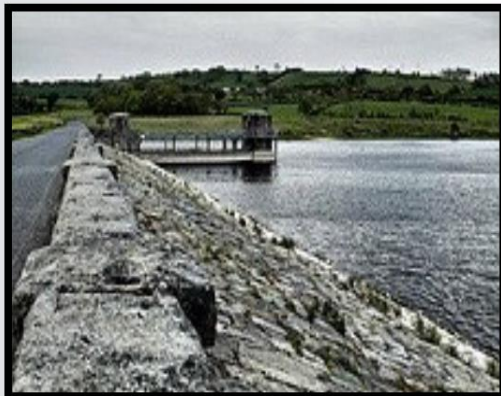


Armagh City, Banbridge & Craigavon Borough Local Development Plan Preparatory Studies



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PURPOSE:

- **To provide the Committee with an overview of matters relating to public utilities and implications for land use in the Armagh City Banbridge Craigavon Borough Plan Area.**

CONTENT:

The paper provides:

- **The regional policy context for public utilities in the Armagh Banbridge Craigavon Area**
- **An overview of public utilities in the Armagh Banbridge Craigavon Area and their provision in the existing Armagh, Banbridge/Newry & Mourne and Craigavon Area Plans**
- **An outline of the main proposals for public utilities over the plan period**

1.0 Introduction

- 1.1** This is one of a series of position papers being presented to the Planning & Regulatory Services Committee as part of the preparatory studies to inform the Local Development Plan (LDP), whilst linking with important ongoing work in relation to the development of a community plan and other strategic work being undertaken by the council.
- 1.2** The paper informs the Members on the provision and spare capacity of public utilities up to 2030 in order to assist judgements on the allocation of housing growth and other development in the new Local Development Plan. It sets out the regional policy context for public utilities and includes an examination of existing physical infrastructure of the new Council area. It examines initial responses from a number of government bodies and statutory bodies, including the council, whom have a responsibility for the various public utilities in relation to future supply. This paper contains an evaluation of how public utilities can be addressed in the Plan within the context of the RDS, the Strategic Planning Policy Statement and in accordance with the Department of Environment (DOE) advice & guidance.
- 1.3** The Department's Development Plan Practice Note 5: Preferred Options Paper recommends that survey and information gathering should therefore be carried out by the council for a range of topic areas to include information on;
- renewable energy development / areas of protection;
 - the need for future waste management facilities;
 - needs of the community and plan area in relation to telecommunications public services and public utilities; and
 - identification of development constraints such as areas of flood risk.

2.0 Public Utilities

- 2.1** The provision of public utilities within the plan area is primarily the responsibility of a number of government departments and statutory bodies as well as the District Councils. The private sector, is however, playing an increasingly important role. In accordance with the Department's Development Plan Practice Note 5: Preferred Options Paper, this paper provides an evaluation of the following utilities:
- Telecommunications
 - Recycling and Waste Management
 - Flood Risk, Drainage, Sewerage Treatment and Water Supply
 - Energy Supply and Renewables
 - Cemetery provision

3.0 Regional Policy Context

3.1 The Regional Policy Context is provided by the Regional Development Strategy (RDS) 2035 and regional planning policy statements. A summary of these documents as they pertain to plan making and utilities policy is provided in the following sections.

(a) Regional Development Strategy (RDS) 2035

3.2 Infrastructure is a key issue when considering sustainable growth. To enable successful strategic growth, the importance of the relationship between the location of housing, jobs, facilities, services and infrastructure needs to be fully recognised. The RDS sets out clear policy aims and objectives regarding public utilities including:

3.3 **Telecommunications** – Policy RG3 of the RDS 2035 aims to implement a balanced approach to telecommunication infrastructure that will give a competitive edge. It acknowledges that Northern Ireland currently enjoys a first class telecommunications network but that in such a fast moving market, competitive advantage can soon be lost if continued development is not facilitated. Therefore it is important to continually improve international and internal connectivity.

3.4 The RDS 2035 envisages that next generation broadband services will be available to provide support for 85% of businesses.

3.5 Policy SFG14 of the RDS 2035 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.

3.6 The key policy aims of the RDS 2035 regarding telecommunications are to:

- 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 minimise rural / urban imbalance.
- Utilise existing connectivity with North America and mainland Europe in order to further aid foreign and direct investment.

3.7 **Energy Supply** – Policy RG5 of the RDS 2035 aims to deliver a sustainable and secure energy supply. It recognises that there is a need to promote a range of renewable energy sources in order to ensure a more diverse and secure supply of energy for the future. Development consisting of infrastructure to provide renewable energy will be the subject of a Strategic Environmental Assessment or an Environmental Impact Assessment and decision makers will have to balance the impact on the environment against the benefits of a secure, renewable energy source.

- 3.8** The key policy aims of the RDS 2035 regarding renewable energy are to:
- Increase the contribution of renewable energy sources to the overall energy mix. This will require an increase in the amount of renewable energy and renewable heat installations, both onshore and off shore.
 - Strengthen the grid to in order to support the increasing number of renewable electricity installations.
 - Provide new gas infrastructure including provision of natural gas to further enhance the provision of energy supply.
 - Work with neighbours to ensure a secure energy supply from competitive regional electricity and gas markets in the EU’s Internal Market.
 - Develop smart grid initiatives to improve the responsiveness of the electricity grid to facilitate new forms of renewable generation, to improve reliability, productivity, and energy efficiency and empower customers to make a more informed choice in relation to their energy usage.

3.9 Waste Management – Policy RG10 of the RDS 2035 aims to manage our waste sustainably. It promotes the implementation of the European Union’s revised Waste Framework Directive¹. Article 4 of this Directive promotes a 5 step approach to dealing with waste, with each step being ranked according to its environmental impact - the “waste hierarchy” (See Figure 1).

3.10 The “waste hierarchy” promotes waste minimisation as the first four options and states that waste disposal should only happen as a fifth and final option. The “waste hierarchy” is laid out in Figure 1 below.

Figure 1: Waste Hierarchy

STAGES	DETAIL
STAGE 1 - PREVENTION	using less material in design and manufacture, keeping products for longer, re-use, using less hazardous materials
STAGE 2 - PREPARING FOR REUSE	checking, cleaning, repairing, refurbishing, whole items or spare parts
STAGE 3 - RECYCLING	turning waste into a new substance or product, includes composting if it meets quality protocols
STAGE 4 - RECOVERY	includes anaerobic digestion, incineration with energy recovery, gasification and pyrolysis which produce energy (fuels, heat and power) and materials from waste, some backfilling
STAGE 5 - DISPOSAL	landfill and incineration without energy recovery

WASTE MINIMISATION

Source: Article 4 of the revised EU Waste Framework Directive

¹ Revised EU Waste Framework Directive (WFD) – Directive 2008/98/EC

- 3.11** As well as promoting the “waste hierarchy,” the RDS 2035 also promotes the “proximity principle” which states that waste should be dealt with as close as possible to the point of generation in an effort to minimise the negative effects of waste transportation.
- 3.12** **Water, Sewerage and Flood Risk** – Policy RG12 of the RDS 2035 promotes a more sustainable approach to provision of water and sewerage services and flood risk management. It advises that increased population, changes in household formation and climate change are putting pressure on our water resources and drainage systems. Therefore, the planning for the provision of water and sewage infrastructure and treatment facilities is both a practical and environmental necessity for regional development.
- 3.13** As part of the RDS 2035 housing evaluation framework (which assists judgements on the allocation of housing growth), the “resource test” states that when assessing land to be potentially zoned for housing, consideration must be paid to the water, sewerage and waste infrastructure of an area to ensure that it is adequate to support the provision of future housing (see Appendix 6 for a copy of the RDS 2035 Housing Evaluation Framework Table).
- 3.14** The key policy aims of the RDS 2035 regarding water and sewerage are:
- The integration of water and land use planning. Land use planning should be informed by current water and sewerage infrastructure and the capacity of that infrastructure to absorb future development. This will involve the planning authority working in conjunction with NI Water.
 - Manage future water demand by reducing waste. To help manage future water demand in new developments, initiatives such as grey water recycling and rainwater harvesting should be promoted.
 - Encourage sustainable surface water management. This will involve the encouragement of initiatives such as Sustainable Development Systems (SuDS) in significant development proposals. SuDS endeavour to use natural systems with low environmental impact (such as trans- evaporation) to dispose of dirty water and surface water in order to reduce the amount of water being released back into watercourses & drains thereby reducing the risk of flooding.
- 3.15** In relation to development and flood risk, Policy RG8 of the RDS 2035 states that residential development should not take place in areas which are known to be at risk of flooding. This policy also states that as part of the Housing Evaluation Framework, an assessment of flood risk should be considered when allocating land for housing growth.
- 3.16** Similarly, Policy RG1 of the RDS 2035 states that when allocating land for economic growth and employment, areas which are at risk of flooding should be avoided, where possible.

(b) Strategic Planning Policy Statement (SPPS) for NI

- 3.17** A final form SPPS was published in September 2015 and is intended to consolidate 20 different planning policy statements into one document and sets

out strategic subject planning policy for a wide range of planning matters. It also provides the core planning principles to underpin delivery of the two-tier planning system with the aim of furthering sustainable development. It sets the strategic direction for the new councils to bring forward detailed operational policies within future local development plans. Therefore the council needs to be mindful of the key policy objectives (regional strategic) in the SPPS when preparing the Local Development Plan. These objectives in respect of a range of the utilities are included in this paper and it sets out considerations that councils may wish to pursue in the preparation of LDP's as follows:

- 3.18 Telecommunications** – Northern Ireland's core telecommunications network is recognised as world class with high quality communications infrastructure considered essential for sustainable economic growth. This is affirmed by the Executive and DRD's RDS 2035 which identify the need for a modern efficient telecommunications infrastructure that will give Northern Ireland a competitive advantage. It is important to continue to support investment in high quality communications infrastructure which plays a vital role in our social and economic well-being.
- 3.19** The aim of the SPPS 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.
- 3.20** LDP Preparation: LDPs should bring forward policies which set out the detailed criteria for consideration of new telecommunications development in its area including siting, design and impact upon visual amenity. The Council may discuss with telecommunications operators the anticipated extent of the network coverage required over the plan period. LDPs may in certain circumstances and, subject to technical limitations on location and siting, allocate specific sites for major new telecommunications development.
- 3.21** Policy Objectives (Regional Strategic):
- 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 radio spectrum users (eg. mobile phone services, media broadcasting & wireless broadband services) by new telecommunications development; &
 - encourage appropriate provision for telecommunications systems in the design of other forms of development.
- 3.22 Energy Supply & Production** – Promote increased contribution of renewable energy to overall energy mix whilst addressing environmental, visual and amenity issues and protecting the natural and built heritage. Overhead power lines should avoid areas of landscape sensitivity including Areas of Outstanding Natural Beauty (AONBs). The aim of the SPPS in relation to renewable energy is to facilitate the siting of renewable energy generating facilities in appropriate locations within the built and natural environment in order to achieve Northern Ireland's renewable energy targets and to realise the benefits of renewable

energy without compromising other environmental assets of acknowledged importance.

3.23 LDP Preparation: Councils should set out policies and proposals that support a diverse range of renewable energy development and LDPs must take into account the above-mentioned aim, policy objectives detailed below, local circumstances and the wider environmental, economic and social benefits of renewable energy development. These factors will depend on the scale of the development and its local context, but are likely to include matters such as: public safety, human health, residential amenity; visual amenity and landscape character; biodiversity, nature conservation, built heritage interests; local natural resources, such as air quality, water quality or quantity and public access to the countryside.

3.24 Policy Objectives (Regional Strategic):

- ensure that the environmental, landscape, visual and amenity impacts associated with or arising from renewable energy development are adequately addressed;
- ensure adequate protection of the region's built, natural, and cultural heritage features; and
- facilitate the integration of renewable energy technology into the design, siting and layout of new development and promote greater application of the principles of Passive Solar Design.

3.25 **Flood Risk & Drainage** - The aim of the SPSS in relation to flood risk is to prevent future development that may be at risk from flooding or that may increase the risk of flooding elsewhere.

3.26 LDP Preparation: LDPs should also promote sustainable drainage within the plan area, for example by requiring such solutions, where appropriate to individual zonings, as a key site requirement.

3.27 Policy Objectives (Regional Strategic):

- prevent inappropriate new development in areas known to be at risk of flooding, or that may increase the flood risk elsewhere;
- ensure that the most up to date information on flood risk is taken into account when determining planning applications and zoning / designating land for development in LDPs;
- adopt a precautionary approach to the identification of land for development through the LDP process and the determination of development proposals, in those areas susceptible to flooding where there is a lack of precise information on present day flood risk or future uncertainties associated with flood estimation, climate change predictions and scientific evidence;
- seek to protect development that is permitted within flood risk areas by ensuring that adequate and appropriate measures are employed to mitigate and manage the flood risks;
- promote sustainable development through the retention and restoration of natural flood plains and natural watercourses as a form of flood alleviation and an important environmental and social resource;

- promote sustainable development through encouraging the use of sustainable drainage for new development and redevelopment / regeneration schemes;
- promote public awareness of flood risk and the flood risk information that is available and of relevance to undertaking development; and
- promote an integrated and sustainable approach to the management of development and flood risk which contributes to:
 - the safety and well-being of everyone,
 - the prudent and efficient use of economic resources,
 - the conservation and enhancement of biodiversity, and
 - the conservation of archaeology and the built heritage.

3.28 Waste Management – The SPPS promotes adherence to the Northern Ireland Waste Management hierarchy, which is laid down in Article 5 of the Waste Framework Directive. In line with the RDS, this promotes the 5 step Waste Hierarchy. This waste hierarchy aims to encourage the management of waste materials in order to reduce the amount of waste materials produced, and to recover maximum value from the wastes that are produced.

3.29 The provision of waste facilities and infrastructure can make a valuable contribution towards sustainable development. The aim of the SPPS in relation to waste management is to support wider government policy focused on the sustainable management of waste, and a move towards resource efficiency.

3.30 LDP Preparation: In preparing LDP's, councils should set out policies and proposals that support the above-mentioned aim and policy objectives as detailed below and tailored to the local circumstances of the plan area. This must assess the likely extent of future waste management facilities for the plan area. Specific sites for the development of waste management facilities should be identified in the LDP together with key site requirements. LDPs should also identify the need for appropriate waste management facilities within new development.

3.31 Policy Objectives (Regional Strategic):

- promote development of waste management and recycling facilities in appropriate locations;
- ensure that detrimental effects on people, the environment, and local amenity associated with waste management facilities (e.g. pollution) are avoided or minimised; and
- secure appropriate restoration of proposed waste management sites for agreed after-uses.

(c) Existing Planning Policy Statements

3.32 The following Planning Policy Statements (PPSs) currently provide the planning policy context for the assessment and determination of utility developments. The key Issues from the PPSs relevant to LDP preparation include:

3.33 PPS 10: Telecommunications:

- to facilitate the continuing development of telecommunications infrastructure in an efficient and effective manner;
- ensure that the visual and environmental impact of telecommunications development is kept to a minimum; and
- during the process of development plan preparation, telecommunications operators may wish to discuss the likely extent of the network coverage for the particular plan area.
- In the countryside, telecommunications development has to be sited and designed carefully. Skylines can be easily broken and habitats and species easily disturbed. If telecommunications infrastructure is located in prominent positions it can change the character of a landscape and detract from its quality. Cumulative impacts can also cause concern. Areas designated for their landscape quality and other sensitive landscapes, will pose particular challenges in finding an acceptable solution.
- Where a new ground based mast is considered necessary, the siting and design must have regard to the character of the local landscape or townscape and its sensitivity and capacity to accommodate the proposed development.

3.34 PPS 11: Planning and Waste Management:

- Promote the development, in appropriate locations, of waste management facilities that offer the Best Practical Environmental Option in meeting need as identified by the relevant Waste Management Plan, or as demonstrated to the decision maker's satisfaction in the case of waste water treatment works (WWTWs);
- Ensure that detrimental effects on people, the environment, and local amenity associated with waste management facilities are avoided or minimised;
- Secure appropriate restoration of proposed waste management sites for agreed after-uses;
- There are specific requirements in respect of polluting and potentially polluting uses, and special or hazardous wastes. The Control of Major Accident Hazards (COMAH) Directive (EU Directive 96/82/EC) came into force on 3rd February 1999 and requires development plans to consider the location of hazardous installations. Specifically, development plans must consider the need to maintain an appropriate distance between establishments where hazardous substances are present and residential areas, areas of public use or areas of nature conservation interest.
- Consideration of the impact of existing or proposed waste management facilities when zoning land for development and ensuring incompatibility of adjacent land uses are avoided. The Control of Major Accident Hazards (COMAH) Regulations (EU Directive 96/82/EC) requires development plans to ensure that appropriate distances are maintained between hazardous substances and residential areas of public use / open space.
- During the process of development plan preparation, District Council waste management groups may wish to discuss the likely extent of future waste management facilities for the particular plan area. As a result, particular sites for the development of waste management facilities may be identified

together with the need for appropriate waste management facilities associated with new development.

3.35 PPS 15: Planning and Flood Risk:

- seek to prevent inappropriate new development in areas known to be at risk of flooding, or that may increase the flood risk elsewhere;
- ensure that the most up to date information on flood risk is taken into account when determining planning applications and zoning / designating land for development in development plans;
- adopt a precautionary approach² to the identification of land for development through the development plan process;
- manage development in ways that are proportionate and appropriate to the 4 main sources of flood risk present in Northern Ireland, ie fluvial, coastal, surface water and water impoundment (reservoir) breach or failure;
- support the retention and restoration of natural flood plains and natural watercourses as a form of flood alleviation and an important environmental and social resource;
- promote sustainable development through encouraging the use of sustainable drainage for new developments and redevelopment / regeneration schemes;
- promote an integrated and sustainable approach, both locally and at catchment scale, to the management of development and flood risk which contributes to:
 - the safety and wellbeing of everyone;
 - the prudent and efficient use of economic resources;
 - the conservation and enhancement of the natural environment and biodiversity; and
 - the conservation of archaeology and the built heritage.
- The preparation of a development plan provides a key opportunity for the planning authority to consider how best to plan for and facilitate sustainable patterns of development in the plan area in accordance with the broader sustainability objectives of the RDS and the Northern Ireland Sustainable Development Strategy.
- Development plans need to take account of the potential risks from all sources of flooding over the plan period and beyond as this is likely to influence decisions on such matters as the zoning of land for various uses including residential or economic development. Development Plans should avoid zoning sites for development in flood risk areas.

3.36 PPS 18: Renewable Energy:

- to ensure that the environmental, landscape, visual and amenity impacts associated with or arising from renewable energy development are adequately addressed.
- to ensure adequate protection of the Region's built and natural, and cultural heritage features.

3.37 Supplementary Planning Guidance: Wind Energy Development in Northern Ireland's Landscapes:

- Careful consideration must be given to distinctive landscape areas including the Lough Neagh Basin, South Armagh Hills and the foothills of Slieve Croob when considering wind energy proposals. Each of the three areas above contain significant portions within the ABC Council Boundary (Areas as defined in the Draft NIRLCA: Northern Ireland Regional Landscape Character Assessment published April 2015);
- The Northern Ireland Landscape Character Assessment 2000 identified a secondary tier to AONBS in the hierarchy of special landscapes, Areas of Scenic Quality (ASQ). The location of these ASQs is shown in that report and their boundaries are often included in development plans where they may be designated as Areas of High Scenic Value (AoHSV). All these landscapes are recognised not only for their special scenic qualities but also for their natural and cultural heritage value. While PPS18 does not differentiate between designated and other landscapes, other development policies may apply to them.

3.38 PPS 21: Sustainable Development in the Countryside:

- to conserve the landscape and natural resources of the rural area and to protect it from excessive, inappropriate or obtrusive development and from the actual or potential effects of pollution.
- Arising from the process of Countryside Assessment local policies may be brought forward in the development plan to complement or amplify regional policies on matters specific to the local circumstances of particular countryside areas e.g. Areas of High Scenic Value.
- In addition, there are some areas of the countryside with exceptional landscapes, such as the High Mourne, stretches of the coast or lough shores, and certain views or vistas, wherein the quality of the landscape and unique amenity value is such that development should only be permitted in exceptional circumstances. Based upon the Countryside Assessment, these areas will be identified and designated as Special Countryside Areas in development plans and local policies brought forward to protect their unique qualities.
- Development relying on non-mains sewage will only be acceptable were it does not create or add to a pollution problem.

3.39 A Planning Strategy for Rural Northern Ireland:

- The siting of electricity power lines and other overhead cables will be controlled in terms of the visual impact on the environment with particular reference being given to designated areas of landscape or townscape value.

4.0 Existing Area Plans covering Armagh, Banbridge & Craigavon

- ### **4.1**
- The Area Plans for Armagh (Armagh Area Plan 2004 & Alteration No 1: Countryside Proposals), Banbridge (Banbridge/Newry & Mourne Area Plan 2015) and Craigavon (Craigavon Area Plan 2010 & Craigavon Town Centre Boundaries and Retail Designations Plan 2010) are the statutory plans for the ABC Borough and provide the framework against which to assess development

proposals. The three hubs (Armagh City, Banbridge Town and the Craigavon Urban Area) contain the five main towns. Each of the three hubs have their own regeneration/masterplan framework: Armagh City Centre Masterplan, Banbridge Development Strategy 2009-2015 and the Craigavon Integrated Development Framework (CIDF). The production of these documents were completed by the respective councils along with Department of Social Development (DSD) and are concerned with urban regeneration initiatives in each of the town centres. These are currently being updated by the ABC Council. The Armagh Masterplan & CIDF are currently under review and the council have commissioned AECOM in partnership with DSD to prepare a Banbridge Town Centre Masterplan.

- 4.2** Information on constraints upon development within the respective development plans, which are related to utility provision, is laid out below, as well as relevant information contained within each Town Centre Master Plan.

Armagh Area Plan (AAP) 2004

- 4.3** Drainage – the main areas at risk from flooding include:
- Armagh City along the Callan River corridor; and
 - Keady Town along the Clay River corridor (in particular north-east of Keady Business Centre, Annvale Road).
- 4.4** In relation to amenity open space zonings, the AAP 2004 states that there is a history of flooding associated with the River Callan which flows through the western part of Armagh. While the plan proposes no significant development within its narrow floodplain, the river valley does have potential for amenity open space purposes subject to drainage considerations.

Banbridge / Newry & Mourne Area Plan (BNMAP) 2015

- 4.5** Drainage – There are a number of recorded flooded areas that significantly affect particular settlements within the Plan Area. The main areas at risk from flooding include:
- the Bann River Valley at Banbridge, Gilford and Lawrencetown; and
 - the Lagan River Valley at Dromore.
- 4.6** It is indicated that the Area Plan does not state every floodplain and users are directed to the DARD strategic flood maps available at: www.riversagency.cymru.gov.uk.
- 4.7** The BNMAP 2015 stated that there is the risk of flooding on part of the following sites and a Flood Risk Assessment will be required:
- Zoning BE 42 – Bridge Street, Banbridge Development Opportunity Site;
 - Zoning DE 19 – Mount Street, Dromore Housing;
 - Zoning DE 34 – Rear of 28-36 Market Square, Dromore Development Opportunity Site;
 - Zoning DE 35 - Bridge Street / Meeting Street, Dromore Development Opportunity Site;

- Zoning DE 36 – 17-21 Meeting Street and land to rear, Dromore Development Opportunity Site; and
- Zoning GD 10 - Gilford Riverside Development Opportunity Site.

4.28 In keeping with the RDS, the BNMAP advocates the use of Sustainable Urban Drainage Systems (SuDS) in order to promote sustainable drainage.

Craigavon Area Plan (CAP) 2010

4.8 Drainage – There are certain areas where flood risk is a particular concern:

- Portadown along the River Bann Corridor (the CAP 2010 has a designated flood pondage area and associated plan policy).

4.9 Please note that the area shown as the CAP 2010 flood pondage area is only that area south of the River Bann Northway road bridge. This does not correspond to the extent of the 2008 DARD Q1:100 climate change strategic flood map which also includes a large swathe of land north of the railway line as far as Lough Neagh.

4.10 The CAP advocates the use of Sustainable Urban Drainage Systems (SuDS) in order to promote sustainable drainage.

Water Supply

4.11 Water for the whole of Craigavon Borough is abstracted from Lough Neagh and treated at Castor Bay Water Treatment Works, Lurgan. This treatment works is currently being upgraded. Treated water from Castor Bay is pumped to two main service reservoirs Ballydougan and Magheraliskmisk. Ballydougan service reservoir is the main source of supply to Craigavon Borough. Magheraliskmisk service reservoir, which is located within Lisburn Borough, serves an area to the east and northeast of Lurgan. Improvements to the distribution system in Portadown have been completed whilst improvements in the Lurgan area are currently ongoing. A network analysis of the water distribution system for the rest of the Borough is underway to identify necessary improvements to the year 2020.

Sewerage

4.12 Craigavon Borough is served by three major sewage treatment works (STW) at Bullay's Hill, Ballynacor and Seagoe and a number of smaller treatment works at Aghagallon, Donaghcloney, Magheralin, Waringstown, Blackskull, Derrymacash, Derrymore, Derrytrasna, Milltown (Co. Armagh) and The Birches.

4.13 Bullay's Hill STW mainly serves the town of Lurgan. It has been extended at various times over the years to cater for increasing population and industry. Ballynacor STW was constructed in 1970 to serve the new city of Craigavon

and part of Portadown. The works has recently been extended by 50% to cater for increasing load. The Seagoe STW currently serves the greater part of Portadown. Major upgrading has taken place here over the past few years.

- 4.14** The Water Service is currently reviewing the sewerage strategy for Craigavon Borough. Based on this study, firm proposals have been drawn up to form an overall scheme known as the Craigavon Area Sewerage Strategy. To date, the review has concluded that sewage treatment should be centralised at an upgraded and enlarged Ballynacor works, with treated effluent being discharged to relatively deep water in Derryadd Bay via a new off-shore pipeline. Ballynacor will be upgraded to comply with relevant water quality standards and to deal with predicted loadings for the greater Craigavon Area to 2021. Bullay's Hill and Seagoe treatment works will be downgraded to become storm water centres and their current inflows transferred to an upgraded Ballynacor for final treatment. The sewage treatment works at Aghagallon is to be upgraded. An upgrade of the works at Magheralin is planned to start in 2002. A replacement works at Waringstown, which also serves Donaghcloney and some smaller settlements, is scheduled to commence work in 2001. Development proposals, within the Borough, may require to be phased in line with infrastructure capacity.

Existing ABC Masterplans & Development Documents

Armagh City Centre Masterplan

- 4.15** The Armagh City Centre Masterplan provides an analysis of Armagh City in relation to its suitability for expansion. It details a number of factors including areas of constraint, such as flooding to suggest areas that were suitable and unsuitable for expansion.

Banbridge Development Strategy 2009-2015

- 4.16** The Banbridge Development Strategy provides an appraisal of Banbridge Town (including a SWOT analysis) with suggested development opportunity sites and priority development projects. The Strategy refers to the role of the Bann River and the avoidance of areas susceptible to flooding as key factors in determining the Towns urban form and structure.

Craigavon Integrated Development Framework (CIDF) & Baseline Report

- 4.17** Significant areas of Portadown town centre (in close proximity to the River Bann) and the People's Park are within the flood plain as identified in the Rivers Agency Strategic Flood Map (NI). It is therefore essential that any future proposals take due consideration of PPS15 (Policy FLD1, Development in Flood Plains). In order to provide a way forward for the development of these sites Turkington Construction produced 'the Draft Portadown Flood Risk Management Strategy' in August 2008. This report stipulates that the town centre sites could be protected to such an affect that development could be progressed. Development of such sites will have multiple difficulties and the

CIDF will take all these into account in the process of proposing future uses (2.2.9: Baseline Report).

4.18 Other proposals in close proximity to the River Bann include the proposed 'erection of residential development of 150 dwellings (92 apartments, 58 houses), surface and basement parking, landscaping, riverfront linear park and associated infrastructure' this application is currently working its way through the planning system and should give a good indicator with regard to the impact of flooding issues on development close to the River (2.5.2: Baseline Report).

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4.19 Key Development Opportunities – Castle Street area and Mall Car Parks
The full development of these sites will not be without difficulty and is likely to be a long-term project. Issues of flooding need to be dealt with, as does the complicated land ownership. It is these issues, allied to the sites' strategic importance and the necessity for positive engagement from Translink, that makes them prime candidates for public intervention, and hence the status as key development opportunities for Portadown (3.4.10:CIDF).

5.0 Utility Provision in Armagh, Banbridge and Craigavon

Telecommunications and Broadband

5.1 The broadband market in Northern Ireland is fully privatised with the principal provider being British Telecom (BT) with other providers such as Plusnet, TalkTalk, EE and SKY. Northern Ireland currently enjoys the best fixed line broadband infrastructure in the UK² although there are some rural areas which still have limited connectivity.

5.2 In accordance with the aims of the RDS 2035 and the SPPS, it is vital to ensure that we continue to improve the broadband network in order to ensure that businesses remain competitive and that rural communities do not feel cut off or isolated.

5.3 There have been numerous improvements to the broadband network which have taken place in recent years and the Armagh City Banbridge & Craigavon Borough has benefited from these.

Broadband Improvement Project

5.4 This project is designed to provide for the first time, improve or increase broadband services in certain areas. Work began in February of 2014 and it is envisaged that work will finish at the end of 2015.

5.5 Work has already taken place to improve or provide broadband in the following areas within the ABC Borough³:

² Irish Central Border Area Network (ICBAN) Telecommunications Action Plan

³ www.nidirect.gov.uk/broadband-improvement-project

- Armagh
- Banbridge
- Glenanne
- Katesbridge
- Keady
- Markethill
- Rathfriland

Next Generation Broadband Project

- 5.6** This project was launched by DETI in a bid to increase the competitiveness of local businesses. It updated around 1265 telecommunications cabinets with fibre technology so that broadband speeds could be increased. This has been followed by a further fibre upgrade of 783 cabinets by BT. In total, almost 2500 cabinets have been upgraded to a fibre enabled standard, connecting to more than 90% of NI business premises. Work has been completed on this project across Northern Ireland including the Armagh City, Banbridge & Craigavon Borough. For example towns/settlements such as Armagh, Keady, Markethill, Richhill, Tandragee, Banbridge, Gilford, Lurgan and can now connect to broadband speeds of up to 10MB per second.

Source: https://www.btwholesale.com/pages/downloads/Community/Broadband_Community/fttc_pot_exchs%20151210.pdf

Northern Ireland Broadband Fund

- 5.7** This was a £1.9m fund which was set aside to help support projects which aimed to improve broadband across Northern Ireland. In the Armagh Banbridge Craigavon Borough, there were two projects which benefitted from this fund:
- a) Installation of Fibre To The Cabinet (FTTC) technology to 23 cabinets across NI including the Benburb areas (serving a portion of ABC);
 - b) Installation of a WIMAX (Worldwide Interoperability for Microwave Access) Fixed Wireless Access Network in Armagh.

Project Kelvin: NI-USA Direct Telecommunications Link

- 5.8** Project Kelvin Network involved the completion of the direct telecommunications link between Ireland/UK and the USA. This new international link can be accessed from across NI with direct local telecoms networks at Portadown and Armagh.
- 5.9** The installation of apparatus to improve the Broadband network will usually constitute Permitted Development under Part 18 of the Schedule to the Planning (General Permitted Development) Order (Northern Ireland) 2015. As such, it is not envisaged that the planning process will have an impact on the provision of such development.

Table 1 – Fixed Broadband Coverage, Speed & Public WiFi Hotspots in Armagh Banbridge Craigavon Borough (June 2014 - Ofcom)

Area*	Superfast Broadband (SFBB)	Average Download Speed	No of WiFi
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	Geographic Coverage (%)	(Megabits/second)	Public Hotspots** (At June 2014)
Armagh	56	18.5	6
Banbridge	65	20.0	10
Craigavon	82	20.8	35
Belfast	96	33.6	139
NI	75	23.4	210

*Area relates to Pre-RPA boundary. ** A WIFI Public Hotspot is a physical location that offers internet access over a wireless local area network (WLAN).

Source: <http://infrastructure.ofcom.org.uk/#>

- 5.10** The Ofcom Infrastructure Report (June 2014) states that the whole of the three Legacy Council areas can receive broadband coverage, although this download speed varies significantly. Within the ABC area, the best serviced areas are capable of achieving 80.0 megabits per second and the poorest areas only 0.1 megabits per second. Superfast broadband (SFBB) is described as delivering headline download speeds of greater than 30 Mbit/s.
- 5.11** Within the legacy Council Areas, the following areas have the best superfast broadband (SFBB) coverage (80-100%): Armagh City, Banbridge Town, Loughbrickland and the Craigavon Urban Area (Portadown, Central Craigavon and Lurgan). While the following areas within the legacy Council Areas have poor superfast broadband (SFBB) coverage: Loughgall (20-40%), Ballymacnab-Keady-Derrynoose area (20-40%), Annaclone area (00-20%), Rathfriland area (20-40%) and the area east of the Blackwater River between Charlemont and Maghery (20-40%).
- 5.12** One of the issues that emerged from the Council Regeneration & Development Strategy (R&DS) programme of consultation was the need to enhance rural broadband as it currently acts as a real restraint on rural business. As such, the Councils R&DS recognises the problems that relate to poor physical & broadband connectivity in rural areas which is a continuing action. It indicates that it is essentially one of lobbying and monitoring for funding and development opportunities. Rural broadband is one of the 'Themes for Intervention' that has been highlighted within the NI Rural Development Programme (NIRDP) 2014–2020 Strategy as applies to the Southern organisation for action in rural areas (SOAR) Programme. Theme 4 of the NIRDP states 'To provide community based solutions to broadband black spots in rural areas'.

Telecommunications and Mobile Data Coverage

- 5.13** The Irish Central Border Area Network (ICBAN) is a cross border organisation which exists to improve the quality of life and increase prosperity in the central Ireland / Northern Ireland border area. The former Armagh City and District council was a member of ICBAN. Part of ICBAN's role is to examine the telecommunications infrastructure in the area and seek to improve the provision of the same.

5.14 (ICBAN) have stated that whilst the fixed line broadband coverage in Northern Ireland is the best in the UK, mobile broadband coverage is the poorest in the UK.⁴ Mobile Data Coverage in the Armagh Banbridge Craigavon Borough is mixed with Craigavon having much better coverage than Armagh or Banbridge but remains poor by comparison to the rest of the UK and in particular, other large urban areas in the UK.

5.15 Table 2 below sets out the 3G data coverage in the Armagh Banbridge Craigavon borough as available in the historic LGD areas. The percentage of mobile data coverage is clearly higher in Craigavon than in Armagh or Banbridge. Although Armagh and Banbridge have lower coverage than Craigavon, Derry or the Greater Belfast Area, they still have significantly better coverage than the more peripheral areas in NI such as Magherafelt, Moyle or Fermanagh historic LGDs. The information is taken from the OFCOM UK Mobile Services Map 2013.

Table 2 – Mobile Phone Data coverage in ABC Borough

AREA	% OF PREMISES WITH 3G COVERAGE FROM ALL OPERATORS	% OF GEOGRAPHICAL AREA WITH 3G COVERAGE FROM ALL OPERATORS
ARMAGH	34.9%	16.2%
BANBRIDGE	39.6%	10%
CRAIGAVON	78.2%	51%

5.16 3G is the most common type of mobile broadband connection but 4G broadband connectivity is more recent and is the fastest mobile connection available. 4G coverage in Armagh Banbridge Craigavon with the two main providers, O2 and Vodafone is relatively poor. A less popular provider, EE, does provide significant 4G coverage for the ABC Borough. The extent of 4G coverage for the main providers is laid out below. Information is taken from each providers 'coverage checker map'.

Table 3 – Extent of 4G mobile phone coverage in ABC Borough

PROVIDER	DESCRIPTION OF COVERAGE IN ABC
VODAFONE	Limited coverage in Armagh Banbridge Craigavon Borough apart from the following areas where coverage is available;

⁴ Irish Central Border Area Network (ICBAN) Telecommunications Action Plan

	<ul style="list-style-type: none"> • Indoors & outdoors Coverage in Banbridge Town • Indoors & outdoors Coverage in Charlemont/Moy Area • Sporadic outdoor & variable indoor coverage in the areas between Magheralin and Lawrencetown • Sporadic outdoor & variable indoor coverage in the areas around Armagh City between Loughgall, Richhill, Keady, Madden and Blackwatertown • Sporadic outdoor & variable indoor coverage in the areas between Corbet and Annaclone
O2	<p>Limited coverage in Armagh Banbridge Craigavon Borough apart from the following areas where coverage is available;</p> <ul style="list-style-type: none"> • Good outdoors and indoors at Banbridge Town • Good outdoors and indoors at Charlemont /Moy Area • Sporadic outdoors around Armagh City and, Keady
EE	<p>Widespread coverage in Armagh Banbridge Craigavon Borough apart from the following small areas;</p> <ul style="list-style-type: none"> • Area between Loughgall and Richhill • Markethill • Area between Glenanne and Poyntzpass • Along areas of Lough Neagh Shores • South-East of Banbridge towards Slieve Croob

Coverage Info Sources:

- <http://m.vodafone.co.uk/mobile/welcome/support/coverage-checker/index.htm>
- <http://www.o2.co.uk/coveragechecker>
- http://ee.co.uk/ee-and-me/network/4gee/coverage-checker?WT.mc_id=ON_MEC_A_AffWin_Hand+Over+Fist+Limited&WT.tsrc=Affiliate

5.17 Strong connectivity to mobile data services is vital in supporting businesses who need to operate on the move and also for connecting rural communities who may feel cut off or isolated from other parts of the community. As detailed in the tables above, mobile broadband connectivity in Armagh Banbridge Craigavon is average with significant room for improvement.

5.18 ICBAN have stated that one of the reasons for poor mobile coverage in Northern Ireland is that “the planning regime for mobile infrastructure in Northern Ireland may be too onerous, being tougher than the corresponding regimes for England, Scotland and Wales⁵.”

5.19 As part of its Action Report, ICBAN have suggested that the planning authorities in Northern Ireland should consult with operators to identify what the barriers are to providing a better mobile broadband service.

5.20 Moving forward, it is for the council to decide if they wish to adopt policies for telecommunications development which are in line with existing policy or if they

⁵ Irish Central Border Area Network (ICBAN) Telecommunications Action Plan

want to develop a more restrictive policy, for example, having regard for the visual impact of telecommunications infrastructure.

5.21 Issues for Council in considering Telecommunications

Having evaluated the information available in respect of telecommunications, the issues for the council to consider in relation to policy approach are:

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1. Adopt policies which are in line with existing planning policy contained within the Strategic Planning Policy Statement (SPPS) and Planning Policy Statement 10 (PPS 10) Telecommunications;
2. Develop a more restrictive policy, having regard to visual amenity and/or harm to environmentally sensitive features or locations;
3. Develop a balanced approach which promotes the development of telecommunications infrastructure whilst also paying close attention to the environmental impact such development will have. Wherever possible, telecommunications development should seek to avoid sensitive features and locations of archaeological, built or natural heritage value as designated at local policies plan stage. Where such locations cannot be avoided, extra care will be required to ensure that the visual and environmental impact of the telecommunications apparatus and any ancillary works is minimised. Any such policy changes could be brought through the introduction of Countryside Policy Areas.

- 5.22** Considering the issues above and that a further restriction on telecommunications development could have a negative impact on the economy, it may be unwise to adopt approach 2. By adopting approach 3, the council would be able to continue to support telecommunications development whilst also safeguarding areas which are considered to be within sensitive in terms of visual and environmental impact.

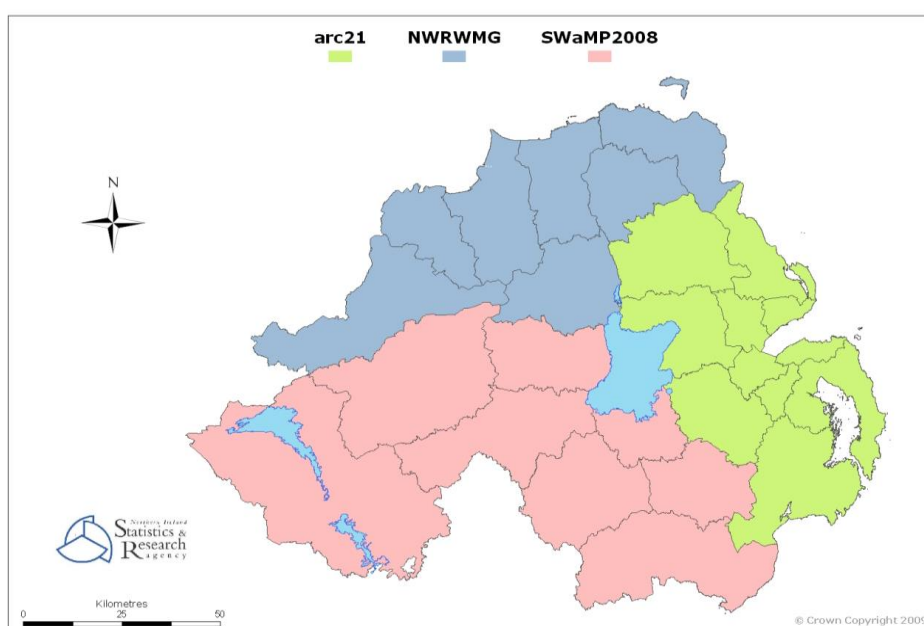
6.0 Recycling and Waste Management

- 6.1** The DOE is responsible for the drafting of legislation on waste and implementation of waste management policy and the promotion of a more sustainable approach to dealing with waste in Northern Ireland. The District Councils are responsible for the collection and disposal of waste in their area. Recycling and composting is similarly the responsibility of the councils and is facilitated through the provision of domestic recycle bins, bottle banks and civic amenity sites throughout the district. Armagh Banbridge Craigavon Council provides a bulky household waste collection service for those who cannot transport their waste to civic amenity sites.

- 6.2** The NI Executive's Programme for Government (PfG) introduces an interim recycling target of 45% Household Waste by 2015. However, the DoE have proposed a 60% statutory recycling rate target of 60% for Local Authority Collected Municipal Waste (LACMW) by 2020. This will require a new Bill through the Executive.

- 6.3** The Northern Ireland Waste Management Strategy ‘Delivering Resource Efficiency’, (DOE 2013) contains actions and targets to meet EU Directive requirements. This strategy moves the emphasis of waste management in Northern Ireland from resource management with landfill diversion as the key driver, to resource efficiency i.e. using resources in the most effective way while minimising the impact of their use on the environment. It is the responsibility of the district councils to prepare a Waste Management Plan (WMP) under the provisions of the Waste and Contaminated Land (Northern Ireland) Order 1997.
- 6.4** Three sub-regional voluntary groups were formed in Northern Ireland in recognition of the mutual benefits to be gained from a regional approach to waste management planning. All three ABC Legacy Councils were members of the Southern Waste Management Partnership (SWAMP 2008) which was originally formed in 2000 and served LGDs within the southern part of NI. This group formed a Waste Management Plan for their area. The Swamp group currently have a draft WMP, which is a review of the WMP prepared in 2006, setting out the arrangements for waste management within the Swamp Region over the period up to 2020. The other two waste management planning groups shown below in Figure 2 are Arc 21 & NWRWGM which serve the LGDs within the east and north of NI.

Figure 2: Map of NI Waste Management Groupings



Source: NIEA / NI LOCAL AUTHORITY COLLECTED MUNICIPAL WASTE MANAGEMENT STATISTICS BULLETIN
http://www.doeni.gov.uk/niea/waste-home/municipal_data_reporting.htm

Table 4: Waste Management Group waste recycled & composted (%)

Waste Management Group	2002	2003	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14
Arc21	8.7	10.4	16.5	21.5	24.8	27.9	30.6	32.2	35.3	37.7	38.3	40.8
NWRWMG	4.0	25.9	17.4	26.0	24.1	28.3	31.6	32.6	34.6	37.3	35.9	38.4
SWaMP	13.2	6.3	22.3	24.2	28.1	31.0	33.6	35.2	36.7	40.5	41.7	41.8

Source: NIEA / NI LOCAL AUTHORITY COLLECTED MUNICIPAL WASTE MANAGEMENT STATISTICS BULLETIN
http://www.doeni.gov.uk/niea/waste-home/municipal_data_reporting.htm

Table 5: Local Authority Collected (LAC) waste recycled & composted (%)

Council Area	2002	2003	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14
ACDC	15.9	22.8	25.7	29.1	35.0	38.5	36.8	38.7	41.1	43.4	41.0	43.2
BDC	27.1	34.5	40.0	40.7	44.1	45.4	48.7	51.6	51.0	53.3	55.0	58.3
CBC	14.4	21.5	21.6	25.6	26.2	29.0	30.8	33.1	36.0	41.0	46.5	45.4
NI	8.7	12.2	18.2	23	25.5	28.8	31.6	33.1	35.5	38.4	38.7	40.6

Source: NIEA / NI LOCAL AUTHORITY COLLECTED MUNICIPAL WASTE MANAGEMENT STATISTICS BULLETIN
http://www.doeni.gov.uk/niea/waste-home/municipal_data_reporting.htm

6.5 Armagh, Banbridge and Craigavon legacy councils have consistently had higher levels (%) of LAC waste recycled and composted than the NI average between 2002 and 2014. Banbridge legacy council has led the way in ABC with recycling rates (%) significantly above the NI average (40.6%) with over 58% of waste recycled and composted in 2013-2014. At 2013, this level of recycling was also the highest level of all 26 legacy NI LGDs. The three legacy councils have seen encouraging increases in the levels (%) recycled and composted (ACDC: 2002 (15.9%) 2009 (36.8%) & 2014 (43.2%), BDC: 2002 (27.1%) 2009 (48.7%) & 2014 (58.3%) and CBC: 2002 (14.4%) 2009 (29%) & 2014 (45.4%). See Table 5 above for further details. Additionally the SWAMP Waste Management Group which contains the 3 ABC legacy council areas has consistently recycled more (%) than the other two waste management groups between 2002 and 2014. Further details are contained in Table 4.

6.6 In terms of existing infrastructure, the Armagh Banbridge Craigavon Council operates nine centres for recycling and disposing of household waste in the Borough as detailed below in Table 6 overleaf.

Table 6 - Existing Recycling Centres in Armagh Banbridge Craigavon

Recycling Centre	Location	Legacy LGD
Station Road	Station Road, Armagh City	ACDC
Keady	Keady Business Centre, Annvale Road, Keady	ACDC
Markethill	Markethill Business Centre, Fairgreen, Markethill	ACDC
Tandragee	Madden Road, Tandragee	ACDC
Banbridge	Scarva Road, Banbridge	BDC
Dromore	Mossvale Road, Dromore	BDC
Rathfriland	Ballyrone Road, Rathfriland	BDC
Fairgreen	Fairgreen, Duke Street, Portadown	CBC
New Line	New Line, Tandragee Road, Lurgan	CBC

- 6.7** There are currently no active landfill sites within the Armagh Banbridge Craigavon Borough. Details of licensed waste management sites within ABC detailed at Appendix 4.
- 6.8** In consultations with the Armagh City Banbridge & Craigavon Borough Council Technical Services Department the following issues and proposals regarding future waste management have been identified as issues currently being reviewed or implemented:
- There are no current issues raised by ABC Council in relation to future capacity of household recycling centres.
 - There are no plans for additional landfill facilities in the Borough.
 - It is anticipated that a Waste Transfer Centre would be required within the Borough over the plan period.
- These issues do not need strategic policy change as they are local matters that can be addressed by the LDP.
- 6.9** Planning can contribute to the timely provision of an integrated network of waste facilities which are essential if EU targets are to be met. Following the recent transition on 1st April 2015 of the three councils to form the new Armagh City, Banbridge & Craigavon Borough Council, the future of the waste management in the Borough is likely to be subject to change. The Armagh Banbridge Craigavon Council will prepare their own WMP this year to replace the existing WMP's. The Local Development Plan will be prepared having regard to this new Waste Management Plan. There is no requirement for work on the LDP Plan Strategy or Local Policies Plan to be delayed in anticipation of the forthcoming WMP. Proposals regarding waste management can continue to be dealt with by way of the development management process. In the event that the Council needs to safeguard land for waste management to cater for the municipal waste needs of the borough over the plan period this can be done at the Local Policies Plan Stage.

- 6.10** It is also important to note that the recycling and use of waste for energy production is a growth area in the private sector.

7.0 Flood Risk, Drainage, Water Supply and Sewerage Treatment

Flood Risk and Drainage

- 7.1** The EU “Floods Directive” (2007/060/EC) came into force on the 26th November 2007 and aims to establish a framework that will contribute to reducing the impact of flooding on communities and the environment.

- 7.2** Compliance with this Directive is the responsibility of the Rivers Agency (Department of Agriculture and Rural Development) and they have begun implementing the directive by establishing flood risk and hazard maps which were published in 2013. Following, a preliminary flood risk assessment by Rivers Agency in 2011, portions of the following ABC settlements have been calculated as being within the draft Significant Flood Risk Area (SFRA):

- Portadown
- Central Craigavon
- Lurgan
- Waringstown
- Dollingstown
- Banbridge
- Dromore
- Armagh
- Keady

The next step for DARD is to produce Flood Risk Management Plans for these areas by 22nd December 2015. Draft Plans have been put out for public consultation from 22nd December 2014 until 22nd June 2015.

Flood Risk in Legacy Council Areas

Armagh City & District Council Area

- 7.3** Department of Agriculture & Rural Development (DARD) strategic flood maps in 2008 highlighted the Callan River corridor on the western side of Armagh City, with specific flooding concerns in the following areas: Monaghan Road towards Milford Village, Umgola Road, Killylea Road, Ballycrummy Road, Cathedral Road, Loughgall Road / Mullinure Lane and Portadown Road.
- 7.4** The DARD strategic flood maps also indicate a number of other settlements north-west of Armagh City which have Q1:100* year flooding concerns. These include the following settlements along the Blackwater river corridor: Blackwatertown village, Charlemont village and Tamnamore village (DBC: Pre-RPA). Tandragee Town along the River Cusher corridor between Glebe Hill Road and Scarva Road.

Banbridge District Council Area

- 7.5** DARD's strategic flood maps in 2008 highlighted a number of other settlements which have Q1:100 year flooding concerns. These include the following settlements along the Lagan River corridor: Dromore town (in particular Lurgan Road / Church Street through to Mossvale Road / Mound Road), Donaghcloney village (in particular north of Donaghcloney Road / Moygannon Road and east of Hall Road / Moygannon Lane) Waringstown village (western elements of Weavers Lane housing development) & Milltown (Co. Down) small settlement (northern node around the old mill). Other settlements with flooding constraints along the River Bann include Tullylish, Lawrencetown and Lenaderg whilst Magheralin Village and Milltown (Co. Down) are constrained by the River Lagan floodplain.

Craigavon Borough Council Area

- 7.6** DARD's strategic flood maps in 2008 highlighted a number of areas within settlements which have Q1:100* year flooding concerns. These include the following areas along the Bann river corridor within Portadown / Craigavon Urban Area: area west of M12 motorway, area north of Northway Road & east of Ashgrove Road, area west of Dungannon Road & south of Corcullentragh Road, area south of Bridge Street between Meadow Lane / Tandragee Road & Gilford Road and area north-west of Artabrackagh Road between Mahon Road and Tandragee Road.
- 7.7** The areas detailed above as having flood risk issues are within the principal settlements. It is based on Area Plan flood information and DARD flood information (Q1:100* year floodplain under present day and climate change conditions). The list is intended as a basic reference point along the main watercourses. It is not exhaustive with other settlements/rural areas also affected to a lesser extent.

(*This Q1:100 year term relates to the likelihood of flooding of once every 100 years).

Issues for the LDP to address

- 7.8** With specific reference to flooding in each river basin, DARD are currently planning to publish specific Flood Risk Management Plans (FRMP's) for the three River Basin areas in Northern Ireland (Neagh – Bann, North West and North East). These plans are currently at consultation stage and will hopefully be published in December 2015 and the council should ensure that the new LDP is compatible with these FRMP's. ABC Council area is within the Neagh – Bann FRMP.
- 7.9** Rivers Agency Planning Advisory Unit advises on the flooding potential for individual sites which are the subject of specific planning applications and where flooding is likely to occur. Rivers Agency will operate a presumption against development in accordance with Planning Policy Statement 15 (PPS 15). Rivers Agency has advised that any flooding policy prepared as part of the policies plan should be closely aligned with the current planning policy i.e. PPS 15.

- 7.10** If not controlled in the correct way, development can increase flood risk by:
- a) using up land which is required for flood relief pondage.
 - b) allowing new development to take place on land which is in danger of flooding and therefore posing a threat to the safety of that new development
 - c) increasing the volume of water which is entering a particular watercourse in the form of sewage or industrial effluent runoff.
- 7.11** When preparing local policies as part of Stage 2 of the Local Development Plan process, the Council should ensure that land which has been identified as being at risk of flooding is not zoned for certain types of development such as housing or industry. Even if the proposal involves altering the levels of the land to mitigate against the potential for flooding, this will only serve to shift the flood risk to another location. The development of 'at risk' lands would eradicate their natural function as flood relief pondage areas. The LDP should also take account of the "Climate Change" Flood Map (see Appendix 3) as well as the information contained in the Strategic and Hazard Flood Maps before zoning lands.
- 7.12** The Council should be aware that there are certain areas which are subject to planned flood alleviation schemes. Two feasibility studies have been completed and schemes have been deemed viable for two areas within ABC. These are:
- I. Laurelvale Flood Alleviation Scheme – This proposal includes the construction of flood defences designed to contain flood waters and the replacement of culverts. The scheme is at the preliminary design stage.
 - II. Showgrounds Stream Banbridge Flood Alleviation Scheme – This proposal includes the replacement of existing culverts in order to alleviate an existing flooding problem.
- 7.13** DARD (NI) Rivers Agency Strategic Flood Map details the following areas within the ABC Council Area as benefitting from flood protection defences within the defended flood plain:
- Glendinning Housing Development, Mahon Road, Portadown (formerly part of Mahon British Army base);
 - Church Square & Downshire Road, Banbridge;
 - Sinton's factory site at Glebe Hill Manor, Tandragee;
 - Balleevy Mill, Castlewellan Road, Banbridge; and
 - Lagan Street, Lurgan Road, Dromore.
- It should also be noted that the Craigavon Lakes were to balance the flow of storm water from the development to prevent a storm surge of water over reasonably flat lands to Lough Neagh. Hence the alternate name of "The Balancing Lakes". Central Craigavon and the Southern Lake is linked to Lough Neagh via the Closet River.

DARD, Rivers Agency Flood Management Schemes:

7.14 The schemes listed below in Table 7 from the Rivers Agency current flood management scheme web page, are all culvert maintenance works within the ABC Council area. These schemes aim to keep our culvert network in a free flowing condition rather than making significant improvements to channel capacity.

Table 7: DARD, Rivers Agency Flood Management Schemes in ABC:

Location	Scheme name	Scheme type
Work undertaken in 2010/2011		
Keady, Co Armagh	Church Stream	Culvert replacement
Lurgan, Co Armagh	Halfpenny River	Flood alleviation
Lurgan, Co Armagh	Shane Park	Culvert upgrade
Banbridge, Co Down	Brookfield Stream	Culvert repairs & replacement
Recent culvert renovations (post 2013)		
Armagh, Co Armagh	D'Alton Drain	Culvert Repairs & replacement
Keady, Co Armagh	St Patrick Street Stream	Culvert Repairs & replacement
Richhill, Co Armagh	Richhill Urban Drain	Culvert Repairs & replacement

Source: <http://www.dardni.gov.uk/rivers-newpage-current-flood-management-schemes>

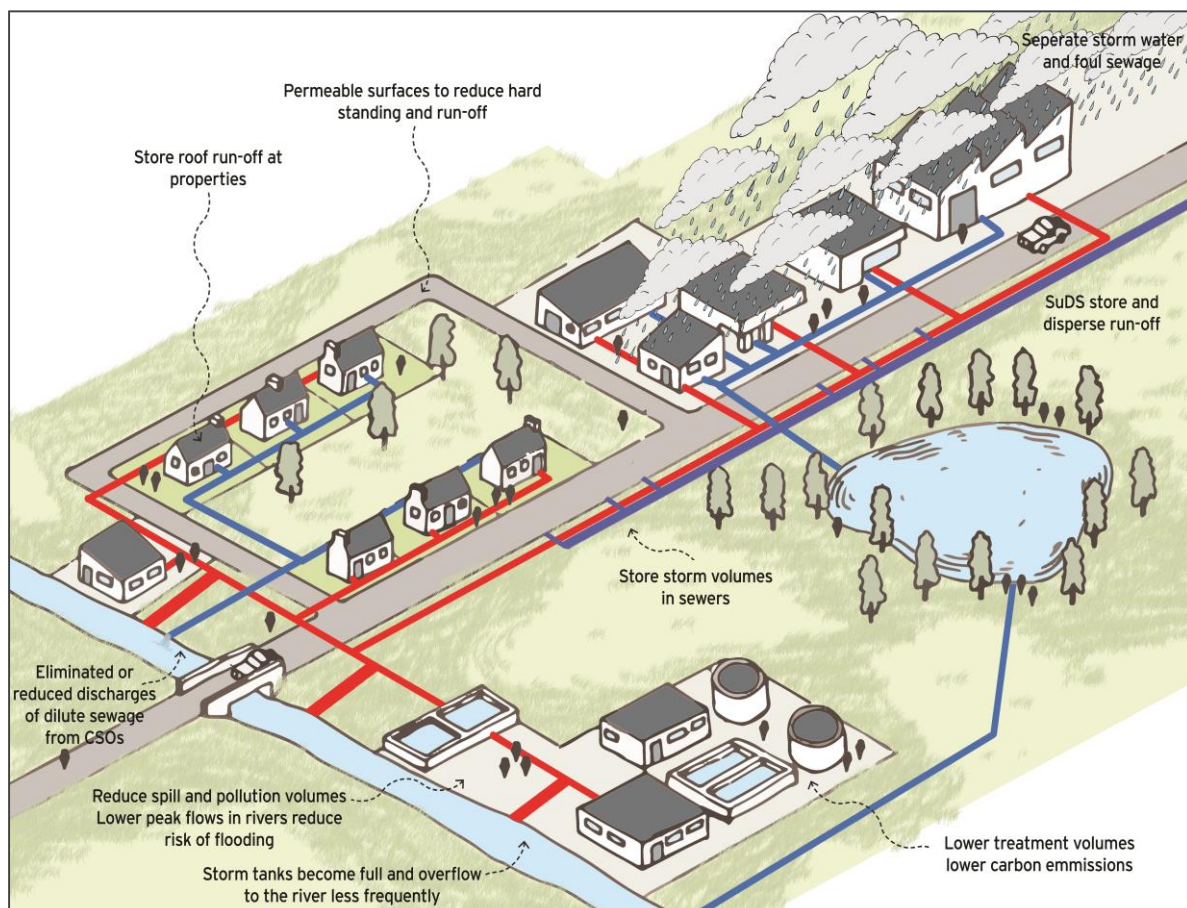
7.15 The Department for Regional Development (DRD) has launched a consultation paper entitled “Sustainable Water” on the best way forward for managing the water supply in Northern Ireland. The paper has 5 parts and was launched for public consultation in June of 2014. The final paper was expected to be released in summer of 2015 but nothing has been published to date.

7.16 Part 3 of the document entitled “Flood Risk Management and Drainage” is relevant to the preparation of development plans and planning policy. The document makes a range of recommendations through its policies, which may be considered when preparing the Local Development Plan.

7.17 It calls for the construction of “resilient development” which can withstand extreme rainfall events with minimal or no flood damage. The document also stresses that the planning authority should prevent development in areas of high flood risk and ensure that future development does not increase flood risk. The document proposes achieving these aims through the following measures;

- When zoning land for development, large surface water schemes such as lakes, wetlands and wet woodlands could be created to meet the future drainage needs of proposed development in the area. A local example is the Craigavon Balancing Lakes, created in the 1970’s to take rainwater from built up areas of Craigavon and which also provide a recreational facility.
- Planning policy could require, at design stage, that drainage proposals are considered so that the final design can be such that surface water run-off is minimised. It is likely that a range of Sustainable Drainage Systems (SuDS) will need to be employed to ensure this. Examples of such are green roofs, permeable paving, soakaways, ponds and wetlands.
- Planning Policy should require that SuDS are the preferred option for all new development. The Diagram below in Figure 3 shows how Sustainable Drainage Systems work.
- Planning Policy should incorporate the requirement for “design for exceedance” proposals in all new development. This means that new development must show how the proposed drainage system will cope in the event of water run off flows exceeding normal or expected levels.

FIGURE 3: SUSTAINABLE DRAINAGE SYSTEMS DIAGRAM



7.18 Taking account of this information, the council may, when preparing a Local Development Plan and local planning policies, try to ensure that the following objectives are realised;

- Ensure that development land is zoned in areas where the “headroom capacity” of existing Waste Water Treatment Works is such that development can be supported by sewerage infrastructure.
- Avoid zoning land for habitable development in or close to existing WWTW’s
- Ensure the LDP is compatible with and compliments the Flood Risk Management Plans which will be published by DARD at the end of 2015
- Avoid zoning land for habitable development which has been identified as being at risk of flooding, either on the Strategic / Hazard / Climate Change Flood Maps.
- Formulate planning policy which makes drainage a key element of design and which promotes the use of SuDS.

Water Supply

7.19 The responsibility for the provision of water supply within the borough is the responsibility of Northern Ireland Water (NI WATER).

7.20 The Armagh Banbridge Craigavon borough is supplied with water from a variety of sources as detailed below:

Table 8: Existing water Supply in Armagh Banbridge Craigavon

(See Appendix 5 for ABC Water Supply Schematic Maps)

NATURAL WATER SOURCES	SERVICE RESERVOIRS	WATER TREATMENT WORKS
Lough Neagh	Ballydougan (Bleary)	Castor Bay WTW (Craigavon)
	Ballyhannon (Portadown)	
	Ballykeel	
	Babylon Hill	
	Drumnahare	
	Mullaghanagh	
	Lisnastrane	
	Magheraliskmisk	
	Forked Bridge	
	Tullyhappy	
Foffanny Dam & Spelga Dam	Ballyvarley	Fofanny WTW (Kilcoo, NMD)
	Garvaghy	
	Corbally	
	Dechomet	
	Kinallen	
	Dromore	

	Moybrick	
	Knock High	
	Knock Low	
	Rathfriland	
	Tullymurry	
Clay Lake	Armaghbrague	Clay Lake WTW (Keady)
	Drumbunion	
	Man of War	
Seagahan Dam	Edenaveys	Seagahan WTW (Ballymacnab)
	Calone	
	Corrans	
	Rough Fort	

- 7.21** The existing installations are expected to be sufficient to supply the Armagh Banbridge Craigavon borough throughout the plan period and there are no significant proposals to be shown in the plan
- 7.22** The lack of water supply is not considered to be a likely constraint upon development. While the current NIW Business Plan does not identify individual major projects within ABC, the company will continue to roll out programmes for water mains and service reservoir rehabilitation based on an annual review of customer needs priorities.

Sewerage Facilities

- 7.23** The provision of sewage treatment facilities in the Plan Area is also the responsibility of Northern Ireland Water (NIW).
- 7.24** The RDS 2035 proposes that the Armagh Banbridge Craigavon will need approximately 21,300 new houses by 2025⁶ so it is important to bear in mind the impact that this housing need will have on the existing sewage network capacity. This combined RDS housing allocation figure of 21,300 units for ABC is being reviewed by DRD and it anticipated that a new figure will be published in late 2015 / early 2016. This review is expected to include a number of factors including the NISRA 2012-2037 NISRA population projections that have been revised downwards from the 2008 projections.
- 7.25** When preparing the LDP, the potential capacity of the existing sewerage infrastructure in an area will have a bearing on whether or not land is zoned for new development. The information contained within the Armagh, Banbridge and Craigavon Area Plans relating to the capacity of WWTW's was collected from the relevant authority some time ago and due to the passage of time cannot be relied upon for the purpose of preparing the LDP.
- 7.26** Therefore, NIW were consulted to provide the 2015 status of the WwTWs that serve existing ABC settlements. See Appendix 2 for the NIW table which details

⁶ Housing Growth Indicator (HGI) – RDS 2035, p101

current status of these WwTWs and their capacity to receive additional waste beyond that already built or committed (ie. planning application approvals). This information helps highlight where settlement expansion may be restricted (without WwTW upgrade or provision of a private works).

- 7.27** The following is a guide to the potential for future settlement expansion (growth factor 00-30%) based upon the 2015 NIW estimation of WwTW capacity. This growth factor (00-30%) is based on a percentage increase of households (ie. existing number of households served and the number of commitments in 2015).
- 7.28** In relation to the ABC Hubs, the WwTWs all have capacity for growth. Armagh City and Banbridge Town have capacity for a growth factor of 30% whilst the Craigavon Urban Area (CUA: Portadown, Central Craigavon & Lurgan) has capacity for a growth factor of 10-20%. Of the local towns, Tandragee, Keady and Gilford have capacity for a growth factor of 20-30%, Dromore 10-20% and Markethill and Rathfriland 0-10%. Details of all the ABC villages and small settlements status are contained in Appendix 2 but it is worthwhile to highlight that the following settlements have no capacity (i.e. new connections refused): Glenanne (Lisdrumchor); Mountnorris; Poyntzpass; Donaghcloney and Waringstown. Additionally, the following settlements NIW has estimated to have limited capacity (i.e. restriction on new connections: estimated growth factor of 0-10%): Blackwatertown; Lawrencetown; Katesbridge; Lenaderg; Moneyslane; Annaclone and Mullaghbrack.
- 7.29** Proximity to existing WWTW will also be a factor in considering the location of new development land as part of the LDP. When selecting land for development, it is generally desirable to avoid land which is near existing treatment works as these can cause nuisance. Guidelines are in place between DOE Planning and NI WATER regarding what can be considered acceptable distances between development and WWTW's. For example, a WWTW with a design equivalent population of 5,000 should not be within 300m of any inhabited development.

8.0 Reservoirs

- 8.1** Rivers Agency is currently preparing a Reservoirs Bill which will impose management and maintenance requirements on owners and managers of reservoirs with a volume in excess of 10,000 cubic metres. To facilitate the management of such reservoirs and the implementation of FLD 5, Rivers Agency is preparing reservoir inundation maps.
- 8.2** The incoming Reservoirs Bill (Northern Ireland) will attempt to ensure that the existing 130-150 reservoirs in Northern Ireland are managed in a more efficient and safety conscious manner.
- 8.3** Where development is proposed in close proximity to a reservoir, the developer will be required to submit a detailed flood risk assessment to show how the development will not be at risk of flooding from the nearby reservoir.

- 8.4** The Strategic Planning Policy Statement (SPPS) advises that when preparing an LDP the council should apply a precautionary approach to development in areas that may be subject to flood risk presently or in the future. LDPs should not bring forward sites or zone land that may be susceptible to flooding, now or in the future, unless in exceptional circumstances. This includes land allocated for development close to existing reservoirs. Where, exceptionally, a new plan brings forward such a site, it needs to explain the rationale and set out the measures necessary to manage or mitigate the risk.
- 8.5** In the ABC Borough, there are 14 reservoirs and these are detailed below. Most of these reservoirs are within or close to the following settlements.

Table 9: Existing ABC Borough reservoirs

NAME OF RESERVOIR	LOCATION
Castle Dillon Lake	NW of Armagh City
Clay Lake	SW of Keady
Darkley	Darkley
Lough Shark	West of Acton
Lowry's Lough	SE of Armagh City
Seagahan Dam	NE of Keady
Shaws Lake	North of Glenanne
Tullynawood Lake	East of Carnagh
Corbet Lough	Corbet
Lough Shark	West of Acton
Pond (Barronstown Road)	Between Dromore & Banbridge
Craigavon Lakes	Craigavon
Magheralin Pond (Drumnabreeze)	Magheralin
The Park Lake (Lurgan)	Lurgan

9.0 Energy Supply

(i) Electricity

- 9.1** Energy in the Borough is primarily produced by the use of fossil fuels to generate electricity. There are three fossil fuel generating plants in NI, located at Ballylumford (Islandmagee, Antrim), Kilroot (Carrickfergus) and Coolkeeragh (Derry / L'Derry) which supply electricity to a wholesale market known as the Single Electricity Market (SEM - a wholesale market across the island of Ireland). Mutual Energy Limited also supplies electricity to the pool via the Moyle interconnector. To underpin economic growth, the Armagh Banbridge Craigavon Borough needs a modern and sustainable economic infrastructure including robust electricity connections. Electricity supply in the ABC Borough and NI as a whole is not an issue. Therefore current policy regarding electricity provision is operating suitably and it is considered that it does not require review.

Current Cross-Border Interconnection

- 9.2 At present, there are three electricity interconnectors linking the Northern Ireland grid operated by Northern Ireland Electricity plc and the Republic of Ireland grid operated by the Electricity Supply Board (See Figure 3 below). The main North-South Interconnector between Tandragee and Louth has two 275kV circuits, each of 600MW capacity. This interconnector is being used to trade electricity between the Republic of Ireland and Northern Ireland (and, potentially, through the Moyle Interconnector to regions throughout Great Britain). In the immediate future, it is expected that trading will predominantly bring electricity into the Republic of Ireland market. There are also two 110kV standby North-South interconnectors: (i) Strabane, Co Tyrone to Letterkenny, Co Donegal; and (ii) Enniskillen, Co Fermanagh to Corraclassy, Co Cavan, each with a capacity of 120MW. These facilities are primarily for use to allow the two grid companies to provide mutual technical assistance.

Figure 4: NI Existing Energy Infrastructure Map



Source(s): www.detni.gov.uk Source(s): <http://www.eirgridprojects.com/projects/northsouth400kvinterconnectiondevelopment/overview/>

North South Interconnector (NSI)

- 9.3 The proposed interconnector will involve the construction of a new 275/400kV substation and a new 400kV overhead line between Turleenan (North of Moy) and Woodland / Batterstown (Co. Meath), a distance of 85 miles.
- 9.4 The route of the proposed interconnector runs approximately 85 miles between Turleenan (North of Moy) and Woodland / Batterstown (Co. Meath) across counties Tyrone, Armagh, Louth and Meath. The interconnector begins at Turleenan (north of the Moy) travelling south between Benburb and Blackwatertown towards Tullysaran, east of Killylea, onwards towards Madden, west of Keady and through Derrynoose to the border with the Republic Of Ireland where it continues through County Louth before finishing in Woodland, County Meath. The proposed Interconnector route travels through a rural area

of ABC Council area (originally ACDC), south-west of Blackwatertown onto the Derrynoose area and the border.

- 9.5** The route and nature of the proposed Interconnector has proven to be a very contentious issue. The preferred option and the applications lodged by SONI / Eirgrid are for overground pylons along the whole route. SONI have claimed that the overground option is much more cost effective and failure to progress this interconnector promptly will leave NI vulnerable to electricity supply 'blackouts'. This concern has been echoed by the Department of Enterprise, Trade & Investment (DETI) and the NI Utility Regulator. However, the proposed overground interconnector option has inspired vociferous opposition from residents along the route and beyond who prefer the connector cables to be located underground with no pylons. These concerns have been supported by a significant number of local political representatives. Two objector groups represent residents along the route either side of the border (SEAT: Safe Electricity for Armagh & Tyrone and NEPP: North East Pylon Protection). They suggest that there is uncertainty over the impact of the proposal upon health as well as visual amenity issues throughout these parts of scenic Tyrone, Armagh, Louth and Meath. The resident groups maintain that long-term, the underground option would prove cheaper and more secure.
- 9.6** NIE has responsibility for development of the section from Turleenan to the Rol Border. Following submission of a Planning Application in Northern Ireland, a Public Inquiry commenced in December 2009. However this was adjourned due to the provision of insufficient environmental information in March 2012. An updated planning application was submitted in April 2013 and is currently with the DOE for consultation. Submission of detailed environmental information has recently been provided to the DOE and there will be a period of public consultation before the DoE request that that the PAC recommence the Public Inquiry. Armagh City, Banbridge & Craigavon Borough Council were consulted in relation to the detailed environmental information of the North-South Interconnector in August 2015. A date for the recommencement of the Public Inquiry is unknown at this stage.
- 9.7** System Operator Northern Ireland (SONI) and EirGrid are working to advance the proposed North-South electricity link. It is expected that the Planning Appeals Commission will recommence its consideration of the project in 2015/2016, and following a pre-application process EirGrid have submitted a formal planning application to authorities in the Republic of Ireland, a process that the applicants hope to conclude by the end of 2015.
- 9.8** As the proposed North-South interconnector has yet to complete the planning process in either Northern Ireland or the Republic of Ireland, it is estimated that it will not be constructed and fully operational until 2019. These issues are compounded by a fault on the Moyle interconnector which has reduced its transfer capacity to 250MW. Efforts by Mutual Energy to complete interim repairs to the cable proved to be unsuccessful in restoring the Moyle to full capacity. A project to install new undersea low voltage cables is being progressed and expected to be operational by 2017.

Figure 5: North-South 400 kV Interconnection Map



<http://www.detini.gov.uk/deti - utility regulator - updated security of supply paper - 22 dec 14.pdf?rev=0>
<http://www.bbc.co.uk/news/uk-northern-ireland-33049416>

(ii) Natural Gas

- 9.9** Natural gas was introduced to Northern Ireland in 1996 and currently there are approximately 170,000 households and 12,000 businesses connected to a natural gas supply⁷. Gas is conveyed via transmission and distribution networks to supply gas to consumers' premises where it is metered. Each of these three functions are licenced separately, just as in electricity services. The higher pressure gas transmission pipes feed the lower pressure gas distribution network pipes and run from Larne, near where the gas interconnector from Scotland comes into Northern Ireland, south to Newry (and from there on across the border to Dundalk) and north to Derry/Londonderry.
- 9.10** The gas distribution network in Northern Ireland is currently divided into two distinct areas, the greater Belfast area, served by Phoenix Natural Gas and the Ten Towns area, which encompasses the major towns outside Belfast along the transmission pipe, is served by Firmus Energy (Firmus).

⁷ http://www.uregni.gov.uk/gas/market_overview/

9.11 *Firmus*, a subsidiary of Bord Gáis Eireann (BGE), is engaged in work to develop the gas market outside Greater Belfast along the routes of the North-West gas transmission pipeline, which was completed in November 2004, and the South-North gas transmission pipeline, which was completed in October 2006. This covers rolling out the gas distribution network in the 10 towns and cities of Derry/Londonderry, Limavady, Ballymena, Ballymoney, Coleraine, Newry, Craigavon, Antrim, Banbridge and Armagh.

Source: <http://www.detini.gov.uk/1011.pdf>

9.12 The Greater Belfast area was open to competition for the supply of gas in 2007. In the Ten Towns market, the large industrial & commercial market opened to competition from 1 October 2012 and the small industrial & commercial and domestic markets opened to competition from 1 April 2015. To date, *Firmus* has connected around 10,600 properties in the 10 towns/cities licence area.

'Gas to the West'

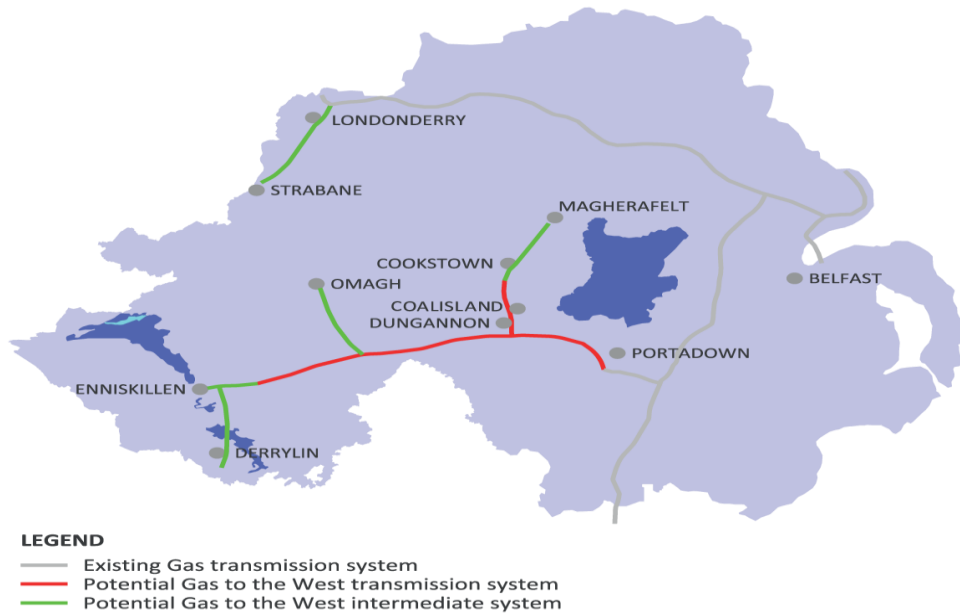
9.13 In accordance with its powers under Article 8 of the Gas (Northern Ireland) Order 1996, the Utility Regulator for Northern Ireland has recently awarded licenses to two gas providers who will jointly provide a new supply of natural gas to the west of NI.

9.14 The new scheme has been entitled "Gas to the West" and the main beneficiaries will be the towns of Omagh, Strabane, Enniskillen, Derrylin, Cookstown, Dungannon (including Coalisland) and Magherafelt. It is anticipated that the scheme will be completed by 2016. It is proposed that the scheme will be supplied by extending the existing North / South pipeline from Portadown (Derryhale Gas Spur) to Dungannon and beyond.

9.15 A significant number of businesses, both large and small, have the option of connecting to the natural gas supply. It is hoped that this will make the ABC borough more attractive to businesses who may wish to establish here. Gas is a cheaper, more efficient fuel and its availability will help to address the competitive advantage which natural gas provision has provided to other areas in the east of NI.

9.16 The provision of natural gas will also contribute to a more diverse and secure supply of energy in line with policy RG5 of the RDS 2035.

Figure 6: NI Gas Map (existing & proposed)



10.0 Renewable Energy

10.1 The European Commission's Renewable Energy Directive (2009/28/EC) establishes overall policy for the production and promotion of energy from renewable sources in the EU and specifies national renewable energy targets for each country. The Strategic Energy Framework (DETI 2010) states that Northern Ireland will seek to achieve 40% of electricity consumption from renewable sources by 2020. In line with this, the Northern Ireland Executive in their programme for Government, have set a target that by 2015, 20% of all electricity will be generated from renewable sources.

10.2 For the 12 month period January 2014 to December 2014, 19.0% of total electricity consumption in Northern Ireland was generated from renewable sources located in Northern Ireland. This represents an increase of 1.7 percentage points on the previous 12 month period (January 2013 to December 2013).⁸ Therefore continued development of renewable energy resources is vital to facilitating the delivery of international and national commitments on both greenhouse gas emissions and renewable energy.

10.3 New private forms of renewable energy development are likely to increase in use in the Armagh Banbridge Craigavon Borough over the plan period and will require connection to the electricity network. The Renewable Integration

⁸ DETI-Statistics on Electricity Consumption and Renewable Generation in Northern Ireland- September 2014

Development Project (RIDP) was established in 2007. It has reviewed the network capacity limitations across the network, against the renewable generation expected to seek connection there by 2020. The level is aligned with the NI government's targets to have 40% of electricity from renewable sources. This is considered to be a particular issue in the north and west of NI. However as illustrated by the NIE Heat Map (See Appendix 1), there are also areas within ABC which have reached saturation point and as a result, connection costs are very high with only very limited potential remaining for additional generation export of renewable energy. These areas include the Keady-Newtownhamilton area, south east of Dromore and east of Benburb. There are also a number of primary substations beyond these areas requiring upgrade such as Dromore South, Banbridge Main, Rathfriland Central and Ballyfodrin Central.

10.4 The Northern Ireland Housing Executive (NIHE) is designated as Northern Ireland's only Housing Energy Conservation Authority (HECA). In its 2014 home energy conservation report, the NIHE stated that they were committed to installing a range of renewable energy source across their housing stock. The report stated that they had installed a range of renewable energy installations in their properties and that the most effective of these were wood pellet boilers and photovoltaic solar panels. The main renewable energy installations provided by NIHE throughout NI are as follows:

- solar water heating panels - 2,032 dwellings
- solar photovoltaic (PV) panels - 32 dwellings
- micro-CHP field trial - 10 dwellings
- solar air heating and ventilation systems - 55 dwellings
- biomass wood pellet boilers - 53 dwellings
- micro wind turbine - 1 dwelling
- a field trial using low carbon emissions bio-fuel.

Source: http://www.nihe.gov.uk/home_energy_conservation_report_2014.pdf

10.5 The main sources of renewable energy are the wind, the sun (solar), moving water (hydropower), heat extracted from the air, ground and water (including geothermal energy) and biomass (wood, biodegradable waste and energy crops). The key issues relating to these energy sources are discussed below:

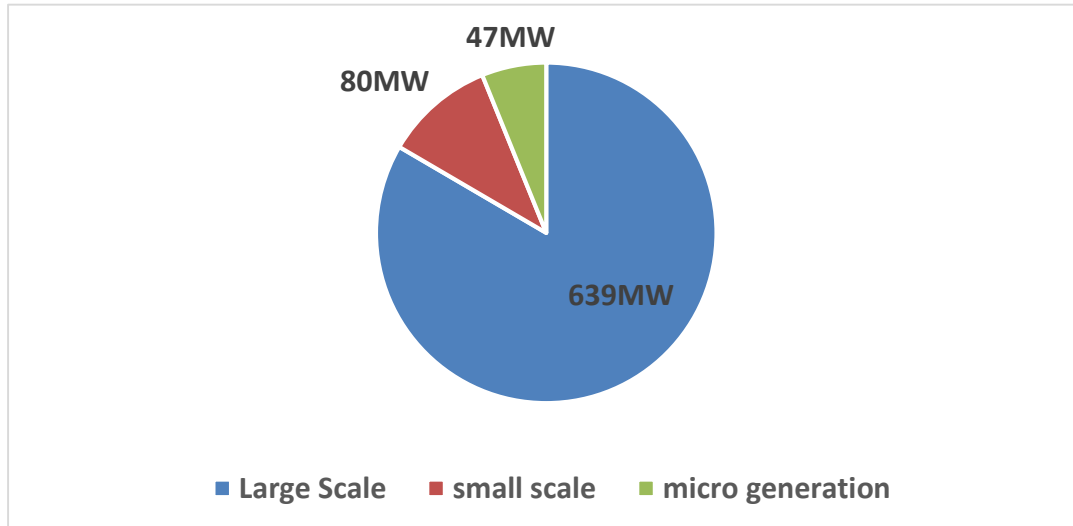
10.6 Wind - Electricity generated by onshore windfarms is the most established, large scale source of renewable energy in NI. Of all renewable electricity generated within Northern Ireland over the 12 month period January 2014 to December 2014, 92% was generated from wind.⁹ Additional figures supplied by Northern Ireland Electricity (NIE) indicate that when all committed renewable energy generating facilities are connected to the grid, 66.6% of renewable energy generation will be provided by wind energy with the remaining 33.4% being supplied by solar energy (20.7%), Hydropower (2.2%) and Anaerobic Digestion / Biogas (10.5%).¹⁰

⁹ DETI-Statistics on Electricity Consumption and Renewable Generation in Northern Ireland- September 2014

¹⁰ Presentation provided by NIE entitled "Renewables – Sub Groups"

- 10.7** The majority of energy derived from wind in Northern Ireland comes from large scale generation as opposed to small scale or micro generation. Large scale generation consists of wind farms whilst small scale or micro generation consist of a range of renewable technologies including single turbines or even micro turbines. At the end of February 2015, 639MW of renewable energy was generated from large scale generation with 80MW and 47MW being generated from small scale generation and micro generation respectively.¹¹ This information is illustrated in Figure 7 below:

Figure 7: NI Wind-based Electricity Source



- 10.8** At present in the Armagh Banbridge Craigavon Borough there are three windfarm installations consisting of more than a single turbine which have received planning permission. Another two applications were received, with one withdrawn and one pending (See Figure 8 & Figure 9 below). These are all close to the Carrigatuke Hills between Armagh City and Newtownhamilton. There are no applications in the Craigavon or Banbridge areas (as those pending planning applications within Banbridge legacy council fell within the Slieve Croob area which transferred to Newry, Mourne and Down council @ RPA). ABC council area is located a significant distance away from the Atlantic Ocean and the strongest prevailing south westerly winds. This and the relatively low altitude of much of the ABC countryside means that it has been the subject of a small number of windfarm applications compared to Northern Ireland as a whole, where there have been 126 windfarm planning approvals. In relation to single wind turbines, at 31 March 2015, there are 253 approvals (including a number in the Slieve Croob area) for such proposals in the three ABC legacy LGDs, with 2337 in the whole of Northern Ireland¹².
- 10.9** However public attitude towards wind energy development is changing. The Draft NI Regional Landscape Character Assessment highlights the sensitivities of wind energy development in its 'Past, present and future forces for change' section. Within NIRLCA No 24: Slieve Gullion & South Armagh Hills, the report

¹¹ Presentation provided by NIE entitled "Renewables – Sub Groups"

¹² DOE – Renewable Energy Statistics 2002-2015

states that *‘Development of single wind turbines on farms is increasing, with a number of operational and consented turbines in the north of this area. The development of numerous turbines may have combined impacts which become more pervasive than those of larger wind farms’*. Extension of this pattern of development further into the south of Armagh could impact on the setting of the Ring of Gullion AONB. This area includes a portion of the Carrigatuke Hills area within ABC.

- 10.10** In relation to NIRLCA No 25: Mourne & Slieve Croob, the report states that *‘large scale renewable development in the uplands is unlikely to be compatible with this landscape, and would undermine the scale, openness and tranquillity of the area. Pressure for wind turbines and single turbines around the edges of the area, outside the AONB boundary, may also affect the setting of the uplands, including key approaches and views in and out’*. This area includes a portion of the Slieve Croob foothills within ABC.

Figure 8: Map of applications for wind farms* in Northern Ireland

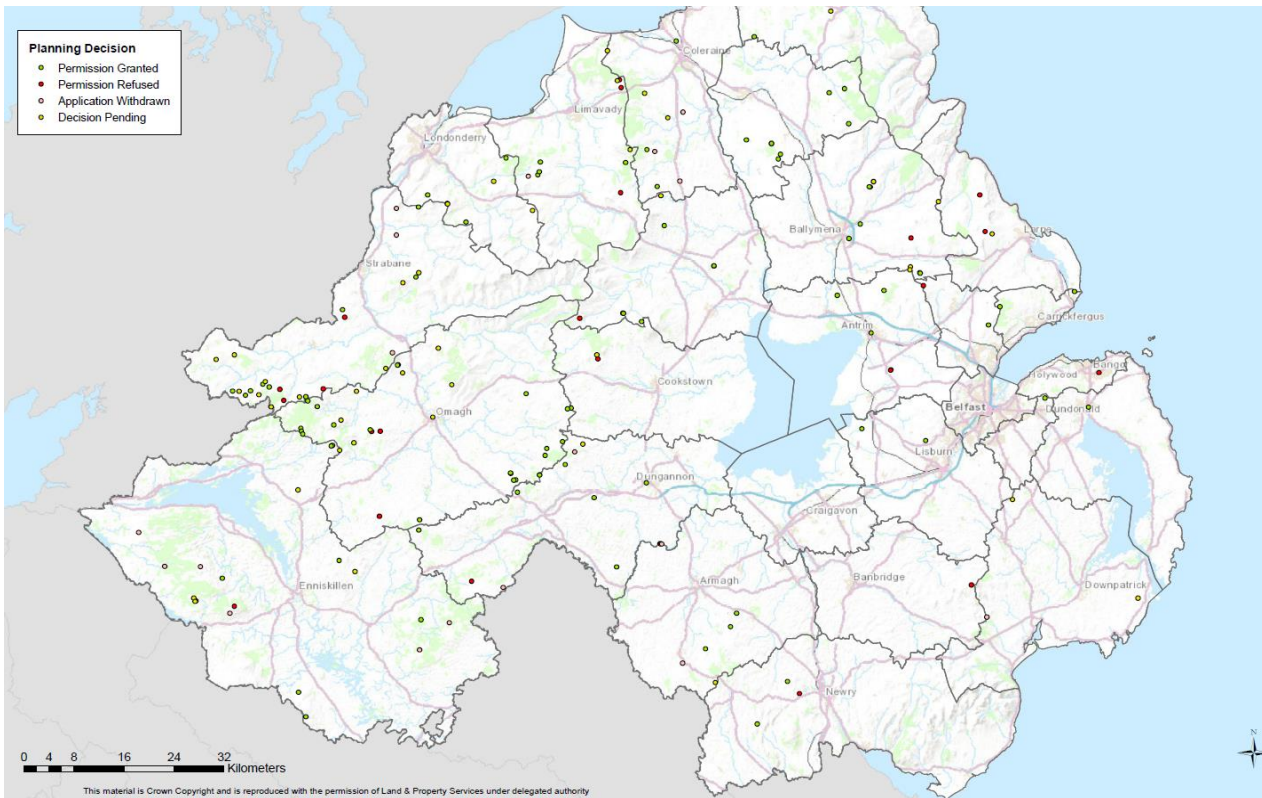
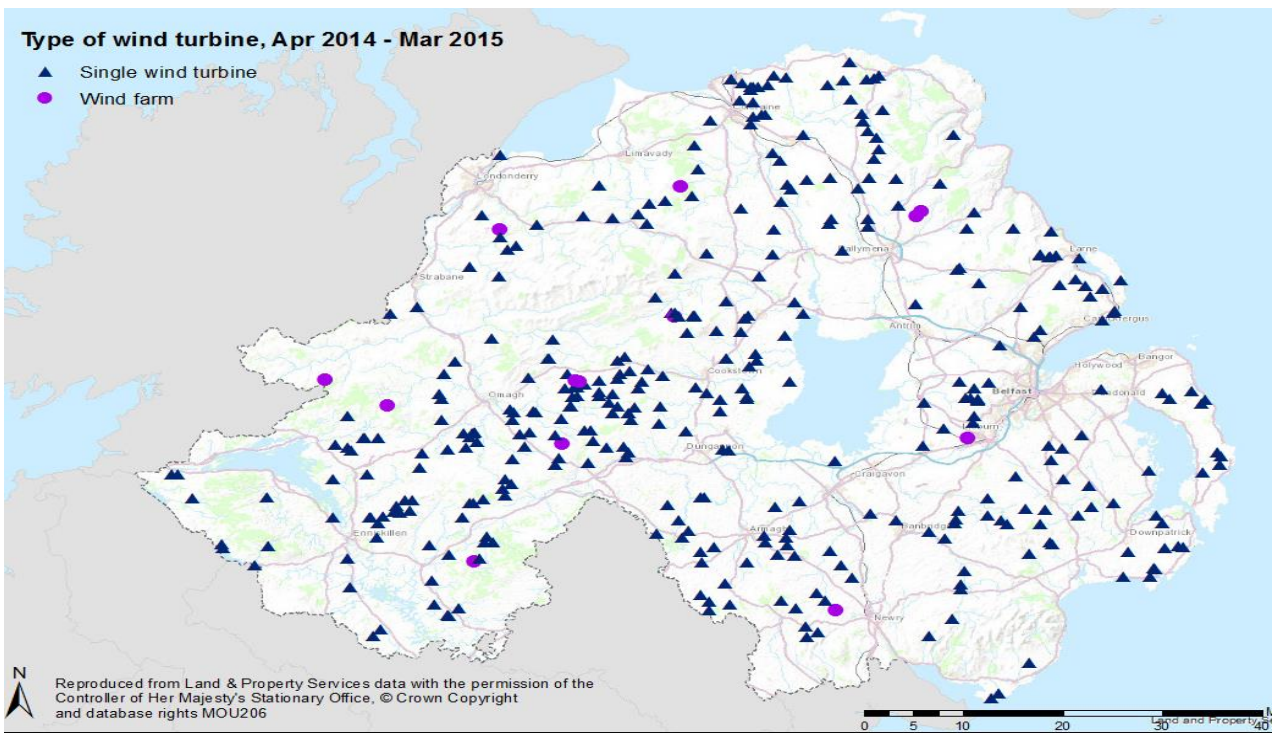


Figure 9: Map of wind turbines and wind farm* locations in Northern Ireland



Source: <http://www.doeni.gov.uk/development-management-bulletin-2014-15.pdf>

*A Windfarm is an area of land with a group of energy-producing wind turbines.

Renewables and Electricity Connection

- 10.11** The electricity network in NI is facing an unprecedented demand for the connection of renewable generation. The total amount of renewable generation already connected to the network is 729MW, with a further 455MW committed to connect. Renewable energy connection is very reliant on the existing infrastructure. However at present the transmission and distribution networks cannot provide, on an unrestricted basis for all of this connected renewable generation.
- 10.12** Since the introduction of increased Renewable Obligation Certificate (ROC) 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. NIE have recently produced their latest 11kV network heat map (February 2015) to provide guidance on capability of the 11kV network to accept further small scale generation (see Appendix 1). This heatmap identifies where investment is currently required. And is a simple visual representation. However the map highlights that in the Armagh Banbridge Craigavon Plan Area, locations such as Keady, Markethill, Milltown (Benburb) and Kinallen are already at saturation point.
- 10.13** The existing energy infrastructure needs to be overhauled to ensure it will be fit for purpose. This includes strengthening the grid and developing smart grid initiatives. The upgrading of the electricity grid will involve more overhead powerlines and power installations. The following Table 10 provides details of the various projects presently underway or planned in NI to aid renewables integration into the electricity network:

Table 10 - Transmission Projects in Northern Ireland for renewables integration

<p><u>Short Term Plan (STP)</u></p> <p>Increasing capacity of existing 110kV network by using Dynamic Line Rating techniques combined with selective up-rating- Work Completed</p>
<p><u>Medium Term Plan (MTP)</u></p> <p>Series of individual projects designed to reinforce 110kV network to increase capacity & remove bottlenecks-Work ongoing</p>
<p><u>Renewable Integration Development Plan (RIDP) & Network 25</u></p> <p>The RIDP has identified the issues which will arise due to the connection of renewable generation (in the north and west of NI) & in 2013 the project had arrived at a preferred overall scheme option. The scheme involves new extra high voltage, 275 and 110 kV infrastructure and the uprating of some existing circuits. However, phase 4 of the RIDP is now focused on the preparation of a transmission plan for the whole of NI (Network 25) supported by an associated Strategic Environmental Assessment.</p>

Generation Cluster Infrastructure

To facilitate the connection of renewable generation to the grid NIE will 'cluster' their arrangements for the connection of generators (generally onshore wind farms) so that generators will share transmission network infrastructure as far as possible. Clustered connections generally involve the construction of a 110/33kV substation, connection to the 110kV network & individual 33kV generation connections. There are to be at least 7 cluster substations developed before 2020.

North South Interconnector (NSI)

The proposed interconnector will require the construction of a new 275/400kV substation & a new 400kV overhead line between Turleenan (Dungannon) and Woodland (Meath). A planning application, ref O/2009/0792/F, was submitted in December 2009. The Environment Minister referred the application to the Planning Appeals Commission and a Public Inquiry commenced (& was adjourned due to legal challenges brought by objectors) in March 2012. An updated planning application, ref O/2013/0214/F, relating specifically to the works associated with the construction of overhead lines & towers was submitted to DOE in April 2013. Following a period of public consultation, this application has been returned to the PAC for recommencement of the Inquiry. The recommencement date of the Public Inquiry is unknown at this stage.

10.14 Issues for Council in considering Wind Energy Development:

Given the increasing prevalence of wind energy development and the visual impact it can have on the environment, the Council will have to consider whether the LDP needs to tailor a policy on how these policies should be treated, especially in those more sensitive areas.

Based on the information available in respect of wind energy, the following approaches may be considered by Council:

1. Adopt policies which are in line with existing planning policy contained within Planning Policy Statement 18 (PPS 18) Renewable Energy and the Best Practice Guidance to PPS18.
2. Develop a more restrictive policy, having regard to concerns relating to impacts on sensitive landscapes, bio-diversity and tourism.
3. Adopt a policy position that recognises the value of wind energy development but provides policy which gives greater weight to environmentally sensitive areas and greater protection to neighbouring amenity. Any such policy changes could be brought through the introduction of Countryside Policy Areas.

10.15 As outlined earlier, Northern Ireland is on course to meet the targets of 40% set out by the Strategic Energy Framework and 20% as set out by the NI Executive. Consequently, a more restrictive policy may hinder the progress made thus far and reverse the positive trends experienced to date. By adopting the third approach, the Council would be able to continue to support renewable wind

energy development whilst also safeguarding areas which are considered to be of particular scenic value and also reducing potential impacts on neighbouring properties.

10.16 Sun - Active solar photovoltaic (PV) technologies generates electricity from daylight. The most common form of device is a solar panel or module typically 0.5 to 1m² in size, dark in colour and having low reflective properties. Although roof mounted is most common, modules can be mounted on sides of buildings, or on free standing support structures on the ground. A number of modules are usually connected together in an array to produce the required output, which can vary from a few square metres to several hundred square metres. In most cases involving dwelling houses, providing the building is not listed or in a conservation area and the installation complies with the relevant constraints, PV will be 'permitted development' and a planning application will not be required. Passive Solar Design (PSD) is an environmentally considered approach to ensure that domestic scale buildings capture maximum light and heat from the sun whilst being positioned in the landform to act as a buffer against the worst of the elements. To date, operational planning policy regarding solar power has not raised any particular key issues.

10.17 Water - Water flowing from a higher to a lower level drives a turbine which produces mechanical energy. This mechanical energy is usually turned into electrical energy by a generator. There are no large scale hydroelectric schemes in the ABC Borough. Anticipated hydro developments will generally small in scale and subject to design, ecological and fisheries considerations being carefully assessed this type of renewable energy development is unlikely to cause significant concern.

10.18 Heat - Ground source heat pumps operate by circulating water (or another fluid) through pipes buried in the ground. The water temperature in the pipes is lower than the surrounding ground and so it warms up slightly. This low grade heat is transferred to a heat pump, which raises the temperature to around 50°C. Water source heat pumps operate in a similar way, with the pipes being submerged in water. Air source heat pumps extract heat in the air and use a fan to draw air over coils that extract energy. Air-source heat pumps can be located in the roof space or on the side of a building. They are similar in appearance to air conditioning boxes. To date, existing operational policy has not raised any significant issues with these types of renewable energy developments subject to careful planning consideration including archaeological implications.

10.19 Biomass - Biomass fuels, including wood and energy crops, can be utilised to provide energy either by combustion or fermentation / digestion technologies. There are currently three main categories of biomass plant:

- Plant designed primarily for the production of electricity
- Combined heat and power plant (CHP)
- Plant designed for the production of heat.

10.20 Emissions and waste products from biomass energy production include airborne emissions, emissions to watercourses and ash. Anaerobic digestion (AD) is a process which bacteria break down organic material in the absence of oxygen to produce a methane rich biogas. This can be combusted to generate electricity. Thermal processes can also be used extract energy from waste. These processes use a high temperature to release the chemical energy in the fuel. Planning issues from these renewable energy developments that require consideration include:

- Visual intrusion-the plant is an industrial feature with a chimney;
- Noise from plant and traffic operations;
- Any effects on health, local ecology or conservation from the plant and air / waterborne emissions;
- Traffic to and from the site in order to transport biomass fuel and subsequent by-products.

10.21 Issues for Council in considering Biomass Development

As the Council progresses with its LDP, it will have to consider whether it needs to tailor local policies on how these type of proposals should be considered. Based on the information available in respect of biomass development, the Council could take a number of different approaches as follows:

1. Adopt policies which are in line with existing planning policy within Planning Policy Statement 18 (PPS 18) and the related Best Practice Guidance to PPS18 and within Planning Policy Statement 11 (PPS 11) Planning and Waste Management in the case of biomass from waste.
2. Develop a more restrictive policy, having regard to concerns over environmental impact, visual impact and amenity impact;

10.22 Given the importance of renewable energy development to achieving the NI Strategic Energy Framework target, the 2nd approach would conflict with the regional guidance. By adopting current planning policy the Council would be able to support energy supply and production whilst ensuring potential impacts are minimised.

11.0 Cemetery Provision

11.1 The majority of cemeteries and burial grounds in the Borough are provided by local churches of various denominations.

11.2 However, public cemeteries are also provided and maintained by the local council. These include the following cemeteries that were maintained by the legacy LGDs: ACDC – Ballynahone (Armagh) and Orchard (Corcreevy Road, Richhill); BDC – Old Newry Road (Banbridge), Mound Road (Dromore), Seapatrick, Old Annaclone, Dechomet and Drumadonnell; CBC – Rock Road (Aghagallon), Main Street (Donaghcloney), Bluestone Road (Portadown), Newforge Road (Magheralin), Seagoe Road (Portadown), Shankill Street (Lurgan), Kernan Hill Road (Portadown) and New Line (Lurgan).

11.3 Information supplied by the ABC council provides details of ABC operational cemeteries which are detailed as Ballynahone (Armagh City), Orchard

(Richhill), Old Newry Road (Banbridge), Mound Road (Dromore), Kernan (Portadown) and New Line (Lurgan). Tables 11 (a) & 11 (b) below details the ABC operational cemeteries capacity and any proposals / expansion potential. In the other cemeteries, a lesser amount of burials will also take place in the smaller and historical cemeteries where existing Exclusive Rights of Burial (ERB) grants already exist.

Table 11 (a): Current capacity of operational cemeteries in Armagh Banbridge Craigavon Borough for the plan period.

Operational Cemeteries	Total Plots	Available Plots	Capacity (%)	Annual Burials	Remaining period of use (yrs)	Land Available for Expansion
Armagh						
Ballynahone	1029	625	61%	60	10.4	Approx. 1000 plots
Orchard	478	310	65%	64	4.85	No
Totals	1507	935	17%	124		
Banbridge						
Banbridge	2116	2031	95%	90	22.5	No
Dromore	450	348	77%	13	27	1575 plots
Totals	2656	2379		117*		
Craigavon						
Kernan	1982	322	16%	82	3.9	6.75 Ha (see table below)
Lurgan	7767	868	11%	147	5.9	No
Totals	17172	1190	7%	285*		
Total Burials				526		

* Burials will also take place in the smaller and historical cemeteries where existing ERB grants already exist *.

Table 11 (b): Kernan Cemetery (Portadown) Extension Options

Kernan Extension	Current	Proposed Adult Plots	Proposed Child Plots
Option A	2240	7200	380
Option B	2240	7900	170
Option C	2240	6400	600

(Kernan Extension Available Options for 6.75 Hectare Extension)

11.4 Ballynahone Cemetery in Armagh City currently has approximately 625 available plots. The current burial rate is approximately 60 per year which means there should be capacity for over 10 more years. Additionally, it is estimated that there is available land for an additional 1000 plots. This is more than adequate provision for the plan period.

- 11.5** Orchard Cemetery in Richhill currently has approximately 625 available plots. The current burial rate is approximately 64 per year which means there should be capacity for almost five years and is not expected to suffice for the incoming plan period.
- 11.6** Old Newry Road Cemetery in Banbridge currently has approximately 2031 available plots. The current burial rate is approximately 90 per year which means that there should be capacity for over 22 years. The BNMAP 2015 Plan also contains a zoning for an additional 1.2 ha of cemetery land adjacent to the existing cemetery at the Old Newry Road, Banbridge. This provision is considered more than adequate for the plan period.
- 11.7** Mound Road Cemetery in Dromore currently has approximately 348 available plots. The current burial rate is approximately 13 per year which means that there should be capacity for almost 27 years. This is considered more than adequate provision for the plan period.
- 11.8** Kernan Cemetery in Portadown currently has approximately 322 available plots. The current burial rate is approximately 82 per year which means that there should be current capacity for less than four years. However, there are options for an extension to Kernan Cemetery of 6.75 ha with three plot format options as detailed in Table 11(b). This is considered more than adequate provision for the plan period.
- 11.9** New Line Cemetery in Lurgan currently has approximately 868 available plots. The current burial rate is approximately 147 per year which means that there should be capacity for almost six years and is not expected to suffice for the incoming plan period.
- 11.10** Although a number of the historical cemeteries are closed for new openings, there is limited potential in the form of “re-openings” of existing family plots.
- 11.11** The Council may wish to zone land in the borough to allow for the required future cemetery provision through the Area Plan. Alternatively, the council may decide not to zone land but to allow any application for such development to be assessed on its own merits against existing planning policies.
- 11.12** When planning for new cemetery provision it is important to consider the impact such development will have on the groundwater supply at the site in question. Cemetery development can lead to groundwater becoming contaminated and this is particularly important if there is a groundwater or surface water fed drinking water source in the locality.

11.13 Proposals to zone land for future cemetery development should be considered in liaison with NIEA Water Management Unit. In considering such proposals consideration should be given to the following documents:

- DoE Planning Guidance Note: Cemeteries. A Guidance Note for Planning Officers and Applicants Seeking Planning Permission for New Cemeteries and Extensions to Existing Cemeteries;
- DoE NIEA Pollution Prevention Guidelines (PPG's), namely PPG 1, 4 & 5; and
- DoE NIEA Guidance Note: Cemeteries, Burials and the Water Environment.

12.0 Conclusions

- 12.1** This paper has provided an overview of utility provision within the Armagh City Banbridge & Craigavon Borough and has looked at the existing provision and spare capacity of public utilities over the plan period until 2030. Utility provision in the Local Development Plan must take account of the regional planning framework set out by the Regional Development Strategy 2035 and the SPPS to assist judgements on economic and housing growth and to ensure that sufficient land is allocated to meet the anticipated needs of the community. The provision of public utilities within the plan area is primarily the responsibility of a number of government Departments and statutory bodies as well as the Borough Councils, however the private sector is playing an increasingly important role. In terms of the role of the LDP it is therefore important to recognise that external providers have their own long term strategies and investment plans subject to budget constraint.
- 12.2** The LDP will not designate or zone specific sites for public utilities. However in accordance with regional and operational planning policy it will seek to locate new developments which maximise the efficient use of existing utility infrastructure whilst keeping the environmental impact to a minimum.
- 12.3** Where proposals to develop new or replace existing public utilities are known, these should be identified in the Plan. Where provision of an existing public utilities is limited and there are no known plans to upgrade during the plan period, development may be constrained as a result of this.

12.4 Thus the key elements of any strategy relating to the following themes are identified as follows:

Telecommunications

- Develop an approach which promotes the development of high speed telecommunications infrastructure whilst protecting the environment.

Recycling and Waste Management

- Facilitate the implementation of the Waste Management Plan when formulating Plan Strategy and Local Policies Plan.

Flood Risk, Drainage, Sewerage Treatment and Water Supply

- Ensure that development land is zoned in areas where the growth capacity of existing Waste Water Treatment Works is such that development can be supported by sewerage infrastructure.
- Avoid zoning land for habitable development in or close to existing WWTW's.
- Local Development Plans should be compatible with and compliment the Flood Risk Management Plans which will be published by DARD at the end of 2015.
- Avoid zoning land for habitable development which has been identified as being at risk of flooding, either on the Strategic / Hazard / Climate Change Flood Maps.
- Formulate planning policy which makes drainage a key element of design and which promotes the use of SuDS.

Energy Supply and Renewables

- Adopt a policy position that recognises the value of wind energy development but provides policy which gives greater weight to environmentally sensitive areas and ensuring appropriate protection of the Council's built, natural and cultural heritage facilities.
- In relation to biomass development, adoption of current planning policy would ensure continued support for such development while ensuring potential impacts are minimised.

Appendices:

Appendix 1: NI 11KV Network Capacity 'Heat Map' (Feb 2015)

Appendix 2: Existing WWTW Capacity in ABC Borough

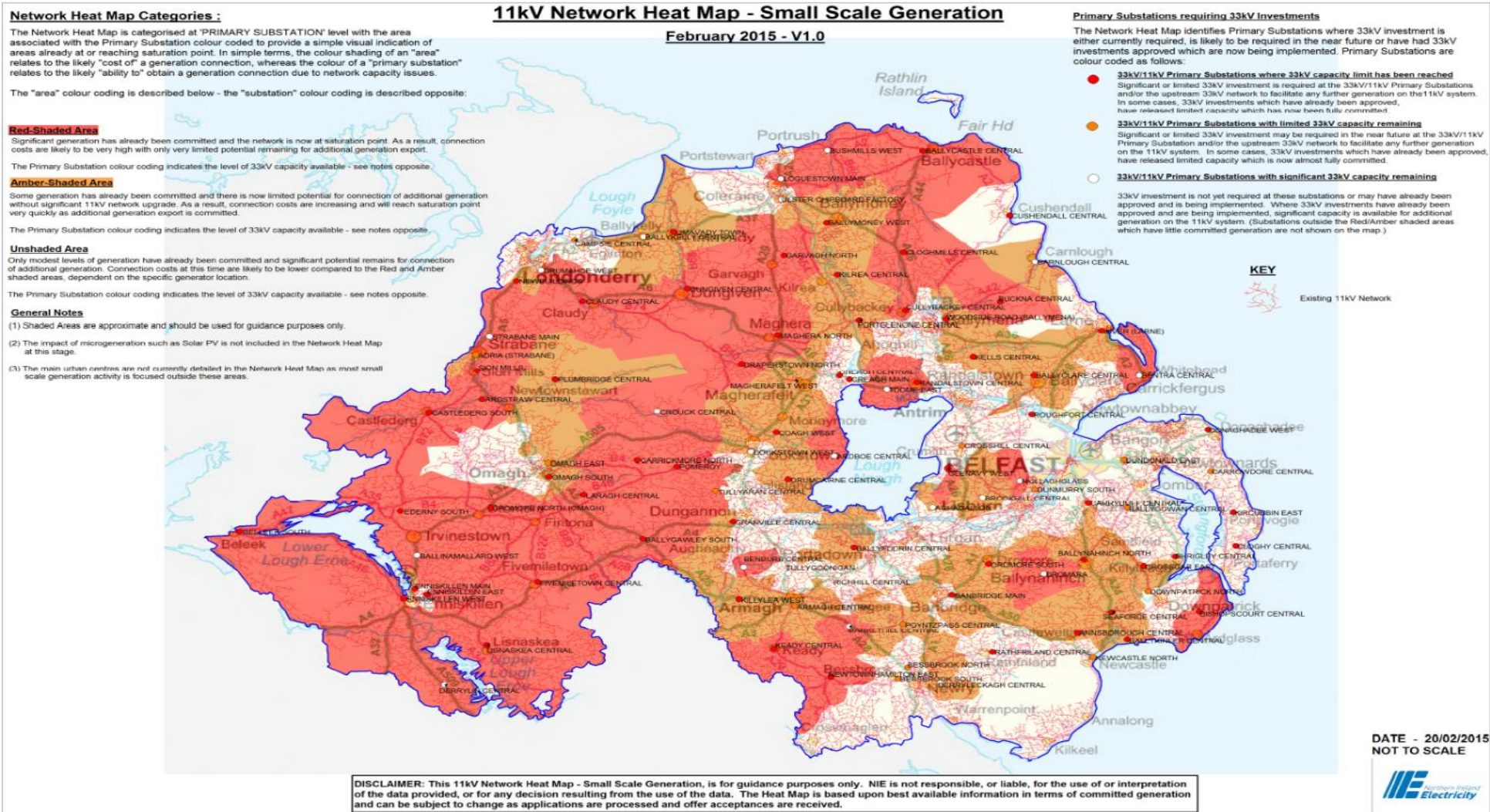
Appendix 3: ABC Climate Change Flood Risk Map

Appendix 4: ABC Licensed Waste Sites

Appendix 5: ABC Water Supply Maps













Appendix 6: RDS 2035 Housing Evaluation Framework




Appendix 1: Heat Map showing capacity of the 11KV network across Northern Ireland (Feb 2015)


































Appendix 2: Existing WWTW capacity in ABC Borough


















Settlements Served by Large Wastewater Treatment Works

Settlement Name	Receiving Wastewater Treatment Works (WwTW)	Current Planning Status	Estimation of Capacity based on Growth Factor			Comment
			10%	20%	30%	
Aghacommon	Ballynacor PPP		✓	⊗	×	Catchment is pumped to Ballynacor WwTW
Aghagallon	Aghagallon		✓	✓	✓	
Annaghmore	Annaghmore		✓	✓	✓	
Annaghmore (Moss Rd)	Annaghmore		✓	✓	✓	
Annaghugh	Annaghugh		✓	⊗	×	
Armagh	Armagh PPP		✓	✓	✓	Facility operated through Public Private Partnership
Artasooly	Benburb		✓	✓	✓	Catchment is pumped to Benburb WwTW (Mid Ulster Council)
Craigavon	Ballynacor PPP		✓	⊗	×	Facility operated through Public Private Partnership
Ballymacmaine	Ballynacor PPP		✓	⊗	×	Catchment is pumped to Ballynacor WwTW
Ballynabragget	Waringstown		×	×	×	Catchment is pumped to Waringstown WwTW
Banbridge	Banbridge		✓	✓	✓	
Blackscull	Blackscull		✓	⊗	×	

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'

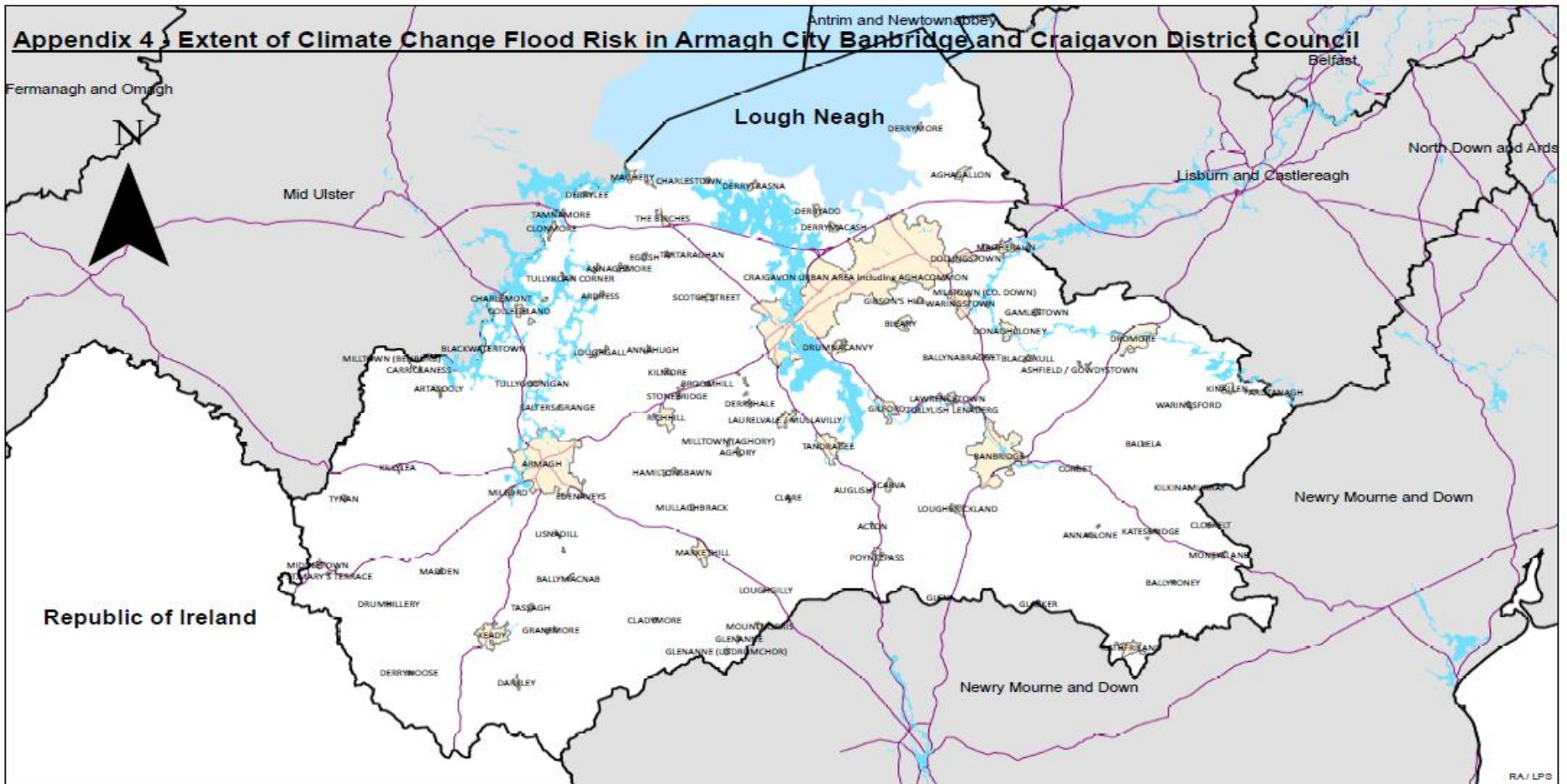
Blackwatertown	Blackwatertown		x	x	x	
Bleary	Ballynacor PPP		✓	⊗	x	Catchment is pumped to Ballynacor WwTW
Killylea	Caledon		✓	✓	⊗	Catchment is pumped to Caledon WwTW (Mid Ulster Council)
Darkley	Darkley		x	x	x	
Derryadd	Ballynacor PPP		✓	⊗	x	Catchment is pumped to Ballynacor WwTW
Derryhale	Derryhale		⊗	x	x	
Derrymacash	Ballynacor PPP		✓	⊗	x	Catchment is pumped to Ballynacor WwTW
Derrymore	Derrymore		✓	✓	⊗	
Derrytrasna	Derrytrasna		⊗	x	x	
Dollingstown	Ballynacor PPP		✓	⊗	x	Catchment is pumped to Ballynacor WwTW
Donaghcloney	Waringstown		x	x	x	Catchment is pumped to Waringstown WwTW
Dromore	Dromore		✓	x	x	
Drumnacanny	Ballynacor PPP		✓	⊗	x	Catchment is pumped to Ballynacor WwTW
Edenaveys	Armagh PPP		✓	✓	✓	Catchment is pumped to Armagh WwTW
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		x	Works has 'Insufficient Capacity'		

Gamblestown	Gamblestown		✓	✓	✓	
Gibsons Hill	Ballynacor PPP		✓	⊗	×	Catchment is pumped to Ballynacor WwTW
Gilford	Gilford		✓	✓	⊗	
Glennane/Lisdrumchor	Mountnorris		×	×	×	Catchment is pumped to Mountnorris WwTW
Hamiltonsbawn	Hamiltonsbawn		✓	✓	✓	
Katesbridge	Katesbridge		⊗	×	×	
Keady	Keady		✓	✓	×	
Kinallen	Kinallen		✓	✓	✓	
Laurelvale/Mullavilly	Tandragee		✓	✓	✓	Catchment is pumped to Tandragee WwTW
Lawrencetown	Lawrencetown		×	×	×	
Lenaderg	Lawrencetown		×	×	×	Catchment pumps to Lawrencetown WwTW
Loughbrickland	Banbridge		✓	✓	✓	Catchment is pumped to Banbridge WwTW
Loughgall	Loughgall		✓	✓	⊗	
Magheralin	Ballynacor PPP		✓	⊗	×	Catchment is pumped to Ballynacor WwTW
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'		

Maghery	Maghery		⊘	x	x	
Markethill	Markethill		x	x	x	
Middletown	Middletown		✓	✓	✓	
Milford	Armagh PPP		✓	✓	✓	
Milltown (Benburb)	Benburb		✓	✓	✓	Catchment is pumped to Benburb WwTW (Mid Ulster Council)
Milltown (Co Down)	Waringstown		x	x	x	Catchment is pumped to Waringstown WwTW
Moneyslane	Moneyslane		x	x	x	
Annaclone	Monteith		⊘	x	x	
Mountnorris	Mountnorris		x	x	x	
Mullaghbrack	Markethill		x	x	x	Catchment is pumped to Markethill WwTW
Charlemont	Moy		x	x	x	Catchment is pumped to Moy WwTW (Mid Ulster Council)
Poyntzpass	Poyntzpass		x	x	x	
Rathfriland	Rathfriland Drumlough		x	x	x	
Richill PPP	Richill PPP		✓	✓	✓	Facility operated through Public Private Partnership
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		x	Works has 'Insufficient Capacity'		

Portadown	Ballynacor PPP		✓	⊘	×	Catchment is pumped to Ballynacor WwTW
Lurgan	Ballynacor PPP		✓	⊘	×	Catchment is pumped to Ballynacor WwTW
Scarva	Tandragee		✓	✓	✓	Catchment is pumped to Tandragee WwTW
Scotch Hill	Ballynacor PPP		✓	⊘	×	Catchment is pumped to Ballynacor WwTW
Salters Grange	Armagh PPP		✓	✓	✓	Catchment is pumped to Armagh WwTW
St Marys Terrace	Middletown		✓	✓	✓	Catchment is pumped to Middletown WwTW
The Birches	Robinsonstown		✓	✓	✓	A scheme exists within NI Water's Business Plan 2015-2021 to upgrade this facility.
Clonmore	Tamnamore		✓	✓	⊘	Catchment is pumped to Tamnamore WwTW
Derrylee	Tamnamore		✓	✓	⊘	Catchment is pumped to Tamnamore WwTW
Tamnamore	Tamnamore		✓	✓	⊘	
Tandragee	Tandragee		✓	✓	✓	
Tynan	Caledon		✓	✓	⊘	Catchment is pumped to Caledon WwTW (Mid Ulster Council)
Waringsford	Waringsford		✓	⊘	×	
Waringstown	Waringstown		×	×	×	
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'		

Appendix 3 – Extent of Climate Change Flood Risk in ABC Borough



Legend

- Q100CC Flood Extent Detailed
- Settlement Development Limit

Appendix 4: ABC Licensed Waste Sites

(i) ABC Existing Licensed Waste Sites (Source: NIEA 2015):

Licence Holder and Contact Details	Name and Address of Site	Type of Site
Greenway Ireland Ltd	11 Porthill Road, Mountnorris, Armagh, Co Armagh, BT60 2TY	Non-Hazardous Treatment & Transfer Plastic
NWP Recycling Ltd	Natural World Products, 55 Cargaclougher Road, Keady, Armagh, Co Armagh, BT60 3RA	Non-Hazardous Treatment & Transfer Composting
Richhill Waste Disposal Limited	98 Annareagh Road, Richill, Armagh, Co Armagh, BT61 9JY	Closed Landfill
Traynors Ltd	86 Armagh Road, Moy, Dungannon, Co Tyrone, BT71 7JA	Hazardous Treatment & Transfer ATF
Haughey Metals Ltd	151 Darkley Road, Aughnaguran, Keady, Armagh, Co Armagh, BT60 3BX	Hazardous Treatment & Transfer ATF & Scrap Metal
T - Met Ltd	84 Armagh Road, Moy, Dungannon, Co Tyrone, BT71 7JA	Hazardous Treatment & Transfer ATF & Scrap Metal
Armagh City, Banbridge & Craigavon Borough Council	Keady Recycling Centre, Annvale Industrial Estate, Annvale Road, Keady, Armagh, Co Armagh, BT60 2RP	Hazardous Transfer CA Site
Armagh City, Banbridge & Craigavon Borough Council	Station Road Recycling Centre, Station Road, Armagh, Co Armagh, BT61 7NP	Hazardous Transfer CA Site
Armagh City, Banbridge & Craigavon Borough Council	Markethill Recycling Centre, Markethill Business Centre, Fairgreen Road, Markethill, Armagh, Co Armagh, BT60 1PW	Hazardous Transfer CA Site
Armagh City, Banbridge & Craigavon Borough Council	Tandragee Recycling Centre, Madden Road, Tandragee, Craigavon, Co Armagh, BT62 2DG	Hazardous Transfer CA Site
NWP Recycling Ltd	Tassagh Road, Keady, Armagh, Co Armagh, BT60 3TU	Hazardous Treatment & Transfer WEEE
Gerard Molloy Car Dismantlers	185 Monaghan Road, Armagh, Co Armagh, BT60 4EZ	Hazardous Treatment & Transfer ATF

MT Waste Management & Manufacturing Ltd	16 Rockstown Road, Cladybeg, Armagh, Co Armagh, BT60 2HF	Non-Hazardous Treatment & Transfer MRF
J & P Best	Acton House, Acton Road, Poyntzpass, Newry, Co Down, BT35 6TA	Non-Hazardous Treatment & Transfer Composting
Kenneth McClelland T/A McClelland Motors	McClelland Motors, Old Quarry, Granemore Road, Tassagh, Armagh, Co Armagh, BT60 2NN	Hazardous Treatment & Transfer ATF & Scrap Metal
Orchard Car Dismantlers	Orchard Car Dismantlers, 58 Ballymagarney Road, Loughgall, Armagh, Co Armagh, BT61 8PL	Hazardous Treatment & Transfer ATF
Donnelly Car Dismantling	83 MULLANARY ROAD, Dungannon, Co Tyrone, BT71 7JD	Hazardous Treatment & Transfer ATF
Assured Energy LLP	16 Crossnenagh Road, Keady, Co Armagh, BT60 3HW	Non-Hazardous Treatment & Transfer Anaerobic Digestion
Bryson Recycling Ltd	Lands adjacent to 41 Hamiltonsbawn Road, Armagh, Co Armagh, BT60 1EB	Non-Hazardous Treatment & Transfer
Armagh City, Banbridge & Craigavon Borough Council	Dromore Community Recycling Centre, Dromore Community Recycling Centre, Mossvale Road, Dromore, Co Down, BT25 1DG	Hazardous Transfer CA Site
Armagh City, Banbridge & Craigavon Borough Council	Rathfriland Community Recycling Centre, Rathfriland Community Recycling Centre, Iveagh Park Road, Rathfriland, Newry, Co Down, BT34 5NQ	Hazardous Transfer CA Site
Northern Ireland Water (NIW) Limited	NI Water, Gilford WWTW, Stramore Road, Gilford, Craigavon, Co Armagh, BT63 6JF	Non-Hazardous Transfer Leachate
Armagh City, Banbridge & Craigavon Borough Council	Scarva Road Civic Amenity Site, Scarva Road Civic Amenity Site, 86 Scarva Road, Banbridge, Co Down, BT32 3QD	Hazardous Transfer CA Site
Paul Kelly T/a Park Motors	5 Park Lane, Gilford, Craigavon, Co Down, BT63 6BD	Hazardous Treatment & Transfer ATF
JP O'Meara T/A Green-An Recycling	40 GREENAN ROAD, POYNTZPASS, Co Armagh, BT32 3PH	Non-Hazardous Treatment & Transfer MRF
Progress Energy (NI) Ltd	33 GREENOGUE ROAD, DROMORE, Co Down, BT25 1RG	

		Non-Hazardous Treatment & Transfer Anaerobic Digestion
Assured Energy LLP	156 BALLYGOWAN ROAD, BANBRIDGE, Co Down, BT32 3QS	Non-Hazardous Treatment & Transfer Anaerobic Digestion
Bailey Waste Recycling NI Ltd	Silverwood Industrial Estate, 1 - 4 Silverwood Road, Lurgan, Craigavon, Co Armagh, BT66 6LN	Non-Hazardous Treatment & Transfer MRF
Clearway Disposals Ltd	Clearway Disposals Ltd, 41 Dobbin Road, Portadown, Craigavon, Co Armagh, BT62 4EY	Hazardous Treatment & Transfer ATF & Scrap Metal
Armagh City, Banbridge & Craigavon Borough Council	Ballyfodrin Landfill, 1 Drumneven Road, Moy Road, Portadown, Craigavon, Co Armagh, BT62 1RS	Closed Landfill
P McCusker & Sons	Embankment Road, Aghacommon, Lurgan, Craigavon, Co Armagh, BT66 6NE	Closed Landfill
Portadown Recycling & Skip Hire Ltd	Unit 1, Brownstown Business Centre, Brownstown Road, Portadown, Craigavon, Co Armagh, BT62 4EA	Non-Hazardous Treatment & Transfer MRF
Armagh City, Banbridge & Craigavon Borough Council	Fairgreen Civic Amenity Site, Fairgreen Civic Amenity Site, Duke Street, Portadown, Craigavon, Co Armagh, BT62 3EX	Hazardous Transfer CA Site
Armagh City, Banbridge & Craigavon Borough Council	New Line Civic Amenity Site, New Line Civic Amenity Site, Tandragee Road, Lurgan, Craigavon, Co Armagh, BT66 8TA	Hazardous Transfer CA Site
R4 Limited	16 Seagoe Industrial Estate, Portadown, Craigavon, Co Armagh, BT63 5QD	Non-Hazardous Transfer Tyres
Keith McCracken T/A Down Salvage	9 Rock Lane, Aghalee, Craigavon, Co Armagh, BT67 0AX	Hazardous Treatment & Transfer ATF
Recon Waste Management Ltd	D C Contracts, 9 Derrinraw Road, Portadown, Craigavon, Co Armagh, BT62 1UX	Non-Hazardous Treatment & Transfer MRF
Craigavon Commercial Dismantlers	47 Annaloiste Road, Lurgan, Craigavon, Co Armagh, BT66 6NJ	Hazardous Treatment & Transfer ATF
Gerald Hamill & Sons	114 OBINS STREET, Portadown, Craigavon, Co Armagh, BT62 1BP	Hazardous Treatment & Transfer Scrap Metal
Richard Hunniford		

	76 MOY ROAD, Portadown, Craigavon, Co Armagh, BT62 1QW	Non-Hazardous Treatment & Transfer Anaerobic Digestion
Covington Cars	207/209 Gilford Road, Lurgan, Craigavon, Co Armagh, BT66 7AP	Hazardous Treatment & Transfer ATF
Southern Health and Social Care Trust	Craigavon Area Hospital, 68 Lurgan Road, Portadown, Craigavon, Co Armagh, BT63 5QQ	Non-Hazardous Transfer Clinical/Healthcare
R Heatrick Ltd	341 TANDRAGEE ROAD, PORTADOWN, Co Armagh, BT62 3RB	Non-Hazardous Treatment & Transfer
Damian Donaghy	159 Clonmore Road, Dungannon, Co Tyrone, BT71 6HX	Non-Hazardous Transfer Tyres
Truck Dismantlers NI Ltd	130 CARRICKANESS ROAD, Dungannon, Co Tyrone, BT71 7NE	Hazardous Treatment & Transfer ATF
Growmoor Recycling Ltd	Growmoor Recycling, 207 Derrylee Road, Dungannon, Co Tyrone, BT71 6NY	Non-Hazardous Treatment & Transfer Composting
Clive Richardson Ltd	54 Derrycoose Road, Annaghmore, Portadown, Co Armagh, BT62 1LY	Non-Hazardous Treatment & Transfer MRF
NWP Commercial Ltd	91 Moy Road, Portadown, Co Armagh, BT62 1QW	Non-Hazardous Treatment & Transfer MRF
Gerard Molloy Car Dismantlers	185 Monaghan Road, Armagh, Co Armagh, BT60 4EZ	Hazardous Treatment & Transfer ATF
MT Waste Management & Manufacturing Ltd	16 Rockstown Road, Cladybeg, Armagh, Co Armagh, BT60 2HF	Non-Hazardous Treatment & Transfer MRF
J & P Best	Acton House, Acton Road, Poyntzpass, Newry, Co Down, BT35 6TA	Non-Hazardous Treatment & Transfer Composting
Kenneth McClelland T/A McClelland Motors	McClelland Motors, Old Quarry, Granemore Road, Tassagh, Armagh, Co Armagh, BT60 2NN	Hazardous Treatment & Transfer ATF & Scrap Metal
Orchard Car Dismantlers	Orchard Car Dismantlers, 58 Ballymagarney Road, Loughgall, Armagh, Co Armagh, BT61 8PL	Hazardous Treatment & Transfer ATF
Donnelly Car Dismantling		

	83 MULLANARY ROAD, Dungannon, Co Tyrone, BT71 7JD	Hazardous Treatment & Transfer ATF
Assured Energy LLP	16 Crossnenagh Road, Keady, Co Armagh, BT60 3HW	Non-Hazardous Treatment & Transfer Anaerobic Digestion
Bryson Recycling Ltd	Lands adjacent to 41 Hamiltonsbawn Road, Armagh, Co Armagh, BT60 1EB	Non-Hazardous Treatment & Transfer
Armagh City, Banbridge & Craigavon Borough Council	Dromore Community Recycling Centre, Dromore Community Recycling Centre, Mossvale Road, Dromore, Co Down, BT25 1DG	Hazardous Transfer CA Site
Armagh City, Banbridge & Craigavon Borough Council	Rathfriland Community Recycling Centre, Rathfriland Community Recycling Centre, Iveagh Park Road, Rathfriland, Newry, Co Down, BT34 5NQ	Hazardous Transfer CA Site
Northern Ireland Water Limited	NI Water, Gilford WWTW, Stramore Road, Gilford, Craigavon, Co Armagh, BT63 6JF	Non-Hazardous Transfer Leachate
Armagh City, Banbridge & Craigavon Borough Council	Scarva Road Civic Amenity Site, Scarva Road Civic Amenity Site, 86 Scarva Road, Banbridge, Co Down, BT32 3QD	Hazardous Transfer CA Site
Paul Kelly T/a Park Motors	5 Park Lane, Gilford, Craigavon, Co Down, BT63 6BD	Hazardous Treatment & Transfer ATF
JP O'Meara T/A Green- An Recycling	40 GREENAN ROAD, POYNTZPASS, Co Armagh, BT32 3PH	Non-Hazardous Treatment & Transfer MRF
Progress Energy (NI) Ltd	33 GREENOGUE ROAD, DROMORE, Co Down, BT25 1RG	Non-Hazardous Treatment & Transfer Anaerobic Digestion
Assured Energy LLP	156 BALLYGOWAN ROAD, BANBRIDGE, Co Down, BT32 3QS	Non-Hazardous Treatment & Transfer Anaerobic Digestion
Bailey Waste Recycling NI Ltd	Silverwood Industrial Estate, 1 - 4 Silverwood Road, Lurgan, Craigavon, Co Armagh, BT66 6LN	Non-Hazardous Treatment & Transfer MRF
Clearway Disposals Ltd	Clearway Disposals Ltd, 41 Dobbin Road, Portadown, Craigavon, Co Armagh, BT62 4EY	Hazardous Treatment & Transfer ATF & Scrap Metal
Armagh City, Banbridge & Craigavon Borough Council	Ballyfodrin Landfill, 1 Drumneven Road, Moy Road, Portadown, Craigavon, Co Armagh, BT62 1RS	Closed Landfill

P McCusker & Sons	Embankment Road, Aghacommon, Lurgan, Craigavon, Co Armagh, BT66 6NE	Closed Landfill
Portadown Recycling & Skip Hire Ltd	Unit 1, Brownstown Business Centre, Brownstown Road, Portadown, Craigavon, Co Armagh, BT62 4EA	Non-Hazardous Treatment & Transfer MRF
Armagh City, Banbridge & Craigavon Borough Council	Fairgreen Civic Amenity Site, Fairgreen Civic Amenity Site, Duke Street, Portadown, Craigavon, Co Armagh, BT62 3EX	Hazardous Transfer CA Site
Armagh City, Banbridge & Craigavon Borough Council	New Line Civic Amenity Site, New Line Civic Amenity Site, Tandragee Road, Lurgan, Craigavon, Co Armagh, BT66 8TA	Hazardous Transfer CA Site
R4 Limited	16 Seagoe Industrial Estate, Portadown, Craigavon, Co Armagh, BT63 5QD	Non-Hazardous Transfer Tyres
Keith McCracken T/A Down Salvage	9 Rock Lane, Aghalee, Craigavon, Co Armagh, BT67 0AX	Hazardous Treatment & Transfer ATF
Recon Waste Management Ltd	D C Contracts, 9 Derrinraw Road, Portadown, Craigavon, Co Armagh, BT62 1UX	Non-Hazardous Treatment & Transfer MRF
Craigavon Commercial Dismantlers	47 Annaloiste Road, Lurgan, Craigavon, Co Armagh, BT66 6NJ	Hazardous Treatment & Transfer ATF
Gerald Hamill & Sons	114 OBINS STREET, Portadown, Craigavon, Co Armagh, BT62 1BP	Hazardous Treatment & Transfer Scrap Metal
Richard Hunniford	76 MOY ROAD, Portadown, Craigavon, Co Armagh, BT62 1QW	Non-Hazardous Treatment & Transfer Anaerobic Digestion
Covington Cars	207/209 Gilford Road, Lurgan, Craigavon, Co Armagh, BT66 7AP	Hazardous Treatment & Transfer ATF
Southern Health and Social Care Trust	Craigavon Area Hospital, 68 Lurgan Road, Portadown, Craigavon, Co Armagh, BT63 5QQ	Non-Hazardous Transfer Clinical/Healthcare
R Heatrick Ltd	341 TANDRAGEE ROAD, PORTADOWN, Co Armagh, BT62 3RB	Non-Hazardous Treatment & Transfer
Damian Donaghy	159 Clonmore Road, Dungannon, Co Tyrone, BT71 6HX	Non-Hazardous Transfer Tyres
Truck Dismantlers NI Ltd		

	130 CARRICKANESS ROAD, Dungannon, Co Tyrone, BT71 7NE	Hazardous Treatment & Transfer ATF
Growmoor Recycling Ltd	Growmoor Recycling, 207 Derrylee Road, Dungannon, Co Tyrone, BT71 6NY	Non-Hazardous Treatment & Transfer Composting
Clive Richardson Ltd	54 Derrycoose Road, Annaghmore, Portadown, Co Armagh, BT62 1LY	Non-Hazardous Treatment & Transfer MRF

SOURCE: http://www.doeni.gov.uk/niea/licensed?txtlicno=&txtwmcl=&txtpostcode=&txtCompanyName=&btnSearch=Done&btnSearch=Search&Blank=Start&as_sfid=AAAAAAVp5xWYM-12ISFyzqLqgpZrWZa6ZUpJIESOAWT1A4MWbcNAmfFqDWEcltvUBdnuaqOT5MC-D5wdphD8dEg59Pxc9RbMoRHsfVv5eiJ92WL_lw%3D%3D&

ii) BDC Public Sector Licensed Sites (2006)

Organisation	Site Address	Use of Site
Banbridge District Council	Banbridge Community Recycling Centre, Scarava Road, Banbridge	Recycling
Banbridge District Council	Dromore Community Recycling Centre, Mossvale Road, Dromore	Recycling
Banbridge District Council	Rathfriland Community Recycling Centre, Ballyrone Road, Rathfriland	Recycling

iii) BDC Privately Owned Licensed Sites (2006)

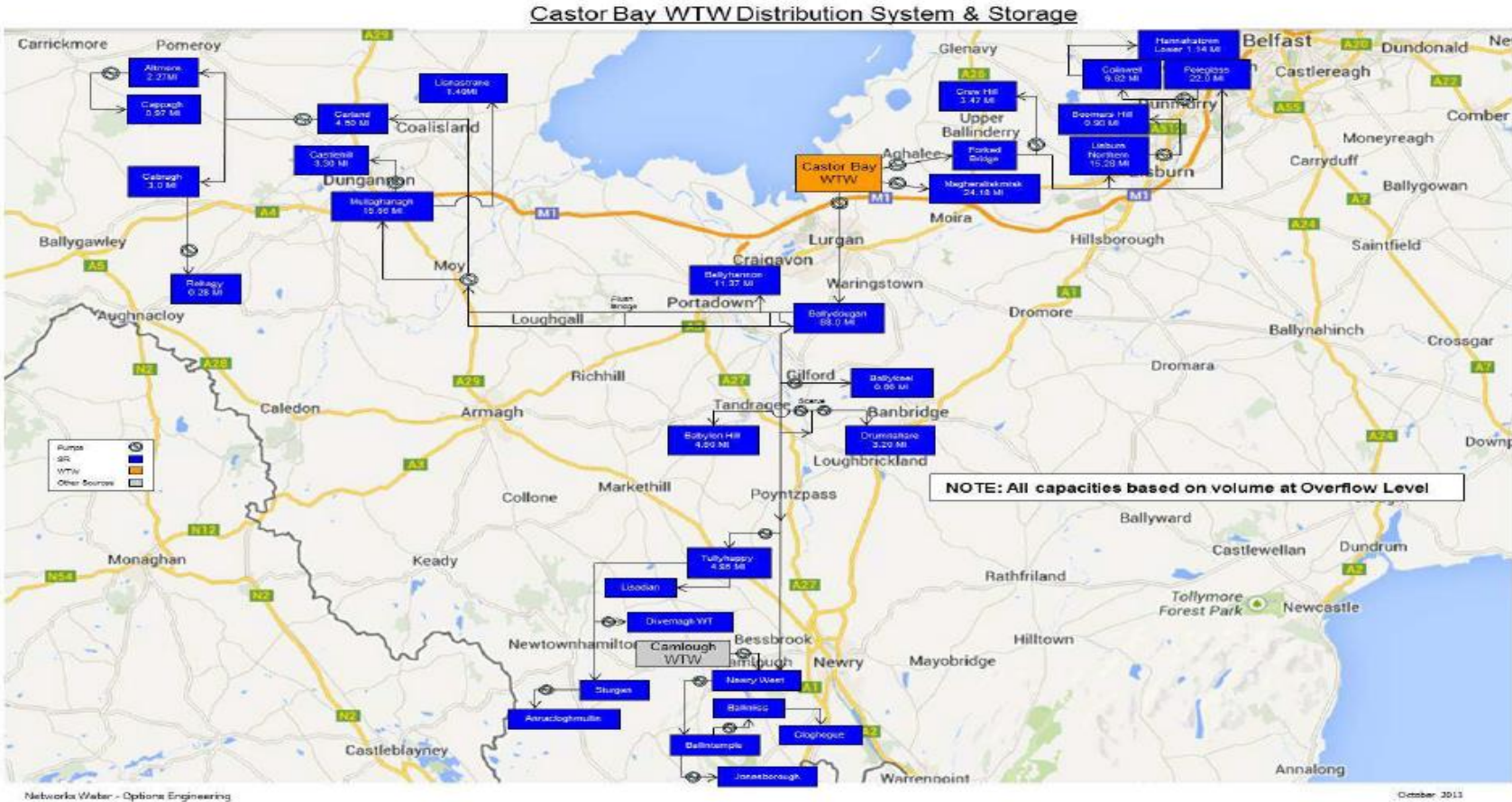
License Holder / Applicant	Site Address	Use of Site
Paul O'Meara	40 Greenan Road, Loughbrickland	Transfer Station
Thompson Recycled Oil	33 Greenogue Road, Dromore	Recycling
Colm McGreevy	Glebe Road, Annaclone, Banbridge	Landfill
Annaclone Presbyterian Church	Glebe Road, Annaclone, Banbridge	Landfill
Bryson House Recycling	Kernan Technology Park, Kernan Road, Gilford	Transfer Station
Thomas Robinson	52 Hunters Hill Road, Gilford	Landfill

iv) BDC Privately Owned Exemption Sites (2006)

License Holder / Applicant	Site Address	Use of Site
Mr George Chambers	149 Dromara Road, Dromore	Infilling for agricultural use
Vincent Cunningham	Opposite 18 Ballysallagh Road, Dromore	Infilling for new build
Vincent Cunningham	140m South of 18 Ballysallagh Road, Dromore	Infilling for new build
Thompson Developments	Land adjacent to No. 43 Hillsborough Road, Dromore	Infilling for construction of roads

Tullyraine Quarries Ltd	122 Dromore Road, Banbridge	Storage of stone, brick, concrete, soil, clay, bitmac road cuttings, asphalt road cuttings & planings
Kerrie Patterson	40 Metres NE of 43 Ballymacallen Road, Gilford, Banbridge	Infilling for purpose of construction of a building
Mr John Martin	Clare House, 30 Ballynabraggett Road, Waringstown	Haulage & storage of sawdust, shavings & paper for bedding farm animals
Smylie Spares	9 Waring Terrace, Waringstown	Car Dismantler
McAtee Recycling	49 Plantation Road, Gilford	Waste paper/cardboard, plastic and wood

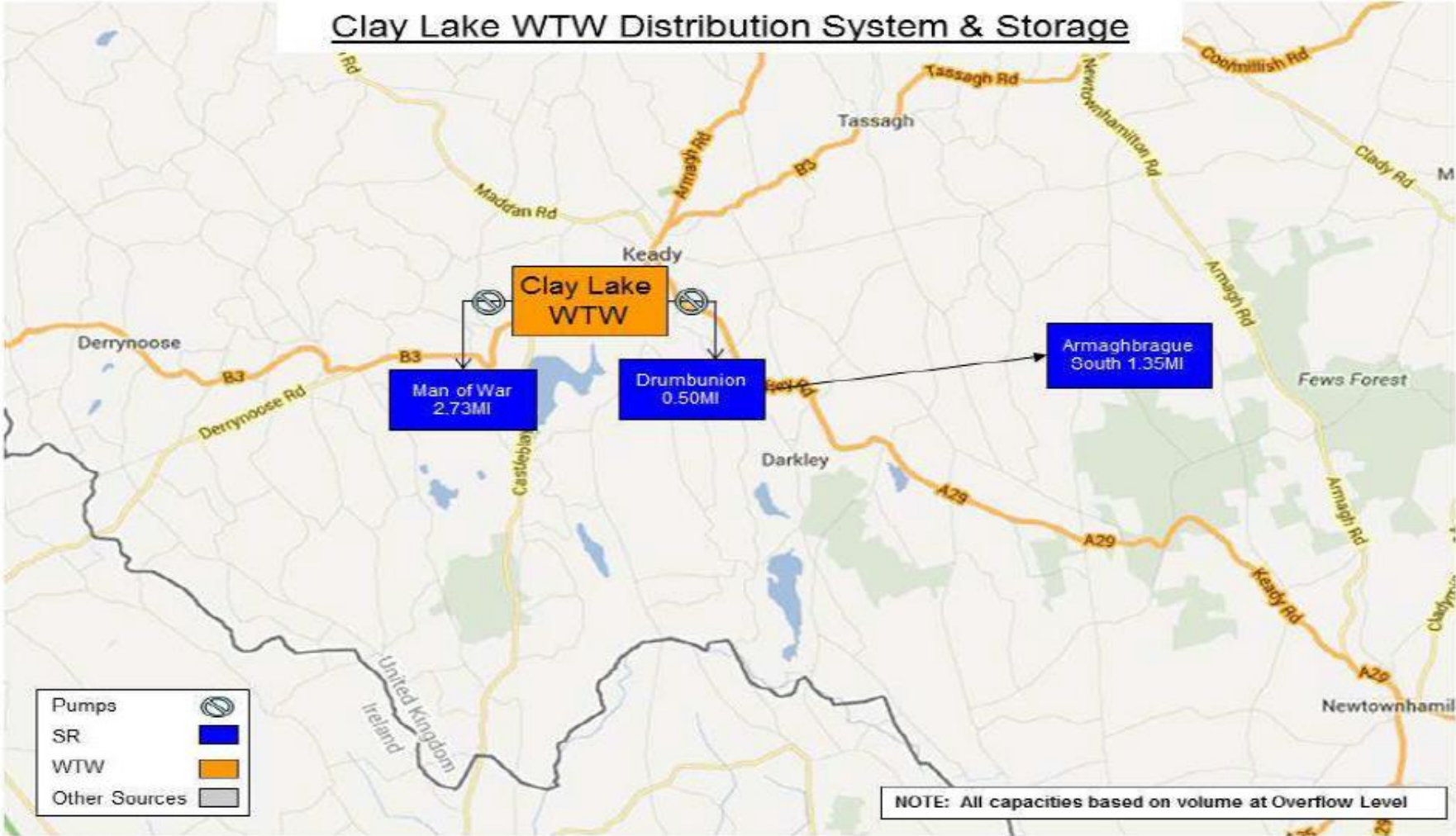
Appendix 5: ABC Water Supply Maps



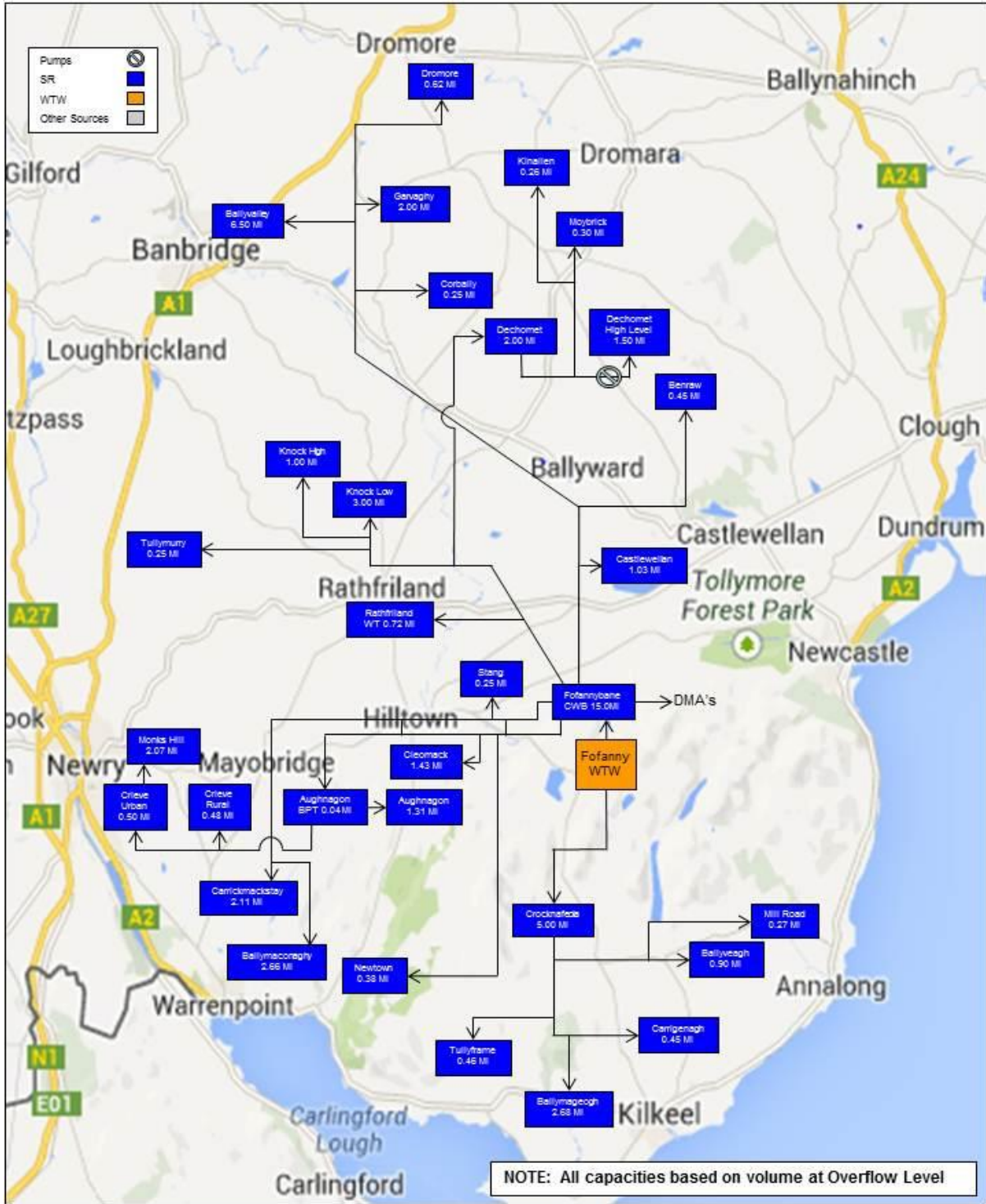
Seagahan WTW Distribution System & Storage



Clay Lake WTW Distribution System & Storage



Fofanny WTW Distribution System & Storage



Appendix 6: RDS 2035 Housing Evaluation Framework

RDS 2035 Housing Evaluation Framework	
Resource Test	Studies should be carried out to assess and detail the existence of community assets and physical infrastructure such as water, waste and sewage, including spare capacity
Environmental Capacity Test	An assessment of the environmental assets of the settlement, the potential of flooding from rivers, the sea or surface water run-off and its potential to accommodate future outward growth without significant environmental degradation should be made.
Transport Test	Studies should be carried out to assess the potential for integrating land use and public transport and walking and cycling routes to help reduce reliance on the car.
Economic Development Test	The potential to facilitate an appropriate housing and jobs balance and to unlock any major strategic development opportunities should be assessed and detailed.
Urban & Rural Character Test	Assessment should be made of the potential to maintain a sense of place, and to integrate new development in a way that does not detract from the character and identity of the settlement.
Community Services Test	The potential to underpin and, where necessary, reinforce the community service role and function of the settlement should be assessed and detailed.

Source: DRD (NI)/RDS 2035/ Table 3.2 (page 42)

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