EXTERNAL SERVICES SCRUTINY COMMITTEE - POPULATION GROWTH PLANNING BY UTILITY COMPANIES

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REASON FOR ITEM

To enable the Committee to receive updated on the action being taken to ensure that the growing demand for utility services in Hillingdon has been planned for and will be met.

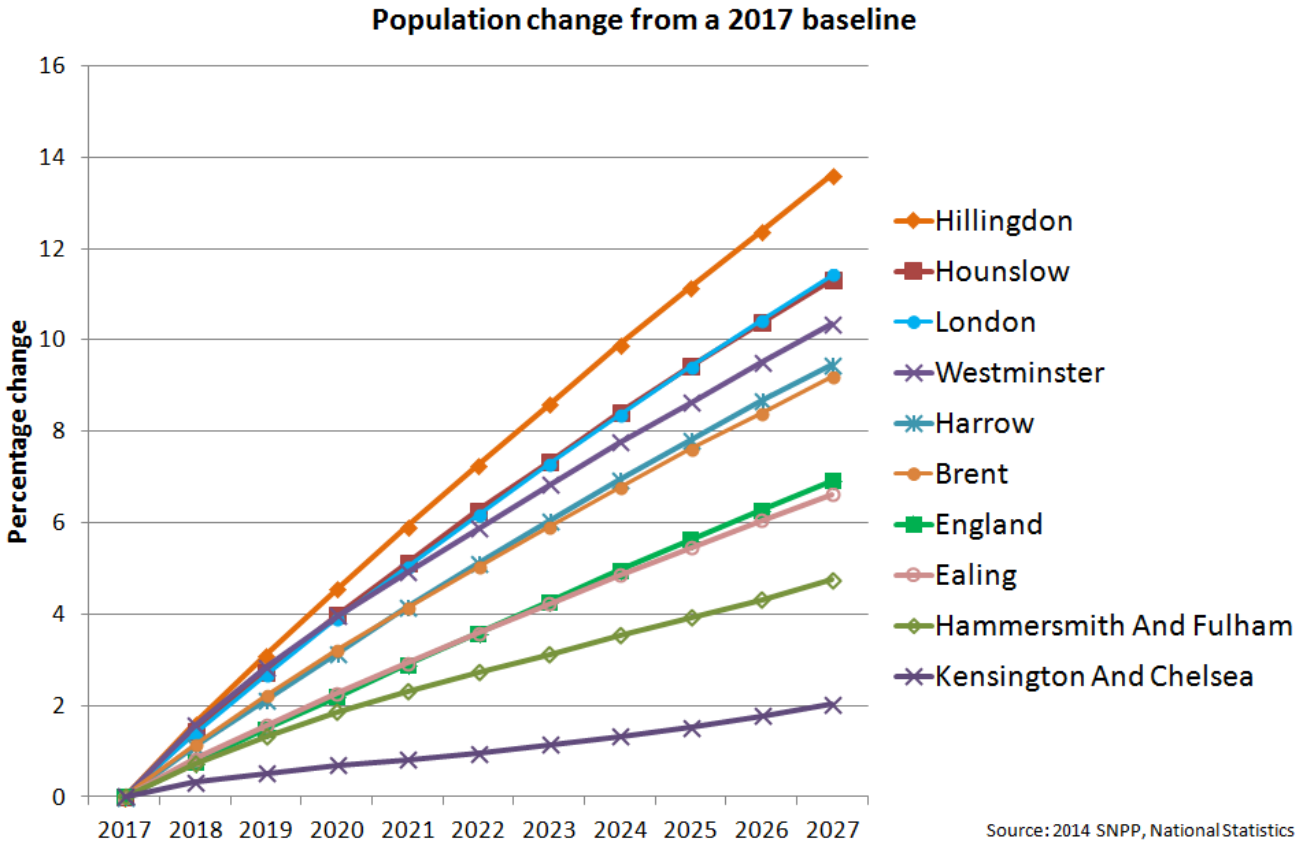
OPTIONS AVAILABLE TO THE COMMITTEE

- Ask the witnesses questions as required.
- Make recommendations to address issues arising from discussions at the meeting.

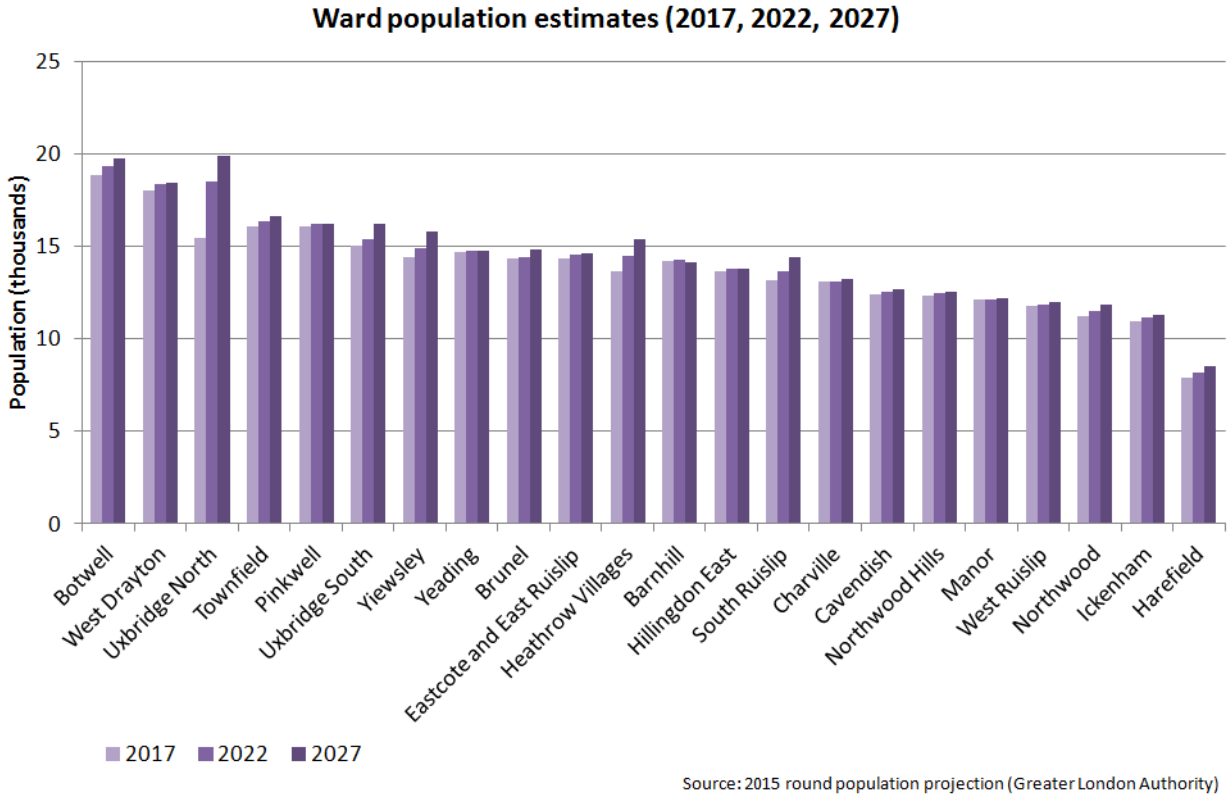
INFORMATION

Population Growth

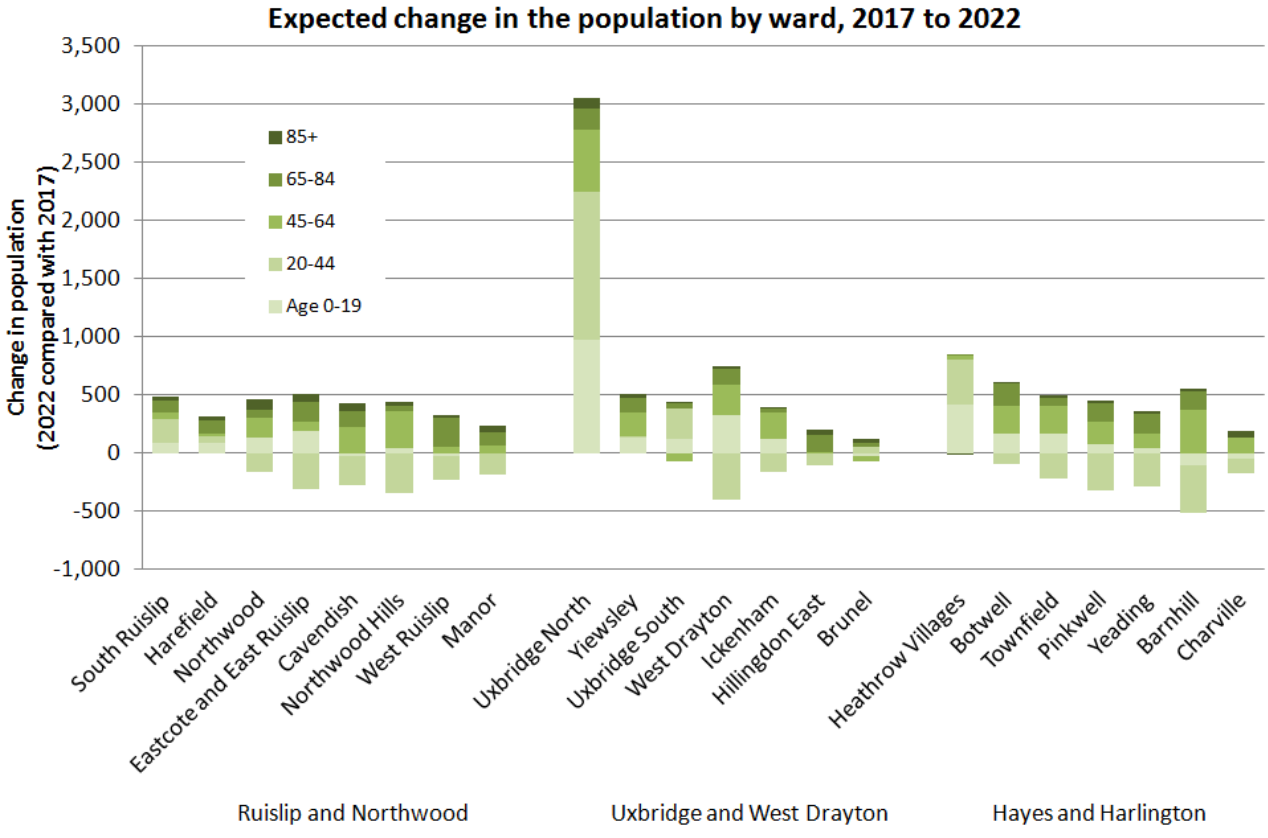
The Office for National Statistics Sub-national population projections estimate that there are 309,300 people currently living in Hillingdon. This figure is expected to increase, with the percentage change in Hillingdon expected to be higher than other boroughs in North West London, London and England.



This anticipated population increase can be broken down to Ward level and the following two charts show where the greatest increases are expected.



Source: 2015 round population projection (Greater London Authority)



A meeting of the Greater London Authority (GLA) Planning Committee on 17 October 2016 noted that demand on energy supplies in the capital was set to increase by 20%. Furthermore, Thames Water projects that demand for water will exceed supply by 10% by 2025, rising to 21% in 2040. It is anticipated that London's growth will require infrastructure investment of around £1.3 trillion from now until 2050.

Whilst London faces a number of complex infrastructure challenges arising from population growth, 60% of London's current infrastructure assets sit in private hands. Concern has been expressed by the GLA that some utility companies only forecast three years ahead.

It is important that London has a programme of infrastructure investment that is coordinated between sectors, responds to change and can be delivered in good time, at a reasonable cost. This issue has been explored in the GLA's *London Strategic Infrastructure Requirements* report which looks at where infrastructure should be built and improved to respond to growing demands. The report:

- examines the capital's infrastructure requirements to the early 2030's across the following sectors: rail, road, electricity and heat, waste, water supply, water management and flood risk, digital connectivity and green infrastructure.
- assesses the planning and funding status of each project.
- analyses needs by location to highlight where investment would 'unlock' housing and economic growth.
- investigates the obstacles to improving infrastructure and opportunities to innovate in each area.

Electricity and Heat

There is a significant challenge related to whether the existing grid will be able to cope with new electricity demand and what reinforcement and mitigation strategies will be needed in the network. London is currently heavily reliant upon the national grid for electricity and for gas, and its supply is inextricably linked to national energy infrastructure and national energy policy. Therefore costs and security of supply challenges at the national level will directly affect London's resilience and its customers, potentially exposing them to risks that are beyond the direct control of London's authorities.

In general, the London Infrastructure Plan 2050 estimated that London will require a 20% increase in energy supply to 2050 unless significant demand reduction is realised through retrofit and/or user behaviour.

There is no clear direction from the GLA on which should be the energy supply matrix to generate 25% of London energy requirements. The Solar action plan will support this, but this is still a small proportion of the supply. Increase in District Heating Networks will provide most of the decentralised resources but identifying, and then delivering, networks remains a challenge.

Electric heat pumps are being prioritised to replace gas boilers in order to deliver zero carbon heat. However, they may not be the most efficient technology and a wholesale switch will put a significant amount of pressure on the grid capacity.

Mayoral priorities, challenges and opportunities for innovation in relation to electricity and heat include:

- the use of a DevCo model to provide and manage investment in electricity distribution infrastructure which would reduce developer and investor risk in investing ahead of need.
- a Licence Lite model which involves the GLA obtaining a junior electricity supply licence whereby it can purchase output from low and zero carbon electricity generators and supply the electricity produced to public and commercial electricity users in London.
- the development of a framework and the implementation of integrated energy strategies in all new developments and major refurbishment projects in order to reduce demand on the grid and create a more sustainable and self-sufficient system.
- a move towards a zero carbon and 'smart' electricity grid able to accommodate decentralised electricity generation at all scales and in coordination with national energy policy (intermittent wind generation at the national scale, and manage demand associated with electric vehicles, heating, and energy hungry locations at vulnerable points on the network).
- district heating to connect buildings in dense areas and areas not suited to building-scale heat pumps.
- agglomeration of schemes and infrastructure solutions could be an important way for Distribution Network Operators (DNOs) and suppliers to efficiently reinforce an area, rather than following a development-by-development approach.
- within developments, there is the example of Nine Elms which has a linear park along which major utilities are provided and has supported a "dig once" approach.

Water Supply

Currently all water companies in London (Thames Water supplies 76% of London's water, Affinity Water supplies 14%, Essex and Suffolk supplies 7% and Sutton and East Surrey supplies 4%) are rated "serious" in terms of water stress and are designated "areas of serious water stress" by the Environment Agency. Thames Water projects a 6% capacity deficit by 2020 (this could be up to 30% by 2050).

Population growth and a reduction in average household sizes means that a growth in water supply will be required unless demand management activity is significantly increased. Other challenges for the delivery of growth include:

- the aged infrastructure whereby a large proportion of the pipe network is over 100 years old and there is a high leakage rate.
- the retrofitting of meters faces major challenges for implementation, particularly in flats.
- interaction with boroughs immediately outside the GLA boundaries is very important to understand demand and management issues.
- water companies concentrate their expenditures on a 5 year cycle which can create issues in delivering supply for the long term based on a short cycle.
- water companies have constraints on what they can charge customers.
- most of water companies' funding comes through asset management plans.

In terms of opportunities for innovation, it has been suggested that:

- Integrated Water Management Strategy (IWMS) for major developments could be a way of ensuring the water supply and management is planned in an integrated way. It is

likely to be a more viable solution if it has a compound effect for a number of developments across a growth corridor.

- actively promote demand management measures to reduce leakages and improve efficiency across London, e.g., smart meters, recycling wastewater for non-potable supply (certain issues around reusing - provenance and future use of recycled water).
- after demand management and leakages are maximised, all water companies in the south east must coordinate to guarantee an efficient utilisation of resources and agree the most suitable supply source for the future.
- increase supply within regulatory framework specified by OFWAT which prescribes resilience as a priority, allowing more innovative solutions.
- from 2017, non residential water users will be allowed to sell water surpluses and become small providers.
- potential for multi-utility companies that could add competition and innovation to the market.
- opportunities around cross-sector utilities coordination to increase cost-efficiency and reduce road disruptions.

Water Management - Stormwater, Foul Water and Flood Risk

London's projected population growth to 2050 will challenge the capacity of drainage and sewerage network. Based on Thames Water's model of flow capacity utilisation, several growth corridors across the city will not have sufficient capacity to manage the expected flows. The Thames Tideway Tunnel project will address current problems of combined sewer overflows into the Thames but will not increase capacity of the network. Treatment capacity (five main treatment works) will need upgrading during the next 20 years and there are challenges around securing funding for fluvial and surface water. For example, SuDS programme is funded until 2021 and its extension is subject to evaluation.

Consideration needs to be given to the potential of partnership contributions as a funding mechanism, cross boundary water management plans to extend catchment and include boroughs outside the GLA boundary. It should be noted that the Environment Agency and the GLA are working together in relation to water management, flood risk interventions and land/sites safeguarding.

In terms of opportunities for water management, the following have been suggested:

- natural flood management which can provide multiple societal benefits alongside reducing flood risk. Assessment of opportunities at a river basin/catchment scale is required.
- opportunity to develop long-term (25 year) flooding plans looking at challenges, solutions and high-level costs of flood infrastructure across London, e.g., Lea Valley pilot plan.
- identifying synergies between sectors that will help to optimise investments and improve capacity and performance, e.g., coordinated solutions that make use of existing and planned green infrastructure.

Digital

The digital sector is perhaps the most challenging sector to plan infrastructure in the medium term due to the fast pace of its development. At present, planning has started for

“5G” or fifth-generation mobile communication technologies, but with an average five year length of “generations", there could be another two or more by the mid 2030's. The UK Government recently published a strategy for “Next Generation Mobile Technologies: A 5G strategy for the UK” in March 2017, but definitive standards for 5G are not set to be agreed until 2019.

5G is proposed to support a number of different “use cases” which could transform the form and functions of London’s infrastructure including: connected vehicles; the usage of drones for logistics and maintenance; and smart cities applications like traffic management, street lighting controls, smart grids and waste management.

The “London’s strategic infrastructure requirements - an evidence base for the London Plan” has focused on two main priorities which are primarily related to the infrastructure itself, i.e., the provision of connectivity, rather than focusing on particular use cases of 5G, for example:

1. Getting the “basics” right for households and businesses, i.e., ensuring that there is close to 100% coverage of 4G across London (indoor and outdoor) and close to 100% coverage of superfast broadband (over 24 Mbps). It is acknowledged that some categories of business (particularly large companies) have very different needs to SMEs or home users. Therefore, the general principle that the GLA is likely to adopt is that all households and businesses should be able to access the connectivity service that best fits their needs wherever they are in London.
2. Supporting future access by households and businesses by considering key opportunities and challenges to the delivery of infrastructure, i.e., access to ultrafast broadband (UFBB) of at least 100Mbps (whether by Fibre to the Property (FTTP) or other means), next generation “5G” mobile access to the internet from close to 100% of London (indoor and outdoor).

There are currently no major strategic projects that are dedicated to improving London’s connectivity. The digital projects that are currently being facilitated by the GLA and Transport for London include: the 5G Innovation Gateway with 5G Innovation Centres; the public building Wi-Fi scheme; London Underground’s 4G network (in planning); and TfL’s connectivity plan (in planning). However, these are not considered to be major strategic projects. The major strategic projects that are planned to support digital infrastructure across London include:

- Virgin Media’s ultrafast broadband network (£3 billion across the UK).
- BT’s ultrafast broadband network (£6 billion across UK).
- 4G upgrades likely due to emergency services usage (moving off airwaves) and Home Office usage for public safety.

It is likely that the coverage of 4G will improve in London due to the emergency services moving off airwaves and Home Office usage to monitor public safety. However, the GLA could help to facilitate improvement of London’s digital connectivity through:

- working with boroughs to facilitate the use of street furniture as nodes for improving mobile connectivity.
- including policy guidance in the London Plan on digital infrastructure particularly enabling better use of public buildings to enable connectivity and avoiding new developments blocking digital signals.
- encouraging the use of shared ducts in new developments.

There will be challenges for the delivery of digital growth which include:

- London currently ranks poorly on the European Digital City Index 2016 - 42nd out of 60 cities and below many of its competitors including Paris, Barcelona, Amsterdam and Stockholm. It ranks particularly poorly for internet download/upload speed (44/60), mobile internet download/upload speed (45/60) and ranks last in terms of availability of fibre internet (60/60).
- main tools to support infrastructure rollout are at national government level such as UK Government's support of Virgin's Ultra-fast Broadband scheme through the UK Guarantees scheme, and at the regulatory (OFCOM) level. Supra-national issues such as European State aid regulation affects how much fiscal support UK Government can give to this sector (even post-Brexit is likely that the UK will need to retain a lot of the constraints to maintain a level-playing field).
- due to industry investment cycles, digital infrastructure is not "future-proofed", i.e., providers do not invest ahead of demand.
- improving 4G coverage across London, particularly central London.
- many of the future "use cases" identified for 5G will involve a significant amount of street-furniture including sensors, charging points, etc. In general, a much greater densification of nodes is necessary. The main issue is how to cope with and facilitate densification of infrastructure including mobile base stations, small cells and fibre.
- there are significant challenges involved in installing small cell sensors which include fragmented ownership of street furniture (street lights, advertising billboards, etc) and difficulties in securing planning permission for new street furniture including sensors.
- there is a challenge involved in the data that is available from OFCOM to understand broadband provision across London. At present, OFCOM only presents data based on BT and Virgin provision and does not include a number of the other fibre providers that are currently providing FTTP connections across London such as Hyperoptic and Venus Fibre. Other providers such as Optimity provide access to an ultra-fast network using wireless technology (fixed wireless access). This means that the ultra-fast broadband availability data from OFCOM is not an accurate portrayal and therefore it is challenging to understand the true picture of availability across London.

The opportunities for digital innovation include:

- making it as transparent as possible for the private sector to invest in London, such as having information on which assets are available for the private sector to install their infrastructure
- tackling information failures about alternatives to standard FTTP fibre connections such as point-to-point fixed access wireless. These technologies are very quick to set up and can provide an equivalent service to UFBB. They can be used as "last mile" technologies to facilitate connections to businesses in areas which have poor FTTP provision or where it is more challenging to implement FTTP.
- Innovative approaches to planning for street works and street furniture. GLA could support by mapping out small cell planning availability which will support the private sector in their investment programmes. At present, many local authorities do not have this information.
- the GLA could use the London Plan to provide an overarching view of what should be enabled in terms of the densification of nodes.

- the GLA could support fibre provision by ensuring that every time there are development works, there is a duct installed which enables fibre to be installed by various providers at a later date. The GLA could then keep mapping information of duct locations and enter into arrangements with providers whereby they can provide fibre to an entire network using the available ducts. An example of where this has been done previously is in the Olympic Park whereby ducting was installed across the area so that any provider could use it to run their cabling.

Conclusion

There is currently significant housing development underway in the Borough to accommodate the increasing population and therefore an increase in demand on utility services. Members of the External Services Scrutiny Committee are keen to hear how the developments and plans set out in the report will be borne out in Hillingdon and what action is being taken to mitigate the challenges faced by the utility companies.

Witnesses

Representatives from a range of utility and service organisations have been invited to attend the meeting. Additional witnesses may be invited to attend the meeting.

SUGGESTED SCRUTINY ACTIVITY

Members to question representatives from the organisations on the utility services provided within the Borough and decide whether to take any further action.