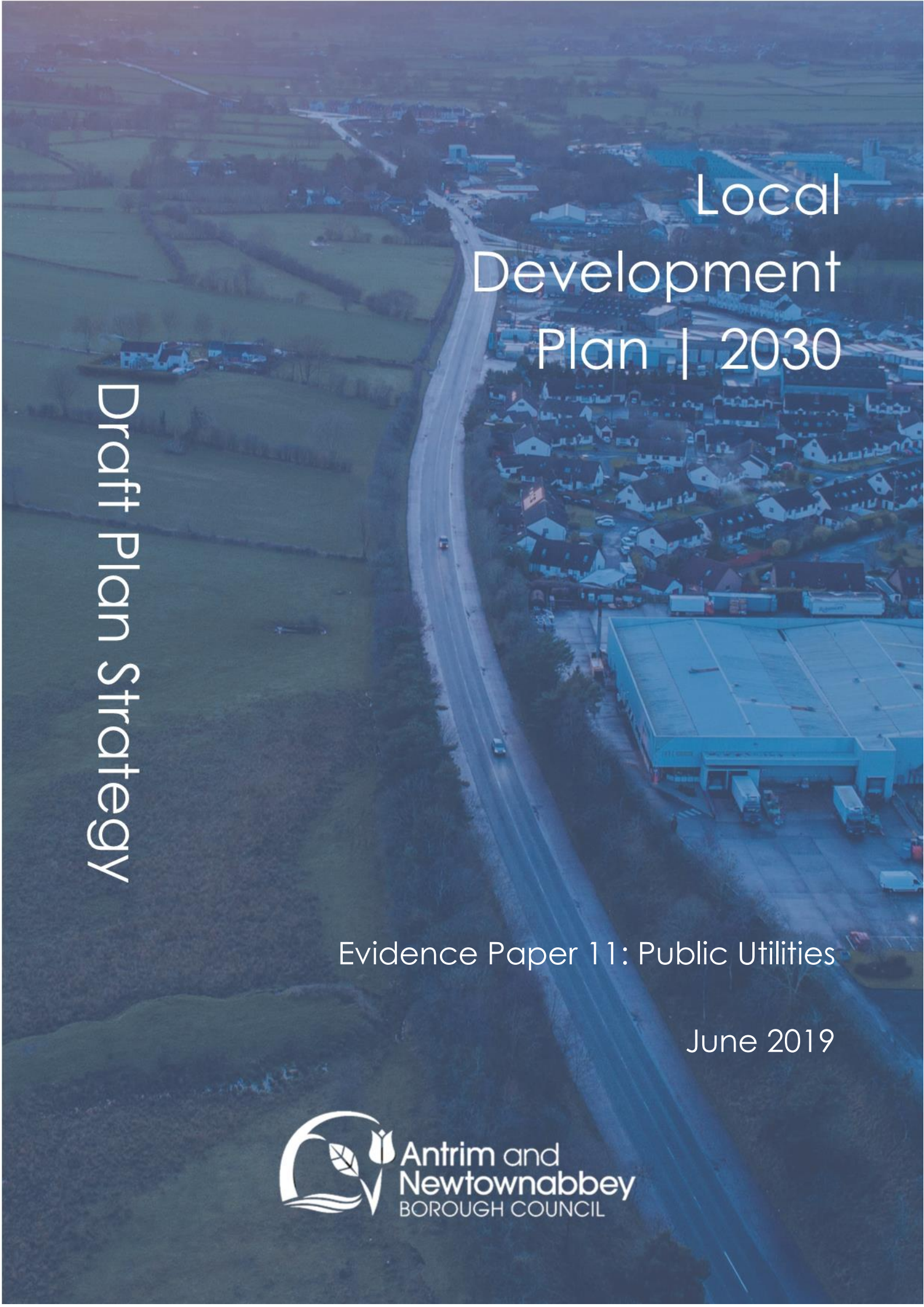

Local Development Plan | 2030

Draft Plan Strategy

Evidence Paper 11: Public Utilities

June 2019

Antrim and Newtownabbey BOROUGH COUNCIL

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Executive Summary

- The provision of a reliable and modern infrastructure, telecommunications and utilities network is not only crucial to everyday living and quality of life, but it is also essential to support sustainable growth and encourage investment in the Borough.

Telecommunications

- Telecommunication enables the exchange of information and as such is an essential component of everyday life, whether working, living or visiting the Borough. In order to ensure that the Borough's economy is competitive and attractive to investment, it is vital that reliable access to high-speed digital infrastructure is available, so that local businesses can grow to achieve their market potential.

- Superfast broadband coverage in Northern Ireland has increased to 89%, up from 85% in 2017.

- 96% of premises in the Borough benefit from standard broadband with download speeds of 10Mbit/s to 30Mbit/s whilst 92% of premises benefit from superfast broadband connections with download speeds of 30Mbit/s or more. Only 11% of premises in the Borough benefit from full-fibre broadband.

- Project Stratum is a £150m investment that will see improved broadband connectivity in Northern Ireland, especially for those homes and businesses in the Borough who cannot get access to download speeds of a least 30Mbit/s.

- According to Ofcom as of 2018, 41 premises in the Borough do not have access to mobile, fixed or fixed wireless access types of broadband.

- Public Wi-Fi is available throughout the Council's Civic Offices and public buildings and free Wi-Fi is available in the major hub town of Antrim.

- 94% of the Borough's landmass benefits from mobile data coverage; 79% of the landmass benefits from 4G data availability and 88% of the landmass benefits from mobile signal, i.e. voice calls.

Electricity

- The provision of resilient and efficient electricity provision is essential for growth of the economy and is vital for attracting investment.

- Northern Ireland Electricity Networks (NIE Networks) is the owner of the electricity transmission and distribution network in Northern Ireland, and is also the distribution network operator, serving approximately 860,000 customers.

- Completed in spring 2017, NIE Networks invested over £250,000 in Doagh village centre for the replacement of overhead power lines to upgraded underground cable network.

- The proposed new North-South Interconnector, a second higher capacity interconnector is aimed at improving the efficiency and capacity of the electricity distribution network.

- There are several sub-stations located throughout the Borough, transforming electric voltage from high to low and vice versa for the consumption in domestic and non-domestic properties.

- Latest figures from the Department of Business, Energy and Industrial Strategy (BEIS) shows that the Borough's non-domestic average electricity consumption was the highest out of all Councils, equating to 365,551,500kWh.

- Future electricity supply in the Borough is not an issue.

Gas

- There are four gas transmission pipelines in Northern Ireland, of which the South North Pipeline (SNP) is located in the Borough. This pipeline runs parallel with the eastern shore of Lough Neagh, east of Nutts Corner, north east past Antrim to a hub north of Ballyeaston at Ballyalbanagh.

- The 'Ten Towns', Greater Belfast and Larne gas distribution areas, operated by Firmus Energy and Phoenix Natural Gas, covers the Borough.

- Firmus energy has been responsible for the gas provision in Antrim town, extending towards Ballyclare, Doagh and Templepatrick.

Water and Wastewater

- The provision and ongoing maintenance of adequate and reliable water and sewerage infrastructure and treatment facilities is essential for health and wellbeing, quality of life, protection of the environment and also the economy, by facilitating growth and new development.

- Northern Ireland Water (NI Water) provides water and sewerage services to approximately 840,000 households and businesses.

- Lough Neagh, where 85 million gallons of water is abstracted daily and processed at Dunore Water Treatment Works (WTW), provides for the Borough's water supply. Dunore is Northern Ireland's largest treatment plant and is located within the Borough, south west of Antrim.

- Potable water for the Borough is obtained through the 4 Water Treatment Works namely; Killylane, Dunore, Dungonnell and Dorisland.

- Drinking water quality in the Borough equates to 99% compliance, when measured against the 'Water Quality Regulations 2007'.

- The Borough's water supply is derived from a variety of sources and the existing installations are forecast to be sufficient to supply the Borough throughout the Local Development Plan period.

- There are 6 Waste Water Treatment Works (WwTWs) in the Borough which treat and clean water namely: Antrim; Ballyclare; Cranfield; Moneyglass; Roughfort; and Whitehouse. At present, Moneyglass is being upgraded through the 'Rural Wastewater Investment Programme' aimed at upgrading small treatment works.

1 Introduction

1.1 This is one of a series of background papers and studies being presented as part of the evidence base to inform the preparation of the Antrim and Newtownabbey Local Development Plan 2030 (LDP). This paper draws together the evidence base used in relation to the topic of Public Utilities. The evidence in this paper was collated at a point in time and may be subject to further updates. Evidence papers should be read collectively.

1.2 In line with Departmental guidance, the Council has updated its evidence base to inform the next stage of the LDP known as the Plan Strategy. This paper updates the 'Meeting the Needs of Society' baseline evidence paper, as it relates to Public Facilities, which accompanied the Preferred Options Paper (POP) published in January 2017.

1.3 It should be noted that the evidence base collected to inform the draft Plan Strategy also forms the basis for additional assessments and appraisals required as part of the LDP preparation process, most notably the Sustainability Appraisal (SA).

1.4 Public Utilities are those undertakings, which provide necessary services to society. They are important not only because they provide the basic infrastructure for the proper function of society, but also contribute to the economic competitiveness of Northern Ireland.

1.5 The provision of Public Utilities within the Borough is primarily the responsibility of a number of Government Departments and statutory bodies. The private sector is however, playing an increasingly important role concerning public utility provision.

1.6 This paper provides an overview of Public Utilities across the Borough, comprising of the following topics:

- Telecommunications;
- Electricity Network;
- Gas Network; and
- Water and Sewerage Network.

2 Legislative Context

The Planning Act (Northern Ireland) 2011

2.1 The Planning Act (Northern Ireland) 2011 (hereafter referred to as the 2011 Act) is the principal planning legislation in Northern Ireland, which underpins the reformed two-tier planning system that commenced on 1 April 2015. It introduced the plan-led system, where the LDP is the primary consideration for decision making on all new development schemes and proposals will be required to accord with its provisions unless, exceptionally other material considerations indicate otherwise.

2.2 Under the new Planning System introduced in 2015, the LDP will comprise of two documents, a Plan Strategy and a Local Policies Plan that will be prepared in sequence. It also requires the LDP to be subject to a Sustainability Appraisal.

The Planning (Local Development Plan) Regulations (Northern Ireland) 2015

2.3 These Regulations set out the sequence in which the Council's new LDP is to be prepared and provides detail on the content and procedure of each stage in the LDP preparation process and Independent Examination.

The Planning (Statement of Community Involvement) Regulations (Northern Ireland) 2015

2.4 These Regulations set out the sequence in which the Council's Statement of Community Involvement (SCI) is to be prepared and provides detail on the content and procedures required. The Council published its SCI in January 2016 the purpose of which is to define how the Council will engage with the community in the delivery of the LDP. It is set within the context of the Council's Corporate Plan and meets the requirements of the 2011 Act.

Northern Ireland (Miscellaneous Provisions) Act 2006

2.5 Section 25 of the Northern Ireland (Miscellaneous Provisions) Act 2006 requires all NI Departments and Councils, in exercising their functions, to act in the way they consider best calculated to contribute to the achievement of sustainable development. Section 5 of the 2011 Act copper-fastens this duty by requiring those who exercise any function in relation to LDPs to do so with the objective of furthering sustainable development.

Local Government Act (Northern Ireland) 2014

2.6 The Local Government Act (Northern Ireland) 2014 introduced a statutory link between a Council's Community Plan and LDP, and requests that the preparation of the LDP must take account of the Community Plan.

Section 75 of the Northern Ireland Act 1998

2.7 The Council has a statutory duty under Section 75 of the Northern Ireland Act 1998 as a public authority, in carrying out its functions relating to Northern Ireland, to have due regard to the need to promote equality of opportunity between the nine equality categories of persons of different religious belief, political opinion, racial group, age, marital status or sexual orientation; men and women generally; persons with a disability and persons without; and persons with dependants and persons without.

2.8 Council has engaged and will continue to engage with Section 75 groups throughout the LDP process, adhering to the Council's SCI.

Rural Needs Act (Northern Ireland) 2016

2.9 The Rural Needs Act (Northern Ireland) 2016 provides a statutory duty on public authorities to have due regard to rural needs when developing, adopting, implementing or revising policies, strategies and plans, and when designing and delivering public services and came into effect for Councils in June 2017.

2.10 Rural needs is an ongoing and integral component of the Council's LDP.

The Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004

2.11 It is a statutory requirement that all plans and programmes that are likely to have a significant environmental effect must be subject to a Strategic Environmental Assessment (SEA). The European Union Directive '2001/42/EC' states that an SEA is mandatory and was transposed into local legislation in the form of The Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004 (the EAPP (NI) Regulations). The objective of the SEA directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the Council's LDP, with the view to promoting sustainable development.

2.12 The SEA is an ongoing process and must be carried out in conjunction with, and integrated into the LDP process. Under the provisions of the SEA Directive and the Regulations, an environmental report is published with the LDP document.

The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995

2.13 The LDP is required to consider its impact on the integrity of Natura 2000 sites (these comprise Special Areas of Conservation, Special Protection Areas and RAMSAR Sites) and will be subject to a Habitats Regulation Assessment (HRA). Similar to the SEA, the HRA is an on-going process, which will take place at key stages during the preparation of the LDP. The Regulations contribute to transposing the requirements of the EC Habitats and Birds Directives.

Water and Sewerage Services Act (Northern Ireland) 2016

2.14 The Water and Sewerage Services Act confers a power on NI Water to require the construction of sustainable drainage systems as a condition of agreeing to adopt a drain or sewer. The Act introduces new restrictions to the right to connect surface water sewers to the public sewer network. The overall aim of this Act is to make sustainable drainage the preferred option for dealing with surface water in all new developments, where possible.

3 Regional Policy Context

Draft Programme for Government Framework 2016-2021

3.1 The key aim of the draft Programme for Government (PfG) is to grow a sustainable economy through investing in the future, tackling disadvantage, improving health and wellbeing, protecting the people and the environment, building a strong and shared community and delivering high quality services.

3.2 The delivery of many of the strategic outcomes will be the responsibility of central government, however, the LDP will play a supporting role in helping to deliver many of these. A key outcome of the PfG is the connection of people and opportunities through infrastructure. This involves improving the physical

mobility of people and the provision of essential energy, water and telecommunications services. The Executive aims to contribute towards delivery of this objective through a range of growth areas, including increased availability of access to high quality telecommunications. An important indicator of this outcome is to 'improve internet connectivity' with fast efficient broadband recognised as a significant factor in business access to compete successfully in external markets and in promoting Northern Ireland as an attractive inward investment location.

Sustainable Development Strategy Northern Ireland 2010

3.3 One of the key principles outlined in the Everyone's Involved - Sustainable Development Strategy (SDS) relates to 'Living within Environmental Limits'. This promotes the need to protect and improve the environment with emphasis on the limits of the planet's environment, resources and biodiversity and to ensure that finite resources are protected for future generations.

3.4 A priority of the SDS relates to 'striking an appropriate balance between the responsible use and protection of natural resources in support of a better quality of life and a better quality environment'. This promotes sustainable land and marine management, better planning and management of development in ways which are sustainable and which contribute to creating a better environment.

Regional Development Strategy 2035

3.5 The Regional Development Strategy 2035 (RDS) recognises the role public utilities can have in determining the economic competitiveness of Northern Ireland and provides the strategic environmental context for the delivery of them.

3.6 The RDS sets out clear policy aims and objectives regarding telecommunications and the need to invest in a modern communications infrastructure. Policy RG3 (Regional Guidance) 'Implement a balanced approach to telecommunications infrastructure that will give a competitive advantage' identifies a key challenge for the region to improve international and internal connectivity and to ensure that the opportunities provided by access to high quality telecommunications services are fully exploited. The RDS envisages that next generation broadband services will be available to provide support for 85% of businesses.

3.7 Policy SFG14 also recognises that rural areas can be disadvantaged by their remote location in terms of access to essential services and important information technologies. In this regard, it is important to ensure that telecommunication services in rural areas are not neglected.

3.8 The key policy aims of the RDS regarding telecommunications are:

- Invest in infrastructure to facilitate higher broadband speeds, whilst also considering the impact such infrastructure may have on the environment;

- Increase the use of broadband;
- Improve telecommunications services in rural areas to reduce rural/urban imbalance; and
- Utilise existing connectivity with North America and mainland Europe in order to further aid foreign and direct investment.

3.9 The RDS also sets out clear policy aims and objectives regarding water and sewerage services as set out in Regional Guidance 9 (RG9) and Regional Guidance 12 (RG1). The objective of RG9 is to 'Reduce our carbon footprint and facilitate mitigation and adaptation to climate change whilst improving air quality'. RG9 seeks to promote grey water recycling and advocates for a precautionary approach to development in areas of flood risk using the latest available flood risk information. It also promotes that development in areas, even those outside flood risk areas, should incorporate the use of SuDS.

3.10 The objective of RG12 is to 'Promote a more sustainable approach to the provision of water and sewerage services and flood risk management' points to the integration of water and land-use planning. It suggests that land use planning should be informed by current water and sewerage infrastructure and future investment programmes. The policy also directs that future water demand should be managed to reduce water consumption, with consideration given to the inclusion in developments of measures such as grey water recycling and rainwater harvesting. Finally, the policy seeks to encourage sustainable surface water management through the use of SuDS and states that all new storm water drainage systems should incorporate measures to manage the flow of waters which exceed design standards (exceedance flows) in order to help protect vulnerable areas.

3.11 Furthermore, as part of the housing evaluation framework the 'resource' test states that when assessing land to be potentially zoned for housing, consideration must be given to the water, sewerage and waste infrastructure of an area to ensure that it is adequate to support the provision of future housing. The key policy aims relating to water and sewerage are:

- The integration of water and land use planning;
- Manage further water demand by reducing waste; and
- Encourage sustainable surface water management.

3.12 The RDS also provides policy direction in relation to energy through use of Regional Guidance in the form of policies RG5 and RG9. Policy RG5 'Deliver a sustainable and secure energy supply' promotes the contribution that renewable energy can make to the overall energy mix. To meet the regions energy needs, it outlines the requirement for a significant increase in all types of renewable electricity installations and renewable heat installations, including a wide range of onshore and offshore renewable resources for electricity generation.

3.13 As the least polluting fossil fuel, gas has considerable environmental benefits. Policy RG5 encourages the provision of new gas infrastructure alongside gas storage which would contribute positively to the security and reliability of future supply. This is particularly relevant to Belfast, as in 2014 the Greater Belfast area accounted for 87% of total connections to the gas network, and demand for gas remains with connections continuing to rise each year.

3.14 Policy RG5 also highlights the need to strengthen the grid, together with a necessity to integrate heat and electricity infrastructure alongside new road infrastructure development. Aligned to this, is the promotion of smart grid initiatives that are viewed capable of improving the responsiveness of the electricity grid to facilitate new forms of renewable generation, improve reliability, productivity and energy efficiency, and inform consumer choice in regard to energy usage. Policy RG5 also recognises that new generation or distribution infrastructure must be carefully planned and assessed to avoid adverse environmental effects, particularly on or near protected sites.

Regional Transportation Strategy for Northern Ireland 2002-2012

3.15 The Regional Transport Strategy (RTS) for Northern Ireland 2002-2012 identifies strategic transportation investment priorities and considers potential funding sources and affordability of planned initiatives over the strategy period. The RTS is a 'daughter document' of the Regional Development Strategy for Northern Ireland 2035, which sets out the spatial development framework for Northern Ireland up to 2035.

3.16 This Strategy was supported by three initiatives namely Belfast Metropolitan Transport Plan 2004, Regional Strategic Transport Network Transport Plan 2015 and the Sub-Regional Transport Plan 2007.

Belfast Metropolitan Transport Plan 2004

3.17 The Belfast Metropolitan Transport Plan (BMTP) 2004 is the local transport plan for the Belfast Metropolitan Area (BMA) including Metropolitan Newtownabbey. This plan delivered a phased and costed implementation programme of transport schemes to 2015. This plan took forward the strategic initiatives of the RTS 2002-2012.

Regional Strategic Transport Network Transport Plan 2015 (2005)

3.18 The former Department for Regional Development (DRD), now the Department for Infrastructure (DfI) prepared the Regional Strategic Transport Network Transport Plan (RSTN TP) 2015. The Plan is based on the guidance set out in the RDS 2035 and the RTS 2002-2012. The Plan presents a range of multi-modal transport initiatives to manage, maintain and develop Northern Ireland's Strategic Transport Network. The Regional Strategic Transport Network of Northern Ireland comprises the complete rail network, five Key Transport Corridors (KTCs), four Link Corridors, the Belfast Metropolitan Transport Corridors and the remainder of the trunk road network.

Sub-Regional Transport Plan 2007

3.19 The Sub-Regional Transport Plan (SRTP) 2007 covers Antrim and takes forward the strategic initiatives of the Regional Transportation Strategy (RTS) for Northern Ireland 2002-2012. The SRTP deals with the transport needs of the whole of Northern Ireland with the exception of the BMA and the rail and trunk road networks, which are covered, in the BMA and RSTN TP.

Ensuring a Sustainable Transport Future – 'A New Approach to Regional Transportation' 2011

3.20 Ensuring a Sustainable Transport Future (ESTF) was developed to build on the RTS for Northern Ireland 2002-2012 and to refocus and rebalance the investment in the future. Unlike the 2002 Strategy, Ensuring a Sustainable Transport Future (ESTF) does not include details of schemes or projects. Rather, the Department has set three High Level Aims for transportation along with twelve supporting Strategic Objectives, covering the economy, society and the environment. The ESTF complements the RDS 2035 and contains high-level aims and strategic objectives to support the growth of the economy, enhance the quality of life for all and reduce the environmental impact of transport. It sets out the approach to regional transportation and is used to guide strategic investment decisions beyond 2015. Work is progressing on the implementation of the ESTF and the Council will ensure that any future transportation projects affecting the Borough are appropriately reflected in the LDP.

Forthcoming Transport Plans

3.21 The Department for Infrastructure is currently preparing new Transport Plans which will cover the Borough. This includes a new Regional Strategic Transport Network Plan for all of Northern Ireland and a new Belfast Metropolitan Transport Plan which will cover Belfast City Council, Lisburn and Castlereagh City Council, Ards and North Down Borough Council and Mid and East Antrim Borough Council as well as Antrim and Newtownabbey Borough Council. Antrim and Newtownabbey Borough Council is represented on the Project Boards for both plans along with other Councils.

3.22 As part of the preparation for the Belfast Metropolitan Transport Plan, the Department is preparing a Transport Study for the greater Belfast area and the Council has taken the emerging study into consideration in the preparation of its draft Plan Strategy. Work will also continue to bring forward the next stage of the LDP, the Local Policies Plan, alongside the Department's Transport Plans.

3.23 Further information on the Transport Study and Transport Plans is available on the Department of Infrastructure's website https://www.infrastructure-ni.gov.uk/.

Sustainable Water – A Long-Term Water Strategy for Northern Ireland 2015-2040

3.24 'Sustainable Water – A Long-Term Water Strategy for Northern Ireland (2015-2040)' sets out a range of initiatives to deliver the Executive's long term goal of a sustainable water sector in Northern Ireland. The Strategy recognises how

planning can impact on flood risk and water quality and aims to ensure that existing water and sewerage infrastructure and investment proposals inform future planning decisions and the preparation of LDPs.

3.25 The Strategy sets out a number of matters that the Council's new LDP will need to take into account which are summarised below:

- Ensuring planning decisions are informed by up to date information on the risk from all significant sources of flooding;
- Prevention of inappropriate development in high flood risk areas and ensuring that future development does not increase flood risk;
- Exceptional development within high flood risk areas must make provision for adequate mitigation measures;
- Ensure surface water drainage is adequately addressed; and
- Planning policy should promote sustainable water and sewerage services by making appropriate space for water and sewerage infrastructure including sustainable drainage systems.

Our Strategy for NI Water 2014

3.26 This Strategy published in 2014 sets out NI Water's long-term strategy for providing water and wastewater services to customers in Northern Ireland. It's goal is 'to provide a range of essential services and associated contact channels which meet the rising expectations of NI Water's customers.' The Strategy outlines the key challenges and opportunities facing the Northern Ireland water industry in the years to come. It outlines aspirations for customers in 2040 and priorities to 2020/21.

NI Water Resources Management Plan 2012

3.27 Published by NI Water in 2012, the Water Resources Management Plan explains how NI Water intends to meet the drinking water needs of the population of Northern Ireland over the period 2010 to 2035, taking account of forecast changes in population, housing and water usage and incorporates any predicted changes to climate change. It provides a strategic plan for managing water resources by setting the framework at the Water Resource Zone level within which investment decisions should be taken.

Northern Ireland Executive Economic Strategy 2012

3.28 The Northern Ireland Executive Economic Strategy recognises the need to build on our status as one of the first UK regions to deliver extensive next generation broadband services to underpin economic growth. The strategy highlights the need to ensure key infrastructure is in place such as energy, transport, water, and telecommunications, which is necessary to facilitate increasing levels of economic activity.

Britain's Superfast Broadband Future 2010

3.29 Broadband is considered one of the top priorities for UK Government, with this document stating that superfast broadband is vital for the growth of the economy especially small businesses. This strategy maps out how the UK government, local authorities and/or the private sector will deliver the vision of having a superfast broadband network in the UK.

Continuing to Connect - Telecoms 2015-2017

3.30 In November 2015, the former Department for Enterprise, Trade and Investment (DETI) now the Department for the Economy (DfE) published the 'Continuing to Connect' strategy to present how telecommunications can be further advanced in Northern Ireland.

Digital Single Market Strategy 2015

3.31 The Digital Single Market Strategy aims to open up digital opportunities for people and business and enhance Europe's position as a world leader in the digital economy. It includes 16 specific initiatives and offers opportunities for citizens to be equipped with the right digital skills. The DSM Strategy is built on three pillars:

- Access: better access for consumers and businesses to digital goods and services across Europe;
- Environment: creating the right conditions and a level playing field for digital networks and innovative services to flourish; and
- Economy & Society: maximising the growth potential of the digital economy.

UK Digital Strategy 2017

3.32 This Strategy recognises the importance of boosting the world's leading digital sectors and the need to overcome barriers to growth and innovation, creating more of the high-skilled, high-paid jobs of the future. The Strategy aims to deliver a first class digital infrastructure with an advanced skills base, so that businesses across the country can benefit. The aim of the Strategy is, *'to create a world-leading digital economy that works for everyone'* and is formed on the following seven strands:

- Building world-class digital infrastructure for the UK;
- Giving everyone access to the digital skills they need;
- Making the UK the best place to start and grow a digital business;
- Helping every British business become a digital business;
- Making the UK the safest place in the world to live and work online;
- Maintaining the UK government as a world leader in serving its citizens online; and

- Unlocking the power of data in the UK economy and improving public confidence in its use.

Strategic Energy Framework for Northern Ireland 2010

3.33 The strategic aim underpinning the Strategic Energy Framework is for a more secure and sustainable energy system, driven by a competitively priced and robust market supply, increased energy from renewable resources, and improved efficiency. Four key energy goals in support of the aim are set out within the framework. The goal of 'Building Competitive Markets' is followed by that of 'Ensuring Security of Supply' which recognises the risks confronting European gas and electricity markets. The framework highlights the benefits of a diverse energy mix in terms of security of supply and identifies the need for Northern Ireland to provide new investment that contributes to the greater security of energy supply.

3.34 The third and fourth goals are entitled 'Enhancing Sustainability' and 'Developing Our Energy Infrastructure'. The former suggests Northern Ireland needs to move towards greater levels of renewable electricity consumption, setting a target of 40% renewable electricity by 2020. The latter relates to a major energy challenge for Northern Ireland with the need to overhaul the energy infrastructure to ensure it will be fit for purpose through to 2050. It suggests that extensive investment is required to improve the electricity grid to maximise its use of onshore and offshore renewable energy resources and advises that building a smarter grid in Northern Ireland will facilitate the transition to a low carbon economy.

Electricity Consumption and Renewable Electricity Generation in NI

3.35 This report details the percentage of electricity consumption in Northern Ireland generated from renewable sources and includes information on the type of renewable generation used. The report reflects performance against the 2011-2015 programme for Government which was to 'Encourage achievement of 20 per cent of electricity consumption from renewable sources by 2015' and the Executive's 2010-20 Strategic Energy Framework which includes a target to achieve 40% of electricity consumption from renewable sources by 2020.

3.36 For the 12-month period from January 2018 to December 2018, 38.2% of electricity consumption in Northern Ireland was generated from renewable sources, representing an increase of 3.5% on the previous 12 month period (January 2017 – December 2017) and is the joint highest rolling 12 month proportion on record. In terms of the volume of electricity consumption between January 2018 and December 2018, approximately 7,816 Gigawatt hours (GWh) of total electricity was consumed in Northern Ireland. Of this, some 2,984 GWh was generated from renewable sources within Northern Ireland.

3.37 It is set against the background that telecommunications in the UK are fully privatised and independently regulated on a national basis by the Office of Communications (Ofcom). Telecommunications policy is a reserved matter

with responsibility primarily resting at Westminster, thus meaning that it has not been devolved to the Northern Ireland Executive and is controlled centrally by the Department of Culture, Media and Sport (DCMS) in London.

3.38 The Strategy seeks to ensure that telecommunication infrastructure in Northern Ireland continues to offer a competitive advantage, both in terms of businesses being able to compete successfully in external markets and in promoting Northern Ireland as an attractive inward investment location.

Belfast Region City Deal

3.39 City deals are bespoke packages of funding and decision-making powers that have been negotiated since 2012 between central government and local bodies. Northern Ireland's first City Deal will see the UK government invest £350m in the Belfast Region over the next 15 years, further bolstered by co-investment of £150m from Belfast Region City Deal partners.

3.40 The Belfast Region City Deal (BRCD) comprises the six Councils of Antrim and Newtownabbey, Ards and North Down, Belfast City, Lisburn and Castlereagh, Mid and East Antrim and Newry, Mourne and Down. The central goal of the BRCD is to deliver,

'More and better jobs; inclusive growth; improved skills and increased domestic business and foreign direct investment.'

3.41 In developing the ambitious proposition, the BRCD Councils have considered a programme of projects across four key Investment Pillars, which channel investment to the priority high growth sectors. The four Key Investment Pillars are: Innovation; Digital; Economic Infrastructure; and Employability & Skills.

Strategic Planning Policy Statement 2015

3.42 The Strategic Planning Policy Statement (SPPS) states that the aim in relation to telecommunications and other utilities is to facilitate the development of such infrastructure in an efficient and effective manner whilst keeping the environmental impact to a minimum.

3.43 The development of high quality telecommunications infrastructure is essential for continued economic growth. Growth of new telecommunications infrastructure should be promoted whilst keeping the impact on the environment to a minimum. The policy states that where new infrastructure is required then it should be sited in a location which minimises the impact in terms of visual, environmental and amenity issues.

3.44 To inform LDP preparation, Councils may consult with telecommunications operators, and other relevant stakeholders, in relation to the anticipated extent of the network coverage required over the LDP period.

3.45 The policy objectives of the SPPS in relation to telecommunications are to:

- Ensure that where appropriate new telecommunications development is accommodated by mast and site sharing;

- Ensure that the visual and environmental impact of telecommunications development is kept to a minimum;
- Minimise, as far as practicable, undue interference that may be caused to terrestrial television broadcasting services by new development; and
- Encourage appropriate provision for telecommunications systems in the design of other forms of development.

3.46 With regard to water and sewerage, the SPPS seeks to ensure the planning system contributes to a reduction in energy and water usage, helping to reduce greenhouse gas emissions by continuing to support growth in renewable energy sources. The SPPS also aims to manage development to safeguard against water pollution, flooding and securing improvements in water quality. Further, in seeking to mitigate and adapt to climate change, the SPPS encourages working with natural environmental processes, for example through promoting the development of green infrastructure and the use of Sustainable Drainage Systems (SuDS) to reduce flood risk and improve water quality. It also promotes good design, including the need to consider and address how the design of a development can minimise energy, water usage and CO_2 emissions.

3.47 In certain circumstances, the LDP may also identify specific sites for major new telecommunications development. The LDP may also set out requirements on operators, for example to demonstrate the need for new development and existing network constraints.

Other Planning Policy

3.48 Current operational planning policy, in relation to aspects of Public Utilities, is primarily included within:

- The Planning Strategy for Rural Northern Ireland (PSRNI);
- Planning Policy Statement (PPS) 7: Quality Residential Environments;
- PPS 8: Renewable Energy;
- PPS 10: Telecommunications;
- PPS 12: Housing in Settlements; and
- PPS 21: Sustainable Development in the Countryside

3.49 These PPSs, as well as the SPPS, have been taken into consideration in the formulation of the detailed development management policies, which are contained within the draft Plan Strategy document.

Departmental Guidance

3.50 The LDP has been prepared taking account of Departmental policy and guidance, which is available by contacting the Department for Infrastructure.

3.51 The Development Plan Practice Note 7 'The Plan Strategy' published in 2015, guides officers and relevant users through the key requirements for the preparation of the Plan Strategy and deals primarily with procedures as well as good practice.

3.52 Development Control Advice Notes (DCANs) are non-statutory planning guidance, which is intended to supplement, elucidate and exemplify policy documents including PPSs and development plans. The DCANs relating to Public Utilities include;

- DCAN 8: Housing in Existing Urban Areas;
- DCAN 9: Residential and Nursing Homes; and
- DCAN 14: Siting and Design of Radio Telecommunication Equipment.

3.53 The supplementary planning guidance 'Creating Places - Achieving Quality in Residential Development' has been the principal guide for use by prospective developers in the design of all new housing areas. The guide states that a development plan will be required to show the locations of existing statutory and other utility services. These will normally follow the routes provided by the existing roads, but there may be major service routes in other locations that would influence the overall form of the layout.

3.54 The Social and Environmental Guidance for Water and Sewerage Services 2015-2021 published in 2014 provides the NI Authority for Utility Regulation with guidance on the key environmental and social policies the Minister for Regional Development is expected to contribute towards in regulating the water industry during this period. The guidance also sets out how NI Water should deliver to meet international, National and Local legislative and strategic commitments.

3.55 The installation of the apparatus to improve the broadband network usually constitutes permitted development under Part 18 of the Schedule to the Planning (General Permitted Development) Order (Northern Ireland) 2015. Therefore, the planning process would not necessarily have an impact on the provision of telecoms. However, the Department for Infrastructure issued a consultation paper seeking comments regarding a review of permitted development rights, with one section looking at development by electronic communications code operators and proposing:

- Permitted development rights for masts and equipment on masts providing an increase in the overall height of an existing mast of up to 5 metres where the overall size is 50 metres or less in height or up to 15% of the original height where the overall size is more than 50 metres in height;
- Increase in the overall width of the structure (measured horizontally at the widest point of the original structure) of one metre or one-third of the original width of the structure whichever is the greatest; and

- A limitation that requires a replacement mast to be sited within 4 metres of the existing mast.

4 Local Policy Context

Legacy Development Plans

4.1 The following is a list of the legacy development plans that apply to the Borough:

- Antrim Area Plan 1984-2001 and its alterations (AAP);
- Belfast Urban Area Plan 2001 (BUAP) ;
- Carrickfergus Area Plan 2001[1] (CAP);
- Draft Newtownabbey Area Plan 2005 (dNAP); and
- Draft Belfast Metropolitan Area Plan 2015 (dBMAP).

4.2 It should be noted that the Belfast Metropolitan Area Plan adopted in September 2014 was subsequently quashed as a result of a judgement of the Court of Appeal delivered in May 2017. As a consequence, the BUAP is now the statutory development plan for the Metropolitan Newtownabbey area of the Borough, with dBMAP remaining a material consideration.

Community Plan – Love Living Here 2017

4.3 The Council's Community Plan, 'Love Living Here', sets out a shared vision and agreed outcomes for the area up to 2030. The successful implementation of the Community Plan will be marked by a demonstrable improvement in how services are delivered across the Borough and the quality of life it's citizen's experience. As such, the Community Plan is an important document and has been taken into account in the preparation of the Council's LDP.

4.4 The Community Plan sets out four outcomes which are as follows:

- Our citizens enjoy good health and wellbeing;
- Our citizens live in connected, safe, clean and vibrant places;
- Our citizens benefit from economic prosperity; and
- Our citizens achieve their full potential.

4.5 It also sets out one wildly important goal, namely that the Borough's vulnerable people are supported. Both the health and education sectors are represented on the Council's Community Plan Working Group.

[1] Insofar as it relates to that part of the legacy Carrickfergus Borough Council area at Greenisland that transferred to Antrim and Newtownabbey Borough in 2015 under Review of Public Administration (RPA).

Corporate Plan – Our Borough Your Vision 2019-2030

4.6 The Council's Corporate Plan sets out a vision for the Borough and identifies what needs to be done between now and 2030 to achieve this. The Vision for the Borough up to 2030 is defined as:

> *'A progressive, smart and prosperous Borough. Inspired by our people; Driven by ambition.'*

4.7 The Corporate Plan sets out a number of objectives in relation to Place, People and Prosperity. The LDP has a key role to play under the objective of 'Place' and the Corporate Plan states:

> *'We will have succeeded if: People take pride in their surroundings. People feel safe. Our environment, natural habitats and built heritage are protected and enhanced. We have vibrant and welcoming towns, villages, neighbourhoods, and rural areas. We have an efficient planning process that promotes positive development and sustainable growth.'*

Council Masterplans/Village Plans

4.8 Through the Village Renewal Scheme as supported by the Rural Development Programme 2014-2020, the Council benefited from funding to devise and update plans for the development of villages in the Borough. Whilst these plans are non-statutory, they have been prepared in close conjunction with local residents and identify a range of potential projects to improve the settlements. These range from short term goals to long-term aspirations. The village plans alongside the masterplans relating to the Borough will be considered in the preparation of the LDP where relevant.

Cross Boundary Policy Context

4.9 In considering the local policy context, it is important to note that the Borough does not sit in isolation. Accordingly, it will be important to take account of neighbouring local authorities comprising Belfast City Council; Lisburn and Castlereagh City Council; Armagh, Banbridge and Craigavon Borough Council; Mid Ulster District Council; and Mid and East Antrim Borough Council.

4.10 Neighbouring Council's POP, supporting evidence base and draft Plan Strategies have been taken account of, as these are regarded as the main cross boundary documents to be considered along with regional guidance.

4.11 Table 1 indicates each Council's position in relation to public utilities as set out in their POP and draft Plan Strategy documents.

Table 1: Neighbouring Council Position

Council	Document
Armagh City, Banbridge and Craigavon Borough Council (ACBCBC)	ACBCBC recognise in their POP that there is potential to further grow and expand their employment base through the provision of additional jobs, of which approximately 12,200 are estimated to be required over the LDP period from 2015-2030. ACBCBC using the updated RDS Housing Growth Indicators project the need for 19,850 additional houses over

	the LDP period. ACBCBC recognises the importance of having public utility infrastructure for the enhancement of connectivity throughout their Council area. In the POP, Key Issue ECN 12 'Facilitating sustainable infrastructure, telecommunications and utility development to meet the needs of the Borough' is of most relevance to public utilities. Under this Key Issue, ACBCBC have identified the Preferred Option to, '*provide a criteria based policy in-line with existing policies and regional direction*'. This preferred option would seek to bring forward a criteria based approach towards infrastructure, telecommunications and utilities development that is in line with the existing planning policies in PPS 10, PPS 11, PPS 21 and PSRNI. The preferred approach will enable the Council to bring forward and update the existing relevant policies and guidance to create a criterion based policy, which will balance amenity and environment issues with facilitating sustainable development to meet the Borough's present and future needs. ACBCBC is currently working towards publication of its draft Plan Strategy publication.
Belfast City Council (BCC)	BCC seeks to support an additional 46,000 jobs and approximately 31,600 new homes over the 15-year LDP period from 2020-2035. BCC draft Plan Strategy in relation to Infrastructure, Telecoms and Utilities (ITU) sets out two key aims, which Belfast envisages to promote. These are: • To facilitate the appropriate provision of infrastructure to meet current and future needs in a timely and co-ordinated way; and • To minimise visual and environmental impacts of infrastructure, telecoms and utilities in order to support sustainable economic growth. These aims are supported by a range of policies including: • 'Policy ITU 1 Telecommunications development' - seeks to enable the telecommunications industry to operate in a way that meets the demands of modern technical connectivity whilst keeping the visual and environmental impact of telecommunications equipment to a minimum; • 'Policy ITU 2 Water and sewerage infrastructure' - seeks to support the relevant statutory authorities in meeting the demands of planned growth and addressing existing constraints in the interests of sustainable development. It aims to encourage greater efficiencies in water demand and sustainable solutions to deal with wastewater and surface water; and • 'Policy ITU 3 Electricity and gas infrastructure' - seeks to support the relevant statutory authorities in meeting the demands of planned growth and addressing existing constraints in the interests of sustainable development.
Lisburn and Castlereagh City Council (LCCC)	LCCC recognises that there is potential to further grow and expand their employment base through the provision of additional jobs, of which 6,500 are estimated to be required over the LDP period from 2015-2030. LCCC also estimate than an allocation of 13,300 dwellings will be required over the LDP

	period. LCCC recognises that the provision of high-quality communications infrastructure is essential for sustainable economic growth and is critical for businesses and everyday living for residents and visitors to LCCC. In the POP, LCCC wish to retain the existing policy-led approach as set out in PPS 10. They also seek to introduce Areas of Constraint in relation to telecommunication development. This would restrict the development of telecommunication that had an impact on amenity (such as masts) within the existing Areas of High Scenic Value at Portmore Lough, Magheraknock Loughs, Belfast Basalt Escarpment, Craigantlet Escarpment, Castlereagh Slopes, Castlereagh Escarpment and Lagan Valley Area of Natural Beauty (AONB).
Mid and East Antrim Borough Council (MEA)	MEA recognises that there is potential to further grow and expand their employment base through the provision of additional jobs, of which 8,000 net jobs are estimated to be required over the LDP period from 2015-2030. MEA also estimate than an allocation of 6,230 dwellings will be required over the LDP period. MEA in their POP do not bring forward any preferred options relating specifically to Public Utilities. However, the POP sets out MEAs approach in terms of amending the wording of the relevant extant planning policies relating to telecommunications, water and sewerage infrastructure in line with the SPPS.
Mid Ulster District Council (MUDC)	MUDC recognises that there is potential to further grow and expand their employment base through the provision of additional jobs, of which at least 8,500 new jobs are estimated to be required over the LDP period from 2015-2030. MUDC also estimate than an allocation of 11,000 new homes will be required over the LDP period. MUDC in their draft Plan Strategy seek to continue facilitating infrastructure to enable an increase in the use of broadband and mobile data in order to address the urban/rural imbalance, which exists. In doing this, MUDC will seek to encourage mast and site sharing wherever possible whilst also offering a greater additional layer of protection to their most prominent landscapes in the Sperrins and in the Clogher Valley. The latter will be achieved through the introduction of an Area of Constraint on Wind Turbines and High Structures (AOCWTHS) wherein there will be a presumption against development over 15 metres in height.

4.12 The Council has responded to neighbouring Council's POP and LDP documents as they are published. In addition, the Council is also represented on a number of Working Groups and Project Boards to discuss cross boundary issues. This includes the Metropolitan Area Spatial Working Group and the Belfast Metropolitan Plan Project Board in relation to public utilities.

4.13 In terms of growth across the region, it is the Council's view that no neighbouring Council's growth strategy should have a negative impact on the Council's LDP in terms of resources for infrastructure provision provided for by statutory providers, including any necessary public utilities requirements.

4.14 In consideration of neighbouring Council's documents as well as regional policy, it is the opinion of the Council that it's draft Plan Strategy is sound and is not in conflict with neighbouring Council's emerging LDPs.

5 Preferred Options Paper

5.1 The Council's Preferred Options Paper (POP) was published in 2017 and was the first formal stage in the preparation of the LDP for the Borough and was designed to promote debate in relation to key strategic planning issues arising in the area. The POP set out a range of strategic options in relation to how and where development should be located within the Borough. It included options for the Borough's settlements, centres, employment land and housing locations, as well as a number of other key planning issues.

5.2 In addition, the Council asked the public for their views on a range of planning topics and issues. A total of 148 representations were received which were considered during the development of the draft Plan Strategy document and, where relevant, these will also be considered during the preparation of the Local Policies Plan. Details are set out in the Council's published 'Preferred Options Paper Public Consultation Report 2019'.

6 Soundness

6.1 The LDP is prepared to meet the tests of soundness as set out in the Department for Infrastructure's Development Plan Practice Note 6: Soundness (Version 2, May 2017).

7 Telecommunications Network

7.1 The Northern Ireland Executive and the RDS (RG3) recognise the need for a modern, efficient telecommunications infrastructure to give Northern Ireland a competitive advantage. The SPPS aims to facilitate the growth of new and existing telecommunications in an efficient and effective manner whilst keeping the environmental impact to a minimum. Northern Ireland's core communication network is of high quality, which is necessary for sustainable economic growth and investment. Access to high-speed reliable digital infrastructure is seen to be one of the most important enabling infrastructures in terms of economic benefit and social uplift. The economic and social benefits of advanced telecommunications to Northern Ireland can only be achieved if the necessary infrastructure is developed, including the networks of base stations.

7.2 Telecommunications is a reserved matter meaning that it has not been devolved to the Northern Ireland Executive but is controlled centrally by the Department for Digital, Culture, Media and Sport (DCMS) in London. Under the Communications Act 2003, the Department for the Economy has been given

limited powers to intervene where there is evidence of market failure but this has to be undertaken with caution in order to avoid distortion of the market and compliance with European regulations. The telecommunications market in Northern Ireland, as in the rest of the UK, is fully privatised and independently regulated on a national basis by the Office of Communications (Ofcom).

7.3 Electronic communications networks and services include fixed and wireless-based communications such as broadband, voice and data services. Fixed-based telecoms include broadband and telephony provided over a landline, whereas wireless connections usually refer to mobile phone and mobile broadband services, but also includes fixed wireless services and some satellite communications services.

Broadband

7.4 Broadband is a way of connecting to the internet. It allows information to be carried at high speed to your personal computer, laptop, tablet, smartphone, smart TV or another web-enabled device. Broadband has largely replaced the original 'dial-up' (narrowband) method of connecting to the internet, which was much slower.

7.5 There are three main broadband services in the UK, which is defined in terms of the download speed they offer:

- Standard broadband services have download speeds of up to 24 Mbit/s;
- Superfast broadband services to have download speeds greater than 24 Mbit/s; and
- Ultrafast broadband services to have download speeds of at least 100 Mbit/s.

7.6 Broadband can be delivered in a number of ways in Northern Ireland, which are fixed line, satellite, fixed wireless or mobile wireless. Through this mix of technologies, broadband is available everywhere in Northern Ireland, with around 99% of properties able to access fixed-line broadband and 94% of properties able to achieve speeds of 2 Mbps or more. There has been a take up of 38% of properties with access to Superfast Broadband of 24Mbps or more. Overall, broadband speeds are amongst the highest in the UK.

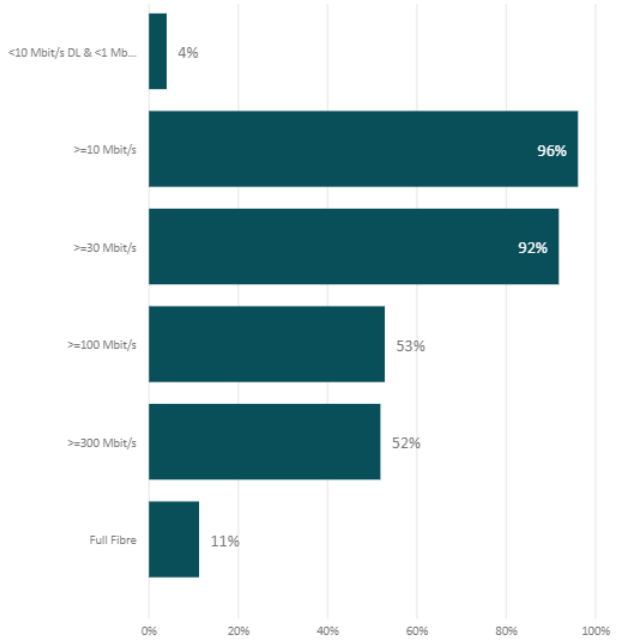
7.7 Information on broadband speeds can be viewed at a local level based on postcode information, at the following website: http://maps.ofcom.org.uk/check-coverage.

7.8 Upon closer inspection, Figure 1 shows that the Borough is well provided for in terms of broadband:

- Only 4% of premises have a connection to broadband with speeds less than 10Mbit/s;
- 96% of premises benefit from Standard broadband (10 Mbit/s or more);
- 92% of premises benefit from Superfast broadband (30 Mbit/s or more);

- 52% of premises benefit from Ultrafast Broadband (100Mbit/s or more); and
- 11% of premises benefit from Full Fibre Broadband.

Figure 1: Various Download Speeds in ANBC



Source: Ofcom

Standard Broadband

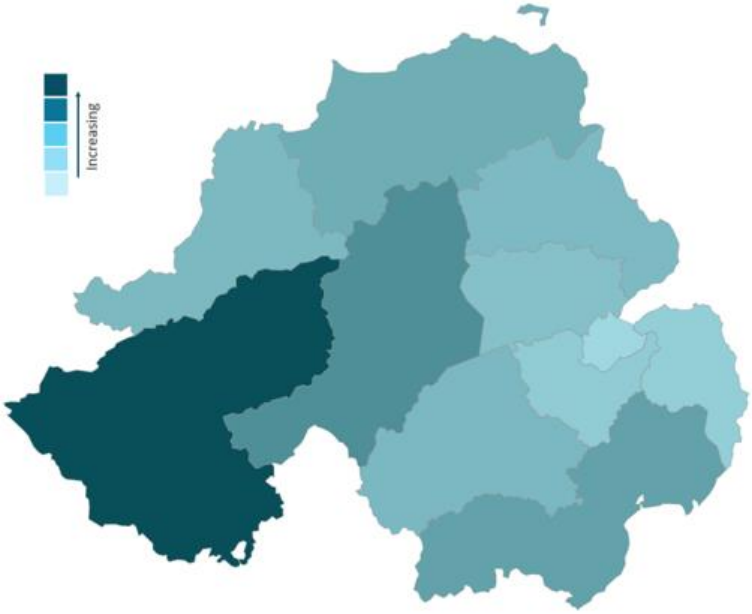
7.9 Standard broadband packages or ADSL (Asymmetric Digital Subscriber Line) use existing copper phone lines via the Openreach phone network for transferring data, at download speeds of up to 10Mbit/s. ADSL accounts for around half of the UK's broadband lines, though this number is set to decrease over the next few years as fibre broadband takes over. Whilst this type of broadband is fast enough for most household applications, the old copper phone lines are simply not capable of carrying data as quickly as the newer fibre optic cables and therefore not suited for larger households or businesses. Furthermore, ADSL can be unreliable in terms of broadband speed and depends very much on the distance you live from the telephone exchange.

7.10 Figure 2 from Ofcom 'Connected Nations Report 2018[2] represents the premises with access to broadband with less than 10Mbit/s download speeds across Northern Ireland's 11 Councils. It is clear to see that Fermanagh and Omagh represented by the darker shade has the highest number of premises accessing broadband at less than 10Mbit/s download speeds equating to 19%. Belfast is the Council area least affected with only 1% of its premises accessing download speeds of less than 10Mbit/s. With regards to the Borough, only 4% of

[2] Connected Nations 2018, Ofcom

premises in the Borough have broadband speeds of less than 10Mbit/s, with almost 96% of premises having access to standard broadband equating to >=10Mbit/s as shown in Figure 1.

Figure 2: Download Speed of less than 10Mbit/s.



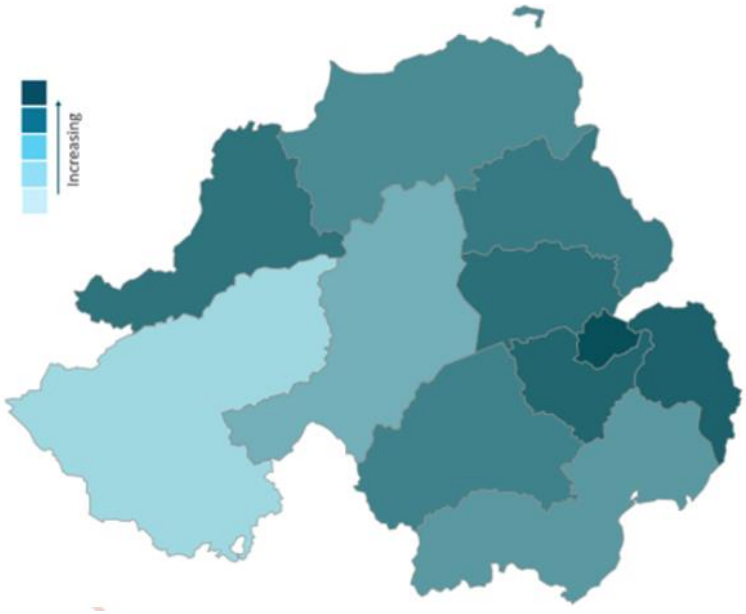
Source: Ofcom

Superfast Broadband

7.11 Ofcom defines superfast broadband as a service, which delivers a minimum download speed of at least 30 Mbit/s, via a fibre optic line (fibre broadband). Superfast speeds can still be achieved through mobile broadband and occasionally copper lines. Fibre broadband is better, faster and more reliable than standard ADSL internet. The fibre comes from the telephone exchange and terminates at the cabinet (green boxes at the side of the road), with the connection into your home provided by the existing copper phone line. Effectively fibre brings the exchange much closer to your home and is known as Fibre to the Cabinet (FTTC).

7.12 Superfast broadband coverage in Northern Ireland has increased to 89% of homes and businesses, up from 85% last year (2017). Figure 3 shows the 11 Council areas benefiting from 30 Mbit/s. Belfast Council scored the highest in terms of 98% coverage, followed by Ards and North Down with 95% coverage, Lisburn and Castlereagh with 93%, and Antrim and Newtownabbey scored 4th with 92% coverage. The lowest scoring Council is Fermanagh and Omagh with 70% coverage.

Figure 3: Download Speed of 30Mbit/s.

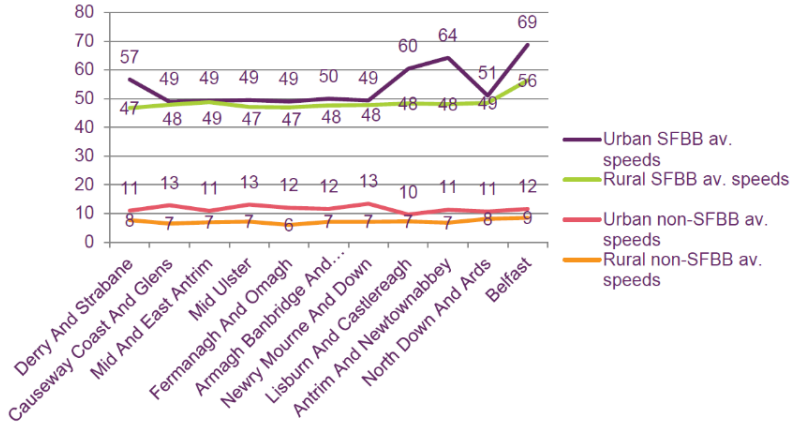


Source: Ofcom

7.13 The information indicates that it is the 'urban' Council areas, which are better performing than the 'rural' Council areas. This can be attributed to the fact that people in rural areas see a greater deterioration in speeds due to longer line lengths. Due to the rural nature of much of Northern Ireland, it has the longest average line lengths and four times the UK average number of telegraph poles per capita.

7.14 The difference in broadband speeds between urban and rural areas for superfast and non-superfast networks is illustrated in Figure 4. In the Borough, non-superfast urban and rural speeds and superfast rural speeds tend to be very similar to those in the other Council areas. However, the Borough has excellent superfast broadband speeds within urban areas, indeed second only to Belfast and considerably higher than the other Council areas in Northern Ireland.

Figure 4: Superfast and non-superfast speeds by urban and rural area



Source: Ofcom

Ultrafast broadband

7.15 Ultrafast services are able to deliver broadband speeds that are greater than or equal to 300 Mbit/s but less than 1Gbps or 1000Mbit/s. There are two major technologies for Ultrafast: G.fast[3], and Fibre To The Premises (FTTP).

7.16 G.Fast otherwise known as Fibre To The Cabinet (FTTC) is where full fibre optic connection from the provider runs to the cabinets and then along the existing copper wire from there to homes and businesses. It is the most common set up for broadband as it is cheaper to install, however, as this method still uses inefficient copper wire, speeds are far lower than full fibre connections.

7.17 FTTP is different from G.Fast in that it is a pure fibre connection, which comes from the telephone exchange right into homes and/or businesses, delivering speeds of up to 1Gbps. Rather than reach your home via the green cabinet at the end of your street, FTTP travels directly from your internet provider.

7.18 In 2017, the Conservative UK government committed £150m to 'help provide ultra-fast broadband' (100Mbps+) across Northern Ireland, which formed part of a confidence and supply deal with the Democratic Unionist Party (DUP). The £150m investment otherwise known as 'Project Stratum' is allocated to address the some 80,000 to 100,000 Northern Ireland premises, which cannot access a superfast broadband service. The key objective for the use of the £150 million investment can be defined as,

'100% availability of Ultrafast broadband services, future proofed, to anyone who wants it'[4].

7.19 By the end of June 2018, following the completion of current projects, approximately 89% of premises in Northern Ireland have access to superfast services. Project Stratum aims to improve broadband connectivity by extending Next Generation Access (NGA) broadband infrastructure so that the remaining 11% of premises can access services of at least 30Mbit/s. The overarching aspiration of Project Stratum is to deliver future-proofed broadband access to as many premises in the 'intervention area' as possible. The intervention area is, broadly, a list of all those premises in Northern Ireland who cannot yet get access to download speeds of at least 30Mbps.

7.20 To facilitate Project Stratum, Department for the Economy (DfE) have identified three postcode lists based on the premises that have different levels of broadband connectivity. Data from broadband infrastructure operators have been mapped into white, grey or black areas at a postcode level:

- 'White' areas are those in which there is no qualifying broadband infrastructure and none is likely to be developed within 3 years; These postcodes will be targeted for public investment through the Project;

[3] G.Fast is a Digital Subscriber Line (DSL) technology that reuses the existing copper connection to a cabinet, and makes use of a greater amount of frequencies to deliver faster services than current Fibre To The Cabinet (FTTC) services that use VDSL technology.

[4] Northern Ireland £150 Million for Broadband: "Towards an All-Fibre Access"

- 'Grey' areas are those where only one network is present or is to be deployed within the coming 3 years, and these postcodes will not be specifically targeted for public investment from the Project; and
- 'Black' areas are those where at least two networks of different operators exist or will be deployed in the coming 3 years. These postcodes do not form part of the Project.

7.21 The consultation period ran from December 2018 until January 2019, and these postcode lists were available to inspect at nine different locations across the Borough by residents and business owners. DfE intends to launch an open procurement in early 2019.

Hyperfast Broadband and Gigabit Broadband

7.22 Hyperfast services are defined as being able to deliver broadband speeds in excess of 500Mbps with Gigabit being over 1Gbps. There are very few companies who are providing these services and rollout is very limited.

Full Fibre Broadband

7.23 Full fibre describes an internet connection that is entirely served by a fibre optic cable, from the exchange all the way to your house known as Fibre To The Premises (FTTP).

7.24 Increasing investment in full-fibre broadband resulted in coverage doubling to 1.8 million (6%) homes and offices in the UK, up from 3% last year. Northern Ireland has the highest full-fibre coverage, at 12% (up from 1% in 2017), compared to 7% in Wales, 6% in England and 4% in Scotland. Figure 1 shows that for Antrim and Newtownabbey, 11% of premises in the Borough benefit from Full-Fibre broadband.

7.25 A key priority for Ofcom is to encourage investment in fibre, which provides greater speed and reliability than copper-based telecoms networks. The UK and devolved governments are also supporting the move to full-fibre.

Public Wi-Fi and Hot Spots

7.26 Most smartphones now have Wi-Fi capability, and the majority of the data consumed on mobile devices is currently utilising Wi-Fi capability. The communications capabilities of mobile phones have expanded hugely over recent years, adding text messaging, pictures, video and high-speed data transfer to basic voice calls and text messaging over Wi-Fi.

7.27 In 2016, the Council, through the Antrim Linkages Scheme that was funded mainly by the Department for Communities, installed public Wi-Fi in Antrim town Centre. The instalment of Wi-Fi has helped to enliven the town centre and its associated public spaces.

7.28 Within the Borough's main settlements there are several Wi-Fi hot spots. A Wi-Fi hotspot is somewhere a person connect to the internet wirelessly via Wi-Fi, often for free. Hotspots are popular with smartphone users as they allow internet access without eating into your data allowance. These hot spots are

often located in public buildings, coffee shops and food eateries. The main providers of Wi-Fi hot spots in the UK are BT, O_2, Virgin Media and Sky.

7.29 Furthermore, there are Wi-Fi hotspots in the Council's civic buildings and public buildings (including leisure centres and community centres) for residents and visitors, providing free Wi-Fi access.

Mobile Data Coverage

7.30 There are four mobile network operators (MNOs) in the UK market: Vodafone (a British company with its global headquarters in the UK); EE (part of BT); O_2 (owned by Spain's Telefonica); and Three (owned by Hong Kong based Hutchison Whampoa). These operators provide for 2G, 3G, 4G data services and voice services. While 99% of properties in Northern Ireland have 2G mobile coverage from at least one operator, there is significant variation in signal reliability across the four networks.

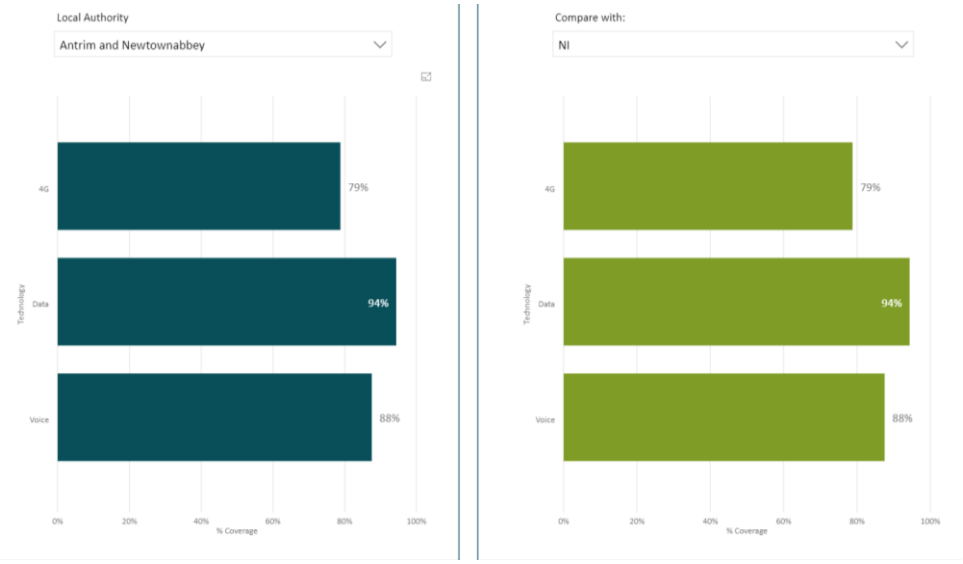
7.31 Ofcom has created an interactive mobile coverage map at the following web address: https://checker.ofcom.org.uk/. This map can be viewed for each of the four providers, with the variables of voice, 3G and 4G data and whether the service is accessible indoors or outdoors.

7.32 While every variation of the map is unrealistic to present in this evidence paper, in general, outdoor coverage in the Borough across Vodafone, EE and O_2 for voice, 3G and 4G data appears to be more or less complete. Outdoor coverage for 4G on the 3 network would appear to be less reliable in the area to the south west of Randalstown and south of Templepatrick in the vicinity of Loanends. In terms of indoor reception, there are considerable pockets of unreliable signal on Vodafone, EE and O_2 for voice, 3G and 4G, in the area south west of Randalstown, west of Crumlin and south of Templepatrick. On the 3 network, indoor reception for voice, 3G and 4G tend to be quite restricted in the Council area.

7.33 Figure 5 from Ofcom 'Connected Nations Report 2018'[5] shows the mobile data coverage for voice, data and 4G across all operators. The Borough ranks the same in comparison to Northern Ireland, with 79% of the Borough benefitting from 4G data, 94% of the Borough benefiting from mobile data and 88% of the Borough covered by voice.

[5] Connected Nations 2018, Ofcom

Figure 5: Mobile Coverage for Voice, Data and 4G in ANBC vs NI



Source: Ofcom

7.34 Ofcom's 'Connected Nations Report 2018'[6] has blended the data on fixed, mobile and fixed wireless access (FWA) to understand the extent of overlap between these networks. Fixed wireless access networks use a wireless link for the final connection to a home or business, avoiding the installation of a cable to the building. Table 2 below shows the number of premises that do not have access to either of these networks. Antrim and Newtownabbey ranks 3rd out of the 11 Councils, with 41 premises in the Borough not having access to any of these networks.

Table 2: Premises without Mobile, Fixed or FWA Network

Local Authority	Premises without Mobile, Fixed or FWA
Antrim and Newtownabbey	41
Ards and North Down	46
Armagh City, Banbridge and Craigavon	166
Belfast	3
Causeway Coast and Glens	123
Derry City and Strabane	464
Fermanagh and Omagh	270
Lisburn and Castlereagh	2
Mid and East Antrim	93
Mid Ulster	231
Newry, Mourne and Down	378

Source: Ofcom

5G Mobile Data

7.35 While mobile companies continue to extend their coverage of 4G networks, attention is also turning to the 'Fifth Generation' (5G) networks. In the Future Telecoms Infrastructure Report (FTIR)[7], the UK Government set a target for the majority of people to have 5G coverage by 2027. 5G is widely predicted to

[6] Connected Nations 2018, Ofcom
[7] Future Telecoms Infrastructure Review, DCMS 2018

mark a step change in digital communications, changing the way people, institutions and objects interact. A global process is now underway with the aim of creating a set of international 5G standards for manufacturers and others.

Television Services and Devices

7.36 Reconfiguration of the Digital Terrestrial Television network was undertaken in 2012 to switchover from analogue to digital TV. More people are watching TV and viewing video content via hybrid TV platforms such as Freeview Play and Sky Q platforms. Internet based TV series such as Netflix, Amazon Prime and Apple TV are also providing access to a greater variety of content.

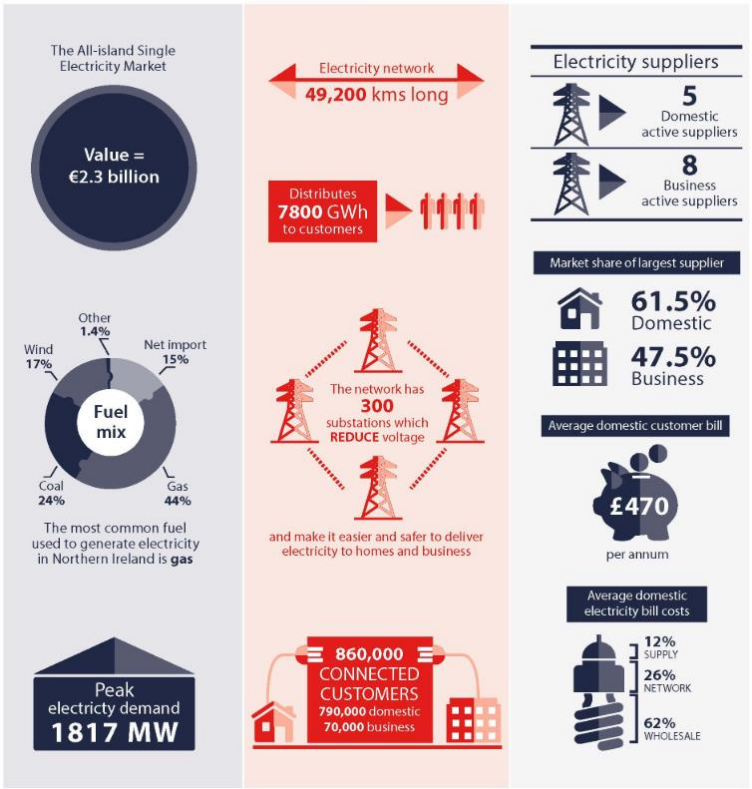
8 Electricity Network

8.1 To underpin economic growth, the Borough needs a modern and sustainable economic infrastructure including robust electricity connections.

8.2 In 1973, the Northern Ireland Electricity Service (NIES) was formed as a public utility to generate, transmit and supply electricity to Northern Ireland. In 1991, the company was incorporated as a government-owned public limited company, and in 1993, the remainder of NIES was privatised as Northern Ireland Electricity plc.

8.3 Figure 6 shows an overall snapshot of the electricity network on the Island of Ireland for the period 2018.

Figure 6: Overview of Electricity Network



Source: Utility Regulator NI

Transmission Network Overview

8.4 As set out in Figure 7, the electricity network in Northern Ireland consists of the following distinct businesses: generation; transmission; distribution; and supply.

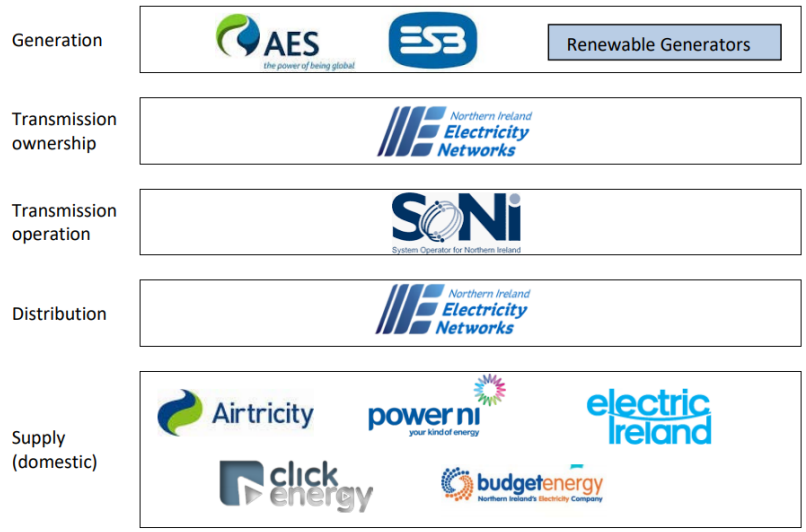
8.5 Electricity is generated either by power stations or by renewable energies such as wind, which is then transmitted at very high voltage to substations along the transmission network and then is distributed at lower voltage to domestic and non-domestic consumers along a network of overhead lines by suppliers such as Power NI, Airtricity, and Electric Ireland, etc.

8.6 The transmission network normally refers to the bulk transfer of electrical energy from large electricity generators to electrical substations and consists of 275,000 volt (275kV) lines and 110,000 volt (110kV) lines, some 1500km in total, plus associated substations. Using a transport analogy, the transmission system can be thought of as the 'motorway', moving bulk energy around the system.

8.7 The distribution network normally refers to local wiring between high-voltage substations and customers and consists of 33,000 volt (33kV), 11,000 volt (11kV) 6,600 volt (6.6kV) and low voltage (400 volt / 230 volt) lines, some 45,000 km in total, plus associated substations. Continuing the analogy, the distribution network is akin to A and B roads.

8.8 Electricity suppliers buy energy and sell it to customers. Business and domestic consumers in Northern Ireland can choose between a number of private sector electricity suppliers to meet their individual electricity requirements.

Figure 7: Structure and main participants of NI Electricity System



Source: Department for the Economy – Energy in NI 2018

8.9 In terms of the electricity network on the Island of Ireland, there are three transmission licences, a distribution licence and also a market operator licence. The System Operator for Northern Ireland (SONI) holds the transmission system operator license for Northern Ireland. Since 2014, SONI has been independent

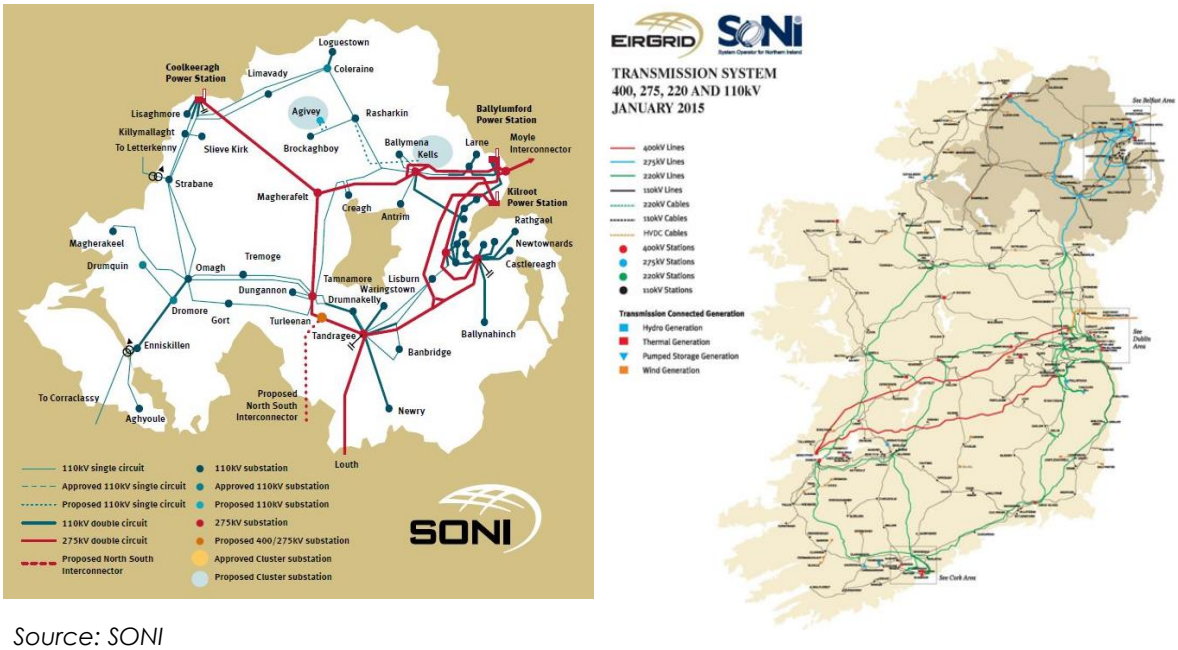
from NIE Networks (Northern Ireland Electricity) and takes responsibility for planning the future of the grid, while NIE Networks is responsible for maintenance, repairs and construction of the grid.

8.10 SONI and EirGrid (the licensed electricity Transmission System Operator in Ireland) are part of the EirGrid group of companies, which also includes, the Single Electricity Market Operator (SEMO) that has responsibility for the operational arrangements of the all-island transmission system. SEMO is a joint venture between EirGrid PLC and SONI Limited. Both EirGrid and SONI are regulated organisations with EirGrid being regulated by the Irish Commission for Regulation of Utilities (CRU - formally known as the Commission for Energy Regulation CER) and SONI being regulated by the Utility Regulator Northern Ireland (URegNI).

8.11 NIE Networks Limited holds a transmission licence in respect of the main transmission system. A second is held by Moyle Interconnector Limited, a subsidiary of Mutual Energy Limited, formerly NI Energy Holdings (a mutualised company), who run the Moyle Interconnector assets linking the system to the GB system in Scotland. NIE Networks also hold a distribution licence for their distribution system.

8.12 The transmission system, or grid, as seen in Figure 8 overleaf operates a single wholesale market across the whole of the island of Ireland known as the Single Electricity Market (SEM) where all electricity across the island is bought and sold through a single pool, which has increased competition, efficiency and security of supply. The operation of the single wholesale market is done by the physical connection of the Northern Ireland grid to that in the Republic of Ireland via an existing interconnector, which extends between Tandragee and County Louth substations.

Figure 8: Northern Ireland & Ireland Electricity Transmission System



Source: SONI

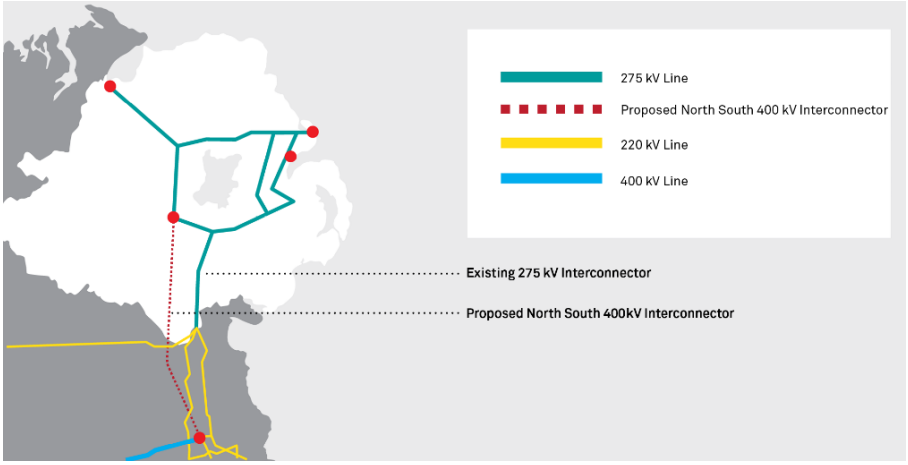
Power Stations

8.13 Power Stations are an industrial facility for the generation of electric power by burning fossil fuels, namely coal, oil and natural gas. Northern Ireland has three fossil fuel generating plants at Ballylumford *(Islandmagee, Antrim)* and Coolkeeragh (Londonderry), which are gas fuelled, and Kilroot (Carrickfergus) which is dual coal and oil fuelled. These power stations sell electricity into the SEM pool along with other generators, including renewable energy sources, which are mainly wind based.

8.14 Early in 2018, it was announced that Kilroot failed to win a major generation contract in an auction process to supply the all-island SEM and its future operation is uncertain.

8.15 There are two interconnectors, the Moyle, which connects Northern Ireland with the electricity grid in Britain, and the North-South, which connects Northern Ireland with the Republic of Ireland. As there is only a single such interconnector between Northern Ireland and the Republic of Ireland, EirGrid and SONI are jointly proposing a new high capacity electricity interconnector as shown in Figure 9 oveleaf.

Figure 9: Existing and Proposed North South interconnector



Source: ireland2050.ie

8.16 The North-South Interconnector is a major cross border infrastructure project that will increase the capacity, and the reliability of interconnection between Northern Ireland and the Republic of Ireland. This will allow the two independent networks to operate together as if they were one system and is vital for the effective operation of an efficient 'all island' electricity market. It will play a vital role in supporting economic growth and facilitating investment in Northern Ireland by securing long-term electricity supply; giving employers and potential investors the certainty, they need to plan for future growth.

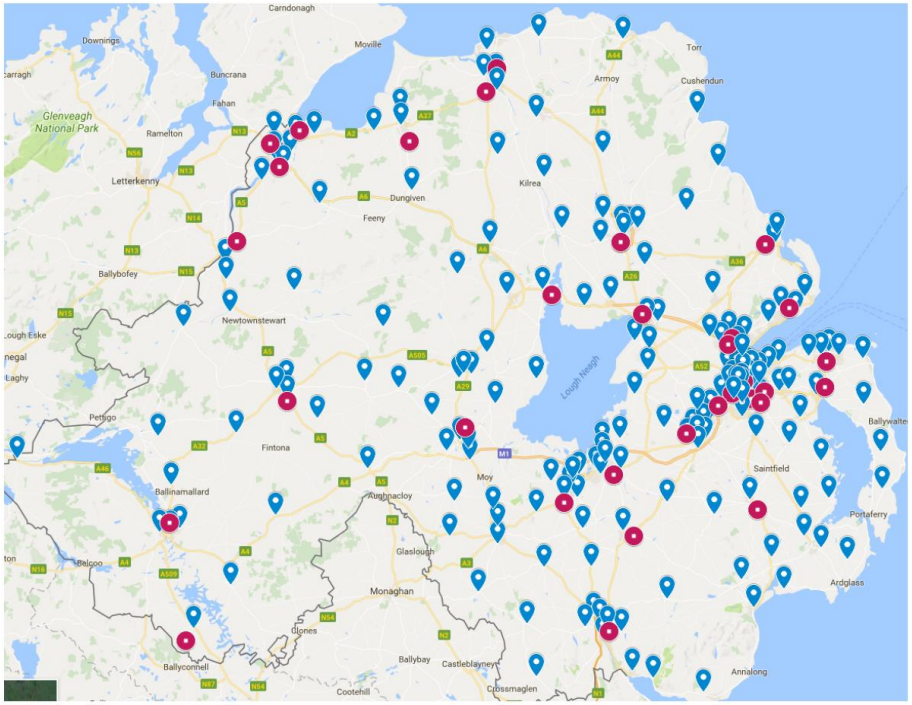
8.17 The Interconnector will also help facilitate the connection of more renewable energy to the grid. This is essential to achieve Government-led renewable energy targets and to increase energy independence, by reducing reliance on imported fossil fuels such as oil and natural gas. In January 2018, SONI secured planning approval for a new overhead line to connect the electricity grids in Northern Ireland and the Republic of Ireland.

Sub-Stations

8.18 A sub-station is a part of an electrical generation, transmission and distribution system, which transforms voltage from high to low, or the reverse via transformers. These are usually located close to or near power stations. Between the generating station and consumer, electric power may flow through several substations at different voltage levels. As seen in Figure 10, within the Borough there are three Bulk Supply Point (BSP)[8] sub-stations (shown as red dots) namely, Antrim, Carnmoney and Glengormley. A fourth BSP sits outside of the Borough at Creagh. Supporting these BSP substations are primary substations (shown as blue dots), of which several occupy the Borough located in and around Antrim, Ballyclare, Crumlin, Randalstown, Toome and Newtownabbey. Figure 10 overleaf can also be accessed online via the following link: https://www.nienetworks.co.uk/connections/capacity-map.

[8] BSP - A point at which the onshore transmission system connects to the distribution system - generally a 110/33kV substation.

Figure 10: Location of Sub-Stations



Source: NIE Networks

Utility Regulator

8.19 The Utility Regulator is responsible for regulating the electricity industry (as well as gas, water and sewerage industries) in Northern Ireland, promoting the short and long-term interests of consumers. While not a policy making part of government, the Regulator assumes responsibility for making sure that the industry is regulated in line with ministerial policy.

Northern Ireland Electricity

8.20 Northern Ireland Electricity (NIE) Networks is the owner of the electricity transmission and distribution networks in Northern Ireland and is the electricity distribution network operator, serving all 860,000 customers connected to the network.

8.21 NIE work to 5-year investment plans agreed by the Utility Regulator. These plans include:

- Maintenance of lines, cables and substations;
- Upgrade of identified substations, lines and cables;
- Tree cutting next to overhead lines; and
- Major projects for network expansion to meet future infrastructure needs.

8.22 For the period, 2012-2017 NIE invested £341 million in Northern Ireland's electricity network to maintain the service levels. NIE are currently developing plans to shape the future of the electricity network up to 2024, to review performance and to make improvements.

8.23 Completed in spring 2017, NIE Networks invested over £250,000 in Doagh village centre for the replacement of overhead power lines to upgraded underground cable network. This involved removing 24 poles and approximately 1,375m of overhead power lines.

8.24 While renewable energy generation is dealt with in Evidence Paper 13, it is important to highlight the issue of network saturation in Northern Ireland. Since the introduction of increased Renewable Obligation Certificate incentives for small-scale generation in April 2010, there has been a large increase in the amount of small-scale generation either connected to, or committed to connect to, the 11kV network. This is leading to increased connection costs and the requirement for 33kV reinforcement work to facilitate generation from the 11kV network to the 33kV network.

8.25 To identify the areas where potential constraints to connection exist, NIE networks created a 'heat map' attached in Appendix 2 giving indicative information on these problem areas. The main purpose of the network heat map is to provide guidance on the capability of the 11kV network to accept further small-scale generation.

8.26 The heat map indicates that the majority of the Borough would tend to be at the lower end of the saturation scale and therefore the greater potential for connection for additional generating capacity. This is illustrated by the lighter coloured shading. A significant pocket of network saturation does however exist between Toome and Randalstown, where significant generation has been committed, as indicated by the red shading. NIE Networks should however be contacted to ascertain the latest situation concerning connection availability.

Energy in Northern Ireland 2018

8.27 The Energy in Northern Ireland 2018 report[9] aims to provide a comprehensive and accessible overview of key statistics and information relating to energy in Northern Ireland. This report is updated every two years, with the next update due in 2020.

8.28 The Department of Business, Energy and Industrial Strategy (BEIS) has produced some experimental data in relation to domestic and non-domestic electricity consumption at a District Council level. The latest year available is for 2015-16 and results have been aggregated into the new 11 Super Council areas as shown in Table 3.

8.29 As the table shows, average domestic consumption per meter in 2015-16 ranged from 3,100 kWh in Belfast to 4,100 kWh in Mid Ulster District Council area, although consumption for most Council areas was close to the Northern Ireland average of around 3,600 kWh. In terms of domestic consumption in Antrim and Newtownabbey, this equated to 3,600 kWh and for non-domestic consumption, this equated to 94,500 kWh, ranking Antrim and Newtownabbey

[9] Energy in Northern Ireland, DfE 2018

highest amongst the Council's for non-domestic electricity consumption. This indicates individual large consumers operating within the area.

Table 3: Experimental Electricity Consumption Statistics 2015-16

	Domestic			Non-domestic		
Council name	Total consumption (kWh)	Total number of meters	Average consumption per meter (kWh)	Total consumption (kWh)	Total number of meters	Average consumption per meter (kWh)
Antrim & Newtownabbey	221,122,600	60,900	3,600	365,551,500	3,870	94,500
Ards & North Down	271,748,400	72,710	3,700	230,569,400	4,560	50,600
Armagh City, Banbridge & Craigavon	331,934,100	85,840	3,900	559,745,700	6,940	80,700
Belfast	427,539,900	140,040	3,100	1,013,320,300	12,350	82,100
Causeway Coast & Glens	240,505,500	65,270	3,700	259,431,200	5,270	49,200
Derry City & Strabane	214,728,300	62,290	3,400	430,068,700	5,230	82,200
Fermanagh & Omagh	177,326,800	48,530	3,700	351,781,000	4,800	73,300
Mid & East Antrim	225,969,600	60,650	3,700	350,448,300	4,390	79,800
Mid Ulster	224,570,200	54,220	4,100	456,652,900	5,860	77,900
Newry, Mourne & Down	276,607,500	70,480	3,900	308,050,400	6,310	48,800
Lisburn & Castlereagh	302,736,000	82,710	3,700	359,994,100	5,020	71,700
Unallocated[61]	10,324,700	4,550	2,300	26,042,100	290	89,800
NI Total	2,925,113,800	808,170	3,600	4,705,129,400	64,850	72,600

Source: BEIS

9 Gas Network

9.1 Natural gas was introduced to Northern Ireland in 1996 via the Scotland to Northern Ireland gas pipeline and initially was only available to customers in Greater Belfast, the immediate surrounding area and Larne where Phoenix Natural Gas (PNG) has developed the gas distribution network.

9.2 Almost 70 per cent of homes in Northern Ireland use oil for heating, along with significant oil usage by businesses and the public sector. As natural gas is the least polluting fossil fuel, extending the natural gas network to further areas can help to reduce greenhouse gas emissions as well as offering a more efficient choice of fuel to businesses, the public sector and domestic consumers.

Gas Transmission Network

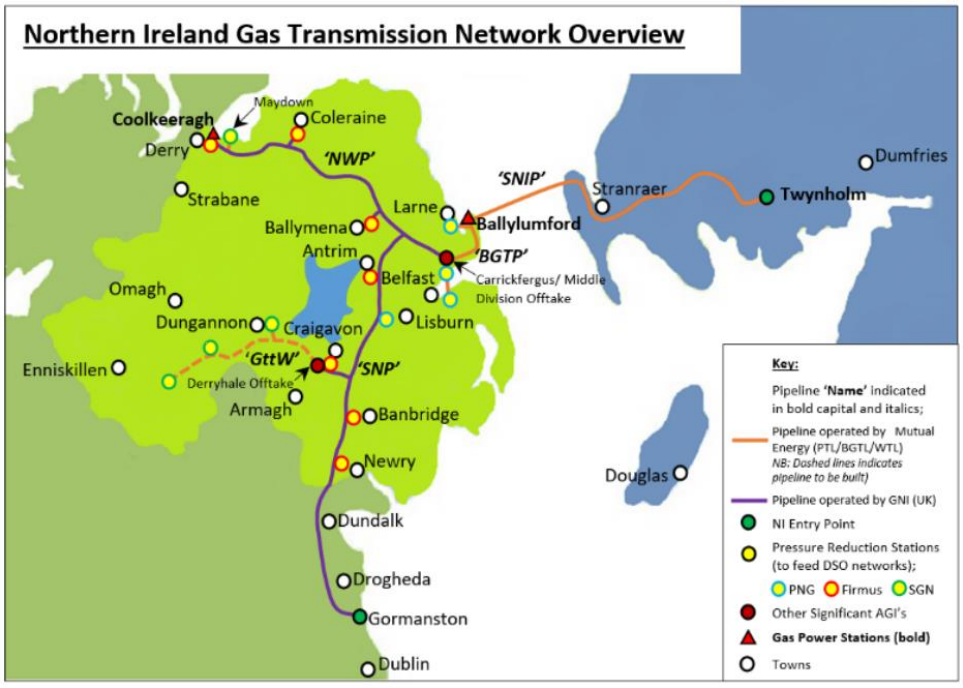
9.3 Gas transmission deals with the large high-pressure pipelines that convey gas to the distribution systems. There are four transmission pipelines in Northern Ireland:

- SNIP (Scotland to Northern Ireland Pipeline) is 135 kilometres long and runs from Twynholm in Scotland to Ballylumford. Premier Transmission Limited owns the SNIP, which is part of the Mutual Energy Ltd. group of companies;

- BGTP (Belfast Gas Transmission pipeline) is 35 kilometres long and is connected to the SNIP and to the North West Pipeline. It also supplies gas to the Belfast distribution network. Belfast Gas Transmission Limited owns the BGTP, which is part of the Mutual Energy Ltd. group of companies;
- NWP (North West Pipeline) is 112 kilometres long and runs from Carrickfergus to Coolkeeragh Power-station. It is owned by BGE Northern Ireland; and
- SNP (South North Pipeline) is 156 kilometres long and runs from Co Antrim to Gormanstown in Co. Meath, Ireland where it links into the NWP. BGE Northern Ireland owns it.

9.4 A map of the Northern Ireland transmission network is presented in Figure 11, and it shows the Borough is primarily affected by the South North Pipeline (SNP) running parallel with the eastern shore of Lough Neagh, east of Nutts Corner, and north east past Antrim to a hub north of Ballyeaston at Ballyalbanagh.

Figure 11: NI Transmission Network Map



Source: Gas Capacity Statement 2017-2018 to 2026-2027

Gas Distribution

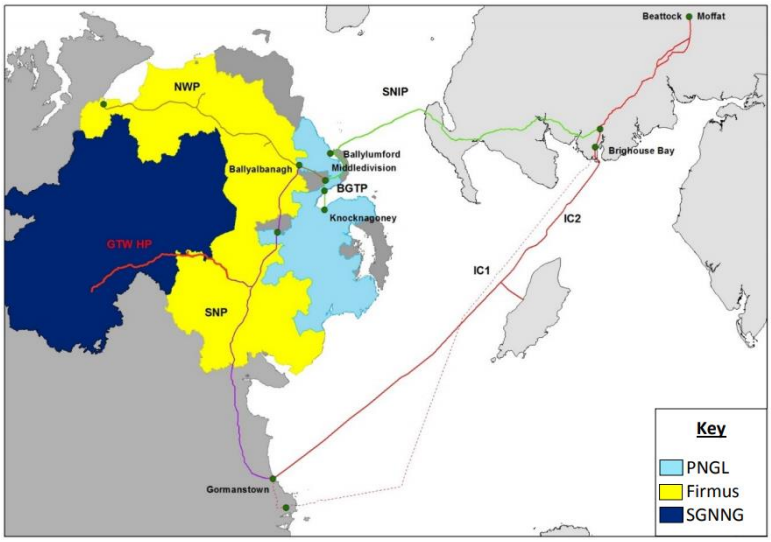
9.5 Gas distribution deals with the medium and low-pressure gas mains that convey gas to licenced areas within Northern Ireland. The Northern Ireland Authority grants gas licences for the conveyance, storage and supply of natural gas for Utility Regulation under Article 8 of the Gas (Northern Ireland) Order 1996.

9.6 There are three distribution licensed areas within Northern Ireland, namely:

- Greater Belfast and Larne distribution licensed area - operated by Phoenix Natural Gas Limited;
- Ten Towns distribution licensed area - operated by Firmus energy (Distribution) Limited for the conveyance of gas within the towns along the route of North West and South North Pipelines. Firmus Energy is committed to the construction of distribution networks in the towns of: Ballymena, Ballymoney, Coleraine, Londonderry, Limavady, Antrim, Armagh, Banbridge, Craigavon and Newry;
- West distribution licensed area - operated by SGN Natural Gas Limited (SGN).

9.7 Northern Ireland currently has two existing distribution network companies and one gas distribution company currently developing their network. Phoenix Natural Gas Limited, Firmus energy (distribution) Limited and SGN Natural Gas respectively. Figure 12 shows an overview of Northern Ireland's Gas Distribution areas.

Figure 12: Northern Ireland Gas Distribution Areas



Source: Gas Capacity Statement 2017-2018 to 2026-2027

9.8 It's clear to see from Figure 12 that the Borough is mainly covered by the 'Ten Towns' and Greater Belfast and Larne distribution licensed areas, operated by Firmus Energy and Phoenix Natural Gas.

Firmus Energy

9.9 In March 2005, Firmus Energy was awarded a licence to develop a new natural gas network outside Greater Belfast, from Londonderry in the North West (NW) to Ballymena and from Antrim to Newry along the South North (SN) pipeline, otherwise known as the 'Ten Towns' licensed area. Before the towns could be developed for natural gas, two key transmission pipelines were required to transport gas from Carrickfergus (where natural gas comes into Northern

Ireland from Scotland) to the towns in the North West and South North of the province. BGE (Northern Ireland) built and operated these two pipelines. Following the completion of these transmission pipelines, Firmus Energy were able to build new gas networks in the Antrim town area, allowing the following towns in the Borough to benefit from gas provision: Antrim; Ballyclare; Doagh; and Templepatrick.

9.10 According to Firmus Energy's Annual Development Plan Firmus to date have constructed 1,400km of distribution gas mains, connecting approximately 123,221 properties to the network within the 'Ten Town' area. With regard to the Antrim town area, the natural gas network extends from Moyadam AGI[10] (above ground installation) throughout Antrim town and south to the Aldergrove area. The network has been extended from Doagh and into Ballyclare to supply residential properties. Numerous new build and infill development was completed in Antrim, Doagh and Ballyclare during 2018. Areas now availing of natural gas include Chaine Court, Station Road, Parkgate Road, Ballycraigy Road, Lough Road, Riverside Houses, Castle Park and Randalstown Road.

9.11 Table 4 below highlights for the period up until October 2018 that 1,402km of gas mains have been laid, of which, 155.1km of these mains have been laid in the Antrim town area.

Table 4: Firmus Energy Gas Mains Laid October 2018

Town	Total Mains Oct 17 (km)	Total Mains Oct 17- Oct 18 (km)	Total Mains Oct 18 (km)
Antrim	145.6	9.5	155.1
Armagh	111.7	12.9	124.6
Ballymena	138.0	15.9	153.9
Ballymoney	32.1	1.8	33.9
Banbridge	47.2	17.5	64.7
Coleraine	134.1	15.3	149.4
Craigavon	241.3	22.7	264.0
Derry/Londonderry	267.9	29.9	297.8
Limavady	30.4	6.9	37.3
Newry	115.1	5.9	120.9
Grand Total	**1,263**	**138**	**1,402**

Source: Firmus Energy

Phoenix Natural Gas

9.12 Established in 1996, Phoenix is Northern Ireland's largest natural gas distribution and energy services company for the Greater Belfast and Larne distribution licensed area. Phoenix's network extends to over 3,000 kilometres of mains, making gas available to around 300,000 properties, of which 180,000 customers have connected. At present, Phoenix customers are the only customers able to

[10] Before gas is delivered to end users, the pressure is reduced at above ground installation stations (AGIs)

choose who supplies their natural gas, whether it is SSE Airtricity Gas or Firmus Energy. Customers can also switch between tariffs of the two suppliers. All other areas of Northern Ireland (those who are eligible for natural gas), however, do not have the ability to choose their gas provider. They are fixed to their incumbent Firmus Energy tariff.

9.13 Phoenix Natural Gas provides natural gas to homes and businesses for the greater Belfast, Larne and most recently East Down areas including Holywood, Bangor, Newtownards, Belfast, Newtownabbey, Carrickfergus, Lisburn, Larne, Comber, Donaghadee, Carryduff and Millisle. As illustrated in Figure 13 and the previous Figure 12, Phoenix Natural Gas License area covers the settlement of Newtownabbey. However, not all properties within Newtownabbey benefit from gas infrastructure and therefore do not benefit from gas connections. To check which properties are covered in Newtownabbey see Phoenix's postcode checker at www.phoenixnaturalgas.com/get-connected/is-gas-available-in-my-area.

Figure 13: Phoenix Gas Licensed Area and Coverage

Source: Phoenix Natural Gas

Utility Regulator

9.14 The Utility Regulator is responsible for the regulation of the gas market in Northern Ireland and their principle objective is to '*to promote the development and maintenance of an efficient, economic and coordinated gas industry in Northern Ireland, and to do so consistently with the fulfilment of the objectives set out at Article 40 of the Gas Directive.*' The gas distribution companies may apply to the Utility Regulator at any time for an extension to an existing gas conveyance license in order to develop gas networks to further towns and villages, or for a license to take gas to a new area. New gas networks are provided where it is considered economically viable; hence,

there are areas in the Borough where there are insufficient business gas loads and/or population density to make gas network extension commercially feasible.

9.15 The Utility Regulator has published its 'Quarterly Transparency Report'[11] for the fourth quarter of the financial year 2018 (October- December 2018). The purpose of this report is to deliver transparency for stakeholders and consumers, providing readers with readily accessible information on the evolution and performance of Northern Ireland electricity and natural gas retail sectors. At the end of Q4 2018, the report highlights the total consumption of gas within the 'Ten Towns' area equated to 503,837Mwh with 42,636 total connections.

9.16 Furthermore, the Northern Ireland Capacity Statement (NICS)[12] for the period 2018/2019 provides an assessment of the ability of the Northern Ireland gas transmission system to deliver gas over a number of potential scenarios within the next ten years up to 2027/28. The Report concluded that Northern Ireland transmission network has sufficient capacity to meet the forecast demand scenarios over the next ten years.

10 Water and Waste Water Network

10.1 Northern Ireland Water (NI Water) provides water and sewerage services to approximately 840,000 households and businesses. They supply customers with approximately 560 million litres of good quality drinking water every day and collect approximately 330 million litres of wastewater per day from around 669,000 households and organisations. NI Water has dual status as a government-owned company and a non-departmental public body.

10.2 The location of the main water and waste water treatment facilities is shown in Appendix 1.

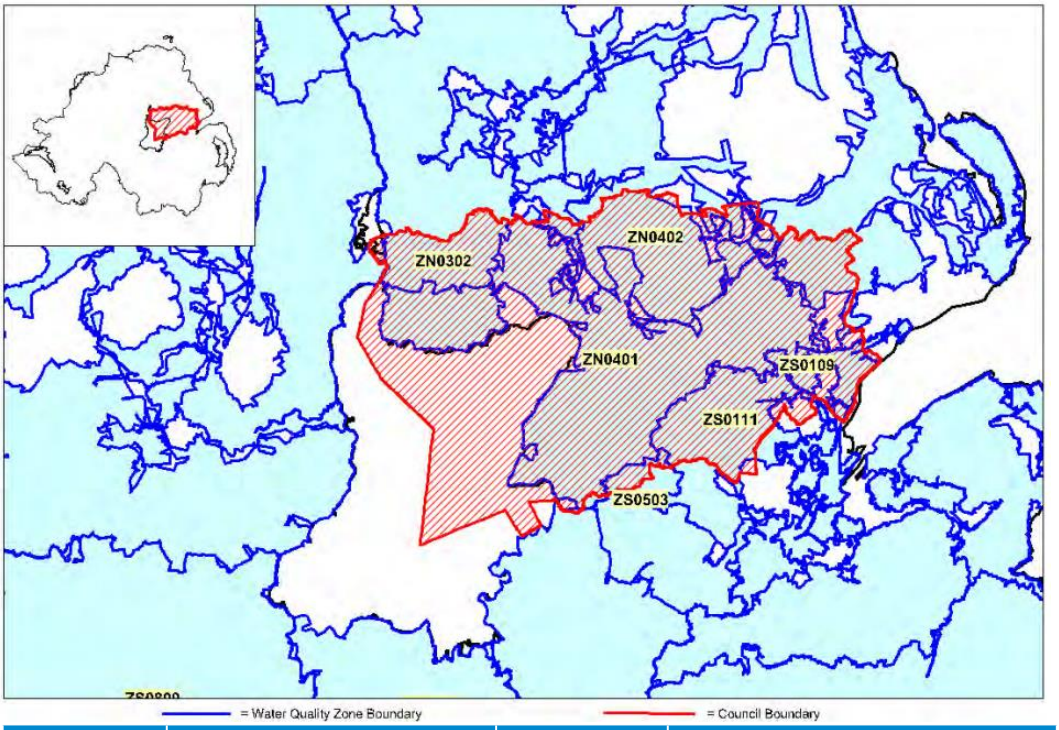
Water Supply and Water Quality

10.3 NI Water mainly extracts its raw water from 38 sources including rivers and loughs (56.2%), impounding reservoirs (43.7%), and one borewell, which supplies a small resident population of around 150 people on Rathlin Island.

10.4 For monitoring purposes, NI Water's supply area is divided into water supply zones. These are areas serving not more than 100,000 people, each of which are normally supplied from a single water supply source or combination of sources. In a number of cases, water supply zones overlap Council boundaries. Figure 14 overleaf illustrates the water supply zones covering the Borough.

[11] Quarterly Transparency Report Quarter 4: Oct-Dec 2018 Published February 2019
[12] NI Gas Capacity Statement 2018/2019

Figure 14: Water Supply Zones

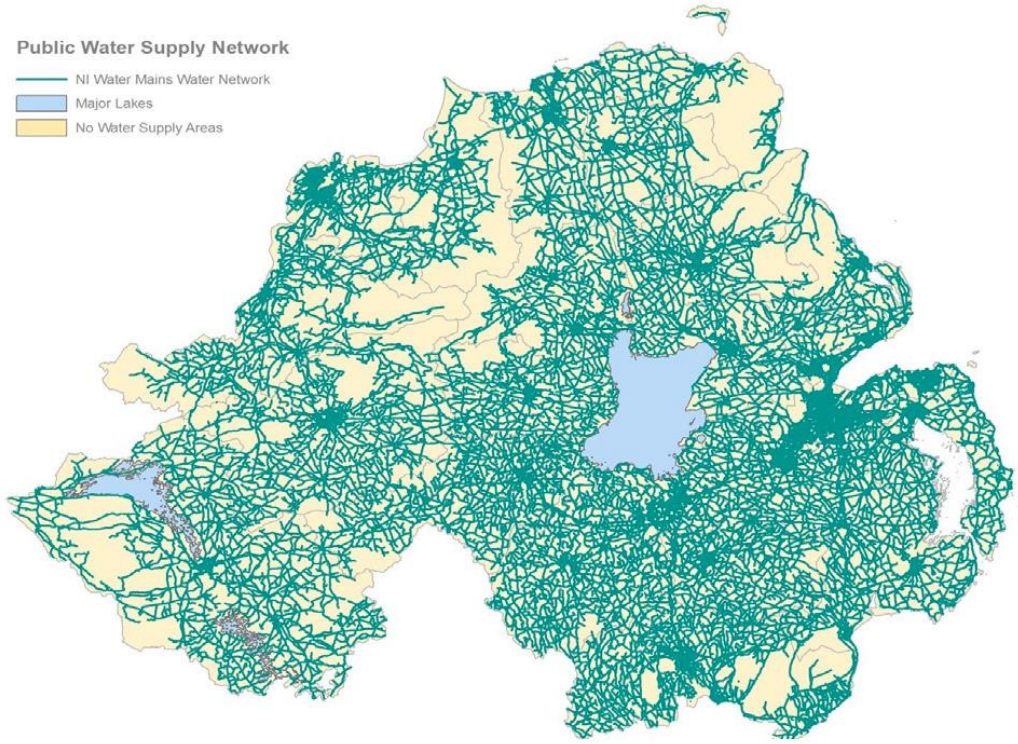


Zone Code	Zone Name	Zone Code	Zone Name
ZN0302	Dungonnell Glarryford	ZS0109	Dorisland Whiteabbey
ZN0401	Dunore Point Antrim	ZS0111	Dunore Point Hydepark
ZN0402	Killylane Ballynure	ZS0201	Dorisland Carrick
ZS0106	Dunore Belfast North	ZS0503	Forked Bridge Stoneyford

10.5 The water distribution network in Northern Ireland as seen in Figure 15 overleaf is extensive, consisting of 290 service reservoirs and approximately 26,800 km of mains pipe. The mains transfer drinking water from the water treatment works to service reservoirs and onwards to the consumer. Service reservoirs provide storage close to the point of distribution to help ensure that sufficient water is available to meet the varying demands of consumers. [13]

[13] Drinking Water Quality in Northern Ireland, DAERA 2017

Figure 15: NI Water Mains Network (and no water supply areas)



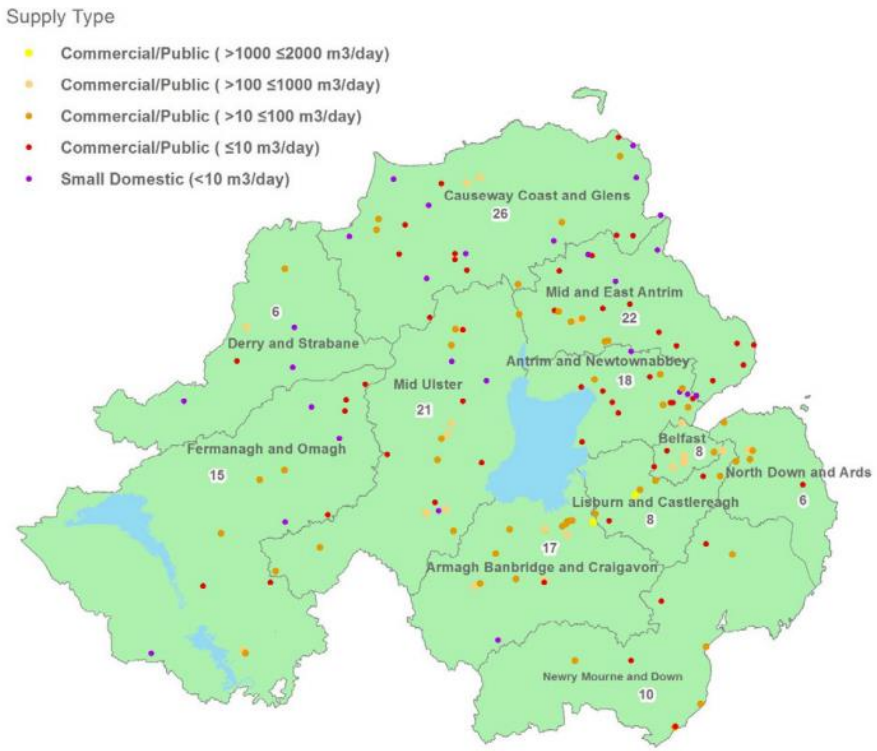
Source: DAERA

10.6 NI Water supplies water to over 99% of the Northern Ireland population; the remainder is served by private water supplies. Private water supplies are often used as an alternative to or in conjunction with the public water supply at a range of sites such as, food and drink manufacturers; public buildings including hospitals, workplaces and universities; and within the hospitality industry such as hotels, restaurants, or bed & breakfast facilities. Private water supplies may be drawn from either surface or groundwater sources. Surface sources can include streams, rivers and reservoirs; groundwater sources include wells, boreholes and springs. Presently, 99.4% of registered private supplies in Northern Ireland are from groundwater sources, most commonly, boreholes.

10.7 According to DAERA[14] in 2017, there was 157 private water supplies of which 18 where located in the Borough, as illustrated in Figure 16 overleaf.

[14] Drinking Water Quality in Northern Ireland, DAERA 2017

Figure 16: Distribution of Registered Private Water Supplies in 2017



Source: DAERA

10.8 The Borough receives its potable water from the following Water Treatment Works (WTW):

- Killylane WTW;
- Dunore Point WTW;
- Dungonnell WTW; and
- Dorisland WTW.

10.9 The Borough is supplied with water mainly from Lough Neagh, where up to 85 million gallons of water is extracted from Lough Neagh each day supplying approximately three quarters of a million people with water. The abstracted water is processed at Northern Ireland's largest treatment plant, which is located within the Borough and is known as Dunore Water Treatment Works (WTW). The Dunore Solar Farm (comprising of 24,000 solar panels, costing £7million) powers the needs of the treatment works.

10.10 These existing installations are expected to be sufficient to supply the Borough throughout the LDP period. The lack of water supply is not considered to be a likely constraint on development.

10.11 The Drinking Water Inspectorate (DWI) is a unit within the Northern Ireland Environment Agency (NIEA) responsible for regulating drinking water quality in Northern Ireland for both public and private supplies. NI Water is the public water supplier in Northern Ireland and less than one per cent of water comes

from private water supplies. The DWI monitors private water supplies to ensure they meet standards set within the regulations.

10.12 The 'Drinking Water Quality in Northern Ireland Report[15]' published in 2017 by DWI provides a regulatory assessment of the quality of both public and private water supplies. The report states that overall drinking water quality in Northern Ireland for the calendar year 2017, remained high at 99.88% and that the overall drinking water quality at consumers' taps was 99.81%.

10.13 Furthermore, according to NI Water 'Drinking Water Quality Annual Report[16]' published in 2017, Antrim and Newtownabbey achieved 99.9% compliance at customer tap, when being assessed against the 'Water Supply (Water Quality) Regulations (Northern Ireland) 2007' as amended.

10.14 A Drinking Water Register is available from NI Water's website at: www.niwater.com/water-quality-results/ , showing the most recent detailed water quality results based on postcode.

Waste Water

10.15 Wastewater or sewage is water found in sewers that has previously been used for a variety of purposes in the home, at work or in leisure activities and is carried by a network of sewers, pipes and pumps from where it is produced to the Wastewater Treatment Works (WwTW), where it is treated and cleaned.

10.16 NI Water owns, operates and is responsible for maintaining the network of over 13,000 kilometres of public sewers. There are three types of sewerage systems:

- Foul Sewers – carry waste water, for example waste from toilets and from trade premises to the wastewater treatment works;
- Surface Water, or Storm Sewers – carry rainwater from roofs, paved areas, pavements and roads and generally flow into streams, rivers or watercourses; and
- Combined Sewers – this is a single pipe system, which carries both wastewater and surface water to wastewater treatment works, these are often found in older town centre systems and are no longer designed or constructed.

10.17 Sewers carry both domestic and industrial waste water to wastewater treatment works, where it is treated and safely disposed of to meet legal requirements. After treatment, the cleaned water goes to a nearby watercourse or the sea and must meet with the legal conditions set by the Northern Ireland Environment Agency (NIEA). The sewage sludge, which is produced as a by-product of the sewage treatment process is further treated and disposed of through incineration and landfill.

[15] Drinking Water Quality in Northern Ireland, DAERA 2017
[16] Drinking Water Quality Annual Report, NI Water 2017

10.18 In the Borough there are 6 WwTW located at:

- Antrim;
- Ballyclare;
- Cranfield;
- Moneyglass;
- Roughfort; and
- Whitehouse.

10.19 NI Water has provided information relating to the capacity of these WwTW, which is shown in Figure 17.

Figure 17: Capacities of Wastewater Treatment Works serving the Council Area

Settlements Served by Large Wastewater Treatment Works — Version - January 2019

Wastewater Treatment Works *Settlement*	Current Planning Status	Estimation of Capacity based on Growth Factor 5%	10%	15%	Map	Comment
Antrim		✓	✓	✓	1a & 1b	Antrim catchment includes Randalstown, Groggan, Parkgate, Templepatrick, Dunadry, Muckamore, Milltown, Belfast International Airport, Crumlin, Killead.
Ballyclare		✓	✓	✓	2	Ballyclare catchment includes Ballyeaston, Ballynure, Straid, Ballyrobert, Cogry, Kilbride, Doagh, Hillhead.
Cranfield (Antrim)		×	×	×	3	Cranfield catchment includes Creggan
Moneyglass		×	×	×	4	The upgrade of this works is being progressed through our Rural Wastewater Improvement Programme (RWWIP)
Roughfort		✓	✓	✓	5	Roughfort catchment includes Craigarogan
Whitehouse		✓	✓	⦸	6	Whitehouse catchment includes Metropolitan Newtownabbey.
Creagh (located in Mid Ulster District Council Area)		✓	✓	✓	7	Creagh catchment includes Toome
Ballycor	N/A	N/A			N/A	Part of settlement (Ballycorr Grove) served by a small WWTW, remainder of catchment no public sewerage network available
Ballycraigy (Newtownabbey)	N/A	N/A			N/A	No public sewerage network available
Bruslee	N/A	N/A			N/A	No public sewerage network available
Kingsmoss	N/A	N/A			N/A	No public sewerage network available
Lowtown	N/A	N/A			N/A	No public sewerage network available
Millbank	N/A	N/A			N/A	No public sewerage network available
Tildarg	N/A	N/A			N/A	No public sewerage network available

Key to Current Planning Status		Key to Local Development Planning	
	New connections permitted - Capacity Available	✓	Works has 'Reasonable Capacity'
	Restriction on new connections - Capacity Limited	⦸	Works is 'At or reaching Capacity'
	New connections refused - No Capacity	×	Works has 'Insufficient Capacity'

Source: NI Water

10.20 The informative presents two sets of indicators; one relating to current capacity and the associated impact on availability of new sewerage connections; the second is an estimated projection of treatment capacity were prescribed growth factors to be applied to the existing drainage catchment flows. The indicators are a combination of Red, Amber, Green traffic lights for current capacity and a variety of tick box symbols for future capacity.

10.21 As the Figure indicates, currently the Antrim, Ballyclare, Roughfort, Whitehouse and Creagh (located in Mid Ulster) WwTW have enough spare capacity to enable new connections to the network. When an element of growth is added

in the future, the Antrim and Ballyclare WwTW have enough spare capacity to enable new connection, and to a lesser extent so does Roughfort WwTW. The Whitehouse WwTW would however be 'at or reaching capacity' with a 15% growth rate. At present problems, exist at the Cranfield and Moneyglass WwTW where there is 'insufficient capacity' available to enable new connections to the network. At present Moneyglass WwTW is being upgraded through the 'Rural Wastewater Investment Programme' (RWWIP) aimed at upgrading a series of small wastewater treatment works and septic tanks across rural Northern Ireland, particularly in hamlets and villages where the population is below 250.

10.22 The levels of spare capacity in Antrim and Ballyclare WwTW are attributable to the fact that both facilities are recently new constructions, designed to treat wastewater from a growing population to 2035 in the case of Antrim and 2030 in the case of Ballyclare.

10.23 There are some settlements in the Borough with no sewer network, instead waste water is processed via individual septic tanks. These are Ballycraigy, Kingsmoss, Lowtown, Millbank and Tildarg, as well as parts of Ballycor and Hillhead. There are also a number of small waste facilitates located outside of settlement limits in the rural area. These collect waste on a much-localised scale, often from small groups of houses, in many cases 2 or 3 dwellings.

10.24 It is also notable that wastewater from Toome is pumped across the Council boundary at Creagh WwTW in Mid Ulster. Similarly, sewage from the Council area north of the disused railway at Monkstown is dealt with at Greenisland WwTW.

10.25 In response to ongoing large-scale development pressure, the Council has recognised the extensive employment growth already in existence at Nutts Corner and Belfast International Airport (BIA) through designating them as Strategic Employment Locations. Both sites are already home to a number of large-scale businesses including storage and distribution, which require accessible and central locations. The sites currently operate as key rural existing employment hubs in the Borough and have evolved over time due to their highly accessible locations and direct access onto the Regional Strategic Transport Network.

10.26 In terms of water infrastructure, the Council has consulted NI Water regarding these two locations. They confirmed that while there currently is no requirement for the provision of a pubic sewerage network or wastewater treatment facilities at Nutts Corner, should a SEL be designated at this location, it may be feasible to install this infrastructure depending on growth and demand. Existing properties connect to private septic/treatment plants. The SEL designation may also present an opportunity to enhance the public water supply network for the area, depending on future demand. Concerning BIA NI Water have stated that there is adequate headroom within both water distribution and wastewater networks to accommodate the SEL proposal. The associated reports are attached in Appendix 3.

Wastewater Pumping Stations

10.27 Wastewater Pumping Stations (WwPS) are designed to collect and transport wastewater to a point of higher elevation. A pump starts to lift the wastewater upwards through a pressurised pipe system that discharges the wastewater into a gravity manhole. Here, the cycle starts again until the wastewater reaches its destination usually to a Waste Water Treatment Works (WwTW).

10.28 NI Water has over 1,200 Wastewater Pumping Stations (WwPS) and in 2012, they invested £4.5m into the Wastewater Pumping Stations Upgrade Project. The purpose of this project was to improve the efficiency and reliability of a number of wastewater pumping stations.

10.29 Following on from this project, NI Water has invested £680,000 to upgrade the existing main Wastewater Pumping Station located in Crumlin. Once complete, this work will improve the sewerage network in the area and will provide additional storage capacity, particularly during periods of heavy rainfall, therefore reducing the risk of flooding. It is anticipated that the overall programme of work will continue until May 2019. The project will replace the existing wastewater pumping station, allowing NI Water to comply with Northern Ireland Environment Agency Standards and reduce the risk of environmental pollution. The replacement pumping station will provide a more robust and reliable station to transfer flows towards Antrim Wastewater Treatment Works (WwTW).

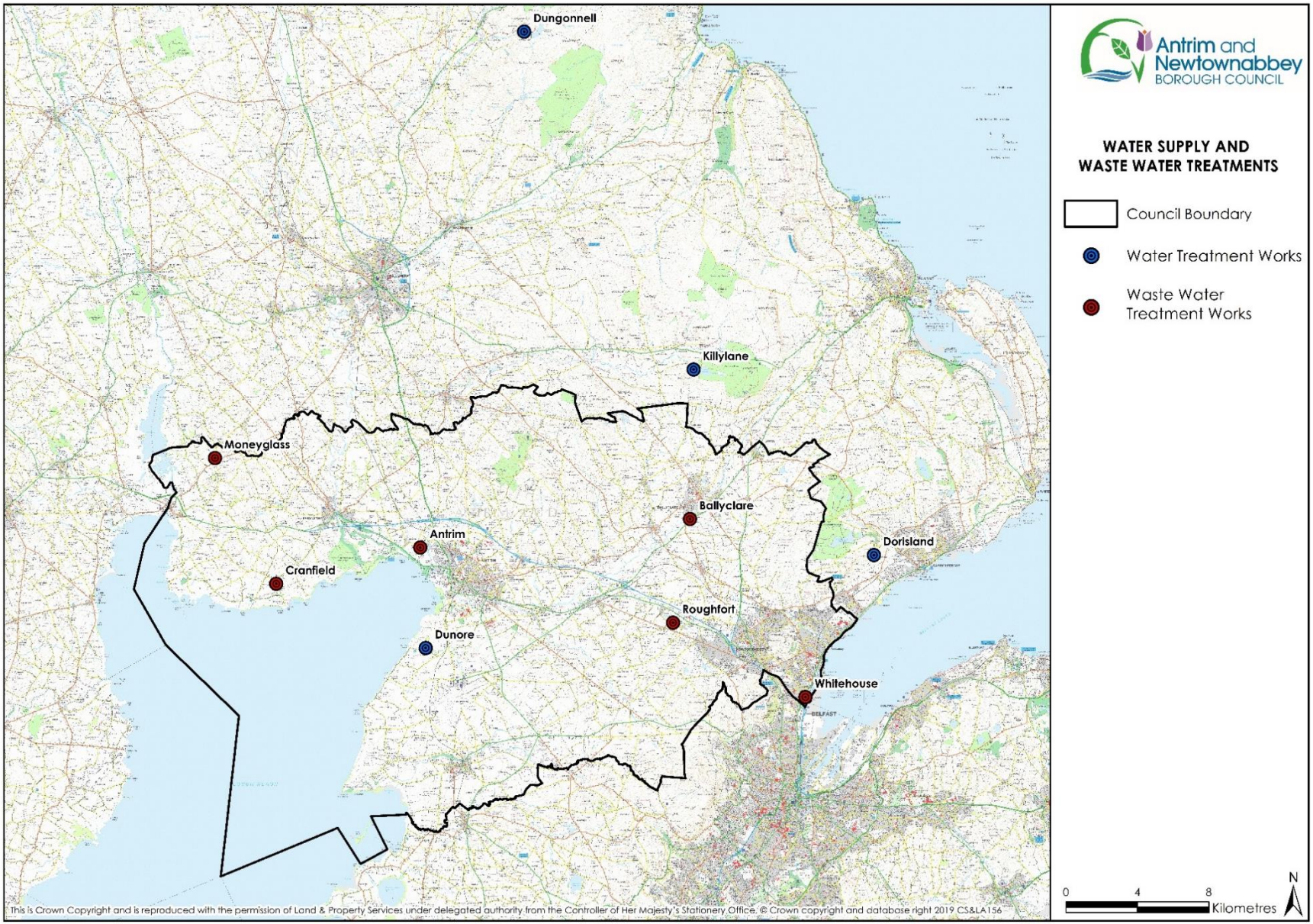
11 Key Findings

- There is an extensive network of 33kv and 11kv lines in the Council area.
- There are a number of suppliers selling electricity from a Single Electricity Market pool.
- The availability of gas for heating plays a part in reducing electricity consumption.
- The South-North pipeline runs through the Council area, parallel with the eastern shore of Lough Neagh, to east of Nutts Corner, north east past Antrim, to a hub north of Ballyeaston.
- There are 2 distribution networks supplying gas in the Council area, Greater Belfast operated by Phoenix (Newtownabbey) and Ten Towns operated by Firmus (Antrim, Ballyclare, Doagh and Templepatrick).
- Overall, broadband speeds in Northern Ireland are amongst the highest in the UK.
- The Borough performs well in terms of broadband coverage compared to other Councils in Northern Ireland, with only 4% of premises not able to download at speeds greater than 10Mbps.

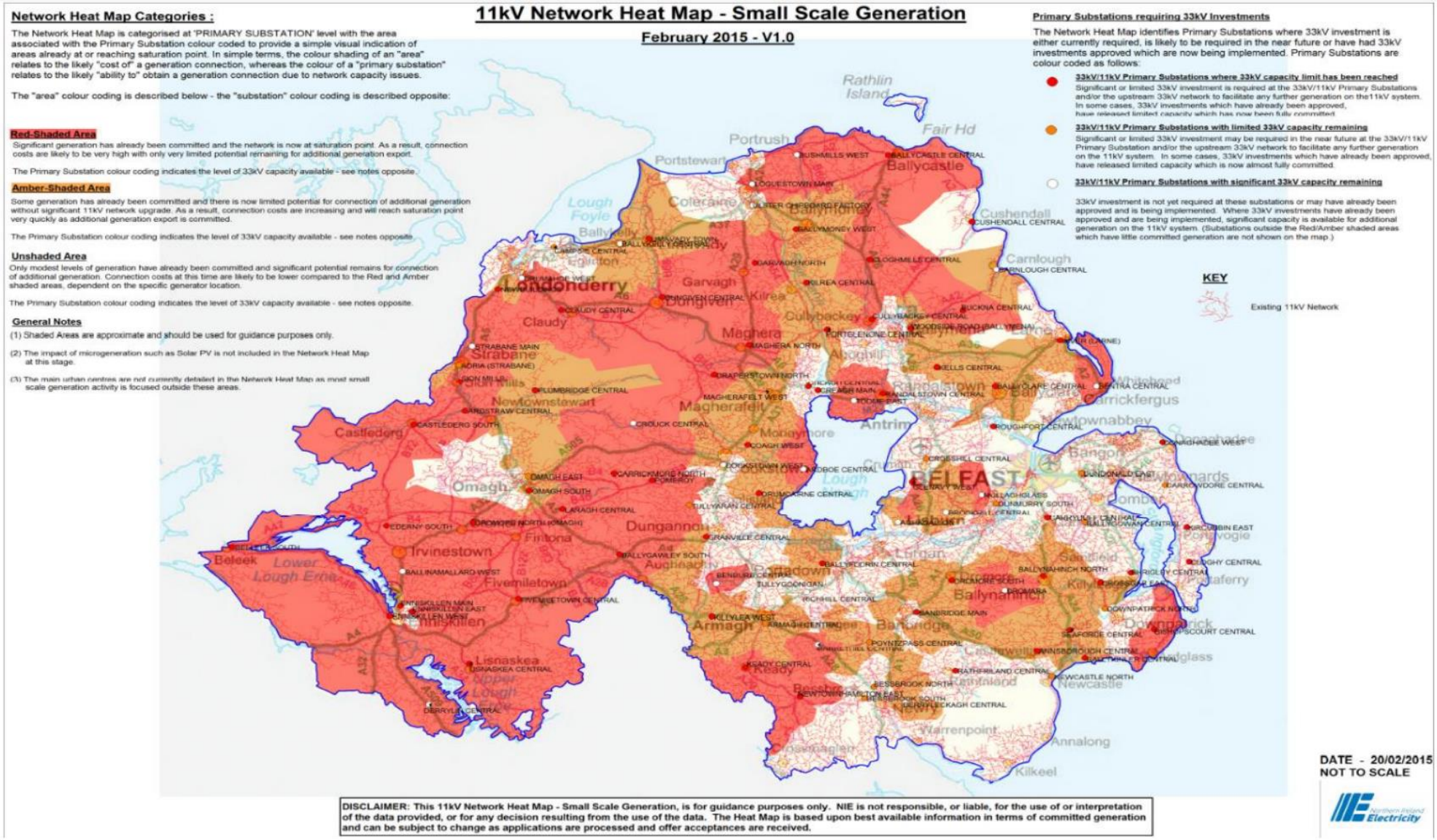
- The Borough has excellent 'superfast broadband' speeds within urban areas, second only to Belfast City Council.
- Ofcom has created a broadband checker resource at http://maps.ofcom.org.uk/check-coverage.
- There is significant variation in mobile reception amongst the 4 providers operating in the Council area.
- There are reception problems, especially indoors, in areas south west of Randalstown, around Loanends and west of Crumlin.
- Ofcom has created an interactive mobile coverage map at http://maps.ofcom.org.uk/check-coverage.
- The Borough is highest amongst the Council's for non-domestic electricity consumption.
- There is adequate clean water supply and network capacity from the 4 WTW to accommodate population growth within the Council area.
- Antrim and Ballyclare WwTW have significant spare capacity.
- The WwTW at Cranfield and Moneyglass have no existing capacity. Moneyglass is currently being upgraded.
- Whitehouse WwTW will reach its capacity with a 15% growth rate is reaching capacity.
- Bruslee, Ballycraigy, Kingsmoss, Lowtown, Millbank and Tildarg do not have a sewer network, as well as parts of Ballycor and Hillhead.

Appendices

Appendix 1: Location of Water and Wastewater Facilities



Appendix 2: NIE Heat Map



Appendix 3: NI Water - BIA & Nutts Corner Water Reports

High Level summary of water and wastewater service provision at Belfast International Airport for Antrim & Newtownabbey Borough Council Plan Strategy for new Local Development Plan

Wastewater

Belfast International Airport (BIA) and the immediate area is connected and served by the existing public sewerage network. The main sewer connection discharges to a trunk sewer at the junction of British Road, Ballyrobin Road & Antrim Road. This trunk sewer also receives flow from Crumlin and Killead. Sewage flow gravitates from this cross roads to Massereene Wastewater Pumping Station in Antrim for onward pumping to Antrim Wastewater Treatment Works (WWTW).

During the early 2000's this trunk sewer was upgraded, reinforced and its capacity was significantly increased to cater for existing and future development. It is therefore highly likely that this existing public sewer will accommodate foul sewerage flows from an extension to BIA of a 10-hectare employment land zone. However, NI Water will require proposed rates of discharge from the land zone area in order to provide a definite response.

Please note, it is assumed surface water run-off from the proposed 10-hectare employment land zone will discharge to existing watercourses in consultation with DfI Rivers or soakaways.

Public Water Supply

Belfast International Airport and the immediate area is fed from Aldergrove District Meter Area (DMA), which is supplied from Aldergrove Service Reservoir. The airport water supply is connected from an existing 230mm diameter public water main on Ballyrobin Road. There are no supply issues within Aldergrove DMA that impact on the water supply to BIA. Aldergrove SR has a capacity of 1.57 megalitres (ML) and a current daily demand of approximately 0.85ML.

The airport fire main is fed direct from a pumping main, which is a branch of the main pumped supply to Belfast. This pumping main operates at a higher pressure than the supply to the airport and ensures a consistent high-pressure water supply for firefighting.

It is highly likely that the existing water distribution network will accommodate an increase in demand from an extension to BIA of a 10-hectare employment land zone. However, NI Water will require estimated future industrial demand in order to provide a definitive response.

Comment

If BIA is extended to provide a 10-hectare employment land zone, it is highly likely that there is adequate headroom capacity within both water distribution and wastewater networks. Council/Developers should contact NI Water at an early design stage in order to discuss options and agree solutions that will address development needs throughout the life of the Local Development Plan.

If additional infrastructure upgrades are required, recommended solutions will be prioritised for delivery within our Capital Works Programme and will be subject to available funding.

Alan Moore 27 July 2018

High Level summary of water and wastewater service provision at Nutts Corner area for Antrim & Newtownabbey Borough Council Plan Strategy for new Local Development Plan.

Waste Water

NI Water currently has no public sewerage network or wastewater treatment facilities at Nutts Corner. Existing properties connect to private septic tanks or private treatment plants, which are the responsibility of the respective property owners. NI Water has no current plans to install a public sewerage network or wastewater treatment works at Nutts Corner.

It is noted that Antrim & Newtownabbey Borough Council's preferred option is to designate Nutts Corner as a Strategic Employment Location. It is therefore highly likely this may result in significant future development within a designated Industrial Park. In such a case, it may be feasible to install a foul and storm sewerage network and associated wastewater treatment works to serve the Industrial Park.

Under current legislation, if there are two or more privately owned premises within the Industrial Park, the foul and sewerage infrastructure can be offered to NI Water for adoption in accordance with normal NI Water adoption procedures. If the Industrial Park remains as a single curtilage site, (i.e. site owned by Council /Invest NI or other body and industrial units rented to tenants), the sewerage infrastructure cannot be offered to NI Water for adoption and responsibility for the infrastructure would remain with the site owner. This adoption principle would also apply to a wastewater pumping station if the preferred option was to pump sewage away to nearest public sewerage network rather than treat on site. (Note: the nearest suitable public sewer is 6.3km from Nutts Corner roundabout at junction of Ballyrobin Road and Antrim Road at Belfast International Airport).

Public Water Supply

The vast majority of Nutts Corner area is fed from Lylehill South West District Meter Area, which is supplied from Lylehill Service Reservoir. The Belfast Road area extending from Nutts Corner Roundabout towards Belfast is fed from Umgall District Meter Area, which is supplied from Boghill Service Reservoir. The existing public water main network within Nutts Corner consists of 80 & 125mm diameter water mains. A schematic map indicating the DMA's is attached and should be read in conjunction with this document.

I can confirm NI Water Network Distribution Staff are experiencing some operational capacity issues within Nutts Corner area. It has been noted on a number of occasions, when one of our customers is filling storage tanks for firefighting purposes, a number of customers in the Nutts Corner Business Park are encountering interruptions to their supply. Although this has only occurred in a few occasions, it does highlight existing capacity issues that would need to be addressed prior to approving new connections from future industrial development.

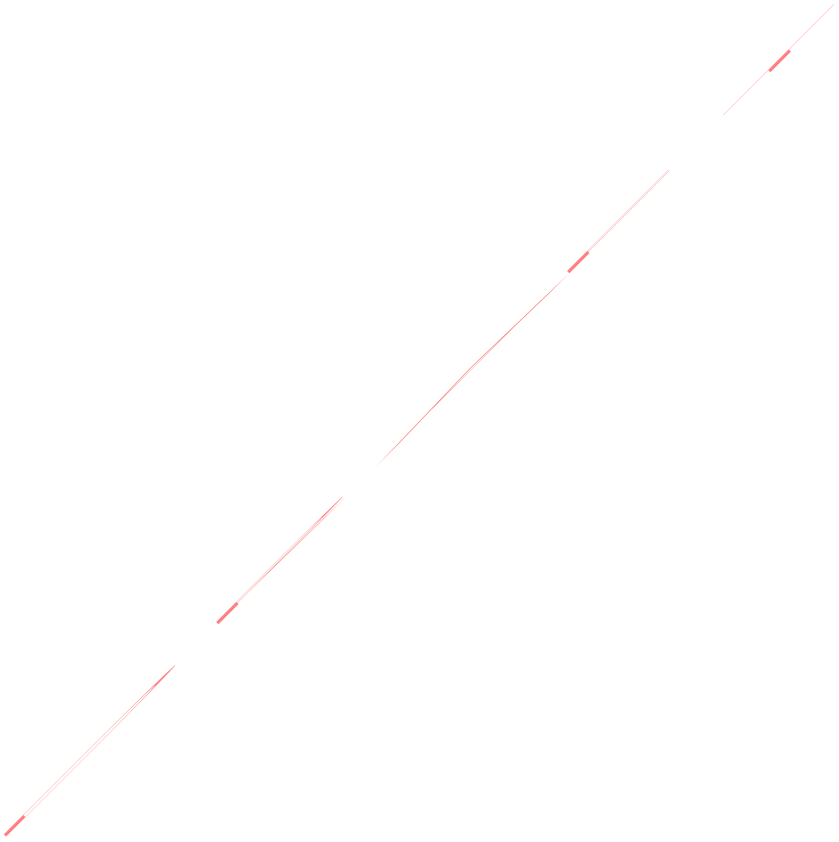
These capacity issues can be addressed with water mains reinforcement, which would include increasing the diameter of the supply water main to Nutts Corner area. Lylehill SR, which supplies this area, would appear to have adequate headroom capacity to cater for increased demand from Nutts Corner. This service reservoir has a capacity of 3Ml and a current daily demand of approximately 2Ml. However, in order to determine the required increase in capacity it will be necessary to know estimated future industrial demand. This demand data would be input into our water distribution network model to determine a recommended solution.

Comment

If Nutts Corner is to be designated as a Strategic Employment Location, infrastructure upgrades will be required. Council/Developers should contact NI Water at an early design stage in order to discuss options and agree solutions that will address development needs throughout the life of the Local Development Plan.

Recommended solutions will prioritised for delivery within our Capital Works Programme and will be subject to available funding.

Alan Moore 25 July 2018



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