

TfN Response to DfT Decarbonising Transport: Setting the Challenge

1.0	Executive Summary
1.1	In March 2020, the Department for Transport (DfT) published their policy paper 'Decarbonising transport: setting the challenge'. The document set out a brief review of existing climate related transport policy and also existing forecasts of future emissions by mode, before suggesting six priority areas around which a national transport decarbonisation plan could be focussed and how government intended to work with others to develop that plan.
1.2	Although no formal consultation was launched, views from businesses, organisations and the public have been invited and a series of workshops, engaging specialists, innovators, researchers, businesses and NGO's, were held over the summer of 2020. Transport for the North (TfN) provided appropriate representation and engagement on each of the workshops aligned to all six of the strategic priorities.
1.3	<p>Through the Northern Transport Charter, TfN board have been clear that reducing greenhouse gas emissions from the transport network, at a pan-Northern and a local level, is a key priority and as the Strategic Transport Body for the North, TfN is well placed to provide a regional evidence base as well as decision making tools to develop and prioritise a pipeline of investments that are consistent with the net-zero vision.</p> <p>This paper provides TfN's response to the 'Decarbonising transport: setting the challenge' policy paper.</p>
1.4	The North's net-zero ambition is more stretching than currently committed to at the national level and will prove challenging to deliver. We are therefore highly supportive of the government in its development of a Transport Decarbonisation Plan (TDP).
1.5	The Covid 19 crisis has demonstrated the rate and scale of behavioural change possible as a result of strong national leadership. As government considers the steps required to recover from the pandemic, it will be crucial that it makes choices that will help the country at national and local levels lay the solid foundations needed for rapid decarbonisation.
1.6	A significant part of the challenge is not only to decarbonise our transport system, but to do this inclusively and equitably. To this end, we welcome the inclusion of 'Place Based Solutions' as a strategic priority and it will be imperative that government utilises the knowledge within, and evidence bases built up by, sub-regional transport bodies and local authorities. TfN are well placed to provide a regional evidence base; support local partners and government in identifying a place based approach by sharing intelligence from our

	<p>data and models, and work with the NP11 to promote the North as a test bed for trialling innovative solutions at a micro and macro level.</p>
1.7	<p>Key themes in our response include:</p> <ul style="list-style-type: none"> - The need for clarify over government’s approach to demand management and its role in accelerating modal shift. - The need to tackle the decarbonisation challenge in rural and dispersed communities, head on. - The role spatial planning could and should play in revising the traditional mobility framework. - The need to focus on transactional, physical and data interoperability in the development of EV networks. - Support of the recognition of the importance of decarbonising ‘last-mile’ deliveries. - The need for certainty around future policies on fuel for the freight sector and increased focus on the potential of hydrogen for the sector. - Support for place-based solutions. - Emphasising the unique position of the North as a location for testing emerging technologies.
1.8	<p>We conclude by suggesting areas in which TfN can best support our local authority partners and the Government in the planning and successful delivery of future transport decarbonisation measures, including:</p> <ul style="list-style-type: none"> - The provision of enhanced place-based evidence to inform placed based strategies. - Supporting the development of a pan-northern data platform with open data capabilities. - Supporting trials and implementation of Future Transport measures, and effective transition to implementation and mass role out. - Articulating the ambition of the North, supporting and informing the local and national agenda. <p>We would also welcome the opportunity to set out the North’s expectations, to government, on what a pan northern charging infrastructure plan should include and why it is needed, so that it is inclusive, and effective for the way the North works now and is resilient across our Future Travel Scenarios (for which insights are planned for publication around October 2020).</p>
2.0	Introduction
2.1	<p>Through the Northern Transport Charter, TfN board have been clear that reducing greenhouse gas emissions from the transport network, at a pan-Northern and a local level, is a key priority. As things stand, decarbonisation of strategic road and rail will rely to a large extent on national decision making and strategy and does not sit within TfN’s current powers. That said, as the Strategic Transport Body for the</p>

	<p>North, TfN is well placed to provide a regional evidence base as well as decision making tools to develop and prioritise a pipeline of investments that are consistent with the net-zero vision.</p> <p>With that in mind Transport for the North welcomes the opportunity to comment on the Department for Transport's (DfT) Transport Decarbonisation: Setting the Challenge.</p>
2.2	<p>We have taken this opportunity to provide some general points for consideration and then have provided a more detailed response in turn to each of the six strategic priorities the Transport Decarbonisation Plan will focus on. For each strategic priority we have provided an outline of the policy levers available, current constraints, initial recommendations to government for consideration through the drafting of the TDP.</p> <p>As an appendix to this submission we also share the TfN decarbonisation evidence base which we hope you find useful both for context on what TfN as a sub national body has been doing to support the net zero agenda as well as in providing additional evidence for consideration as you draft the Transport Decarbonisation Plan.</p> <p>In addition to this written response, TfN has also provided appropriate representation and engagement on each of the workshops aligned to all six of the strategic priorities scheduled to take place late July to early August.</p>
2.3	<p>While we recognise this is not a formal consultation, we wanted to take this opportunity to publicly support the development of the Transport Decarbonisation Plan.</p> <p>It is encouraging that the challenge document (and other transport and environmental related pieces) recognise the importance of an integrated approach to delivering net zero by 2050.</p> <p>Collaboration is key to understanding and informing further consideration of suitable intervention measures, scale and speed required across the UK.</p>
2.4	<p>Northern leaders have been clear that collectively we can no longer ignore the climate emergency and the role transport must play in reducing emissions, as such they have ambitions to achieve net zero at an accelerated rate, far exceeding the government's 2050 target.</p> <p>Approximately two thirds of TfN partners have declared climate emergencies, with timescales ranging from 2025 to 2050. Northern authorities are now developing action plans for delivery and are keen to understand the functional policy framework to deliver net zero at the local, regional and national scale.</p> <p>In this context it is worth noting that the North's net zero ambition is more stretching than currently committed to at the national level and</p>

	<p>will prove challenging to deliver. That said, Northern leaders are resolute that an aspirational target before 2050 demonstrates the political commitment for the North to lead the UK's clean growth agenda.</p>
2.5	<p>In terms of TfN's role in tackling the climate emergency, the Strategic Transport Plan commits to the scoping and development of a 'Decarbonisation Pathway to 2050'. An acceleration towards a zero-carbon transport network must therefore be at the heart of TfN's investment programme planning and appraisal processes.</p> <p>The primary objective of the 'Pathway to 2050' will be set out how this can be achieved under a series of different scenarios. Once the initial pathway work has been completed, TfN will then work with our partners to set a clear (and Member endorsed) framework of Pan Northern targets, parameters and policies, which aligns with policy and planning frameworks at both the national and local levels, and can be embedded across TfN programmes.</p> <p>In addition to this and as outlined in this response, we believe we are well placed to provide a regional evidence base; support local partners and government in identifying a place based approach by sharing intelligence from our data and models, and work with the NP11 to promote the North as a test bed for trialling innovative solutions at a micro and macro level.</p>

3.0	General feedback
3.1	<p>Climate change is not a new challenge, since the early 1990's scientists and academics have outlined the need for dramatic reductions in emissions to combat global warming. A fundamental barrier to achieving real change has been ambiguity over who needs to do what and when. In publishing the TDP, government need to take this opportunity to clearly articulate the functional policy framework that will be required to achieve decarbonisation of transport. This will include providing clarity on the role of national and local government as well as STB's and the private sector.</p>
3.2	<p>The TDP also needs to clarify and acknowledge how individual policies may have both beneficial and adverse effects on the ability of each of the strategic priority areas to contribute to achieving the net zero target. For example, we know Electric Vehicles (Strategic Priority 'Decarbonisation of Road Transport') provide a more sustainable mode than petrol or diesel, however they still account for emissions in terms of electricity generation and indeed in their manufacture. Therefore, whilst EVs will undoubtedly play a key part in achieving the decarbonisation transport, care must be taken not to push their uptake to the detriment of accelerating modal shift (Strategic Priority 'Accelerating modal shift to public and</p>

	<p>active transport'). Demand management will also be critical if not more important to deliver net zero.</p>
<p>3.3</p>	<p>The TDP also needs to draw out 'what needs to be true' against each of the six strategic priorities, for them to deliver. Central to this will be for DfT to build scenario planning into the TDP. The Setting the Challenge document didn't express what, if any work, DfT are already doing in this space, but we know that scenario planning is valuable to consider impacts of different policy drivers, regulations and behavioural change to make different futures plausible.</p>
<p>3.4</p>	<p>'Setting the Challenge' is understandably focussed on actions to reduce transport emissions, but the TDP should also take a fresh look at decision-making more broadly through the appraisal process. Transport policy influences emissions in a variety of ways through changes in demand, mode choice, vehicle choice and changes in embodied carbon associated with transport's impact on the built and natural environment. The appraisal of transport policy needs to take a more systemic view on carbon and consider carefully how changes in policy fit with the ambitions of the TDP. Areas to consider for improvements to the DfT's Transport Analysis Guidance (TAG) are covered below.</p> <ul style="list-style-type: none"> • Exploring programme interactions through scenario analysis. One limitation of the current approach is that the reference case used as a backdrop for the appraisal of new policies and infrastructure only considers 'committed policies', which tend to have a cautious definition and are not aligned to the Government's ambitions to reduce emissions. It would be helpful if the TDP could define a new scenario or set of scenarios within TAG that includes 'planned policies' required to meet decarbonisation commitments. This would allow more explicit and transparent exploration of the interaction between the TDP and all other transport policies. For example, this would allow a greater understanding of the interaction between emissions caused by highway schemes and uptake of electric vehicles. This is an area TfN has been developing through its Future Travel Scenarios and insights from this work will be available through a publication planned for October 2020. • Carbon valuation sensitivity testing. We welcome the Government's work to re-value carbon emissions in light of the Paris Agreement and the latest evidence on the costs of decarbonisation. It is critical that, in the interim, TAG strongly recommends sensitivity testing using higher carbon prices. Moreover, it is important that carbon value sensitivity testing continues with increased importance after the new values have been finalised, due to the significant uncertainty in this area. • Time savings vs carbon impacts. A common feature of appraisal is that time savings outweigh carbon impacts, due

	<p>to the value of the welfare and GDP benefits they are thought to generate. The DfT's 'Appraisal and Modelling Strategy' sets out work planned to improve the approach to valuing time savings. Further work in this area should address whether uncertainties in the methodology could shift the balance between time savings and carbon. This includes the valuation of small time savings, which can make up a significant share of the benefits of infrastructure schemes, but there is uncertainty over whether these should be monetised with lower values of time than for non-marginal savings. Alternative approaches based on valuation of accessibility could help and would integrate more easily with Wider Economic Impacts.</p> <ul style="list-style-type: none"> • Embodied emissions in infrastructure. We are aware that DfT and delivery bodies, such as Network Rail and Highways England, are developing approaches to estimate and value embodied emissions from the construction of infrastructure. We welcome these efforts and look forward to continuing to work collaboratively on these new methods, with support from the Decarbon8 network. Care is needed in presentation of these emissions impacts, as direct source emissions will be counted in other sectors. There should be a focus on identifying opportunities to reduce these embodied emissions through innovative use of materials and construction methods. • Other environmental impacts of cars. TAG assumes that the total number of cars in the UK is independent of transport policy, which may be true at the margin but is unlikely to be true for significant shifts in transport policy. Taking London as an example, it is clear that car ownership has been reduced through a combination of provision of public transport and active travel infrastructure, access to car clubs and spatial restrictions on car access. Every additional car in the fleet has a resource and environmental cost and takes up valuable curb space that could be used for public realm or active travel infrastructure. The resource and environmental costs of cars are substantial, but not currently valued by TAG. As MaaS business models become more prevalent, there is an opportunity to explore whether intensified use of fewer cars can deliver equivalent welfare benefits for a lower total resource and environmental cost. We are not aware of any work planned by DfT in this area but would be interested in supporting any new research to fill this evidence gap.
3.5	<p>Through the TDP, DfT needs to be clear how it is working with other Government Departments to ensure there is an appropriate contribution to the net-zero target from direct transport emissions, giving confidence that it is accounting for:</p> <ul style="list-style-type: none"> • the costs and feasibility of decarbonisation in transport vs other sectors

	<ul style="list-style-type: none"> • the impact of embodied emissions in transport projects, as well as transport related emissions resulting from projects in other sectors; and • the indirect impact of electrified transport on the energy sector.
3.6	<p>By specifically omitting embodied emissions from the scope of the TDP, transport infrastructure will continue to push the emissions problem elsewhere. At a local level these embodied emissions will still be a factor and will open up heightened risk to viability. To explore this in more detail TfN are working with DecarboN8 and our local partners to explore embodied emissions of the Tyne and Wear – South Northumberland sub corridor. More detail on the project is included in Appendix D.</p>
3.7	<p>The Covid 19 crisis has demonstrated the rate and scale of behavioural change possible as a result of strong national leadership. As government considers the steps required to recover from the pandemic, it will be crucial that it makes choices that will help the country at national and local levels lay the solid foundations needed for rapid decarbonisation.</p> <p>Early quick wins that will have long lasting impact in terms of decarbonisation of transport should be prioritised in consideration for a green recovery. These include accelerated implementation of the ban on new petrol or diesel vehicles from the current 2040 timescale to 2032, in line with the recommendations made by the Committee for Climate Change in its June 2020 progress report to Parliament.</p>
3.8	<p>We welcome the acknowledgement of the role that Mobility as a Service (MaaS) platforms may play in accelerating modal shift. Government should prioritise the building blocks to support MaaS integration and innovation, this would include an open data strategy and regulation that will minimise the concerns many private sector companies have around commercial sensitivities when sharing data.</p>
3.9	<p>Finally, another quick win that will have a lasting impact on decarbonisation is for changes to the National Planning Policy Framework and Building Regulations to support local authorities to 'build back better' and encourage modal shift to sustainable transport through measures such as the redesign of road space to ensure a safe space for active travel, provision for E scooters etc. Following the consultation on mandating EV chargepoints in all new residential and non-residential buildings in 2019, these requirements should now be adopted.</p>
3.10	<p>Government should also look to best practice from other countries such as France and introduce a mass programme to incentivise retrofitting low carbon solutions in existing road vehicles, this will</p>

	<p>be vital to ensure that all geographies and sections of society are supported to reduce their emissions and able to enjoy the resulting benefits.</p> <p>The challenge is not only to decarbonise our transport system, but to do this inclusively and equitably. To this end, we welcome the inclusion of 'Place Based Solutions' as a strategic priority and it will be imperative that government utilises the knowledge within, and evidence bases built up by, sub-regional transport bodies and local authorities.</p>
<p>4.0</p>	<p>Strategic Priority Accelerating modal shift to public and active transport</p>
<p>4.1</p>	<p>We welcome the Prime Ministers announcements in February to fund 4,000 zero emission buses, alongside additional measures to improve modal shift onto the bus, such as high frequency services, more 'turn up and go' routes, new priority schemes, and more affordable fares.</p> <p>The inclusion of the need to accelerate modal shift as a strategic priority, and the acknowledgement of role that behavioural change will need to play is welcomed.</p> <p>We feel that the TDP will need to be explicit in terms of demand management measures and give a very clear picture of the policy levers available and the extent to which each will reduce emissions.</p> <p>Covid 19 and the government's response to the health emergency has demonstrated how behavioural change is possible at both scale and pace. In the same way, in order to achieve rapid decarbonisation of transport national government must intervene, utilising their powers to make difficult decisions on behalf of the greater good.</p> <p>TfN analysis shows that shifts to active travel alone would reduce car-kms by 1-6%, due to short trip lengths for walk and cycle modes. The reduction in car-km could be improved to 4-18% with increased uptake of public transport, showing that it is critical to helping reduce longer distance car trips (responsible for the majority of emissions). In addition, promoting an ongoing culture of remote working could lead to more significant reductions in car-km in the range 12-22%.</p> <p>As such, unless society fundamentally changes, even in the most ambitious decarbonisation scenario (with high public transport and active mode uptake and increased remote working), car travel is still likely to be 60% of kilometres travelled and 39% of mode share (corresponding to a 22% drop in car-km). For this reason, the Transport Decarbonisation Plan needs to present a robust view</p>

	<p>on demand management at a transport-system level to encourage people to change to lower carbon travel options.</p>
4.2	<p>In many rural and coastal communities, local public transport provision is poor due to de-regulation and subsequent lack of funding. The TDP must make clear how government intends to provide suitable alternative options to the car in more dispersed areas, recognising the fundamental need for inclusivity in its plan (i.e. not everyone will want, or be able to utilise EVs).</p> <p>The rural bus service is fundamentally important to many rural and even semi-urban areas around the North, and the wider UK. Without this lifeline connectivity, we risk large scale social isolation or a dependency on car as the only method of transport. On demand options should not be at the expense of reliable and effective connectivity provided to these communities.</p>
4.3	<p>In the North we have over 300 bus operators, seeking consensus from these privately-owned organisations, has so far proved an insurmountable challenge to the implementation of TfN's Integrated and Smart travel programme.</p> <p>The co-operation and transparency required from commercial operators is also one of the biggest barriers to the rollout of Mobility as a Service (Maas), with unregulated competition leading to many MaaS solutions likely to have a limited selection of providers or a bias to one in particular. This may be a particular issue in rural/dispersed areas.</p> <p>While we are working closely with government and local partners to consider how we can support local implementation at the micro level, to implement a consistent turn up and go, tap on and off service government need to step in and use regulation to enforce change</p> <p>The TDP needs to incentivise metro mayors to adopt the powers allowed under the Bus Services Act 2017 and consider how the environmental gains from franchising, which include increased patronage and easier stipulation of requirements in relation to the electric and hybrid make up of fleets, might be extended to all cities and potentially those transport authorities presiding over more isolated communities.</p>
4.4	<p>TfN fully supports governments pledge, to deliver a better deal for bus users. At the heart of these plans are the commitment from DfT to create Britain's first all-electric bus town, which will see an entire bus fleet change over to zero emission electric capable buses. TfN are keen to ensure the town identified for this trial is within the North as we believe the North provides an ideal test bed for decarbonisation technology trials. The DecarboN8 research partnership who are looking at placed based solutions to</p>

	<p>decarbonisation of transport within the North offers a unique opportunity to add value to the trial through a pre-established and government funded partnership, which could help accelerate wider roll out of a successful model for zero-emission electric bus travel across a range of geographies.</p>
<p>4.5</p>	<p>Recent announcements have shown government have big ambitions to make public transport and active travel the natural first choice for daily activities. As such the TDP will need to show clear leadership to support fewer car trips through a coherent, convenient and cost-effective public transport network; and explore how we might use cars differently in future.</p> <p>The TDP needs to go beyond simply outlining plans to encourage cycling and walking for short journeys and providing additional funds to local authorities for active travel. The TDP needs to be bold and lay the foundations through planning policy, regulation and incentives to enabling a systematic shift to more sustainable modes.</p> <p>Both transport and spatial planning policy need to react to a revised mobility framework, which could specify the following priorities:</p> <ol style="list-style-type: none"> 1) Connect digitally / Walk. 2) Micro mobility and cycling. 3) Zero emission shared modes (e.g. hydrogen buses). 4) Mobility as a Service. 5) 'Traditional' public transport. 6) Sole-use EV. 7) Private petrol/diesel cars. <p>Within our response below we have outlined what TfN's evidence base identifies as the policy levers required, what the current constraints are, as well as our recommendations on what is required from national government to enable change at scale and with pace.</p>
<p>4.6</p>	<p>Policy levers</p> <ul style="list-style-type: none"> - Improved infrastructure and accessibility is key to encouraging uptake of public and active travel. - Road re-allocation to encourage active mode connectivity, safety and uptake. - Use of Intermodal hubs to encourage sustainable access to rail stations and other PT. - Improved connectivity and service quality, this will need to be done using a number of different approaches including; Integrated and Smart ticketing, cycle schemes, transport user apps, real travel time information, Mobility as a Service (MAAS), Car clubs, on-demand buses, Arriva Click type services etc. - Reduced fares relative to costs of car travel – focused on specific cohorts e.g. Manchester young people subsidy

	<ul style="list-style-type: none"> - Mobility credits – incentivising in places where limited alternative sustainable modes e.g. rural / coastal communities. - Integrated mobility services spanning active travel, public transport and individualised motorised travel, creating transport hubs - Micro mobility - E-scooters, electric bikes
4.7	<p>Constraints</p> <ul style="list-style-type: none"> - Fragmented ownership and operational responsibility within the public transport system makes it difficult to secure buy in from private sector operators. TfN IST is a prime example of this as outlined earlier in paragraph 4.3. - Limited options in isolated rural / coastal communities where public transport infrastructure is already poor or non-existent. We feel that there is a need to define what 'good MaaS' looks like for different places, as there is a risk that sub-standard on-demand options are applied to these communities at the expense of current provision and may not deliver the same level of connectivity. - The wider carbon cost (i.e. to other sectors) of many changes, such as accelerating the production and take-up of EV's, as well as remote working, may become increasingly problematic when attempting to remain within the carbon budget required. - Just encouraging cycling and walking won't achieve significant change as outlined earlier in our response (paragraph 4.1). - Safety regulations.
4.8	<p>Recommendations to Government</p> <ul style="list-style-type: none"> - The CCC highlighted the need to 'embed fairness as a core principle' as one of their six overarching recommendations to the Prime Minister Boris Johnson, in their letter in relation to <i>Building a resilient recovery from the COVID-19 Crises (2020)</i>. If government are serious about the levelling up agenda and a green recovery there needs to a systematic shift in how national government currently prioritises and favours transport investment focused on a small number of mega schemes connecting core cities shifting to a greater distribution of investment across geographies. To support this the TDP needs to incentivise the MaaS / Ride share / Car Club market in some locations where there is market failure, without these, existing badly connected areas such as rural or coastal areas will be put at a greater disadvantage, not just economically but also environmentally. - Government must use their powers to introduce regulation to enforce transport operators, utility providers and the retail and property industries to deliver specific levels of service and technology that will build public confidence and increase patronage of existing or emerging services and

	<p>technologies, be this in relation to EV infrastructure through to franchised bus networks.</p> <ul style="list-style-type: none"> - A clear national government decision needs to be reached on the implementation of Road User Charging as a means of demand management on the SRN. While local government can implement this in their own geographies through Ultra low emission zones or congestion charges, the TDP needs to provide a clear sense of direction as to the scale and rate at which this will need to be implemented to discourage unnecessary car trips. - This should also be supported by strong national policy or a campaign to encourage shared vehicle use. As well as helping to reduce car dependence, this could accelerate the decarbonisation of road vehicles, as car club cars tend to be lower emission and are utilised intensively, so would increase the share of kilometres travelled using low emission cars. Also, fewer cars parked provides more road space that can be used for cycle lanes, bus lanes or on street cycle storage.
<p>5.0</p>	<p>Strategic Priority Decarbonisation of all road vehicles</p>
<p>5.1</p>	<p>We welcome the recent announcement from government regarding accelerating the cut-off date for petrol and diesel vehicles from 2040 to 2035. We believe this acceleration is essential and something we called for within our Strategic Transport Plan.</p> <p>Consideration should be given as to whether the implementation of the ban on new petrol or diesel vehicles could be further accelerated to 2032, in line with the recommendations made by the Committee for Climate Change in its June 2020 progress report to Parliament.</p> <p>Alongside this though, government also needs to recognise the life cycle of existing vehicles. The Government should learn from other countries such as France that are introducing mass retrofitting of existing vehicles with low carbon technologies, to ensure that high emitting vehicles are not just pushed out to economically deprived areas, making those communities not just economically but also environmentally disadvantaged.</p>
<p>5.2</p>	<p>We also welcome the announcement made by the Chancellor in the March Budget to deliver a core network of rapid/high powered charge points along England’s key network of roads, meaning drivers on the SRN are never more than 30 miles from a rapid charge point. This is a really positive step. TfN and other STB’s are keen to work with the department, Highways England and the energy sector to explore how this could be extended to cover the Major Roads Network.</p>

5.3	<p>These recent government announcements show some positive progress towards the transition to zero emission road vehicles though much more still needs to be done to ensure there is adequate vehicle supply, adequate charging provision, energy system readiness and market confidence in the technology to drive demand.</p> <p>The TDP clearly has to take full advantage of benefits that can be created through investment in innovative technology development and development of sustainable supply chains. Within our response below we have outlined what TfN's evidence base identifies as the policy levers required, what the current constraints are, as well as our recommendations on what is required from national government to enable change at scale and with pace.</p>
5.4	<p>The Setting the Challenge document acknowledges behaviour change will be an important aspect of the decarbonisation of transport. Public perceptions to EVs need to be better understood at different spatial and demographic levels and tested against real world requirements. The TDP will need to directly challenge some of these assumptions and perceptions or provide a strategy/support for others to do so.</p> <p>This may include public perception of issues such as:</p> <ul style="list-style-type: none"> - The required vehicle range on a single charge. - Required charging speed. - Density of charging infrastructure network (and hence leading into most effective/convenient locations). - Operation costs (i.e. charging costs vs petrol/diesel). - EV performance and space standards. - Battery lifetime. <p>Where justified, adverse perceptions could provide a basis for a physical EV/EV infrastructure acceleration programme, and where any adverse perceptions are not justified, this is could provide a solid focus for any behavioural change measures.</p>
5.5	<p>Carbon emissions related to the manufacture and charging of EVs (the latter of which will change as grid power decarbonises) will still need to be accounted for within the UK's carbon budget.</p> <p>Alongside this, the operation of EVs continue to generate harmful particulate local air quality emissions from tyre and brake wear.</p> <p>We are keen that EVs are not seen as the ultimate solution to the decarbonisation challenge and that demand management plays an equal or greater role. Please see section 4.1 of our response in this regard.</p>
5.6	<p>Policy levers</p> <ul style="list-style-type: none"> - Strong regulations on new vehicle standards following leaving the EU

	<ul style="list-style-type: none"> - Increased energy supply and charge points across the North – see paragraph 5.2 above. - Fiscal incentives for the purchase of electric and other low / ultra-low options where suitable alongside disincentives for petrol/diesel vehicle purchase. - Vehicle occupancy incentives. - Restrictions on petrol/diesel vehicles within local areas. - Road User Charging. - Low emission zones; work parking levies etc - Availability and costs of Connected and Autonomous Vehicles - Road design manuals to include infrastructure for platooning of vehicles to aid move to automation eg specific lanes, appropriate surfacing to cope with HGV loads on similar tracking to avoid rutting and appropriate signs and lines on the carriage way.
5.7	<p>Constraints</p> <ul style="list-style-type: none"> - Fleet & Vehicle life span – risk that incentives only benefit wealthiest in society as they can afford new vehicles, need retrofitting policies as being utilised in France see paragraph 5.1 above. - Disjointed approach to EV charge points and payment methods across the national and local highway network, leads to a lack of public confidence in terms of physical and transactional interoperability in relation to charging EVs. - Public perception in relation to the time it takes to charge an EV being a constraint. - Public perception in relation to required EV vehicle range. - Current EV vehicle prices are a key current constraint. Price equity may be achieved by 2025, however, this will be dependent on battery sizes being reduced, which is linked to the perceived need for vehicle range. - Need a coherent strategy for the 25% of vehicles parked street-side. This is a particular challenge in the north with a predominance of terraced housing in many lower income areas. - Current local authority funding mechanisms / bidding for funds from national government pots means roll out of EV is currently piecemeal.
5.8	<p>Recommendations to Government</p> <ul style="list-style-type: none"> - Government need to lead by example when it comes to policy levers required to reduce unnecessary or unsustainable (i.e. petrol/diesel vehicles) road transport that might give local decision makers confidence to implement local charges / bans on petrol/diesel vehicles etc. - Government need to incentivise the market to ramp up trialling of new technology at scale and pace, this needs to explore hydrogen as well as battery technologies. - To provide users confidence in using new road-based technologies there also needs to be a implementation of a regulatory framework, to ensure user safety is paramount.

	<ul style="list-style-type: none"> - Public perceptions to EVs need to be better understood at different spatial and demographic levels and tested against real world requirements. The TDP will need to include, where warranted, measures to change adverse perceptions and behaviours that don't reflect real world requirements in relation to EVs and charging infrastructure. - The TDP needs to focus on transactional (payments), physical (charging hardware) and data interoperability, which will support behavioural change and increased demand. - Government must specify the Level 0 requirements and lay the framework for support for not only those planning, developing and installing charging infrastructure, but also those maintaining charging infrastructure. - All EV focussed strategies, policy levers and requirements should consider the future need to consider Connected and Autonomous Vehicles (CAVs). - Future local Development Plans need to consider the physical accommodation of autonomous vehicles and also react to the different behavioural patterns they will encourage (i.e. different travel and charging behaviours, reduced need for 'work-side' parking places).
<p>6.0</p>	<p>Strategic Priority Decarbonising how we get our goods</p>
<p>6.1</p>	<p>The recognition of 'last-mile' deliveries as essential for ensuring a sustainable delivery system is welcomed and should address both urban and rural deliveries.</p> <p>The TDP needs to provide clarity that supports the industry to optimise the efficiency of logistics and explore innovative digitally enabled solutions, data sharing and collaborative platforms. Within our response below we have outlined what TfN's evidence base identifies as the policy levers required, what the current constraints are as well as our recommendations on what is required from national government to enable change at scale and with pace.</p>
<p>6.2</p>	<p>Policy Levers</p> <p>Planning and Highway Policy and urban access</p> <ul style="list-style-type: none"> - Use of planning policy to promote warehouse clustering and freight consolidation centres. - Government will need to provide to local planning departments with additional guidance in this respect as local spatial plans often don't promote/prioritise new consolidation/distribution centres because the need and requirements are set at a bigger geographic area. - Policies to enable freight traffic to sustainably get in and out of urban areas, linking this to the promotion of urban consolidation centres. Could include drones, particularly in hi-tech scenarios

	<ul style="list-style-type: none"> - Consideration of delivery points in local planning policy so deliveries can take place efficiently – balanced with the needs of active travel and increased cycle infrastructure. - Maximise urban development to have safe spaces for smaller delivery vehicles. These spaces are more prevalent in places such as Rotterdam and Amsterdam. There is active planning policy for both vehicle segregation but coupled with appropriate business access. - Road user charging needs to recognise the essential nature of freight movements. <p>Intermodal hubs</p> <ul style="list-style-type: none"> - Use of inter-modal hubs for deconsolidation. The success of iPort in Doncaster suggests that is possible to make freight work on smaller journeys with the right paths, infrastructure and opportunity. - Consideration of the potential innovative zero carbon systems for the mass transit of goods (e.g. hyperloop systems). <p>Port policy</p> <ul style="list-style-type: none"> - Use of SMART Port technology. Initiatives such as CAPITOLS in the Humber use vehicle technology to bring lorries portside when vessels are ready to load/discharge. - Carbon pricing as a lever to incentivise users to make changes to their fleet for long term sustainability. This needs certainty of fuelling policy so wise investments can be made. - Increased rail freight through planning policy to promote intermodal hubs and increases in rail capacity for freight trains. - Brexit and the increased use of the northern ports for freight requires clear freeport policy and legislation.
6.3	<p>Constraints</p> <ul style="list-style-type: none"> - The use of hydrogen is influenced by global cost trends, UK fiscal incentives, fuel availability and re-fuelling infrastructure. - Battery recharging times reduces efficiency of delivery vehicle fleets and restricts charging windows. - The lack of a consistent approach globally to shipping fuel, and shipping organisations choosing to gravitate towards the cheapest source (even if overseas).
6.4	<p>Recommendations to Government</p> <ul style="list-style-type: none"> - Government needs to provide certainty around its strategy for fuel for the freight sector and also its availability (i.e. hydrogen v electric v compressed natural gas). Some companies are investing in batteries already so emerging priority should be for an electric charging network easily accessible from the network. If other fuels are favoured, accelerated work on the fuelling network needs to be considered.

	<ul style="list-style-type: none"> - Coordination with Other Government Departments on potential to use Hydrogen in other sectors (industry or residential heating), so there can be shared distribution infrastructure. - At the same time as enabling areas to improve active travel, the TDP needs to recognise the highway also needs to enable congestion free deliveries to businesses to minimise emissions. - Fiscal measures to support change for smaller companies with less investment capital.
7.0	Strategic Priority Place based solutions
7.1	<p>Setting the Challenge recognises that how and why emissions occur depends on a range of factors, as such a place-based approach is key to achieving net zero. The TDP will need to target support for local areas, considering regional diversity and different solutions.</p> <p>We welcome that government acknowledges a single solution will not be appropriate for every location. Key to understanding what solutions are best employed in which locations, DfT need to build spatial and segmented analysis of different groups of people and trip purposes. It is still unclear what work the department are doing to understand how emissions vary by group and location. TfN can add some real value here to national governments work as we have developed a suite of bespoke models within our Analytical Framework that help us explore a multitude of factors at a granular spatial level. Within our response below we have outlined what TfN's evidence base identifies as the policy levers required, what the current constraints are as well as our recommendations on what is required from national government to enable change at scale and with pace.</p>
7.2	<p>Policy levers</p> <ul style="list-style-type: none"> - Address emissions at a local level through local management of transport solutions - Spatial planning policies and economic development strategies that incentivise high density development in city and town centres or support LA in delivering sustainable transport solutions and good place making - Flexible working policies, business practices and digital communications technologies that enable remote working - An agreed method of calculating the carbon benefits of remote working.
7.3	<p>Constraints</p> <ul style="list-style-type: none"> - At a regional and local level, the lack of powers over spending decisions, fiscal autonomy, and the need for

	<p>increased local regulatory powers in transport and non-transport policy</p> <ul style="list-style-type: none"> - Unclear what viable solutions exist for dispersed or rural areas, most of the transport decarbonisation solutions will be very difficult to implement in areas with poor current public transport provision or areas with a wide geography. - Lack of resolution in the National Planning Policy Framework (NPPF) on requirements regarding sustainable transport. The current mechanisms local authorities have to raise funds to support the delivery of sustainable transport infrastructure (Section 106 and Community Infrastructure Levy (CIL) contributions) makes sustainable placemaking difficult in the North. Lower property prices and lower density housing often leads to S106 and CIL contributions towards sustainable transport modes being eroded to maintain scheme viability.
7.4	<p>Recommendations to Government</p> <ul style="list-style-type: none"> - Revise NPPF to support local authorities to put sustainable transport solutions at the heart of local placemaking. - Government to set accelerated targets pre 2050 for urban and economic centres to achieve net zero to allow for offsetting more dispersed / rural areas where currently not enough viable alternative options available to car use. - Government should consider how best to structure the TDP so as to acknowledge and clarify approaches, roles and responsibilities for different geographies.
8.0	<p>Strategic Priority UK as a hub for green technology and innovation</p>
8.1	<p>We support governments ambition to utilise the UK's world-leading scientists, business leaders and innovators to position the UK as an internationally recognised leader of environmentally sustainable technology and inclusive innovation in transport. The TDP has a unique opportunity to build on expertise in the UK for technology developments and capitalise on near market quick wins, supporting not just rapid decarbonisation of transport but also creating high value jobs in the process.</p> <p>The North is well placed to support these efforts and we believe could be the test bed for trailing many of the emerging technologies due to:</p> <ul style="list-style-type: none"> - The work of DecarboN8, a unique research network supported by eight of the most research-intensive northern universities who are exploring placed based decarbonisation of transport. - The urgent need for major transport infrastructure renewal which provides the opportunity for employing new technologies through their incorporation within major infrastructure projects.

	<ul style="list-style-type: none"> - The governments commitment to the 'levelling up' agenda and utilising the regions existing skilled manufacturing base. - The wealth of freight assets located in the North including four key port areas. <p>Alongside this there are significant opportunities for parts of the North to lead the way in developing hydrogen and carbon capture and storage, given existing initiatives in the development of battery and hydrogen propulsion technology in the North, for example at Teesside, Liverpool City Region and Ellesmere Port, and Cumbria.</p>
8.2	<p>Policy levers</p> <ul style="list-style-type: none"> - Data interoperability strategies to support: open data; contactless ticketing; sharing of customer information with technology providers. - Supporting technology providers to develop new innovative infrastructure solutions through grants, competitive funding rounds, incentives, tax subsidies etc - Ensuring changes in energy use have fully coordinated planning of supply, distribution and demand management
8.3	<p>Constraints</p> <ul style="list-style-type: none"> - The current coverage of digital communications technology – particularly in more isolated areas. - Security and safety concerns in terms of data-sharing, both for individuals and businesses.
8.4	<p>Recommendations to Government</p> <ul style="list-style-type: none"> - In the hunt for quick-wins, there is a real risk of dispersed / rural areas being de-prioritised, leading to them being further environmentally and economically disadvantaged. In some parts of country, government will have to step in to incentivise the market to respond to this challenge.
9.0	<p>Strategic Priority Reducing carbon in a global economy (aviation)</p>
9.1	<p>Aviation provides critical connectivity for the North to support business growth the ambitions of the Northern Powerhouse Independent Economic Review (NPIER). It is therefore encouraging that Setting the Challenge outlines a specific strategic priority to consider both how both aviation and maritime will play their part in delivering the countries overall net zero ambitions.</p> <p>We are highly supportive of government's ambitions for low or zero emission flights, including the creation of the Jet Zero Council in June 2020.</p>

	<p>TfN doesn't have any direct responsibility for aviation or shipping with international emissions currently considered through an international approach, and emissions from domestic flights and shipping considered by UK legislation. We also recognise that many other organisations will be better placed to advise government on this strategic priority.</p> <p>That said, change and growth in the maritime and aviation industry does have an impact upon local emissions particularly in relation to surface access of passengers and the movement of freight, the latter being the subject of its own strategic priority.</p> <p>As a very minimum, airports need to play their part in facilitating people movements to and from those facilities through zero or low carbon modes. TfN's own investment programme aims to balance economic aims of the NPIER with the need for sustainable connectivity to and from airport where possible.</p> <p>Similarly, the movement of freight to and from, both ports and airports, to logistics and distribution hubs via zero or low carbon modes should again be responsibility jointly borne by those business sectors.</p>
9.2	<p>Policy levers</p> <ul style="list-style-type: none"> - Modal shift to shipping instead of road transport in some areas so road miles are reduced, and waterways are maximised. Port of Warrington and Port of Leeds are examples of opportunities that could be better explored.
10.0	The Role of Transport for the North
	<p>TfN's response to the Future Transport call for evidence sets out how best we feel that we can support our local authority partners and the Government in the planning and successful delivery of future transport measures. Of relevance to the decarbonisation challenge, these include:</p> <ul style="list-style-type: none"> - Provision of evidence and strategic support towards Future Transport update across the North. - Supporting the development of a pan-northern data platform with open data capabilities. - Supporting trials and implementation of Future Transport measures, and effective transition to implementation and mass role out. - Articulate the ambition of the North, supporting and informing the local and national agenda. - Support Future Transport through provision of key enabling tools and application of TfN programme expertise.
10.1	Strategic Priorities – Accelerating Modal Shift to Public and Active Transport, and, Place-based Solutions for Emissions Reduction

	<p>Development of place-based solutions is an area where TfN and other sub-national bodies can add significant value. By analysing emissions at a more disaggregate level, we can provide enhanced evidence and intelligence to inform bespoke local and regional strategies and support national policies to take account of spatial and social variation. Appendix C provides an overview of our analytical approach in this area and begins to set out what more can be done to help provide further insight to tackle the most difficult decarbonisation challenges. Further insight will be made available to DfT through a set of publications on the modelling of our Future Travel Scenarios and Decarbonisation Pathways, planned for October 2020. Beyond this publication, we would welcome active collaboration with DfT and other sub-national bodies to continue to build a shared evidence base to inform a place-based strategy.</p>
10.2	<p>Strategic Priority – Decarbonisation of Road Vehicles</p> <p>As the sub-regional transport body for the North, TfN is well placed to engage with its Partners across the north to understand the particular place based challenges, perceptions and behaviours that will need to be overcome to achieve this Strategic Priority.</p> <p>We would welcome the opportunity to set out the North’s expectations, to government, on what a pan northern charging infrastructure plan should include and why, so that it is inclusive, and effective for the way the North works now and is resilient across our Future Travel Scenarios (for which insights are planned for publication around October 2020). It could include further detail on recommendations for policy levers and responsibilities at a regional level, that could be endorsed and adopted across our range of Partners.</p>
10.3	<p>Strategic Priority – UK as a Hub for Green Technology and Innovation</p> <p>TfN is an advisory board member of DecarboN8, a research council funded network that brings together academic expertise from the eight most research intensive universities in the North, along with the public and private sector in order to build an effective and integrated environment for developing and applying solutions to decarbonise transport across the North. Our role on the advisory board is to:</p> <ul style="list-style-type: none"> • Provide advice about the current and future policy and implementation environment which DecarboN8 is engaging with. • Identify potential overlaps, synergies and opportunities for collaboration to advance decarbonisation of transport. • Review the portfolio of externally funded projects and provide feedback on strengths and weaknesses in the portfolio as it evolves.

	<ul style="list-style-type: none"> • Consider, at the end of Year 1 and 2 of the programme, progress against our key performance metrics and spend against profile, providing guidance on whether and how the project might respond. • Champion the DecarboN8 approach externally, identifying opportunities for collaborative working with other stakeholders across the North, nationally and internationally. <p>The DecarboN8 network is already mature in its development and could serve as ready made facilitator for transport innovation projects in the North. TfN’s relationship with both DfT and Decarbon8 put us in a unique position to promote this exchange and work with our wider partners to identify the most appropriate test beds for research and development activities.</p>
11.0	TfN Decarbonisation Evidence Base
	Appendix A1 – Temple Interim Findings Note produced for TfN, August 2019
	Appendix A2 – Temple Policy Stocktake on behalf of TfN, August 2019
	Appendix B – TfN Decarbonisation Pathways & Future Travel Scenarios
	Appendix C – TfN Carbon Analysis Initial Findings & Next Steps
	Appendix D – TfN & DecarboN8 Embodied Emissions Sub Corridor Pilot
	Appendix E – Decarbonisation Policy Levers
	Appendix F – TfN response to Future of Transport call for Evidence, July 2020

