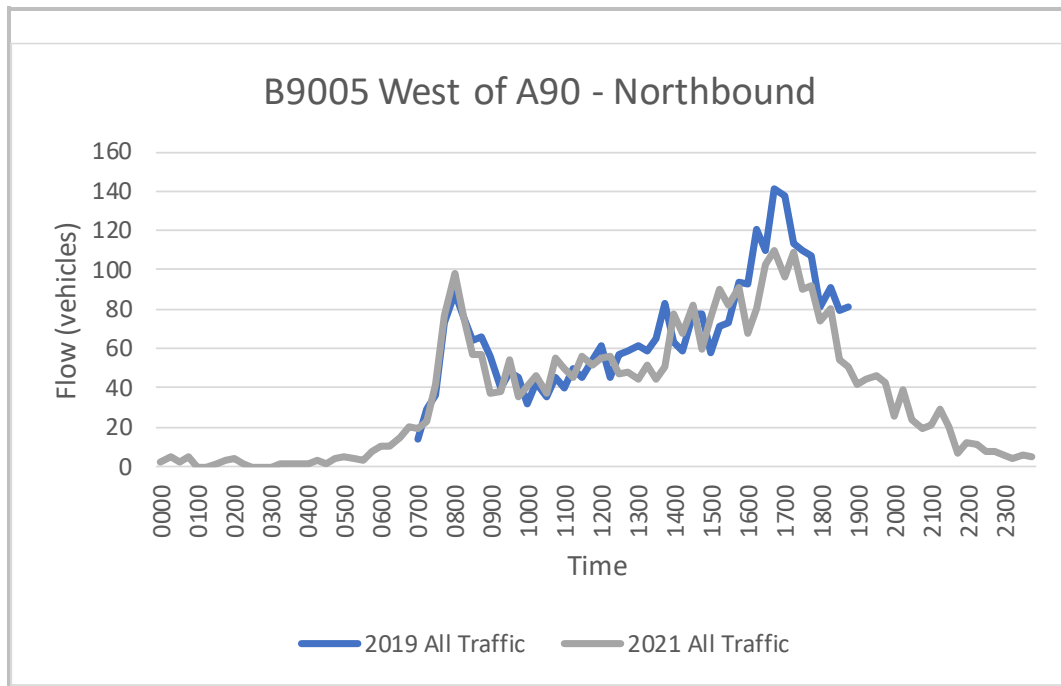


Figure 3.47 : B9005 west of A90 northbound Traffic Profile Comparison (All Vehicles 07:00-19:00)

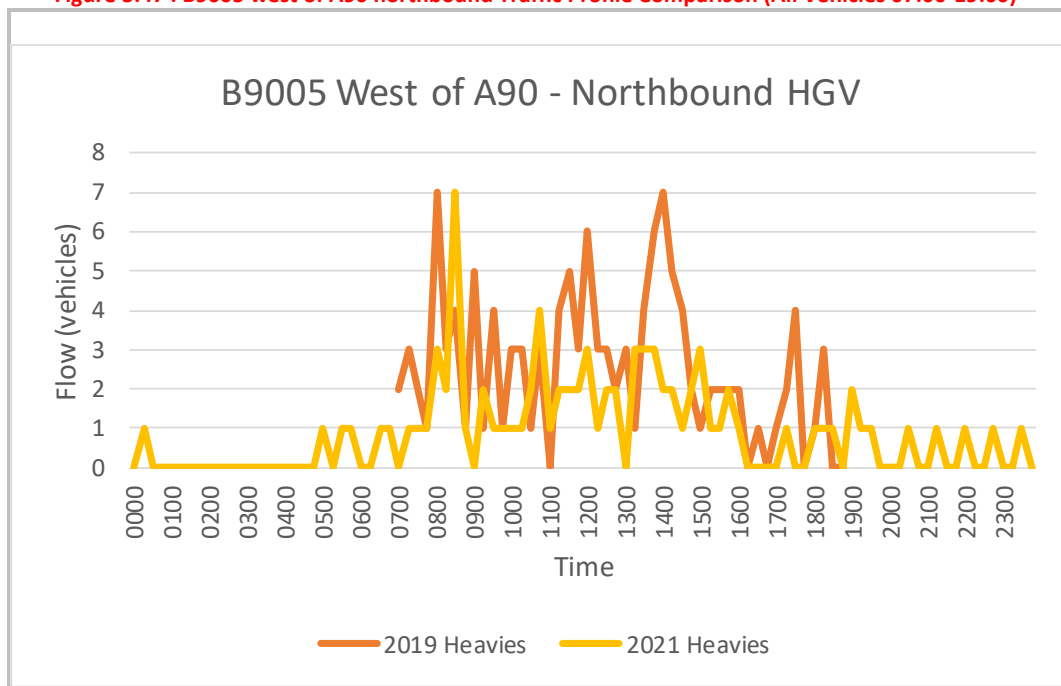


Figure 3.48 : B9005 west of A90 northbound Traffic Profile Comparison (Heavies 07:00-19:00)

3.2.22 Figure 3.47 shows that the profiles are similar, although the volume of traffic observed in May 2021 is lower than October 2019 in the PM peak period heading from the A90. The heavies profile in Figure 3.48 is also similar, although it should be remembered that the data is comparing a 2019 classified turn count survey with a 2021 ATC survey so there may be slight differences in the classification of vehicles. Figure 3.49 and Figure 3.50 present the same information for the westbound direction.

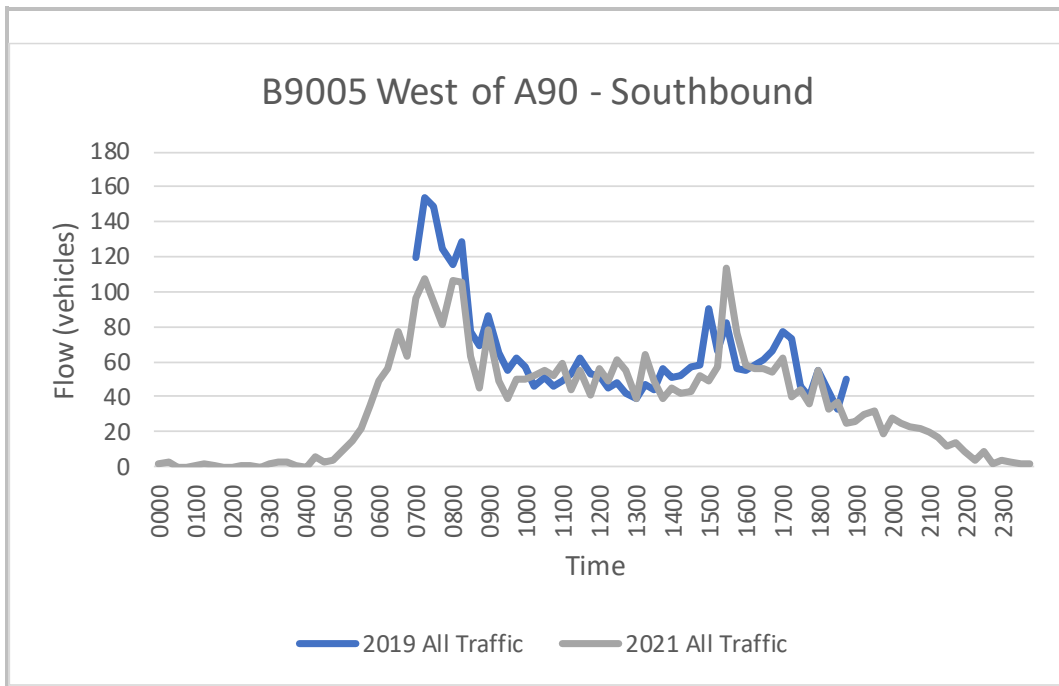


Figure 3.49 : A90 South of A948 southbound Traffic Profile Comparison (All Vehicles 07:00-19:00)

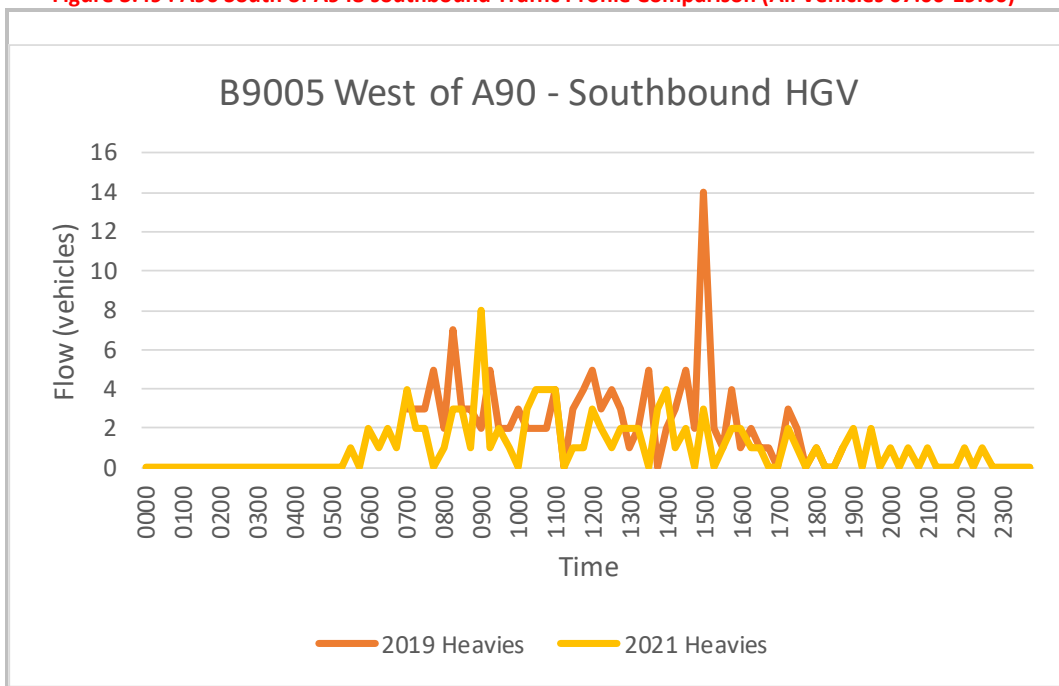


Figure 3.50 : A90 South of A948 southbound Traffic Profile Comparison (Heavies 07:00-19:00)

3.2.23 Figure 3.49 and Figure 3.50 show that the traffic profile was very similar between 2019 and 2021, apart from a drop in flows in the AM peak.

4. SUMMARY & FINDINGS

4.1 Summary

- 4.1.1 SYSTRA was commissioned by Nestrans in August 2021 to undertake analysis of traffic surveys at locations on the edge of Ellon. The purpose of surveys was to provide a measure in order to be able to monitor the traffic volumes going forward, following the Covid-19 lockdown. The surveys were undertaken on Tuesday 25th May.

4.2 Findings

Overall Demand

- 4.2.1 Analysis of the survey data has shown that average light vehicle traffic levels on 25th May 2021 across the 3 surveyed locations were around 80% of the 2019 AM Peak demand, around 92% of the average Inter-Peak demand in 2019, and around 87% of average demand in the PM peak observed in 2019. Across the full day, traffic demand was around 85% of the average demand observed in October 2019.
- 4.2.2 In terms of heavy vehicles, analysis has shown that traffic levels on 25th May 2021 across the 3 surveyed locations were around 99% of the 2019 AM Peak demand, around 110% of the average Inter-Peak demand in 2019, and around 122% of average demand in the PM peak observed in 2019. Across the full day, traffic demand was around 106% of the average demand observed in October 2019.

Traffic Queues

- 4.2.3 Analysis of the queue data collected at the 3 junctions has shown that:
- At Junction 1 (A90/B9005), the queue on the A90 north approach is slightly shorter in the AM peak whilst other approaches are broadly similar. Throughout the inter peak queues are similar between surveys, whilst in the PM peak the queue on the A90 south approach is significantly shorter in 2021 when compared to 2020.
 - At junction 2 (A90/A948/Lintmill Brae), the A90 north is relatively consistent throughout the day, with the exception of the AM peak which shows similar lengths of queuing but for a shorter period of time. The A948 shows similar levels of queuing throughout the day, as do the A90 south and Lintmill Brae approaches.
 - At junction 3, the queue from the A952 has remained similar to levels seen in 2019, albeit slightly shorter levels in the AM peak are observed.

Traffic Profiles

- 4.2.4 Traffic profiles for all vehicles and heavy vehicles have remained relatively consistent between surveys, the main differences being seen southbound in the AM peak and northbound in the PM peak.



APPROVAL

Version	Name	Position	Date	Revision	
1	Author:	Alasdair Kay	Principal Engineer	22/09/2021	
	Checked:	Alasdair Kay	Principal Engineer	22/09/2021	
	Approved:	Alasdair Kay	Principal Engineer	22/09/2021	
2					

