4ABZ1: Freight Gateway Interconnectivity

Measure Evaluation Report

Section 1 Summary of measure description

The effect on the freight flows as a consequence of major city and port infrastructure changes in and around the Aberdeen city region were analysed in respect of:

- The impact of a major new port area in terms of potential traffic and transfer of existing facilities that was expected to require major investment in local infrastructure to support the movement of goods to and from the site;
- The impact of the construction of a new by-pass, the Aberdeen Western Peripheral Route (AWPR);
- The availability of clean fuel refuelling stations;
- The development and changing locations/nature of the region's economic base.

This analysis was performed taking into account the intervening residential areas and the impact/synergy with sustainable passenger transport modes. It focused on the capture, analysis, and monitoring of the changing freight flows and regional distribution patterns

The measure objectives were:

(1) City policy level in respect of CIVITAS Portis goals/ longer term:
- To implement organisational and infrastructural mobility measures for urban freight logistics

(2) Strategic level:
- To work collaboratively in developing proposals to access the new port, provide solutions which improve the efficient and effective movement of goods whilst minimising the impact of goods vehicle movements on residential areas, on the environment and on other road users including walkers and cyclists

(3) Measure level:
- To update mapping of preferred HGV and freight routes
- To undertake a review into effective freight traffic management with the post-AWPR road hierarchy and any further alterations in relation to the new harbour development

SECTION 2 IMPACT RESULTS

Objectives	Indicators	Results			
		Before	After	BaU	Measure Impact (After – Before)
From A1	From C2	C2	C2	C2	C2
Implement revised preferred freight routeing	Freight movements (total on all principal routes)	38,865 (74%)	53,427 (82%)	No change	+14,562 (+8pp) of movements on principal routes
Increased usage of preferred routes	Awareness level (of maps)	21%	50%	No or limited change	+29pp
	Acceptance level (of routeing)	50% (plus 43% with caveats) open to re-routeing after opening of AWPR	83% used AWPR (17% did not answer question)		+33pp (or -10pp if tentative response included)[1]
		62.5% follow routes all or most of the time	75% follow routes all or most of the time		+12.5pp

[1] Results regarding acceptance cannot be fully compared as the question asked in the final survey was not the same as in the initial survey. In addition, responses to the final survey were much lower than for the original survey, with not all respondents answering the question. No respondent answered that they did not use the AWPR. If non-responses are removed, acceptance would increase to 100% with an increase of 50% (or 7%) on the baseline.

Key Impact findings

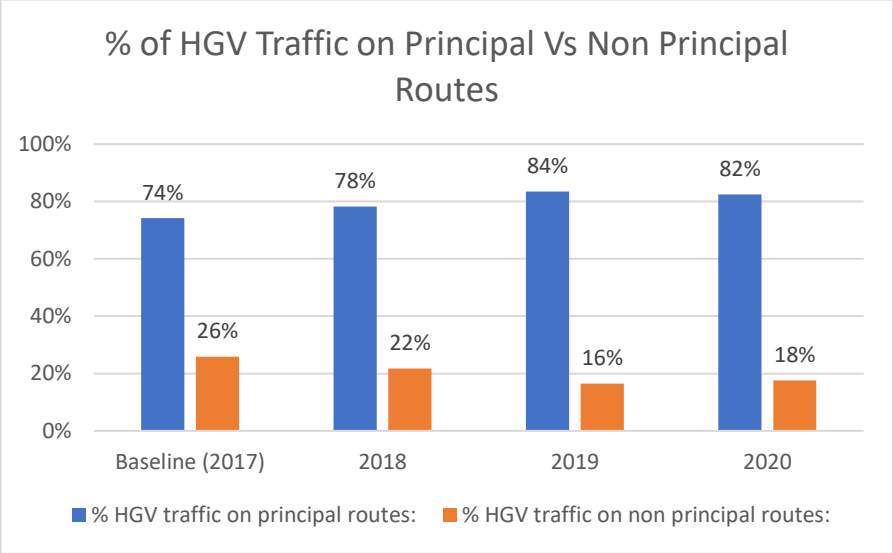


Figure 1: Percentage of HGV Traffic on Principle vs. Non-Principle Routes

- **Key result 1 –** Following the opening of the Aberdeen Western Peripheral Route (AWPR), the two main north/south roads through Aberdeen, King Street and Anderson Drive, saw the most significant reduction in freight numbers, with a decrease of 27% and 19% respectively in 2019, the year that the AWPR opened. In comparison, roads that were previously used to travel through the city centre saw an average 16% decrease in freight numbers. Since its opening, there has been a steady increase in freight levels on the bypass with an average of 7% increase across the entire length of road between 2019 and 2020. The largest increase in freight traffic was in the section bypassing the city centre, with an increase of 17% between 2019 and 2020. It can be concluded that at least part of the reduction in City freight traffic can be attributed to the availability of the bypass to avoid the city centre, which supports the new routeing that has been developed.
- **Key result 2 -** In 2017 the heaviest freight route followed the A90 from the south onto Wellington Road then to Aberdeen Harbour. This then continued through the centre of Aberdeen along King Street, with another route of heavy freight presence identified along Anderson Drive. In 2020 the heaviest freight routes followed access to the city from both the north and the south, along with the majority of the AWPR. Wellington Road and Market Street continue to have a strong freight presence, whilst Anderson Drive, Union Street and King Street have all seen reductions in freight traffic. This suggests a reduction in freight vehicles travelling through the Aberdeen city centre, which is supported by the high freight volumes on the Aberdeen bypass.
- **Key result 3** - One of the primary achievements in traffic collection was the addition of the two King Street counters. This allowed for monitoring of traffic north of Aberdeen city centre, which was not previously possible on a regular basis. Traffic counters were also added on Great Northern Road, the Coast Road, Park Road and the road between Bucksburn and Kingswells as part of the project. This was to better understand freight levels travelling both on principal routes around Aberdeen, as well as inappropriate routes where there had previously only been anecdotal evidence.
- **Key result 4 -** Regarding HGVs and LGVs as a percentage of all traffic, the AWPR now has the highest proportions of freight as a percentage of all traffic, with proportions ranging from between 20% and 30% along the majority of the route. The section between Balmedie and

Tipperty recorded the highest proportions of freight, with 32% at Balmedie and 54% at Newburgh (although this could represent an issue with recording at the count site given the difference to the Balmedie count site). South of Aberdeen, the AWPR at Maryculter recorded 40% freight, with the junction between the AWPR and the original A90 recording 39%. Previously, the A956 Wellington Road had one of the highest proportions of freight, at 20% of all traffic. This has remained relatively consistent with HGVs/LGVs representing 19% of all freight in 2020, although it is no longer the most freight dominant route. Freight proportions also remain high on the north/south route through the city, with ranges between 11% and 19% of all traffic. Park Road has a high proportion of freight for the classification of road, at 12% of all traffic. This confirms anecdotal reports of the route acting as an inappropriate route for freight vehicles at the beginning of the project and has informed the ongoing work to reduce freight movements on this route. The proportion of freight on Anderson Drive has reduced from 6-7% of all vehicles, to 3% of all vehicles. This shows that freight has reduced both in number and proportion on this route, which meets the overarching objective of removing unnecessary through traffic from Aberdeen. However, B9077 Millbank, B979 at Peterculter, B979 Auchinlech and B977 Denhead show that there are still relatively high proportions of freight utilising more rural routes, with freight proportions of 11 – 14%.

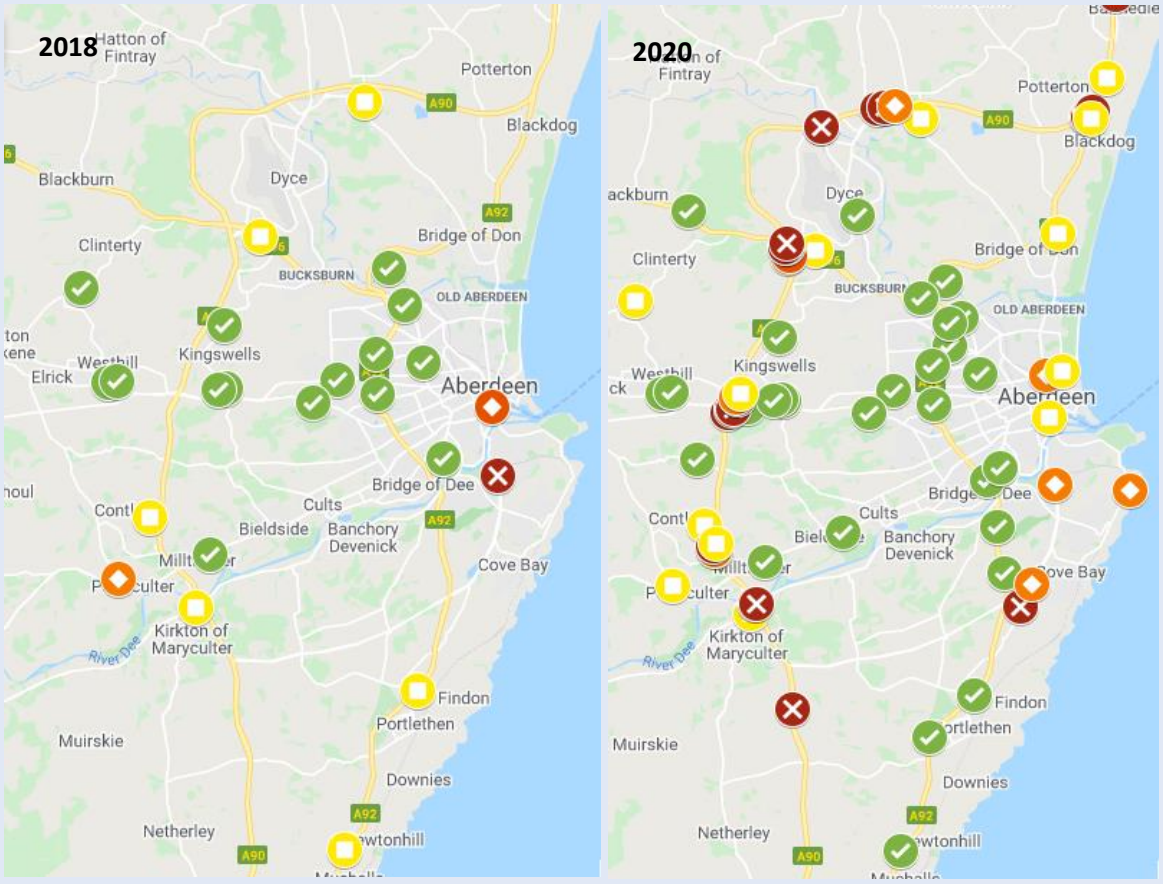


Figure 2: The proportion of freight as a percentage of all traffic. Red = > 21%; Orange = 16-20%; Yellow = 11-15%; Green = 5-10%. Image also shows the increase in available freight counters in area.

- **Key result 5 –** Acceptance of the AWPR has increased, with comments regarding the bypass being overwhelmingly positive in the final survey compared to those in the initial survey. Operators

noting that they follow recommended routes has increased by 12.5 percentage points, which corroborates findings from the traffic counts.

- **Key result 6 –** Engagement with the freight industry has improved, with the creation of a biannual freight stakeholder working group. This has supplemented the larger Freight Forum, which meets on an ad-hoc basis when required. In addition, communication has now been achieved with the parcel sector through engagement with Royal Mail, and local retailers through Aberdeen Inspired. Whilst the response rate to the final survey was lower than desired, 21% of the respondents to the original survey are now an active part of the Freight Forum, with a further 11% making up part of the stakeholder working group. Increased engagement across the different areas of the freight industry is anticipated to benefit future measures to manage traffic flow and ensure the efficient movement of freight.

SECTION 3 PROCESS EVALUATION SUMMARY

The measure was planned to complement and add value to the construction of the Aberdeen Western Peripheral Route (AWPR). Due to delays in the opening of the AWPR, the time that could be dedicated to devising and evaluating a new routeing strategy was reduced. This was due to the AWPR not opening until February 2019, rather than the original planned opening of Autumn 2018. As such, although the benefits of the AWPR are already apparent and the new routeing strategy has been devised in collaboration with key stakeholders in the freight industry, it has not been possible to fully roll out the strategy in a format that can be best used by consumers.

The strategy was developed based on the signing strategy for the AWPR, the roads hierarchy and Aberdeen SUMP. Consultation on the roads hierarchy and the SUMP was taken in collaboration with industry stakeholders, who also fed into the new routeing strategy; highlighting any areas of the strategy that may have been overlooked or could pose problematic for the efficient movement of freight. Representation was also made on any areas of the roads hierarchy that conflicted with the movement of freight, including any recommendations for priority routes that would create a barrier to freight movement due to height or width restrictions.

The routeing strategy was developed as a map of the region, which highlights the recommended routes in the form of a hierarchy for freight. This includes recommendations for routes that act as a through road for freight, as well as access routes for industrial and retail sites. All potential restrictions that could impact on the majority of freight vehicles are identified, as well as all major destinations for freight vehicles in the north east of Scotland.

It is intended that the routeing strategy will still be rolled out in both a published and online format. Work is ongoing to look at potential applications of the new maps in an app format. Currently, the maps are available online through the Nestrans website.[2]

One of the main successes of the project was the increase in participation by industry stakeholders and through the developing of relationships with new stakeholders and sectors through the work of a Freight Advisor, who was appointed through the PORTIS project. Previously, representation on the Freight Forum was primarily through oil and gas focused hauliers and the harbours. Now, the Freight Forum also has active representation from the retail and parcel sectors and is continuing to look at opportunities to reach other businesses and industries that have an interest in the work of the forum. Efforts have been made to engage with city centre retailers and other stakeholders to input into Low Emission Zones traffic restrictions/route planning. Unfortunately, this initiative has coincided with the COVID-19 pandemic and work is on hold until this sector is able to commence activities.

- **Barrier 1 – Organisational** – Whilst Nestrans was the leader of the project to create a new routeing strategy for freight, as it is not a transport Authority, it was unable to add additional value to the strategy by implementing traffic management measures to help enforce compliance with the routeing. However, Nestrans has made proposals for measures that could complement the strategy and has worked collaboratively with Aberdeen City Council to identify the best course of action for traffic management measures moving forward. This has included informing the work to implement traffic calming and measures to remove large freight vehicles from Golf Road due to it being used by a large number of freight vehicles, despite being an inappropriate route through residential areas. Nestrans has also helped to inform other projects, including the City Centre Masterplan, Roads Hierarchy and, more recently the work ongoing for Spaces for People across

[2] Available at https://www.nestrans.org.uk/projects/freight/

the north east of Scotland, which has attracted additional funding to implement measures that increases the space provided for pedestrians and cyclists, whilst minimising the disruptive impact this may have on deliveries to the area. Nestrans and Aberdeen City Council have also successfully applied for funding from Transport Scotland to run a cargo bike trial for local businesses in Aberdeen. Whilst the bikes are owned by Aberdeen City Council, Nestrans has taken control of managing the project as part of the distribution strategy devised under 4ABZ3.

- **Barrier 2 – Technological –** One of the aims of the project was to add value to the creation of new maps by ensuring that they were not only available in a paper format. Options for making the routes available within an app have been explored. There was an intention that the dissemination of the maps could be possible in conjunction with the work undertaken within 4ABZ2. However, this was not possible as the development of the freight routing maps was undertaken sooner than the work undertaken as part of 4ABZ2 and, as part of 4BABZ2, it was decided not to develop an App for freight upon further investigation and so a freight visualisation tool was developed instead. Nestrans has undertaken joint working with a neighbouring Regional Transport Partnership, Tactran, to look at regional opportunities for a freight routeing app. Commercially available freight routeing products were considered but they did not have enough evidence of their viability to justify the cost of using. Additionally, discussion with freight operators concluded that an app would not be the most useful option since drivers are not able to use their phones whilst driving as this is against the law. Other options are still being considered. Through discussions with Transport Scotland, it has been determined that a regional focus should be taken to freight routeing, as this would have more use to operators than several local maps.
- **Barrier 3 – Technological –** One of the main barriers to the implementation of the project was the availability of data. The primary evidence base for analysing the impacts of the project was the use of traffic counts. However, these did not cover all of the routes that were of interest to determining the success of the project; primarily the inappropriate routes that had anecdotal evidence of being used by HGVs. Traffic counts were added to these areas, although this took longer to do than originally planned and meant that some of the inappropriate routes did not have a baseline. However, the addition of the new count sites in Aberdeen did lead to better visibility of freight movements within the city. This has meant that as of 2020 it is now easier to visualise movements into and across the city.

  Unfortunately, the availability of data was an issue throughout and represented the biggest barrier to analysis, particularly as many traffic counters did not work consistently throughout the project. Part of this was due to ongoing construction, but it meant that many of the count sites required estimation in between the years they operated. In Aberdeenshire, whilst a new count site at Inverbervie was installed during the lifetime of the project, all other count sites were deactivated in 2018 when the software previously used became unsupported and incompatible with related systems. It was found that the software problems could not be resolved with the existing equipment. This means that there was limited opportunity to analyse the effect of the AWPR on the Aberdeenshire road network. This has led to potential double counting of freight vehicles in the final two years as the Aberdeenshire counters were frozen at their last return. Whilst it was possible to compare traffic levels between Aberdeen City and the AWPR, it has not been possible to draw firm conclusions from the impact of the AWPR and the new routeing strategy on the use of rural roads in Aberdeenshire. However, as the increase in freight traffic on the AWPR is higher than the decrease in traffic in Aberdeen, it can be surmised that there has been at least some movement away from using more rural routes. Confirmation of where these movements have been most prominent will require new count sites to be installed in locations of interest. Opportunities for utilising technology to gather new information on traffic flows will be considered moving forward.

- **Driver 1 –** One of the main drivers for the project was the construction and opening of the AWPR as well as the creation of the Roads Hierarchy during the lifetime of the project. Both of these projects created an opportunity for the new freight routeing strategy to be devised and implemented as they removed the last trunk road barrier to efficient freight movement and allowed for an option for freight to travel through the region without passing through the centre of the city. The primary focus of the measure was how to best take advantage of this opportunity.
- **Driver 2 –** Similarly, the construction of the new Aberdeen South Harbour has presented a need to consider routeing to both harbours as well as between them. This has been done in conjunction with the Strategic Transport Appraisal, commissioned as part of the City Region Deal, to identify a potential new road to service the new harbour. However, it was understood that adequate access to the harbour would be required in the meantime, which was highlighted as part of the new routeing strategy. Disruption to the residential area situated between both harbours needed to be mitigated. Routeing that avoided this area was included within the strategy and was supported by traffic management measures implemented as part of the harbour construction. Access to Aberdeen South Harbour was a key consideration of the strategy as it was important to decide on the most appropriate routes from across the region that would not increase traffic through the city centre, but that would also not have an unduly negative impact on operators. Additionally, there was a requirement to consider how the existence of the new harbour could impact traffic levels and operations accessing the existing harbour.

SECTION 4 EVALUATION CONCLUSIONS

As noted above, one of the main issues with analysis of the project was data collection. Part of this was due to technical limitations of the count sites but most of the issue was due to continuity software and equipment issues managing the data access from the sites. Due to this, in interpreting the data two caveats should be borne in mind. First, a number of the values for 2018 and 2019 are estimates only, so a true, year-on-year comparison is difficult. Second, as noted previously, traffic counters in Aberdeenshire were deactivated in 2018, and the relevant counts have therefore been 'frozen' at the same levels since that date. It has been concluded from the available data that some freight traffic will have moved from these routes to the AWPR, which means that an element of double counting will have taken place, although the precise extent of this is unknown. With this in mind, we advise that the principal/non-principal routes breakdown be regarded as an approximation only.

However, despite approximation, there is evidence to show that transfer of freight movements from rural and city routes to the bypass has been successful and that this has led to an overall decrease of freight presence in the city centre. This was despite initial observations that the location of the harbour in the centre of Aberdeen could present a challenge given that it is a significant destination for freight movements in the region. Whilst data was a challenge within Aberdeen at the start of the project, new count sites installed as part of PORTIS have enabled a better understanding of movements of all traffic, including freight, across the city, which will have benefits for future projects. Although the loss of Aberdeenshire data during the project created some challenges, new count sites installed by Transport Scotland as part of the bypass construction have supplemented some of the sites lost and have also allowed better visualisation of other parts of the region that were not previously monitored. Whilst consistency across the initial 20 sites had challenges, most of these were able to be largely mitigated and, through PORTIS, the number and quality of count sites across the region overall has improved as of 2020. It is anticipated that it will also be possible moving forward to extend these improvements to the rest of Aberdeenshire to allow for a strong oversight of movements across the north east of Scotland given the proven importance and benefit of automatic traffic counters seen through this project.

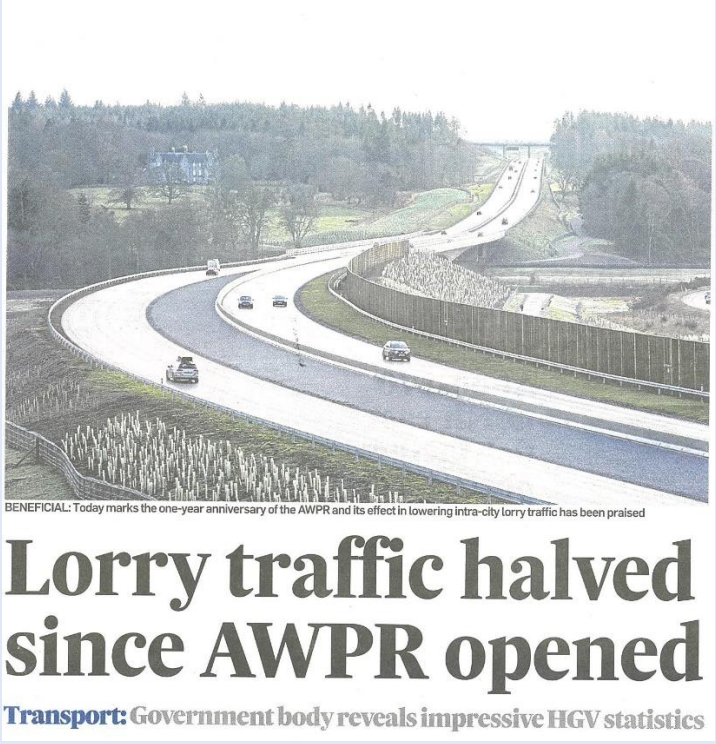
It was hoped that the results and outputs of 4ABZ2 would have more of a direct impact in supporting the realisation of the strategy for 4ABZ1. Unfortunately, as 4ABZ1 proceeded faster than 4ABZ2 this did not turn out to be the case. However, the development of the Aberdeen SUMP was instrumental in detailing the finer points of the routeing strategy in the city centre and was invaluable in ensuring that the aims of the project matched the wider strategy for Aberdeen. In addition, through the appointment of a Freight Advisor as part of the project, we were able to advise work within 4ABZ2 regarding contacts and options for developing smart systems for freight.

Following from this project, it is important to improve dissemination of the new routeing strategy and the maps in a format that can be easily used by operators. Following engagement with the stakeholder working group and other Regional Transport Partnerships, this will require further work following the conclusion of PORTIS in order to achieve given the importance of ensuring a regional focus.

Currently, whilst the maps include routeing for areas of Aberdeenshire, this is in the process of being added to and improved so that they provide a finer level of detail across a wider area. Due to the complexity of routeing across more rural areas, this will require further work to complete. The aim is

to ensure that the maps can exist in a format that can be regularly updated so that they have less risk of becoming outdated.

- **Key conclusion 1** – The AWPR has proven successful in enabling freight vehicles to avoid Aberdeen as well as rural routes. This will provide a solid foundation for further traffic management measures to minimise freight vehicles travelling on inappropriate routes or through the city centre unnecessarily.



BENEFICIAL: Today marks the one-year anniversary of the AWPR and its effect in lowering intra-city lorry traffic has been praised

Lorry traffic halved since AWPR opened

Transport: Government body reveals impressive HGV statistics

Figure 3: P&J Article on Impact of AWPR

- **Key conclusion 2** – Whilst there have been major upgrades to the available data on traffic movements this requires further improvement, particularly on busy rural routes as the majority of the current data is focused on trunk roads and Aberdeen. Although there were measured reductions in freight movements within Aberdeen, the loss of Aberdeenshire data meant that impacts on busy rural routes could not be similarly quantified.
- **Key conclusion 3** – Further work is required to improve relationships with stakeholders. Whilst gains have been made in including other sectors within the Freight Forum, there is still variable engagement with the industry overall. This could be further improved by ensuring that stakeholders understand the value of their contributions in projects as there may still be a belief that the influence of stakeholders in policy considerations is limited. As an addition to the larger Freight Forum, the stakeholder working group has proven valuable both to PORTIS as well as other projects. It is anticipated that this group will be maintained and strengthened to advise and engage on other projects moving forward.

SECTION 5 MAIN LESSONS LEARNT

Key lessons learned and long-term impacts

- **Lesson 1 –** Consistent and comprehensive data is paramount to a solid evidence base. There is great value in using traffic data to analyse trends and proportion of traffic in a given area.
- **Lesson 2** – Establishing relationships with freight stakeholders from different sectors is crucial when considering policy changes as the priorities and requirements of one stakeholder may not complement the requirements of another. Freight stakeholders are wide-ranging and can be challenging to engage with. It is important to take the time to foster meaningful engagement as this can have either a beneficial or detrimental impact at key points in the policy-making process depending on how well engaged the stakeholders were.
- **Lesson 3** – As part of the project, the membership of the internal working group was increased to include both an external Freight Advisor and a representative from Transport Scotland. Both were instrumental to the project as they provided support and advice, both from the perspective of commercial operators, as well as nationally. Being able to ensure that the working group encompasses a wide variety of stakeholders is key. This is particularly important in terms of national representation as, in the case of freight matters, there is a need to ensure that local interventions fit into national context as different issues relating to freight transport are both regional and national concerns as well as local ones.

- **Key expectation 1** – In the short to medium term there will continue to be a natural move of freight traffic from city centre routes and rural roads to the AWPR as operators realise the benefits in journey times.
- **Key expectation 2** – Without further intervention and measures to minimise through freight traffic within the city centre and on inappropriate routes, freight traffic may be at risk of increase on these routes in the longer term as AWPR draws more traffic away from these routes. This could lead to an equilibrium between the AWPR and other, less appropriate routes. This is a particular concern for freight traffic as, although there are currently journey time benefits to using the AWPR, it does involve more mileage and could increase fuel costs. If other routes become quieter and therefore quicker, freight operators may elect to use the less expensive option unless there are other measures in place to dissuade them.

Supporting documents:

- 4ABZ1 – Freight Gateway Interconnectivity Baseline Report, January 2018
- Initial Assessment of Freight in Aberdeen, March 2018
- Final Assessment of Freight in Aberdeen, April 2020