

4ABZ3: Minimising large vehicles in Aberdeen City Centre and encouraging clean vehicles

Measure Evaluation Report

SECTION 1 SUMMARY OF MEASURE DESCRIPTION

This measure provided the opportunity to continue the development of the Freight Gateway concept, for the benefit of city centre activities, following the realisation of the City Centre Masterplan, revised Strategic Road Network, and complementary linkages with the development of Aberdeen's Hydrogen Fuelling Infrastructure.

The primary focus of this measure was research into distribution and last mile interventions, including the benefits and risks of consolidation, along with mapping of current/future areas to the south of the city that could form the nucleus of Aberdeen's Freight Gateway. Awareness and acceptance of a potential consolidation centre was also analysed.

Outcomes of this work were due to lead to provisional planning guidance, with an objective of encouraging logistics and distribution activities in particular areas of the city. This was to be accompanied by marketing, communications and networking activities.

Promotion and piloting of alternatively fuelled vehicles was also undertaken, following the identification of the most suitable technologies/users.

SECTION 2 IMPACT RESULTS

This section presents a summary of the main impact results.

Objectives	Indicators	Results			
		Before	After	BaU	Measure Impact (After – Before)
From A1	From C2	C2	C2	C2	C2
Promotion and piloting of low/zero carbon delivery vehicles	Fuel Mix	100% diesel 48% Euro VI HG 68% Euro 6 LGV	100% diesel 86% Euro VI HG 78% Euro 6 LGV	No or limited change	Diesel – no change +38pp Euro VI HG +10pp Euro 6 LGV
	Interest in Low Emission Vehicles	29% interested or possibly interested in LEV	13% interested or possibly interested in LEV		-16pp interest in LEV
Progressing the development of an integrated freight gateway to the south of the city	Awareness Level	25% aware Nestrans exploring options for a consolidation centre	27% aware Nestrans exploring options for a consolidation centre	No change	+2pp awareness
	Acceptance Level	18% Yes or possibly to a consolidation centre	14% Yes or possibly to a consolidation centre		-4pp acceptance towards a consolidation centre

Please note that the responses before and after cannot be fully compared due to the difference in response numbers impacting on the results. As the number of respondents post project were unfortunately lower than at the start of the project, it is not possible to articulate with confidence whether the changes in acceptance, awareness and fuel mix are due to the results of the project or coincidental. The reduction in number of respondents also impacted on the results as small changes in opinion show more than they would have with more responses.

Key Impact findings

- Key result 1** – Whilst diesel remains the most used fuel type for freight vehicles, there has been improvement in the euro class of vehicles, particularly amongst HGVs. Whilst part of this will be attributable to the lower response rates to the final survey, there was also improvement seen amongst respondents who completed both surveys suggesting that there has been renewal of vehicles, with the oldest and least efficient vehicles being replaced. Part of this is likely due to natural renewal of fleets, although the planned Low Emission Zone (LEZ) for Aberdeen City Centre,

which forms part of the measure 3ABZ3 Demand Management, will have also likely influenced decision making.

- **Key result 2** – Both the survey and discussions with operators throughout the project have shown a reticence to consider alternative fuels for freight vehicles. Attitudes expressed from discussions with operators of HGVs, are that the technology is not yet at a place where electric or hydrogen fuelled HGVs would be a viable option. Although operators are looking to renew fleets to comply with emission requirements and potential low emission zones, the average lifespan of such vehicles (over seven years) means that further incentive will be required to encourage operators to utilise alternative fuels now if the target is to allow only zero emission vehicles in the future.

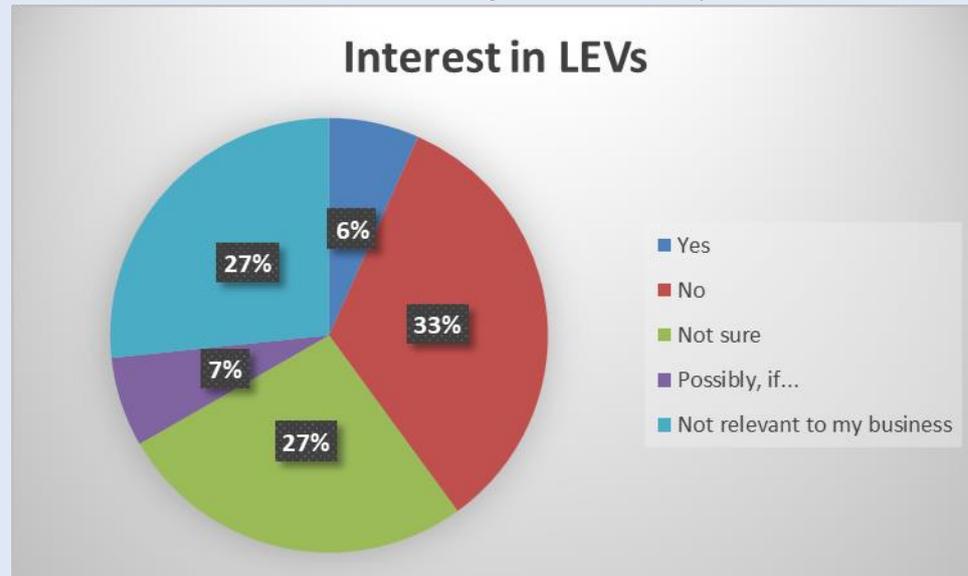


Figure 1: Interest in LEVs in 2020

This formed part of the focus of this measure to complement the work Aberdeen City Council is doing more widely to promote a shift to low emission vehicles (LEVs). There has been ongoing work to minimise the perceived risk of using hydrogen vehicles both in the freight and public transport sectors, and to involve the private sector in encouraging uptake. Through 4ABZ3, there have been several successes with regards to LEV uptake, with Aberdeen Harbour Board, Siemens and Royal Mail agreeing to trial LEVs. Aberdeen City Council also had a presence at the Oil and Gas UK Conference in 2019 to promote hydrogen as an alternative to electric vehicles.

- **Key result 3** – During the course of the project it became clear that there was no appetite for a dedicated consolidation centre in Aberdeen, and that implementing one would have been unlikely to be commercially viable. As such, the focus of the measure was altered to focus on a wider distribution strategy and to consider whether there were options that could allow for a successful consolidation centre in the future, as well as alternative last mile solutions. Results of the final survey undertaken in early 2020 continue to demonstrate that a dedicated consolidation centre in Aberdeen is of limited interest to operators, although it should be noted that as the majority of freight stakeholders represent the oil and gas, and retail industries, there may still be opportunities for consolidation in other industries, such as construction.

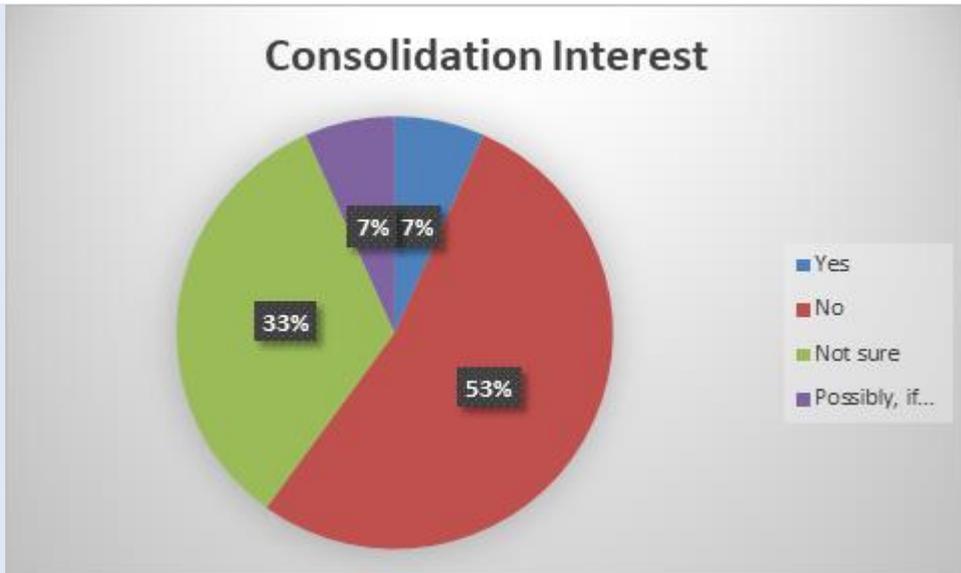


Figure 2: Consolidation interest in 2020

One option with regards to creating a consolidation centre in Aberdeen would be through collaborative working with lorry park and distribution operations. This was identified locally in Altens Lorry Park, which not only provides lorry parking but also houses a significant number of SME companies, with many engaged in receipt and delivery of materials and equipment. This operation is a commercial one and has seen considerable investment by the owners to provide a high-quality facility. Engagement with the owners will be continued following the conclusion of the project to determine if and how the site could best be used to develop further consolidation and distribution activities in Aberdeen.

SECTION 3 PROCESS EVALUATION SUMMARY

Originally the expected results of the measure included:

- To map and research current/future areas to the south of the city to form the nucleus of Aberdeen's Freight Gateway;
- To produce provisional planning guidance, with the objective of encouraging logistics and distribution activities in particular areas of the city;
- To operate and pilot a trial of low carbon emission vehicles within the private sector;
- Implementation of wider measures e.g. cargo bikes.

Following research into existing and previous consolidation centres in the UK and Europe, as well as research into other consolidation practices and alternatives for last mile distribution, it was decided that it would not be appropriate to continue progress towards producing provisional planning guidance for a consolidation centre in the Aberdeen area.

Instead, focus was changed to develop an updated freight distributions strategy that included an action plan for developing alternative last mile solutions following the conclusion of the PORTIS project. At the start of 2020, Nestrans and Aberdeen City Council were successful in getting additional funding from Transport Scotland to complement the planned Low Emission Zone (LEZ) in Aberdeen. This has allowed Nestrans to progress part of the action plan to implement wider measures through the launch of an electric cargo bike trial for city centre businesses. Four cargo trikes and two cargo bikes were procured in March, with three now in use by local businesses. Initial monitoring results are already showing a CO2 saving of around 3-4kg per month per bike, and a fuel saving of around £6-7 per bike compared to equivalent journeys by a small van¹.



Figure 3: Cargo bikes used in the electric cargo bike trial

One of the key priorities of both 4ABZ1 and 4ABZ3 was to improve relationships with the freight industry and increase engagement across the sector. Engagement with the freight industry has improved to a level that has not previously been possible, with the creation of a biannual freight

¹ Fuel comparisons use pre-COVID diesel prices. Comparison is against a Ford Fiesta 1500L Van

stakeholder working group. This has supplemented the larger Freight Forum, which meets on an adhoc 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.

Additionally, it should be noted that COVID-19 will have an impact on the distribution strategy that was developed as part of this project. There was intention originally to progress a study into loading practices before the end of the PORTIS project. Whilst this has not been possible, there are plans to progress the study, along with the other elements of the distribution strategy, following the conclusion of PORTIS once the situation has settled. It should be noted that through COVID there has been a change in focus for the city centre and an acceleration of pedestrianisation schemes and restrictions on vehicles in Aberdeen and towns throughout Aberdeenshire. Whilst these are expected to be temporary measures, they will impact on the movement of freight and may require adjustment to the distribution strategy to reflect these changes if they extend beyond the short-term..

A large part of this measure was recruiting partners from the private sector to pilot low emission vehicles. Local partners have been successful in achieving this element of the measure; Siemens will pilot a hydrogen-diesel van, as will Royal Mail Ltd, and this will be the first hydrogen-diesel vehicle in their respective fleet in the UK. Aberdeen Harbour Board (AHB) will pilot two electric vehicles as part of their business operations. Two electric charge points have also been installed on AHB land. For the Harbour Board this contributes towards their aspiration of becoming a Green Port. Additionally, to continue to promote the uptake of LEVs, Aberdeen City Council Officers had a presence at the Oil and Gas UK Conference in Summer 2019 and offered trial drives of a hydrogen car to delegates, who were mainly from the private energy sector. The oil and gas sector in Aberdeen, and indeed UK, recognises that there is a need for diversification, and hydrogen is part of that. There were issues to overcome in the pilot of these vehicles - overcoming any potential Health and Safety concerns and commercial reliability being the two biggest. The pilots were delayed due to the impact of COVID-19 and the lockdown; however, timescales were not badly impacted. This was an innovative piece of work and we understand they will be the first Hydrogen-Diesel vans for these two companies running in the UK and can hopefully lead to greater LEV take-up. Scottish Government has set the target of having a decarbonised transport system by 2050 and this will contribute to start meeting that target.

- **Barrier 1 – Organisational** – Setting up the development of low emission vehicles was a lengthy process, partly due to Aberdeen City Council holding the grant funding from PORTIS for the pilot of the vehicles. Whilst the objective was to work with the private sector to encourage uptake of these low emission vehicles, we could not give them the grant funding directly to undertake the pilots. This required discussions to be undertaken with the Council’s legal team to develop a Letter of Intent as well as any necessary full partnership agreements as to the pilots. These were then sent to the pilot partner’s legal team for review and adaption. This is because, as the Council was paying for the vehicles out of their grant funding budget, these would technically belong to the Council and then be leased to the pilot partner. Agreements needed to cover technical and legal points such as maintenance, insurance, cost of hydrogen, communications etc.

- **Barrier 2 - Organisational** – There were similar issues in setting up the cargo bike project as, whilst Nestrans was managing the project as part of the wider measures identified through PORTIS, Aberdeen City Council held the grant funding from Transport Scotland. This added another layer of complexity to ensure that all partners were in agreement throughout and that the terms of the partnership agreement with the users of the bikes were approved by the Council’s legal team. It was originally intended to use PORTIS funding to cover cargo bike training for the businesses using the bikes. This was to reduce liability over use of the bikes and help ensure that riders who may not be used to the different style of riding were adequately prepared. Unfortunately, due to COVID-19 we were unable to conduct training with any of the riders but it was agreed that the pilot should go ahead given that the benefits that such delivery vehicles provided for businesses outweighed the potential risks. The agreements between Nestrans and the businesses using the bikes were amended to reflect the change in circumstances.
- **Barrier 3 – Financial** – With the way the grant funding was received this did create difficulties with how to go about implementing the LEV pilots and therefore ownership of the retrofit equipment, the vehicles themselves as well as ownership of the EV Charge infrastructure. In order to move forward, different financial models for the pilot were implemented in order to encourage private sector partners to partake in the project. It was important for the Letter of Intent and thereafter the Legal Agreements to be signed off by both the Council and the pilot partner to set the rules about how the partnership would essentially operate. Though this sounds simple, at the outset this actually required a lot of Officer time to undertake, review, make the necessary adjustments and liaise with Legal. This has provided lessons learnt and the Council presented on best practice taken from the pilot to the Sustainable Road Freight Conference in 2019, which was well received. It should be noted that Aberdeen City Council have been contacted by other organisations, such as Heathrow Airport, for a copy of the Letter of Intent and Lease Agreements, as they are looking to do similar pilots to ourselves through PORTIS.
- **Barrier 4 – Technological** – There were initially some Health and Safety barriers to overcome before the pilot of the low emission vehicles and installation of the EV Charge Points could be implemented. To overcome these, for the hydrogen-diesel vehicles specific meetings were set-up with the company undertaking the conversion of the van to explain the Health and Safety aspects. It would appear that the main concern for companies that hydrogen is ‘more’ dangerous compared to conventional vehicles; however, this is not actually the case. Other aspects that needed to be taken into account for the hydrogen-diesel vehicle pilots were the cost of hydrogen compared to diesel, weight restrictions once the van was converted as well as the commercial reliability of the vans. In regards to commercial reliability, this is why hydrogen-diesel vans were selected, as they would still be able to run on diesel should anything happen to the technology and, therefore, the Council would not be liable for any lost time or profit by the pilot partner. Weight restrictions proved particularly important for Siemens who also need to carry their equipment for traffic repairs – this could potentially restrict the load amount of the van as per guidelines set by UK Government. The electric vehicles for AHB were more straightforward; however, training on how to use was requested. For installation of the EV Charge Points, this was initially going to be undertaken by AHB, however due to the electrical voltage involved for rapid chargers, for Health and Safety reasons Scottish and Southern Energy (SSE) were selected to connect the electrical supply instead.

SECTION 4 EVALUATION CONCLUSIONS

It is difficult to align all of the results against the objectives given, that one of the main objectives, *Progressing the development of an integrated freight gateway to the south of the city*, was refocused to delivering a new freight distribution strategy that focused on last mile solutions. This was done to make the objectives more meaningful, as the work undertaken was felt to be of more overall benefit to the region. Additionally, as the indicators were monitored from a single source, the survey, there have also been challenges with regards to quantifiably demonstrating the results of the project. This is because the survey depended on participation by stakeholders. It was originally intended that increased engagement with the sector would increase participation, which would help to demonstrate success. Unfortunately, whilst participation in the freight forum increased and a focus working group was created to provide more insights, this did not translate to the final survey, which saw fewer responses than the original. This may have been a result of consultation fatigue by the end of the project due to the survey being a repeat of an earlier survey with few alterations (to allow for direct comparison), which also launched at a time of increasing uncertainty in the freight industry due to COVID-19. Additionally, as raised during the first survey, there were found to be potential commercial sensitivities and external pressures that impacted the ability of some stakeholders to be able to respond.

However, engagement with the freight industry, the retail industry and other stakeholders in freight movement was not intended to conclude with the completion of the project. As previously noted, one of the successes of the project was the creation of the stakeholder working group, which is made up of representative stakeholders who are able to provide early guidance and feedback on any planned initiatives whilst at the same time raising any issues of concern. It is planned that this will continue to be a key working group for the delivery of the distribution strategy moving forward.

The key deliverable of the project was the distribution strategy, which was developed to be taken forward in conjunction with complementary future projects. Key to this is the City Centre Masterplan and the Roads Hierarchy work in Aberdeen, as well as similar town projects within Aberdeenshire. Work to develop low emission zones and reduce the impact of freight vehicles on air quality in towns and cities will also require ongoing collaboration with stakeholders to improve the fuel mix of freight vehicle as well as look at alternative last mile solutions for deliveries, particularly within the retail context.

- **Key conclusion 1** – Aberdeen and Aberdeenshire benefit from already having a high proportion of vehicles that are Euro V or higher, and also have a high proportion of Euro VI. This has been further confirmed by the high level of participation in the Eco Stars scheme. As advised by freight operators during discussions, part of this is due to the high level of competition for freight work in the area; however, it possibly does not extend to vehicles travelling to the area from elsewhere. This was much more difficult to determine. This means that, in some ways, Aberdeen and Aberdeenshire are at an advantage with regards to clean fleets. However, this could cause further challenges regarding justifying further moves towards zero emission vehicles.

That being said, the companies that we have engaged with through the hydrogen pilot are very excited about trialling LEVs, with a lot of them understanding and anticipating the direction that the government is taking towards transport. This is one of the main reasons

why Siemens and Royal Mail have been keen to work with us, given Aberdeen's position as forerunners of hydrogen technology in the UK and we are already running a number of hydrogen vehicles in the city. Additionally, there has been similar interest in the cargo bike trials, with companies actively seeking to reduce their carbon footprint for last mile deliveries. It is anticipated that the results of this project will quantifiably demonstrate that cargo bikes as an alternative to small vans are viable for many types of businesses.

- **Key conclusion 2** – There continues to be a low appetite for a dedicated consolidation centre to service Aberdeen. Findings from elsewhere suggest that without strong commercial support it is difficult to make a consolidation centre successful. However, with the opening of the new Aberdeen Harbour South imminent, this may create new opportunities in the future for some industry sectors associated with the nearby future Energy Transition Zone.
- **Key conclusion 3** – The private sector is beginning to recognise the need to turn their fleets 'green' with the increased awareness of low emission zones coming into force in Scottish cities. Aberdeen is a leader in hydrogen technology, is proud to have worked with major private sector partners in this project, and would hope that these companies and others will continue to promote and develop their green fleets. ACC and Siemens also presented jointly at the Sustainable Road Freight Conference in December 2019, highlighting the joint working and initiatives in hydrogen. Through PORTIS grant funding this was very important to getting these partners on board for the successful pilots. Through the H2 Projects team at Aberdeen City Council, Officers will continue to work with companies to encourage the uptake as part of our Hydrogen Strategy and Action Plan for the region. Grant funding will continue to be important to encourage the uptake of low emission vehicles as well as EV Charge Points. With economies of scale, particularly for hydrogen technology, we can hopefully expect greater uptake.

SECTION 5 MAIN LESSONS LEARNT

Key lessons learned and long-term impacts

- **Lesson 1** – 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 2** – Ensuring key information and facilitating discussions with the relevant Officers is vital to encourage take-up of hydrogen technologies which is still considered a new technology; however, Aberdeen City Council has the skills and knowledge and have de-risked the technology through various pilots. For the pilot take-up with Siemens, Aberdeen City Council Officers invited key staff from Siemens to Aberdeen, where they then presented on hydrogen, undertook a tour of the Hydrogen Refuelling Station and organised the demonstration of an existing ACC hydrogen van from the fleet to show the delegates how the technology works and how refuelling is undertaken. This will aid with allowing companies to understand and build trust in the technology.
- **Lesson 3** – If further pilots with the private sector were to be undertaken as to low emission vehicles, an easier process to allow them to access funding directly would be helpful as this could have saved a considerable amount of time in legal documentation and discussions, which were considerably complex. Through the Council's previous experience, ACC Officers can lend support to private sector companies. It is also important to allow for a longer period for legal work to be undertaken, as this may not always be the priority for the pilot partner as they deal with business as usual.

- **Key expectation 1** – Natural renewal of fleets will lead to further compliance with current emission requirements. However, further incentive or external change will be required to encourage operators to consider alternative fuels for their fleets. This is particularly the case for HGVs, which may also require further technological developments before they can be proven as an alternative to diesel vehicles.
- **Key expectation 2** – We would expect that, through the support given in PORTIS to encourage uptake within the private sector, that greater confidence will be developed for hydrogen technology and transport in the future as a trusted and reliable technology. As diversification becomes more important to Aberdeen, and indeed to other cities and countries, due to decline in oil and gas, it is expected hydrogen will play an increasingly more important role in our regional economy.

Supporting Documents:

- [4ABZ3 Baseline Report: Freight Distribution Centre](#)
- [Initial Assessment of Freight in Aberdeen \(2018\)](#)
- [4ABZ3 Freight Distribution Strategy](#)
- [Final Assessment of Freight in Aberdeen \(2020\)](#)