Consultation Response

Mayor of London draft Transport Strategy

Mayor of London/ Greater London Authority Consultation

Date: 29 September 2017

Introduction

The Royal Geographical Society (with the Institute of British Geographers) is the UK's learned society and professional body for geography, founded in 1830. We are dedicated to the development and promotion of geographical knowledge, together with its application to the challenges facing society and the environment.

The Association for Geographic Information (AGI) is the membership organisation for the UK geospatial industry. The AGI exists to promote the knowledge and use of Geographic Information for the betterment of governance, commerce and the citizen. The AGI represent the interests of the UK's Geographic Information industry; a wide-ranging group of public and private sector organisations, suppliers of geographic information/ geospatial software, hardware, data and services, consultants, academics and interested individuals.

The RGS-IBG and the AGI are responding jointly to this consultation to further a shared vision and mission to ensure that geography and geographic information is recognised as an important enabler to the world of big data that surrounds us in the digital economy, and is used more widely across the public, private and third sectors. Our submission has been developed in consultation with the RGS Transport Geography, Economic Geography, Geographies of Health and Wellbeing, Planning and Environmental and Urban Geography Research Groups and with AGI London and the AGI Environmental, Asset Management and Land and Property Special Interest Groups. We welcome this opportunity to provide our views on the draft Transport Strategy.

Key Message

Geography is a key determinant of transport and transport networks, therefore using robust locational intelligence can enable smarter and more efficient transport networks, infrastructure and services to be delivered. This underpins sustainable economic growth and quality of life.

Consultation questions

CHAPTER 1 – THE CHALLENGE
1.   *London faces a number of growing challenges to the sustainability of its transport system. To re-examine the way people move about the city in the context of these challenges, it is important that they have been correctly identified.*
     – Please provide your views on the challenges outlined in the strategy, and describe any others you think should be considered.

1.1   Faced with the combined challenges of an ageing global population, rapidly increasing urbanisation and the corresponding strain on the environment, current approaches to transport are unlikely to be sufficient for our future needs. The work of the Transport Systems Catapult[1], set up by Innovate UK, is helping to create intelligent, integrated transport systems that work across multiple forms of transport. We recommend Transport for London engages with the Transport Systems Catapult and its sister Future Cities Catapult, who are supporting projects on intelligent urban mobility.

1.2   While the draft strategy highlights a number of important challenges, it could be strengthened by recognising more anticipated societal changes over the lifetime of the strategy, in particular those that are disruptive based on technological and digital innovation. The strategy would be also be enhanced through recognition of the explicit role that geographic information/ intelligence needs to play to enable the successful delivery of the Mayor's plan. Much of what is set out can only be achieved through the enabling role that geographic/ location based information and insight provides, particularly in a transport setting, where location is both the link and the glue for multiple data sets.

1.3   In the coming years, technological advances will continue to shape the way we live in many ways, be it improved public and commercial service delivery, use of drones for commercial deliveries or personalised offers based on location information (underpinned by big data analytics). The Internet of Things, remote sensing, earth observation, 5G, and autonomous vehicles, as part of a wider approach to geographic/ location based intelligence, will revolutionise society. This includes transport, e.g. autonomous vehicles require accurate and real time geographic information if they are to be safe and effective and a spatial network of charging points is needed to support a growth in the use of electric vehicles. Transport networks connect communities, open up opportunities, support quality of life and create the conditions for London's economy to flourish. This highlights a need for continued investment in intelligent mobility.

Re-imagining transport
1.4   There is already talk of a coming mobility revolution led by electric and autonomous vehicles. Some commentators believe we are on the cusp of one of the fastest, deepest, most consequential disruptions of transportation in history, brought about by widespread use of autonomous vehicles and the development of transportation as a service (TAAS), or mobility as a service (MAAS). In essence, this describes a shift away from personally owned modes of transportation towards mobility solutions that are consumed as a service. This basically means we would subscribe to transport (like we do with Netflix today), instead of owning our own vehicles.
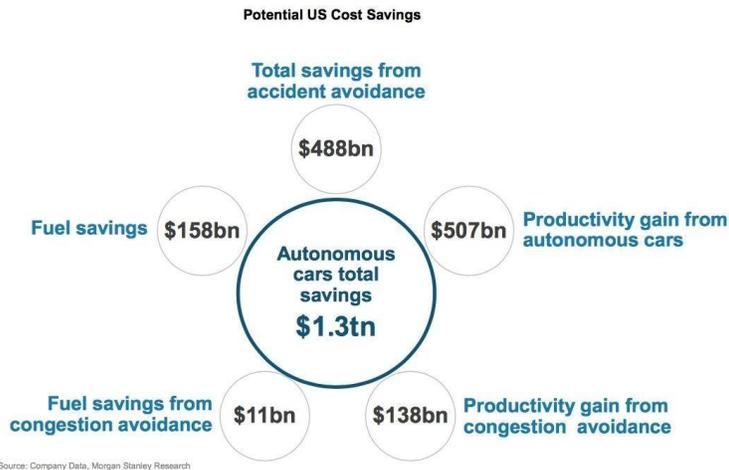
1.5   Research carried out by RethinkX indicates that, within 10 years of the regulatory approval of driverless vehicles in the US, passenger miles travelled will be served by on-demand autonomous electric vehicles owned by fleets, not individuals. This disruption will be driven by economics. RethinkX suggest that using TAAS, the average American family will save more than $5,600 per year in transportation costs, equivalent to a wage raise of 10%[2].

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[1] https://ts.catapult.org.uk/
[2] https://www.rethinkx.com/press-release/2017/5/3/new-report-due-to-major-transportation-disruption-95-of-us-car-miles-will-be-traveled-in-self-driving-electric-shared-vehicles-by-2030

Chart 1: savings from autonomous cars

Potential US Cost Savings

Total savings from accident avoidance $488bn

Fuel savings $158bn

Productivity gain from autonomous cars $507bn

Autonomous cars total savings $1.3tn

Fuel savings from congestion avoidance $11bn

Productivity gain from congestion avoidance $138bn

Source: Company Data, Morgan Stanley Research

1.6   What is increasingly clear is that the traditional policy responses to congestion - build more roads and expand public transport—are too expensive for these austere times. Hence the appeal to urban planners of the idea of travellers combining existing mass-transit schemes with a growing variety of private services. It offers a way to attract private capital into public transport. By enabling a closer link between supply and demand it will make mass transport more efficient. Congestion at peak hours would fall as travellers are diverted from crowded routes to less-packed ones; varying prices by time of day could also help this change. Ultimately, fewer cars mean the need for fewer car parks, which would in turn free up land for other uses, such as housing and commercial property.

1.7   Helsinki is a good example of transport innovation. It hosts schemes that allow residents to travel quickly door-to-door within the city by using a smartphone app that mixes and matches a variety of public and private means of transport. If successful, it could do for personal mobility what Airbnb and Spotify have done for accommodation and music: turn it into a service, accessed and paid for on demand. Such schemes are only made possible by the use of geographic/ location based information as the enabler. MAAS Global is the start up behind the most ambitious of Finland's schemes. At a tap of a smartphone screen its app, Whim, will show the best way to get from A to B by combining public transport and a variety of options from participating private firms. Whim went live in Helsinki in 2016 and in two other Finnish cities later the same year.

1.8   How does it work? If there is no obvious route, a scheme like these might suggest a bicycle from the city's bike-share scheme (if one is close to your front door), followed by a train and then a taxi; an on-demand bus ('hail' it on the app and it will come and pick you up); or a one-way car-share to a tram and a rented 'e-bike' with a small electric motor to alleviate the strain of pedalling for the final leg. Once a route has been chosen it will make any bookings needed, as well as ensuring that hire vehicles are available and public-transport sections are running on time. Costs will be displayed for every option, making clear the trade-offs between speed, comfort and price. Customers will be able to buy one-off journeys or 'bundles' modelled on mobile-phone contracts, allowing a certain amount of travel each month.

1.9   Commuters around the world are already accustomed to making journeys that combine public transport with walking, taxis or shared bikes. But after getting advice on their routes travellers have always had to find their own way to a bus stop or train station, or call a cab. Payment and booking systems have generally been separate for each leg of a journey, and the 'last mile' between mass transit and final destination has not been covered at all. Services such as Whim aim to change all this: removing the guesswork, combining the various options in the most efficient and cost-effective ways, and getting the traveller seamlessly from door to door.

1.10 Without such new thinking, cities will most likely grind towards gridlock. In 2007, half the world's population lived in cities; by 2050 it is expected that two-thirds will; urban journeys already account for nearly two-thirds of all kilometres travelled by people. On current trends urban distance travelled each year will have trebled by 2050, and the average time urban drivers spend in traffic jams is set to double to 106 hours a year.

1.11 Helsinki is not the only place seeking to integrate public and private transport, and do better at getting passengers from A to B. Switzerland's national rail company has teamed up with car-and bike-sharing firms. Several Canadian cities have a scheme incorporating public transport, bike-sharing, taxis and Communauto, a car-sharing service; Brussels runs a similar scheme. But these only provide discounts for combined subscriptions and some limited integration of booking, though not payments.

1.12 In Stockholm, a start-up called Bzzt offers an Uber-like service, but instead of cars it uses tiny electric mopeds that can travel up to 45 kilometres per hour and are emission-free. The company's vision is to make taxi services available to everyone in the inner city, by offering prices comparable to public transport. A podtaxi can be ordered through the Bzzt-app anywhere within the inner city of Stockholm. The customer only pays for meters travelled, which means a fixed fee of 30 krona ($3 dollars) per kilometre, regardless of traffic. After trialling the service with three of their vehicles in Gothenburg over the last two years, Bzzt has set its fleet of 18 vehicles loose on the streets of Stockholm. By the end of this year, the company aims to expand its fleet in Stockholm to 50 vehicles, and then quadruple the fleet to 200 by 2018.

1.13 However, a mass move to autonomous and/ or electric vehicles alone is not the panacea to combatting congestion; it would not reduce the volume of traffic but would reduce emissions. London needs an integrated, multi modal transportation system fit for a capital city and global hub. That system, however, needs to plan for and take account of the expected uptake of autonomous vehicles driving both into and in London.

Links between transport and employment and skills
1.14 In delivering the strategy, it will be important to consider the links between transport connectivity and employment, such as through Travel to Work Areas (TTWAs), as well as the impact of technology and increasing digitisation on jobs, skills and employment, not least in terms of travel need. Most, if not all travellers, would expect reliable and predictable transport services, including for business/ commercial deliveries. Some would trade greater reliability and certainty for less frequent or slightly longer journey times.

1.15 London contains two TTWAs following the creation of a separate Slough and Heathrow TTWA (see maps below); both rely on access to a wide skills and employment pool to support and improve their economic competitiveness and prosperity, as the maps highlight.

Map 1: London TTWA
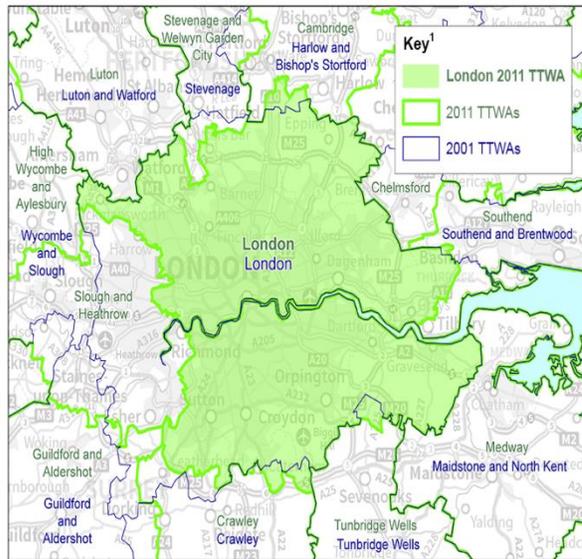
1 Travel to Work Area (TTWA).
Contains OS data © Crown copyright and database right 2015

Map 2: Slough and Heathrow TTWA
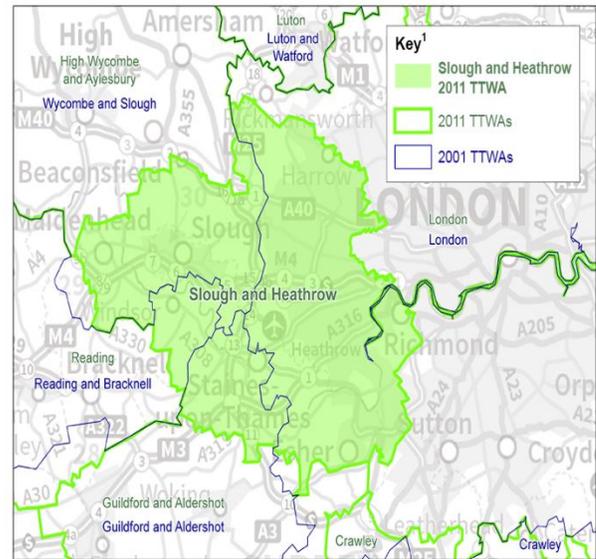
1 Travel to Work Area (TTWA).
Contains OS data © Crown copyright and database right 2015

1.16 Transport therefore has an important enabling role in providing access to employment, education, training, healthcare and leisure, particularly in less economically wealthy locations or areas of relative deprivation; where access to public transport is key to supporting (inclusive) economic growth.

Chart 2: TTWAs with the highest shares of residents age 16 to 64 with an NVQ level 4 qualification
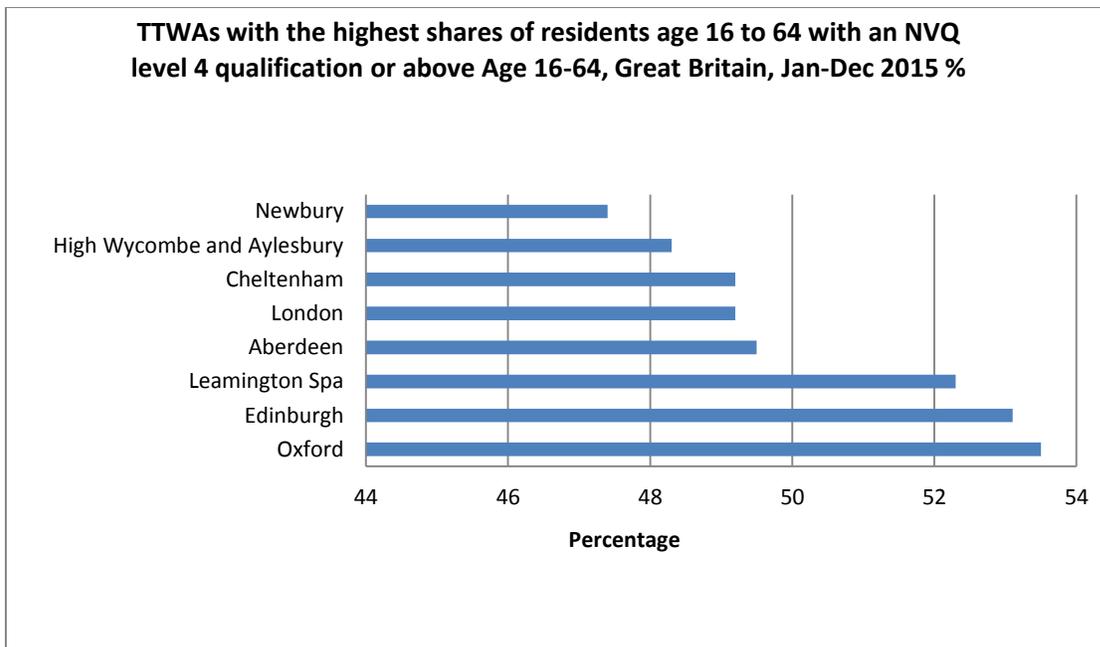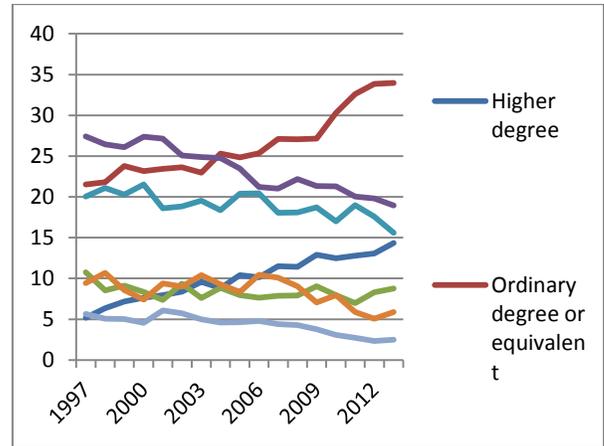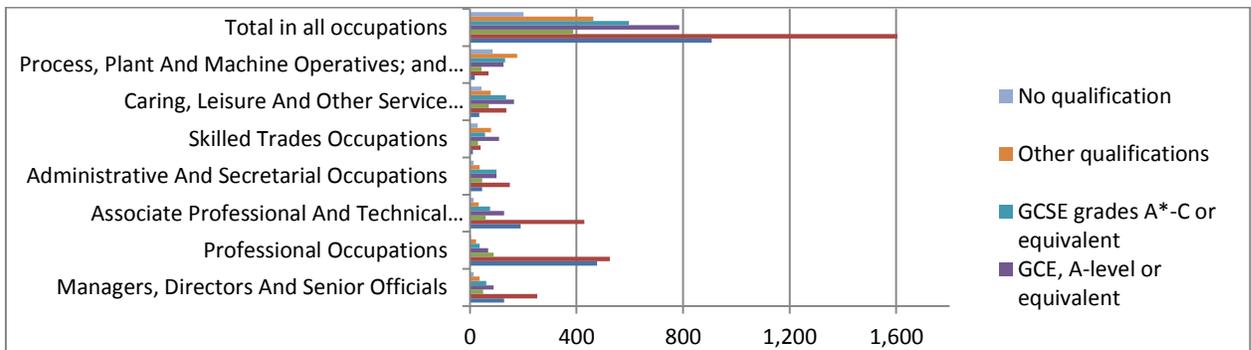

Source: ONS Census 2011

Chart 3: Educational qualifications of London residents in employment, 1996-2014
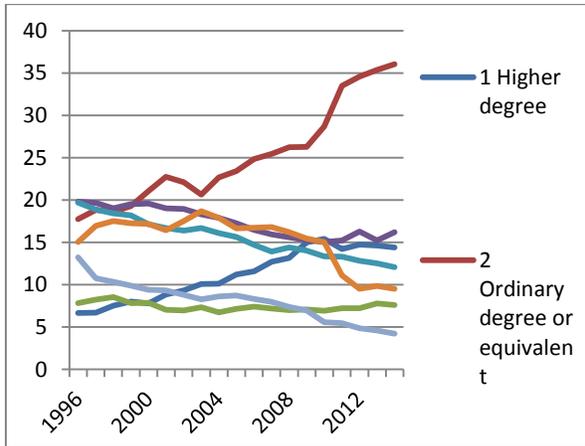
Chart 4: Qualifications of commuters into London, 1997-2013

Chart 5: Number of jobs in London by occupation and highest qualification of job holder, 2015

1.17 What these charts show is the general trend and relationship between higher skills and qualifications and employment rates. In order for London to continue to attract high growth and innovative businesses, it needs to provide a skilled workforce; this means improving the travel experience for commuters and learners. It also means improving access to education and learning for residents through better transport choices in order to increase economic activity, productivity and competitiveness.

1.18 Access to healthcare is similarly important in that it supports economic productivity i.e. a more resilient workforce and a quicker return to work following an illness. Transport therefore underpins the quality of life in a locality. The 2011 census highlighted that 5% of London residents (almost half a million people) suffer from bad and very bad health. This will have implications for transport policy and access to healthcare and healthcare facilities. This suggests that spatial analysis of people with poor health conditions and travel times to GP surgeries and hospitals along with access to (public)

transport will be needed to support the Transport Strategy. It is worth bearing in mind the ageing population in London; more than half of one person households aged 65 and over have no access to a car or van, thereby increasing their reliance on public transport.

Table 1: household composition by car or van availability - London

Household Composition	Cars or Vans in household	
	No cars or vans	1 or more cars or vans
One person household: Total	637,879	392,679
One person household: Aged 65 and over	211,828	100,194
One person household: Other	426,051	292,485
One family only: Total	503,688	1,243,153
One family only: All aged 65 and over	32,557	101,506
One family only: Married or same-sex civil partnership couple: Total	160,879	755,528
One family only: Married or same-sex civil partnership couple: No children	64,590	206,119
One family only: Married or same-sex civil partnership couple: Dependent children	78,972	411,068
One family only: Married or same-sex civil partnership couple: All children non-dependent	17,317	138,341
One family only: Cohabiting couple: Total	100,005	182,902
One family only: Cohabiting couple: No children	73,820	105,025
One family only: Cohabiting couple: Dependent children	23,852	67,922
One family only: Cohabiting couple: All children non-dependent	2,333	9,955
One family only: Lone parent: Total	210,247	203,217
One family only: Lone parent: Dependent children	153,432	125,554
One family only: Lone parent: All children non-dependent	56,815	77,663
Other household types: Total	215,684	273,090
Other household types: With dependent children	43,625	105,418
Other household types: Other (including all full-time students and all aged 65 and over)	172,059	167,672
Total	**1,357,251**	**1,908,922**

Source: ONS Census 2011

CHAPTER 2 – THE VISION

2. *The Mayor's vision is to create a future London that is not only home to more people, but is a better place for all of those people to live and work in. The aim is that, by 2041, 80 per cent of Londoners' trips will be made on foot, by cycle or using public transport.*
   – To what extent do you support or oppose this proposed vision and its central aim?

2.1 We applaud the level of ambition of 80% of Londoners' trips will be made on foot, by cycle or using public transport by 2041; what is less clear is whether this is achievable, not least as it mostly relies on behaviour change. As a significant proportion of the London workforce resides outside of London in neighbouring counties, it is also not clear whether this metric include trips made by commuters or is focused solely on London residents.

2.2   In terms of reducing car use in London, it is important to remember that the distance travelled to work is linked to the main mode of transport to work. Driving a car or van remains by far the most widely used mode of transport to work in London (see table 2 below).

Table 2: method of travel to work on London

Method of travel to work (2001 specification)	No of people
Work mainly at or from home	380,663
Underground, metro, light rail or tram	896,502
Train	828,286
Bus, minibus or coach	542,645
Taxi	18,848
Motorcycle, scooter or moped	50,867
Driving a car or van	1,200,320
Passenger in a car or van	73,983
Bicycle	158,613
On foot	330,419
Other method of travel to work	19,335
Total	**4,500,481**

Source: ONS Census 2011

2.3   A comparative analysis of method of travel to work between selected English cities (see table 3 below) shows that travel to work methods are broadly similar. The main difference is in much higher levels of commuting by bicycle achieved in Cambridge and Oxford; indeed far higher than in London where significant investment has gone into 'Boris bikes' to encourage workers and visitors to make more sustainable travel choices.

Table 3: comparative analysis of travel to work methods 2011

City	CO_2 emissions per capita (tons)	Commuting by bicycle (%)	Commuting by bus, train or metro (%)	Commuting by private vehicle (%)	Commuting on foot 2011 (%)	Commuting by other methods (%)	People who work from home (%)
Brighton	4.33	4.57	21.59	43.85	17.45	0.52	12.03
Cambridge	5.69	29.03	11.26	33.96	14.56	0.40	10.80
Liverpool	5.59	1.91	22.93	57.05	11.44	0.58	6.08
London	5.08	3.62	44.63	33.55	8.01	0.50	9.68
Newcastle	5.60	2.23	21.45	58.70	9.84	0.88	6.91
Oxford	5.89	17.07	18.56	36.62	16.81	0.50	10.44

Source: ONS Census 2011

2.4   There has been a rising national trend of an increase in commuting distance by workers between 2001 and 2011 as recorded by the census, where the proportion of commuters travelling 10km or over has increased from 32.3% to 35.8%. The corresponding figure for London is in line with this trend at 35% for commuters travelling 10km or over in 2011. See table 4 below. This has implications for car usage, though many commuters also travel by rail into London.

Table 4: distance travelled to work - London

Age	Distance travelled to work							
	Less than 5km	5-10km	10 -30km	30-60km	60km and over	Work mainly at or from home	No fixed place	Total
16-19	33,789	16,162	14,842	3,080	3,021	3,401	7,664	81,959
20-24	119,770	89,870	89,943	17,885	14,018	16,075	40,008	387,569
25-29	184,609	178,353	168,198	31,367	18,815	36,268	67,821	685,431
30-34	167,616	165,207	181,453	41,706	23,412	48,474	69,775	697,643
35-39	136,760	121,274	152,651	46,781	28,064	50,151	56,133	591,814
40- 44	133,643	101,068	135,844	45,937	31,827	50,217	49,816	548,352
45-49	132,510	90,301	120,611	41,372	30,783	48,484	43,488	507,549
50-54	111,811	71,151	92,099	30,200	23,785	41,858	34,547	405,451
55-59	87,233	51,767	63,259	19,621	15,940	34,371	23,746	295,937
60-64	57,786	33,388	38,792	11,435	9,877	28,534	16,364	196,176
65-74	29,894	15,800	16,405	4,080	4,089	22,830	9,502	102,600
Total	1,195,421	934,341	1,074,097	293,464	203,631	380,663	418,864	4,500,481

Source: ONS Census 2011

2.5   The What Works Centre for Local Economic Development has reviewed the impact transport can have on the local economy[3]. The review considered more than 2,300 policy evaluations and evidence reviews from the UK and other OECD countries. While many of the findings depend on a small number of studies, they are consistent with other research on the economic impact of transport improvements.

2.6   The evidence showed that road projects:
- can positively impact local employment. But effects are not always positive and a majority of evaluations show no (or mixed) effects on employment
- may increase firm entry (either through new firms starting up, or existing firms relocating). However, this does not necessarily increase the overall number of businesses (since new arrivals may displace existing firms)
- tend to have a positive effect on property prices, although effects depend on distance to the project (and the effects can also vary over time)
- impact on the size of the local population may vary depending on whether the project is urban, suburban or rural
- can have positive effects on wages or incomes
- can have a positive effect on productivity
- rail projects also tend to have a positive effect on property prices, although effects depend on distance to the project (and the effects can also vary over time).

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[3] http://www.whatworksgrowth.org/policy-reviews/transport/

2.7   Lessons from the review are that:

- the economic benefits of transport infrastructure spending, particularly as a mechanism for generating local economic growth, are not as clear-cut as they seem on face value
- arguments for spending more in areas that are less economically successful hinge on the hope that new transport is a cost-effective way to stimulate new economic activity. The centre does not have clear and definitive evidence to support this claim.

2.8   Measures to shift car trips to other modes of transport, such as public transport and bicycles, have been studied in many cities. A general problem when it comes to shifting from car to other modes is that many people believe they do not have any realistic alternatives to using the car[4]; and car trips are perceived as being cheap for those that already have a car. Once the car has been purchased, little consideration is taken of its cost or the number of taxi journeys that could be made for the same amount of money. The car therefore usually appears to be an economical alternative compared with public transport.

2.9   Studies[5] have found that 20% of car journeys are unavoidable; 60% can be influenced in some way and are dependent on the standard of public transport, working hours and the location of services; and 20 % could be replaced by some other mode. Journeys to and from work are considered easiest to transfer from the car while journeys to drop off and collect children are hardest.

2.10 Factors that influence the choice of mode include[6]: car ownership; gender; income; availability of parking; the standard/ quality of travel on public transport; relative cost; journey time and distance; and convenience. A combination of measures is needed to attract car drivers to other modes of transport. These include: restrictions on the car, such as road tolls, car-free zones, parking fees; improved conditions for pedestrians, cyclists and public transport; communication in the form of campaigns and information; and incentives.

2.11 It appears that the individuals who are easiest to influence are already using public transport, such that the above measures would not have a major impact on this group. It might be more worthwhile to focus resources on influencing the group comprising middle-aged people with higher salaries, as they have the least sustainable travelling patterns.

Freight transport
2.12 The factors influencing the demand for freight are more complex and interdependent than the factors influencing passenger demand[7] because:

- decisions by shippers, carriers and receivers affect whether or not a particular shipment is made and, if so, by what mode and route
- there are many different types of commodities that make up the freight traffic, and these commodities have wide range of prices or values associated with them (also some are perishable while others are not)

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[4] Factors that influence choice of travel mode in major urban areas http://www.diva portal.org/smash/get/diva2:7556/FULLTEXT01.pdf
[5] Stet http://tram.mcgill.ca/Research/Publications/Transit_Route_choice.pdf
[6] http://tram.mcgill.ca/Research/Publications/Transit_Route_choice.pdf
[7] http://www.tongji.edu.cn/~yangdy/quick/ch2.htm

- freight movements are measured in various units such as financial value, quantity, weight, volume, container, carload, truckload etc.
- the cost of moving freight is much harder to determine compared with cost to move passengers because more specialised services are required for freight (i.e. handling, loading, unloading, classifying, storing, packaging, warehousing, inventorying, etc.).

2.13 Generally, demand for freight is determined by economic buoyancy; the spatial distribution of industry; just in time inventory practices; centralised warehousing; fuel prices; user charges and other taxes, e.g. port fees; congestion; environmental and safety regulation; and advances in technology, e.g. in equipment and information systems, which are increasing productivity.

3. *To support this vision, the strategy proposes to pursue the following further aims:*
   - *by 2041, for all Londoners to do at least the 20 minutes of active travel they need to stay healthy each day*
   - *for no one to be killed in, or by, a London bus by 2030, and for deaths and serious injuries from all road collisions to be eliminated from our streets by 2041*
   - *for all buses to be zero emission by 2037, for all new road vehicles driven in London to be zero emission by 2040, and for London's entire transport system to be zero emission by 2050*
   - *by 2041, to reduce traffic volumes by about 6 million vehicle kilometres per day, including reductions in freight traffic at peak times, to help keep streets operating efficiently for essential business and the public*
   - *to open Crossrail 2 by 2033*
   - *to create a London suburban metro by the late 2020s, with suburban rail services being devolved to the Mayor*
   - *to improve the overall accessibility of the transport system including, by 2041, halving the average additional time taken to make a public transport journey on the step-free network compared with the full network*
   - *to apply the principles of good growth*

   – To what extent do you agree or disagree with the aims set out in this chapter?

3.1 See comments made in responses to other consultation questions.

CHAPTER 3 – HEALTHY STREETS AND HEALTHY PEOPLE
4. *Policy 1 and proposals 1-8 set out the Mayor's draft plans for improving walking and cycling environments (see pages 46 to 58).*
   – To what extent do you agree or disagree that these plans would achieve an improved environment for walking and cycling? Please also describe any other measures you think should be included.

4.1 Much of what is seeking to be achieved is around behaviour change such that people leave the car and/ or public transport behind in favour of a more active lifestyle and journey to work and leisure activities. Often people make transport choices based on convenience, cost and purpose, e.g. dropping off children at school on the way to work by car or public transport. Successful behaviour change takes time; it is typically incremental e.g. as with the increase in household waste recycling rates. The more successful ways of motivating behaviour change are intrinsic (value-based) rather than extrinsic (monetary based) as this change is not sustained once the monetary incentive has been removed.

4.2   As well as increasing physical activity levels, walking and cycling can help reduce car travel leading to reductions in congestion, air pollution and noise; reduce road danger; increase the number of people on the streets making public spaces seem more welcoming; and provide an opportunity for people to participate in the outdoor environment. These benefits may be particularly significant for people with disabilities whose participation in other activities may be more restricted.

4.3   Integrated decision making and referral systems between public health, planning, housing, transport and environment services, which recognise the universal promotion of healthy lifestyles can have a range of co-benefits for both health and the environment. For example, promotion and facilitation of walking and cycling simultaneously reduces carbon emissions improves air quality locally and increases physical activity for the individual. For example:

- getting just one more person to walk to school could pay back £768 in terms of the health benefits to individuals, savings to the NHS, productivity gains and reduction in air pollution and congestion[8]
- replacing car journeys with walking or cycling and making roads and neighbourhood environments safer and more pleasant could deliver considerable savings. For instance for every £1 spent on cycling provision the NHS recoups £4 in reduced health costs[9]
- choice of green travel – the overall costs of transport induced poor air quality, ill health and road accidents are huge, exceeding £40 billion annually.[10]

4.4   An evaluation of the social return on investment of a volunteer-led health walks programme in Glasgow was carried out between April 2011 and March 2012. The programme delivered 59 projects for the general public and specially referred clients, such as hospital in-patients. Investment in the Glasgow Health Walks amounted to £48,705. However, the value of the associated outcomes is estimated to be £384,630, which amounts to a cost: benefit ratio of £8 generated for every £1 invested[11].

4.5   There are also useful examples of integrated/ partnership working at a local level around green infrastructure. For example, the Green Infrastructure Strategy for Liverpool[12] was jointly funded by Liverpool City Council and Liverpool Primary Care Trust. The latter helped pay for spatial and data analysis to feed into the strategy.

4.6   According to the National Institute for Health and Care Excellence (NICE), the ways to ensure pedestrians, cyclists, and users of other modes of transport that involve physical activity, are given the highest priority when developing or maintaining streets and roads, include one or more of the following methods[13]:

- re-allocate road space to support physically active modes of transport, e.g. by widening pavements and introducing cycle lanes
- restrict motor vehicle access, e.g. by closing or narrowing roads to reduce capacity
- introduce road-user charging schemes

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[8] Dept of Health et al 2011- Soft Measures – Hard facts. The value for money of transport measures which change travel behaviours
[9] Get Britain Cycling Parliamentary Inquiry 2013
[10] Cabinet Office – Wider Costs of Transport 2009
[11] Carrick, K. (2013) Glasgow Health Walks Social Return on Investment Analysis. Alloa: Paths for All
[12] http://www.greeninfrastructurenw.co.uk/liverpool/
[13] https://www.nice.org.uk/guidance/ph8/chapter/1-Recommendations

- introduce traffic-calming schemes to restrict vehicle speeds (using signage and changes to highway design)
- create safe routes to schools, e.g. by using traffic-calming measures near schools and by creating or improving walking and cycle routes to schools
- provide a comprehensive network of routes for walking, cycling and using other modes of transport involving physical activity. These routes should offer everyone (including people whose mobility is impaired) convenient, safe and attractive access to workplaces, homes, schools and other public facilities
- separation – there needs to be adequate pavements but actually walking and cycling flourish if they can be separated into networks entirely away from vehicles (and by more than a white line or cones).
- (and/or) Integration – doing away with surface differentiation as in test cases in Europe can increase through speeds while reducing accidents.
- priority – in urban environments which mode has priority has a pretty dramatic impact on choice especially if cars are slowed, diesels are banned, freight is moved to non-core hours, buses are electric, sensors for crossing are smart, "rolling red" rules for bikes are adopted.
- surface – many highways departments/ road inspectors do not appreciate the impact that poorly finished/maintained road surfaces have on 2 wheel/small wheel transport. Potholes, cracks, subsiding manholes etc. are dangerous in their own right and hazardous as places where glass, nails etc. land. Good roadway construction (consider the Belgian cycle network, separate from most roads, mainly consisting of roads that were surfaced over 40 years ago) and roadway maintenance are essential.

4.7   Improving street environments to encourage walking and cycling have been in effect on Exhibition Road in Kensington since 2011. On this road, signs, traffic signals and barriers have been removed in order for motorists to take more personal responsibility for their own actions and drive more attentively, making more eye contact with pedestrians. The approach, pioneered in Holland, is designed to improve safety; supporters believe it is a blueprint for the 21st century high street in towns and cities across the country. There is a 20mph speed limit on Exhibition road, which in practice, drivers do not regularly keep to and/ or ignore pedestrians. Even the safety record of Cycle Superhighways has, at times, been called into question given the number of cyclist fatalities. The areas of London that have been pedestrianised, such as Exhibition Road and Oxford Street are locations that typically experience high numbers of visitors/ tourists and shoppers; there is normally a purpose for the visit. This is different to improving streets in residential areas that Londoners use every day. Understanding which locations/ routes are more frequently used, through the use of geographic information, would help target resources. It is not clear from the draft strategy whether the priority is to improve streets that Londoners use regularly anyway, or those streets used for leisure and other purposes.

4.8   As already mentioned, the existence of the Boris bikes scheme has not led to the widespread uptake of cycling in London; what is the evidence to suggest making the improvements in the draft strategy will result in a step change in cycle usage? Levels in London currently remain lower than in Cambridge and Oxford for example. It seems that to achieve the Mayor's aims there needs to be a sequencing of activity, e.g. first reduce car usage and increase public transport patronage and then focus on improving streets; if there are fewer cars parked on streets, this could make a visible difference, which encourages more cycling and walking.

5. *Policy 2 and proposals 9-11 set out the Mayor's draft plans to reduce road danger and improve personal safety and security (see pages 62 to 67).*
   – To what extent do you agree or disagree that these plans would reduce road danger and improve personal safety and security? Please also describe any other measures you think should be included.

   5.1   No comment.

6. *Proposals 18 and 19 set out the Mayor's proposed approach to road user charging (see pages 81 to 83).*
   – To what extent do you agree or disagree with this proposed approach to road user charges? Please also describe any other measures you think should be included.

   6.1   Congestion charging has been used globally to reduce traffic in city centres/ built up areas and thereby improve air quality. The London Congestion Charge (one of the largest such zones in the world) was introduced for road vehicles entering central London in 2003.

   6.2   In Transport for London's (TfL) Fifth Annual Monitoring Report in 2007, it stated that between 2003 and 2006, NOX emissions fell by 17%, PM10 by 24% and CO_2 by 3%, with some being improvements attributed to the effects of reduced levels of traffic flowing better, but with the majority being as a result of improved vehicle technology[14]. In total, the rate of fall in CO_2 was almost 20% as of 2007[15].

   6.3   However, the 2007 TfL report made it clear that only a one-off reduction of emissions could be expected from the introduction of the charge, whilst further reductions are unlikely to be as a result of the charge. It notes that lower vehicles emissions may not necessarily feed through into improvements in air quality, as vehicle emissions are only one contributor to total emissions of a particular pollutant: industrial sources, weather conditions and pollutant concentrations also play a significant role.

   6.4   A 2011 independent study published by the Health Effects Institute (HEI)[16], and led by a researcher from King's College, London found little evidence the congestion charge scheme had improved air quality. The research used modelling and also compared actual air pollutant measurements within the congestion charge zone with those of control sites located in Outer London. There is evidence that the congestion charging zone has displaced emissions and parking to areas bordering the charging zone.

7. *Proposals 20 and 21 set out the Mayor's proposed approach to localised traffic reduction strategies (see page 83).*
   – To what extent do you agree or disagree with this approach? Please also describe any other measures you think should be included.

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[14] *Sadler, Lucy. "Detailed assessment London congestion charging". UK Air Quality Archive. Archived from the original (DOC) on 28 February 2008*

[15] http://news.bbc.co.uk/1/hi/world/europe/7167992.stm

[16] http://www.greencarcongress.com/2011/04/hei-study-finds-london-congestion-charging-scheme-shows-little-evidence-of-improving-air-quality.html#tp

7.1   The issue here appears to be the extent to which the London Boroughs support and implement the Mayor's Transport Strategy, such that localised plans are developed to deliver the strategy within an individual borough's geography. In the event that London Boroughs develop their own local plans in isolation from and contrary to that of the Mayor, this risks wasting resources and delivering a sub-optimal outcome for Londoners. The Mayor will need to engage and work closely with the boroughs when developing Local Implementation Plan guidance.

8.   *Policy 3 and proposals 12-14 set out the Mayor's draft plans to ensure that crime and the fear of crime remain low on London's streets and transport system (see pages 68 to 69).*
– To what extent do you agree or disagree that these plans would ensure that crime and the fear of crime remain low on London's streets and transport system? Please also describe any other measures you think should be included.

8.1   In implementing these plans, the organisations involved should adopt an approach based on geographic information to identify locations/ areas where Londoners are, or perceive to be, most at risk of crime, be it crimes against the person or motorcycle theft. Prioritising the most serious offences with good success rates will help reassure those feeling vulnerable.

9.   *Policy 4 and proposals 15-17 set out the Mayor's draft plans to prioritise space-efficient modes of transport to tackle congestion and improve the efficiency of streets for essential traffic, including freight (see pages 70 to 78).*
– To what extent do you agree or disagree that these plans would tackle congestion and improve the efficiency of streets? Please also describe any other measures you think should be included.
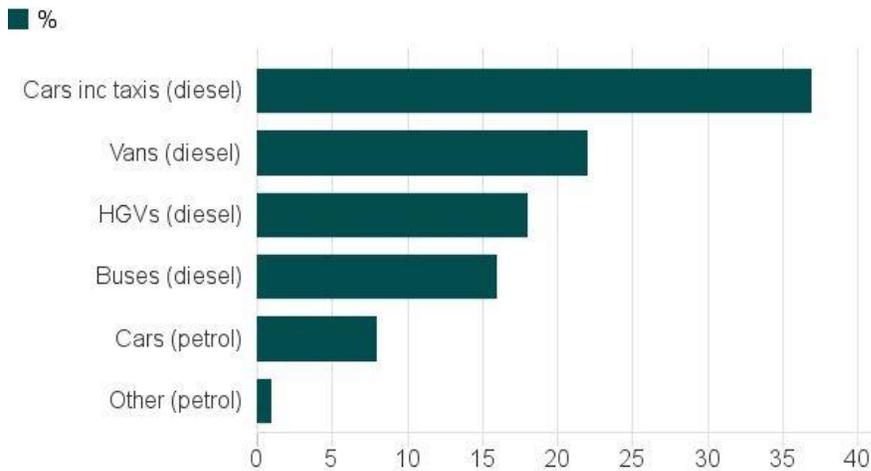
9.1   To be effective, these plans must adopt a geographic information based approach to capture the spatial dimension. Being within a 30-minute drive of a construction centre may, in reality, mean that distances covered within 30 minutes will vary depending on start location. This will need to be taken into account when deciding on where to site a construction centre.

10.   *Policies 5 and 6 and proposals 22-40 set out the Mayor's draft plans to reduce emissions from road and rail transport, and other sources, to help London become a zero carbon city (see pages 86 to 103).*
– To what extent do you agree or disagree that these plans would help London become a zero carbon city? Please also describe any other measures you think should be included.

10.1 Road based transport is a major contributor to poor air quality. Any changes in the total number of vehicles travelling on the road network in London, and in the type and age of the vehicles used, will affect the impact that the emissions from those vehicles have on air quality and emission levels within the geography. For example, growth in petrol and diesel vehicle numbers is likely to lead to an increase in emissions to air, although the scale of those emissions may be ameliorated by improvements in engine technology or the use of electric, plug in hybrid or ultra-low emission (one that emits 75g/km or less of CO_2) vehicles. It is important to understand the spatial incidence and impacts of low air quality and target improvements in these areas, such as in areas in close proximity to motorways, airports or where congestion is heavy. For example, at the start of the year, Brixton Road in South London breached its annual air-pollution limit in just five days when levels of nitrogen dioxide (NO_2) exceeded the levels set by EU law. This law states that the average hourly level of NO_2 must not exceed 200 micrograms per cubic metre more than 18 times a year. Brixton Road exceeded this limit 19 times in less than a week.

Chart 6: sources of roadside NOx levels

What contributes most to roadside nitrogen oxide levels

■ %

Category	
Cars inc taxis (diesel)	~37
Vans (diesel)	~22
HGVs (diesel)	~18
Buses (diesel)	~16
Cars (petrol)	~8
Other (petrol)	~1

(Axis: 0 5 10 15 20 25 30 35 40)

Source: DEFRA   BBC

10.2 Changes in the spatial and temporal distribution of vehicles travelling within London may alter the locations that are subject to air quality impacts arising from traffic. For example, evidence shows that falls in vehicle numbers and concentrations in urban areas at particular times of day are beneficial to air quality in those localities.

10.3 Extending the use of lampposts retrofitted as charging stations for electric vehicles will help reduce carbon emissions; this innovative approach has already been adopted in Westminster, where 82 lampposts have been retrofitted by German startup Ubitricity to double as charging stations. There is a clear advantage as the conversion does not take up extra space and relies on existing ubiquitous infrastructure; it is also cheaper and easier to install at a time when London wants to quickly increase the number of public chargers in the city. As cars spend most of the time parked – the average urban car spends 95% of its time standing still –Ubitricity believes that fast charging isn't necessary most of the time. The streetlight chargers simply provide an alternative for those who do not have a driveway or garage with an outlet. The majority of people in London, as in many cities, park on the street.

10.4 Any wider roll out across London should be based on geographic information to ensure that charging stations are available in the most relevant locations. The government recently calculated that a switch to 100% electric cars in London would massively strain the electric grid; the use of streetlights as one main source of charging could help control the demand for electricity and reduce

spikes in demand. Ubitricity's charging cables are also designed to work both ways: in the future, cars could help store energy and feed power back into the grid as needed.

10.5 The Mayor will also need to consider how the strategy will take account of recent announcements to ban the sale of new petrol and diesel vehicles or build electric vehicles:

- by the Scottish Government to take effect from 2032
- by the Government to take effect from 2040
- by the French Government to take effect from 2040
- by Volvo to launch only electric and hybrid models from 2019
- Volkswagen said it would build electrified versions of every model in its range - including those sold under the Audi, Skoda, Seat and Porsche brands - by 2030
- Mercedes' parent company Daimler said it would have electrified versions of its own models by 2022.

10.6 There are several useful initiatives in London aimed at improving air quality. For example, the New West End Company (NWEC), together with its members, is aiming to improve air quality and make London's West End a more enjoyable place to work and visit. Its new business assessment tool shows businesses what steps can be taken to improve air quality, from waste to construction; NWEC advice includes asking architects to design to BREEAM standards and installing 'green infrastructure'.

10.7 NWEC is also teaming up with a number of businesses to pilot an experiment on Bird Street, Mayfair to transform the space into the smartest street in the world by introducing:
- Pavegen tiles, which turn the kinetic energy produced by visitors' footsteps into off-grid energy that can either then be stored or used to power nearby electronics instantly. Pavegen tiles have also been installed at Westfield's Stratford City shopping centre
- gas phase advance oxidation units provided and run by Piccadilly-based start-up Airlabs, which draw in exhaust fume particles together with other pollutants and expel fresh air
- street furniture which will be coated with paint from Airlite, a substance that reduces air pollutants and bacteria and reduces energy consumption.

11. *Policies 7 and 8 and proposals 41- 47 set out the Mayor's draft plans to protect the natural and built environment, to ensure transport resilience to climate change, and to minimise transport related noise and vibration (see pages 104 to 111).*
   – To what extent do you agree or disagree that these plans would achieve this? Please also describe any other measures you think should be included.

11.1 Using location based intelligence will help identify the places where the benefits of this approach can be fully exploited and to identify localities where there is a deficit of natural capital and/ or green infrastructure. The Natural Capital Committee (NCC) has highlighted in its work[17] the benefits of having trees, woodland and green spaces in urban areas and urban fringes as a way to improve access to the environment and thereby improve individual well-being and economic productivity. Trees also

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[17] The State of Natural Capital: Protecting and Improving Natural Capital for Prosperity and Well-being. Third Report to Economic Affairs Committee, Natural Capital Committee, January 2015. In its Third Report it found a strong economic case for planting large areas of trees in the right places. It is estimated that 250,000 hectares planted near towns and cities can generate societal net benefits in excess of £500m a year

help reduce the risk of flooding and improve water quality. The NCC has called on local authorities and major infrastructure providers to ensure that natural capital is protected and improved.

11.2 The Department for Transport published a review of the resilience of England's transport network to extreme weather events in July 2014. The recommendations are worth consideration by Transport for London.

11.3 The review found current risks include extreme weather events, e.g. heat, flooding and high winds, which are expected to increase in frequency and duration in the future that cause significant disruption to the transport network (road, rail and air). The resilience of IT systems is also a risk as modern transport systems are increasingly dependent upon information technology, internet access and other computer systems. These are critical in the operation of the system, for example, computer based signalling systems on the railways and the software to support air traffic control. Related to this is the resilience of electricity sub stations to flooding.

11.4 Transport for London and infrastructure owners need to collaborate to define a critical network of railways, highways, ports and airports which should be prioritised in strengthening resilience. The economic rationale for investing in transport needs to be strengthened. Infrastructure operators in particular need to develop methodologies for estimating the economic and social costs of disruption, and for capturing the costs of rectifying damage caused by extreme weather, so these can be factored into spending decisions on resilience measures. Transport for London should work with operators to help develop these methodologies, so that the level of investment in resilience is optimised. At present, spending on resilience is largely event led and reactive. It is important that in future funding decisions adequate provision is made for maintenance expenditure to ensure resilience.

11.5 Extreme weather not only causes transport disruption but also has a considerable impact on the condition of transport infrastructure. Deterioration and ageing of road and rail infrastructure is principally the result of two forces - the volume and weight of usage, and the impact of weather. Extreme weather has a substantial impact in accelerating the rate of deterioration, particularly of local roads, with water erosion and ingress, frost, and summer heat all having a damaging impact. Public sector spending decisions need also to take account of this impact.

11.6 Contingency plans for how to manage disruption and clear crisis management procedures are vital preparations for effective management of disruption when it happens and ensuring rapid recovery; all transport operators should have a contingency plan. These should be periodically rehearsed, via desktop or live exercises with relevant principal partners in the industry.

CHAPTER 4 – A GOOD PUBLIC TRANSPORT EXPERIENCE
12. *Policy 9 and proposal 48 set out the Mayor's draft plans to provide an attractive whole-journey experience that will encourage greater use of public transport, walking and cycling (see pages 118 to 119).*
– To what extent do you agree or disagree that these plans would provide an attractive whole journey experience? Please also describe any other measures you think should be included.

12.1 While improving the physical appearance of stations is a positive step, unless the transport service itself is reliable, affordable/ cost effective, comfortable and safe, greater usage is less likely to follow. One of the main issues with the attractiveness of tube and bus journeys is the extent of

overcrowding, particularly during the morning and evening peak and at other times when some tube lines and bus routes are heavily used.

12.2 The cost of using public transport in London is far higher than in some other European capital cities, such as Paris and Brussels. A clear way to encourage more people to not use a private car is to make travel on public transport more affordable and competitive. Gett and Citymapper have recently announced a new fixed-route taxi service that will allow commuters to travel by black cab across London for a flat fare of £3 (regardless of how long passengers travel along it); this is cheaper than a tube fare.

12.3 In essence, this is a brand reinvention of other forms of taxi share that already exist in cities around the world. Gett began trialling its 'Gett Together' service in January 2017 with three fixed black cab lines in London and one in Manchester. In the capital, these are Ladbroke Grove to Aldwych, Belsize Park to Berkeley Square and Clapham Junction to London Bridge. A fourth London route was launched this month, running from Highbury and Islington station to Waterloo. It will appear as an option on the Citymapper app when it is the best choice for the passenger. The routes have been chosen with the help of Citymapper's data on the way people move through London, which has also identified gaps in the city's transport network. The hop-on hop-off service will operate weekdays from 7am-10am and 5pm-8pm. Passengers can request a ride through the app at the nearest point to them and the average wait time is said to be less than five minutes.

13. *Policies 10 and 11 and proposals 49 and 50 set out the Mayor's draft plans to ensure public transport is affordable and to improve customer service (see pages 121 to 125).*
   – To what extent do you agree or disagree that these plans would improve customer service and affordability of public transport? Please also describe any other measures you think should be included.

   13.1 No comment.

14. *Policy 12 and proposals 51 and 52 set out the Mayor's draft plans to improve the accessibility of the transport system, including an Accessibility Implementation Plan (see pages 127 to 129).*
   – To what extent do you agree or disagree that these plans would improve accessibility of the transport system? Please also describe any other measures you think should be included.

   14.1 No comment.

15. *Policy 13 and proposals 53 and 54 set out the Mayor's draft plans to transform the bus network; to ensure it offers faster, more reliable, comfortable and convenient travel where it is needed (see pages 133 to 137).*
   – To what extent do you agree or disagree that these plans would achieve this? Please also describe any other measures you think should be included.

   15.1 Any bus network development and redistribution of resource should be based on an approach underpinned by geographic information. Demand has a clear spatial element as will decisions on new and improved services in outer London.

16. *Policy 14 and proposals 55 to 67 set out the Mayor's draft plans to improve rail services by improving journey times and tackling crowding (see pages 140 to 166).*

– To what extent do you agree or disagree that these plans would achieve this? Please also describe any other measures you think should be included.

16.1 London needs to retain its access to a wide labour/ skills pool. Many of its workers come from surrounding areas beyond its boundaries. Rail services to and from the capital and tube and bus services to disperse high volumes of people, are therefore vital to London's continued economic growth and competitiveness. A wider geographic area over which workers are willing to search for (and accept) jobs translates into a larger and higher quality pool of candidates from which firms can fill their job vacancies. This effect is particularly strong in professional services and high technology sectors that have a strong presence in London.

16.2 Tackling overcrowding and improving reliability of rail services into London is key to sustaining and growing rail usage. Affordability is also key as many rail passengers face rising prices and falls in customer service, e.g. reliability of services, journey time delays or comfort due to, at times, severe overcrowding. Failure to address these could lead to mode shift away from rail; an increasing number of people are working from home or remotely to avoid the need to commute.

17. *Policies 15 to 18 and proposals 68 to 74 set out the Mayor's draft plans to ensure river services, regional and national rail connections, coaches, and taxi and private hire contribute to the delivery of a fully inclusive and well-connected public transport system. The Mayor's policy to support the growing night-time economy is also set out in this section (see pages 176 to 187).*
– To what extent do you agree or disagree that these plans would deliver a well-connected public transport system? Please also describe any other measures you think should be included.

17.1 See the section on transport as a service for relevant comments on a well-connected public transport system. Essentially, London needs an integrated, multi-modal transport system for London and the wider southeast; a system that includes services and connections to other parts of the country, including major cities and Scotland and Wales, spreading economic benefits across Britain.

CHAPTER 5 – NEW HOMES AND JOBS
18. *Policy 19 and proposals 75 to 77 set out the Mayor's draft plans to ensure that new homes and jobs are delivered in line with the transport principles of 'good growth' (see pages 193 to 200).*
– To what extent do you agree or disagree that these plans would achieve this? Please also describe any other measures you think should be included.
18.1 No comment.

19. *Proposals 78 to 95 set out the Mayor's draft plans to use transport to support and direct good growth, including delivering new rail links, extensions and new stations, improving existing public transport services, providing new river crossings, decking over roads and transport infrastructure and building homes on TfL land (see pages 202 to 246).*
– To what extent do you agree or disagree that these plans would ensure that transport is used to support and direct good growth? Please also describe any other measures you think should be included.

19.1 If it progresses, Crossrail 2 could:
▪ have a positive impact in areas with poor transport links by improving connections between communities and employment opportunities

▪ act as catalyst to develop new interchanges with other rail services. In this way, Crossrail 2 would serve both to alleviate congestion and support regeneration. In south west London, overcrowding is the main driver for the scheme, while the arguments for the proposed alignment in north/ east London focus on the ability of Crossrail 2 to support regeneration, combined with the capacity to reduce congestion on the Piccadilly and Victoria Lines.

19.2 There is a general consensus that land and property owners are likely to derive the greatest financial benefits from transport infrastructure developments. New rail access in an area can be used to justify higher-density planning policies, e.g. northern line extension to Battersea. However, housing affordability is not driven by transport access.

20. *Policy 20 and proposal 96 set out the Mayor's proposed position on the expansion of Heathrow Airport (see pages 248 to 249).*
– To what extent do you agree or disagree with this position? Is there anything else that the Mayor should consider when finalising his position?

20.1 No comment.

CHAPTER 6 – DELIVERING THE VISION
21. *Policy 21 and proposals 97 to 101 set out the Mayor's proposed approach to responding to changing technology, including new transport services, such connected and autonomous vehicles (see pages 258 to 262).*
– To what extent do you agree or disagree with this proposed approach? Is there anything else that the Mayor should consider when finalising his approach?

21.1 There is a growing body of evidence that disruption in transportation will result from the uptake of TAAS. Public health experts are also keen on this new approach. The apps through which the various options are accessed could be tweaked to encourage healthier choices, such as walking or cycling, if desired. Emissions of pollutants should also fall, because fewer vehicles would be idling in traffic jams and there would be fewer cars on the street. Helsinki thinks it can make its centre free of cars by 2025—not by banning them, but by building a transport system that renders them redundant.

21.2 As well as commuters' lives, cities will be transformed too. With fewer cars and parking spaces needed, they can be redesigned to be more pedestrian-friendly and to have more green spaces. Quicker journeys will increase the catchment area for job-seekers prepared to travel to work, boosting economic growth and competitiveness.

21.3 If all of the 1.3 million daily commuters into central London switched to autonomous vehicles, it would become a giant carpark. The better integrated a city's transport system, the less demand there will be for driverless cars, and the easier those cars will be to combine with the other options.

21.4 The new approach to transport as a service relies on two interconnected trends. The first is the spread of smartphones, which both generate the data required to manage a system that combines a wide variety of public and private transport options, and allow firms to offer the information via an app. 'Intelligent' journey planners, which use live information about congestion, disruption from accidents and the like to suggest the best route, are proliferating. Around 70% of Londoners regularly use an app such as Transport for London's journey planner. Live travel information shows whether trains and buses are running on time.

21.5 The second is the rise of the 'sharing economy', with businesses such as Airbnb making it possible to rent fixed assets, such as apartments, when they are not being used. Young urbanites, who have become accustomed to usership instead of ownership, find the notion of transport as a service both natural and appealing. Meanwhile the cost of running a car in a city goes ever upwards. Parking gets harder. Many city-dwellers and commuters are questioning whether the convenience is worth it. Between 1983 and 2014, the share of Americans aged 20-24 with a driving licence fell from 92% to 77%.

21.6 Ride-hailing services are the most obvious response to these two trends. Since Uber started in 2008, it has expanded to operate in 500 cities around the world. Competitors such as Lyft, which also uses an app to match riders with drivers and to handle payments, are growing rapidly, too. Didi Chuxing, China's biggest e-taxi service, has 300 million users in 400 cities and towns.

21.7 Uber and Lyft essentially provide a new way of calling a cab. But both firms also offer ride-share services that promise to make journeys cheaper and only slightly less convenient. UberPool, Lyft Line and specialist ride-share companies such as Via, which operates in Chicago, New York and Washington, DC, put passengers going in the same direction together in shared cars and lets them split the bill.

21.8 Passengers are being pooled in larger vehicles, too. Firms such as Bridj are using the wealth of data they collect from users' smartphones to model travel patterns, and thus to run on-demand minibuses in several American cities, including Boston, Kansas City and Washington, DC. Book a ride and the app will show pick-up and drop-off points close to your origin and destination, any walking required and the fare. Matthew George, the firm's founder, describes the service as 'the bus that catches you'. At $2-6 a trip it is not much pricier than a regular bus, but a comfortable seat is guaranteed.

21.9 However, behavioural issues such as love of driving, fear of new technology or habit are generally believed to pose initial barriers to consumer uptake of TAAS. Nevertheless, pre-TAAS companies such as Uber, Lyft and Didi have invested billions of dollars developing technologies and services to overcome these issues. In 2016, pre-TAAS companies drove 500,000 passengers per day in New York City alone; this was triple the number of passengers driven the previous year. The combination of TAAS's dramatically lower costs compared with car ownership and exposure to successful peer experience will drive more widespread usage of the service. Adopting TAAS requires no investment or lock-in. Consumers can try it with ease and increase usage as their comfort level increases. Even in suburban and rural areas, where wait times and cost might be slightly higher, adoption is likely to be more extensive than generally forecast because of the greater impact of cost savings on lower incomes.

21.10 Other cities are also taking an innovative approach to urban mobility. For example, as part of Dubai's bid to be a city of the future, it plans to have 25% of its public transport autonomously controlled by 2030. An exciting aspect of this is the autonomous aerial taxi (AAT) service announced in February 2017. Testing will begin toward the end of this year. It will continue for approximately five years until legislation is in place to facilitate a larger expansion.

21.11 The goal of the AAT is to eliminate the growing problem of traffic within the city. The service was due to launch at the end of July, however, implementation has been delayed to ensure the technology is as safe as it possibly can be.

21.12 Dubai will be the first city to use air taxis, and its experiment will have a profound effect on the future of transport, as other cities and companies will be judging the applicability of the idea based on Dubai's successes or failures. A particularly interested party will be Uber, which is planning to develop an autonomous airborne taxi service of its own.

22. *Policy 22 and proposal 102 set out the Mayor's proposed approach to ensuring that London's transport system is adequately and fairly funded to deliver the aims of the strategy (see pages 265 to 269).*
   – To what extent do you agree or disagree with this proposed approach? Is there anything else that the Mayor should consider when finalising his approach?

22.1 The way to secure control of long term transport and regeneration investment, and funding that prioritises London's needs, is access to locally-controlled funding. This approach is used in France through a system wherein French cities own or direct all transport, and so can balance modes. Alternatively, transport funding can be financed through transport tax on business rates. Greater local control would allow for more integration between land use and transport planning – these are already within the Mayor's portfolio of responsibilities.

22.2 If the Mayor were to be given control over those suburban rail services regulated by the Office of Rail Regulation (ORR), this could enable the development of a more integrated and flexible system. What is clear is that without adequate and stable funding, delivery of the strategy will be in jeopardy. TfL, if they have not already, might develop scenarios around what is deliverable based on a number of funding levels and realistic costs. These scenarios should be developed through a location based approach.

23. *Policies 23 and 24 and proposal 103 set out the proposed approach the boroughs will take to deliver the strategy locally, and the Mayor's approach to monitoring and reporting the outcomes of the strategy (see pages 275 to 283).*
   – To what extent do you agree or disagree with this proposed approach? Is there anything else that the Mayor should consider when finalising his approach?

23.1 We agree that boroughs will need to develop a Local Implementation Plan to give effect to the Transport Strategy within their locality. Any guidance for the LIP should be developed in close collaboration between the Mayor, GLA, TfL, the boroughs and other relevant authorities, such as Highways and the British Transport Police.

24. *Are there any other comments you would like to make on the draft Mayor's Transport Strategy?*

24.1 The Royal Geographical Society (with IBG) and the Association for Geographic Information would be happy to help the Mayor develop an ongoing longer-term programme of research to support delivery, and in time a refresh, of the strategy. While the lifetime of the strategy extends to 2040, many of the activities and actions to deliver it are more short-medium term. The nature of transport in London in 2040 will be very different to how it is today; however, the draft strategy does not seem to recognise this explicitly in a way that acknowledges the scale of the expected change – it should.

For further information regarding this joint response from the Royal Geographical Society with IBG and the Association for Geographic Information please contact:

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