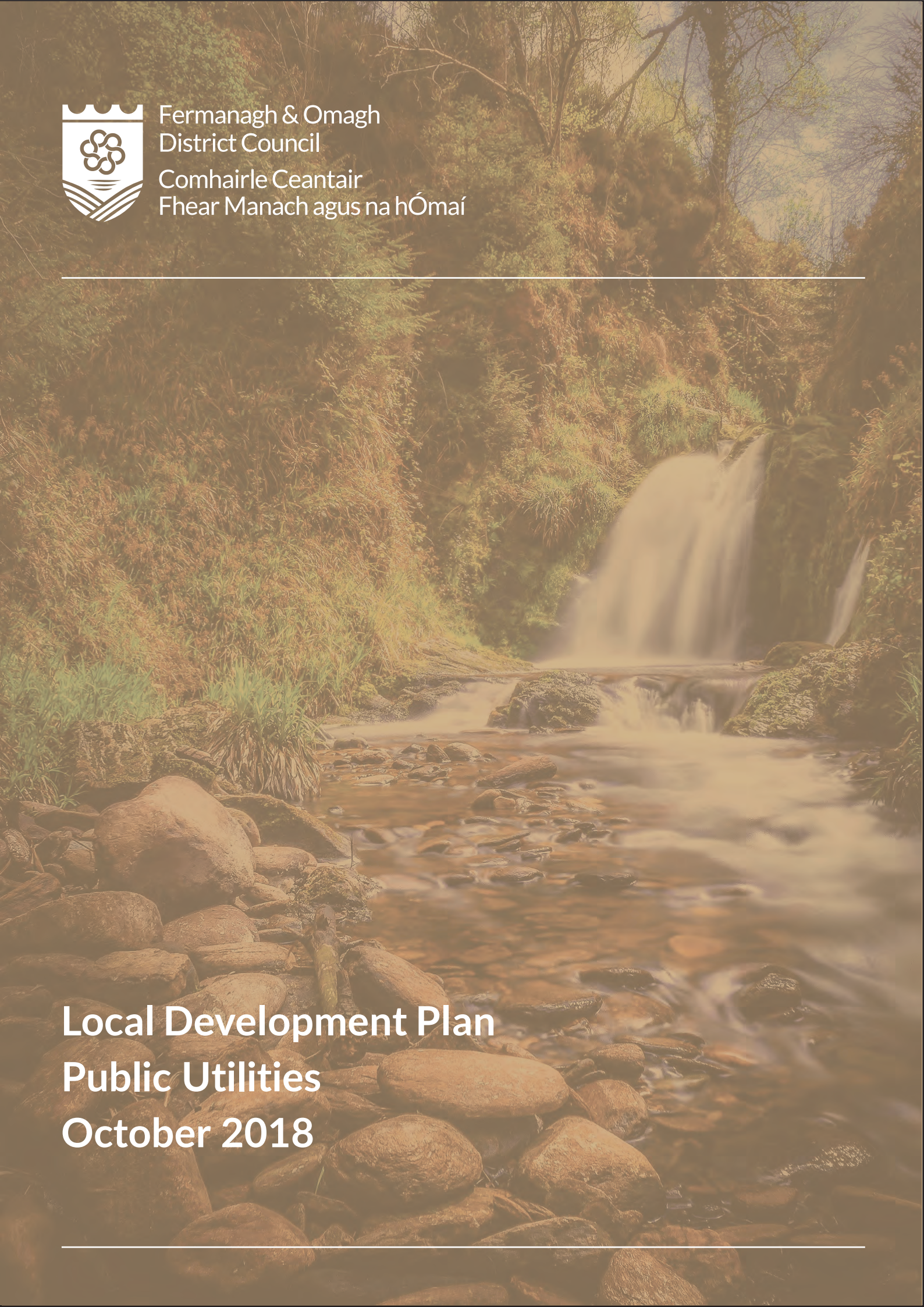


Fermanagh & Omagh
District Council

Comhairle Ceantair
Fhear Manach agus na hÓmaí

Local Development Plan
Public Utilities
October 2018

1.0 Introduction

1.1 This background paper has been prepared to draw together the evidence base that has been used to inform the preparation of the Fermanagh and Omagh Local Development Plan (LDP) 2030. It is one of a suite of topic-based background papers that should be read alongside the LDP to understand the rationale and justification for the policies proposed within the draft Plan Strategy.

1.2 It is an update of Position Paper prepared as the baseline evidence for the Preferred Options Paper (POP) in October 2016 and which identified the key issues that need to be addressed by the LDP.

The paper provides:-

(i) the regional policy context for formulating Local Development Plan policies for public utilities; and
(ii) an overview of existing public utilities infrastructure including remaining capacity in the Fermanagh and Omagh Area Plans.

1.3 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 main utilities covered in this paper are:

- Telecommunications
- Energy Supply, including renewable energy
- Waste Management
- Flood Risk, Drainage, Water Supply and Sewerage

2.0 Regional Policy Context

2.1 The Regional Policy context is provided by the Regional Development Strategy (RDS) 2035 and regional planning policy statements. This section highlights the RDS policy objectives in relation to telecommunications, energy supply, waste management and water, sewerage and flood risk. The relevant policies of the Strategic Planning Policy Statement (SPPS) and Planning Policy Statements (PPSs) are set out under the relevant utility headings (sections 3.0, 4.0, 5.0 and 6.0).

Regional Development Strategy (RDS) 2035

2.2 The RDS sets out clear policy aims and objectives regarding public utilities when allocating housing growth and emphasises the importance of the relationship between the location of housing, jobs, facilities and services and infrastructure.

Telecommunications

2.3 Policy RG3 of the RDS 2035 recognises the need for an efficient telecommunications infrastructure to give Northern Ireland a competitive advantage. Northern Ireland's core communication network is of high quality which is necessary for sustainable economic growth and investment. Therefore it is important to continually improve international and internal connectivity.

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

2.5 Spatial Framework Guidance (SFG) 14 of the RDS 2035 also recognises that rural areas can be disadvantaged by their remote location in terms of access to essential services. Further innovation and advancements upon the existing rural telecommunication infrastructure will work to lessen this disadvantage.

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

- Invest in infrastructure to facilitate higher broadband speeds, whilst also considering the impact such infrastructure may have on the environment;
- Improve telecommunications services in rural areas to minimise the urban/rural divide;
- Increase the use of broadband;
- Capitalise on direct international connectivity to support foreign direct investment and to provide a competitive edge.

Energy Supply including renewable energy

2.7 Policy RG5 of the RDS 2035 seeks to deliver a sustainable, reliable and secure energy supply to all sectors across the region. The development of new generation or distribution infrastructure will seek to avoid adverse environmental effects, particularly on or near protected sites.

2.8 The key policy aims of the RDS 2035 regarding renewable energy are:

- Increase the contribution of renewable energy sources, both onshore and offshore, to the overall energy mix.
- Strengthen the grid in order to support the increasing number of renewable electricity installations.
- Encourage new gas infrastructure including provision of natural gas to further enhance the provision of energy supply.
- Work with neighbours to provide competitive regional electricity and gas markets in the EU's internal markets.
- Develop smart grid initiatives to improve the responsiveness of the electricity grid to trends in customer demands.

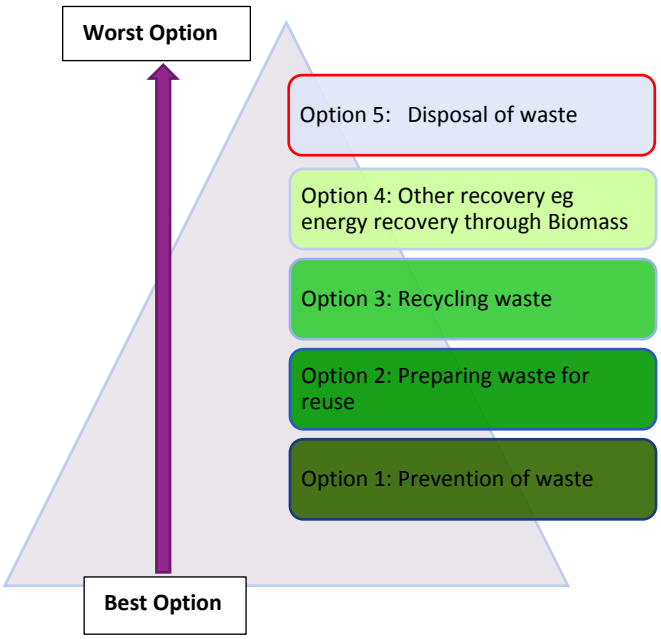
Waste Management

2.9 Policy RG10 of the RDS 2035 is directed by the Waste Framework Directive (WFD) (2008/98/EC) which provides the overarching legislative framework. Article 4 of this Directive sets out a waste "hierarchy" as a priority order for waste management. The primary purpose of the waste hierarchy is to minimise adverse environmental effects of waste and to increase resource efficiency in waste management and policy.

2.10 The "waste hierarchy" seeks to minimise the amount of waste brought to landfill through reducing, reusing and recycling waste. Waste disposal should only happen as a fifth and final option (Figure 1).

2.11 To manage waste sustainably RG10 promotes the use of the "proximity principle" which emphasises the need to treat or dispose of waste as close as possible to the point of generation in an effort to minimise the negative effects of waste transportation**.**

Figure 1. Waste Hierarchy



Water, sewerage and flood risk

2.12 Policy RG12 of the RDS 2035 promotes a more sustainable approach to the provision of water and sewerage services and flood risk management. Increased population, changes in household formation and climate change continue to put pressure on our water resources and drainage systems which may lead to discrepancies in water demand and availability as well as potential impacting on water quality. Planning for the provision of water and

sewage infrastructure and treatment facilities is both a practical and environmental necessity for regional development.

2.13 The Housing Evaluation Framework (HEF) (Appendix 1), a tool used to assist judgements on the allocation of housing growth, includes a "resource test" which states that studies should be carried out to assess and detail physical infrastructure such as water, waste and sewage, including spare capacity. This is to ensure that the infrastructure is adequate to support the provision of future housing.

2.14 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 Drainage 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 water courses.

2.15 In relation to development and flood risk, Policy RG8 of the RDS 2035 emphasises the need for mitigating the risk of flooding by avoiding those areas known to be at risk. This position is reflected in the HEF with the Environmental Capacity test including assessment of potential flood risk areas to guide the allocation of land for housing growth.

2.16 Furthermore, 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.

2.17 The RDS is complemented by Planning Policy Statements which set out the Department's planning policies for particular areas of planning. These documents are to be replaced by the Strategic Planning Policy Statement (SPPS). The SPPS does not introduce any significant changes to any of the PPS which relate to the provision of public utilities, but helps to shorten and simplify the guidance for Councils. The position in terms of each of the PPSs and the SPPS are summarised within the relevant subject area below.

2.18 It should be noted that telecommunications and wind energy were also discussed as part of Paper 3 Employment and Economic Development (Appendix 2).

3.0 Telecommunications

3.1 Whilst the development of high quality telecommunications infrastructure is essential for continued economic growth it is necessary to minimise the impact on the environment. This approach is reflected in both PPS 10 Telecommunications, which sets out the Department's position for telecommunication proposals, and the SPPS. Both documents state that where new infrastructure is required then it should be sited in a location which minimises its impact in terms of visual, environmental and amenity issues. Site/mast sharing is promoted where practically possible. However the SPPS recognises that in some instances this will not be possible or feasible. Other policy objectives within the SPPS are to minimise undue interference that may be caused to terrestrial television broadcasting services by new development, and to encourage the appropriate provision of telecommunication systems within the design of other forms of development.

3.2 The SPPS states that the LDP 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 consult with telecommunications operators over the plan period to ascertain the extent of network coverage in plan area and over plan period. The council may allocate certain sites for the provision of tall masts to encourage site sharing.

3.3 **Broadband** - There have been numerous improvements to the broadband network which have taken place in recent years and the Fermanagh and Omagh District has benefited from these as detailed in Appendices 2 and 3.

3.4 The Irish Central Border Area Network (ICBAN) undertook a study to examine the telecommunications infrastructure and services in the area covered by its member councils and to seek to improve the telecommunication provision. It found that whilst the fixed line broadband coverage in Northern Ireland is the best in the UK, it has lower mobile broadband coverage than any other region in the UK.[1] Furthermore, Mobile Data Coverage in Fermanagh and Omagh, like the majority of the west of Northern Ireland, is poor by comparison to the rest of the UK. You can test your broadband connections speed by entering your post code through the following link;

https://www.thinkbroadband.com/speedtest

3.5 **Mobile Data Coverage -** Table 1 below sets out the availability of 2G data coverage in the Fermanagh and Omagh District as broken down by the historic LGD areas (at July 2015). 2G is the most common type of mobile broadband connection but 4G broadband connectivity is more recent and is the fastest mobile connection available.

Table 1: Mobile Data coverage in Fermanagh and Omagh District

[1] Irish Central Border Area Network (ICBAN) Telecommunications Action Plan

Area	Premises with 2G coverage from all operators (%)	Geographical area with 2G coverage area with 2G coverage from all Operators (%)
Fermanagh	61.2%	44/7%
Omagh	57.9%	50.8%

Source: Providers Coverage checker map

3.6 The roll out of 4G coverage in Fermanagh and Omagh has commenced by the three main providers EE, O2 and Vodafone. Detail of the areas with 4G coverage are set out in Appendix 4. Although there has been good progress to date, the development of 4G coverage for the other areas within the district is ongoing.

3.7 One current project is Broadband Delivery UK (BDUK) which, on behalf of the Department for Culture, Media and Sport (DCMS), seeks to deliver superfast broadband and better mobile connectivity across the UK.

3.8 The complementary scheme, Better Rural Broadband is a further initiative also being funded by DCMS and it has identified Fermanagh as one of the five pilot areas, the others being Antrim, Aberdeenshire, Dumfries and Galloway and the Scottish Borders. The government initiative will introduce customers to satellite technology, enabling households to have better rural broadband.

The pilot will enable BDUK to assess:-

- The effectiveness and benefits of superfast broadband delivered by satellite.
- The cost and operational implications of natural and/or regional roll-out.
- The propensity for take-up of superfast services in the final 5%.
- The behaviours of consumers and business which have, to date, been excluded from the superfast broadband experience.
- Whether any regional variations exist.

Telecommunications – Broadband and Mobile

3.9 The NI Executive and the RDS (RG3) recognise the need for modern, efficient telecommunications infrastructure to give Northern Ireland a competitive advantage. The SPPS aims to facilitate the growth of new and existing telecommunications in an efficient and effective manner whilst keeping the environmental impact to a minimum.

3.10 Northern Ireland's core communication network is of a high quality which is necessary for sustainable economic growth and investment. Access to high speed reliable digital infrastructure is seen to be one of the most important enabling infrastructures in terms of economic development and social uplift[2]. The economic and social benefits of advanced telecommunications to Northern Ireland can only be achieved if the necessary infrastructure is

[2] digitalNI2020.com

developed, including the networks of base stations. However, rural deficiencies in both mobile infrastructure and broadband are a reality and a source of frustration to both domestic and business users in many rural parts of Fermanagh-Omagh.

(a) Mobile Infrastructure

3.11 Telecommunications has not been devolved to the Northern Ireland Executive but is controlled centrally by the Department of Culture, Media and Sport (DCMS) in London. In October 2011 DCMS announced up to £150m funding to improve mobile coverage and quality across the UK – known as the Mobile Infrastructure Project (MIP). This funding is intended to improve mobile phone coverage for the 5-10% of consumers in areas of the UK where existing mobile network coverage is poor or non-existent through the construction of additional mobile phone masts in uncovered areas, whilst ensuring solutions are compatible with future technological developments.

3.12 MIP is time-limited with delivery of sites needing to be completed before the end of the 2014-15 financial year. Of the 80,484 premises in the UK identified by Ofcom as having no coverage, around 15% of these are located in Northern Ireland. It is anticipated that 130 applications will be submitted across Northern Ireland, 16 of which (7 in Fermanagh and 9 in Omagh) will be in Phase 4.

3.13 Arqiva, who were given responsibility for rolling out the Mobile Infrastructure Project, identified 16 sites across the Fermanagh and Omagh District Council area as part of the MIP. However, of these 16, just two will go ahead. Both are in Co Fermanagh – in Boho, near Derrygonnelly and Clabby, near Fivemiletown. No masts will be built on the seven proposed sites in the Omagh area. The company listed a number of factors including land ownership, vehicular access, line of sight with existing infrastructure networks and the requirement for three phase electricity for some of the masts as reasons for failure to install any masts in the Omagh area.

As such, at this time ‘Not-spots’ identified by Ofcom as lacking in mobile coverage and quality under MIP have not been addressed.

(b) Broadband Infrastructure

3.14 Now considered an important component of business infrastructure, broadband allows businesses to, have sufficient capacity to handle large amounts of business related data, allows for remote working, conference calls and other operations. These all factor into the success of the business in terms of the ability to respond to colleagues, suppliers and customers worldwide speedily, as well as impacting on the economic viability of the business by saving space and money on physical storage and saving on time and travel expenses.

3.15 Northern Ireland currently has the best fixed line broadband infrastructure in the UK, in terms of speed and access. However, there remain fixed

broadband not-spots in rural areas that need to be addressed.[3] This adversely impacts SMEs which dominate the rural economy, and residential users. The provision of broadband to rural areas through a rural exchange can result in higher costs to the customer and slower access speeds (bandwidth), impacting on business functionality.

3.16 The rollout of Project Kevlin, has improved the international telecommunication infrastructure between Northern Ireland and North America and Europe and there are a number of Project Kevlin Hubs such as at the Omagh Enterprise Centre which can access speeds from 10meg to 10gig. Businesses can now avail of low latency, reliable and competitively priced communications to North America and Europe. This international link increases the potential of financial institutions, Internet-enabled businesses, academia, media companies and any other high-bandwidth entity coming into NI and conducting business.

3.17 The Northern Ireland Broadband Improvement Project is aimed at providing basic broadband in areas that have no service and to improve broadband service in certain areas where the choice is poor or broadband speeds are low. Some of these are in rural and remote parts of Northern Ireland. The scheme will lay new fibre optic telephone lines from existing exchanges to new small broadband exchanges in remote areas. This will improve telecommunications infrastructure provided by telephone lines. Work began in February 2015 and is expected to finish by December 2017. The Superfast Rollout Programme Phase 2 (SRP2) will provide improved superfast broadband services in areas across Northern Ireland. Between February 2015 and December 2017 work is planned in different towns and counties at different times.

3.18 A recent DOTcom report on behalf of BT, Deployment for FTTP in rural Northern Ireland, in May 2018 addressed the issue of broadband provision in the rural area, recognising that the isolated location of single houses within the countryside differed to the clustered approach in the rest of the UK resulting in a challenge for the delivery of broadband and increased costs for deploying broadband to all premises. Broadband speeds decrease as the distance of copper drop from the cabinet increases. These factors have led to significant disparity in availability of high broadband speeds between rural and urban Northern Ireland, with the percentage of premises unable to achieve 2mbs speeds varying from 0% in Belfast, to 12% in Fermanagh and Omagh. The impact on SME's is greater than for households with superfast broadband coverage dropping from 92% in the urban areas (joint highest in the UK) to 47% for rural Northern Ireland SME's. The report identifies this as having the potential to put rural entrepreneurs at a competitive disadvantage to their urban counterparts and may be an impediment to starting a business. The

[3] ICBAN –Central Border Strategic framework – Infrastructural Supporting Document

report also highlights the increased susceptibility of rural areas to social isolation.

3.19 As set out in the SPPS, local development plans 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. Policy may also set out additional requirements on operators, for example, to demonstrate the need for new development and existing network constraints.

4.0 Energy Supply

4.1 The SPPS reinforces the aims of the RDS 2035 in that it seeks to increase the contribution of renewable energy to our overall energy supply. The policy objective is to encourage the development of facilities capable of generating renewable energy whilst addressing environmental, visual and amenity issues and protecting our natural and built heritage. The integration of renewable energy technology into the design, siting and layout of new development and the promotion of greater application of the principles of Passive Solar Design are also to be facilitated. In relation to electricity lines, current operational policy within the Planning Strategy for Rural Northern Ireland indicates a preference for underground lines to minimise the visual intrusion of overhead lines.

4.2 In preparing Local Development Plans (LDP's), councils should formulate policies and proposals which support a range of renewable energy infrastructure whilst still taking into account the above mentioned policy objectives.

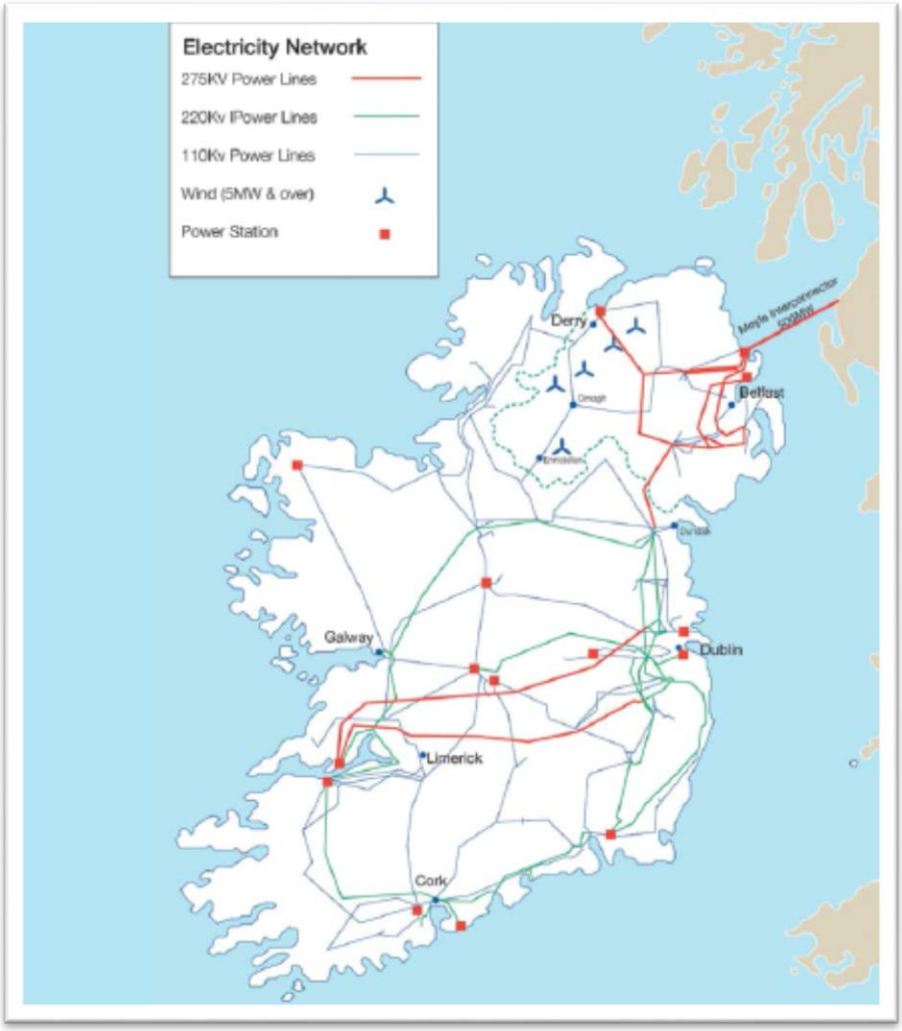
4.3 Energy in the district is primarily produced by the use of fossil fuels from the three fossil fuel generating plants in Northern Ireland. These plants supply electricity to a wholesale electricity market for the island of Ireland known as the Single Electricity Market (SEM). The SEM is served by the North South Interconnector. In addition the Moyle interconnector links Northern Ireland to the electricity grid in Britain which brings additional competition to the electricity generation market[4].

4.4 To underpin economic growth in Fermanagh and Omagh District it is necessary to have a modern and sustainable economic infrastructure including robust electricity connections. Whilst electricity supply in the Fermanagh and Omagh District and NI as a whole is not an issue, the upsurge in the number of renewable energy developments - particularly wind turbines - in Fermanagh and Omagh seeking to connect to the electricity grid has highlighted that grid reinforcement is required to facilitate the growth of renewable energy generation. Fermanagh and Omagh's geographical location presents opportunities to create physical links to the electricity network for the Republic of Ireland.

[4] http://www.drdni.gov.uk/framework_for_co-operation_-_web_version.pdf

4.5 **Overhead power lines / electricity supply -** The SPPS is clear that overhead power lines should avoid areas of landscape sensitivity including Areas of Outstanding Natural Beauty (AONB's).

Figure 2: The Electricity Network – Framework for Co-operation: Spatial Strategies of Northern Ireland & the Republic of Ireland.



4.6 **Renewable Energy –** The Regional Planning Policy in relation to Renewable Energy and 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. These targets are set out in Paper 3: Employment and Economic Development (Appendix 2).

4.7 As well as Wind Energy however the other main sources of renewable energy are 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 regarding each of these energy sources are summarised in Appendix 5. Whereas Paper 3 found that the prevalence of wind energy approvals in certain areas of Fermanagh and Omagh may be resulting in a cumulative impact that is detrimental to the environmental quality, landscape and amenity of the area, it is also important to examine the need for policies within the LDP which enables alternative and appropriate forms of renewable energy in a manner that does not impact negatively on the environmental assets, landscape quality or amenity of an area.

Northern Ireland Renewable Heat Incentive (RHI):

4.8 The Northern Ireland non-domestic and domestic RHI schemes were introduced following the introduction of parallel schemes for the rest of the UK led by DECC. They were central to the action to meet an Executive target (PFG) of having 4% of Northern Ireland's heating needs met from renewable sources by 2015, and a further target in the Strategic Energy Framework of achieving 10% renewable heat consumption by 2020.

There are now over 4,700 renewable heating installations under both schemes. The current assessment is that over 6% of Northern Ireland's heating needs are now provided by renewable technologies. Increased demand coupled with a reduction in RHI funding arising from the Chancellor's November 2015 statement has meant that the available budget for new RHI applications has been exhausted and both RHI schemes had to be closed to new applications from 29 February 2016.

Strategic Energy Framework (SEF):

The SEF 2010-2020 is currently being reviewed, and refocused, to ensure that energy policies and priorities continue to contribute to a secure, competitively priced and sustainable energy sector for Northern Ireland. The Department hopes to issue a public consultation on the review, and refresh, later this year. A Refocused Energy Strategy will then be published as soon as practicable thereafter covering the 2016-20 timeframe. Work will then begin on a longer term energy strategy (currently proposed to cover 2020-2030).

4.9 Of the remaining renewable energy sources, biomass energy production particularly through anaerobic digestion (AD) has raised concerns including those of visual intrusion, noise from plant and traffic operations and effects on health, local ecology and conservation. Given the importance of renewable energy development, the LDP should provide planning policy which not only supports energy supply but also ensures that potential impacts are minimised.

4.10 **Natural Gas** - Natural gas was introduced to Northern Ireland in 1996 and there are now about 170,000 households and 12,000 businesses with a gas supply (including power generators). At present Fermanagh/Omagh does not have a natural gas supply. However the current Gas to the West infrastructure project will supply natural gas to the towns of Strabane, Omagh,

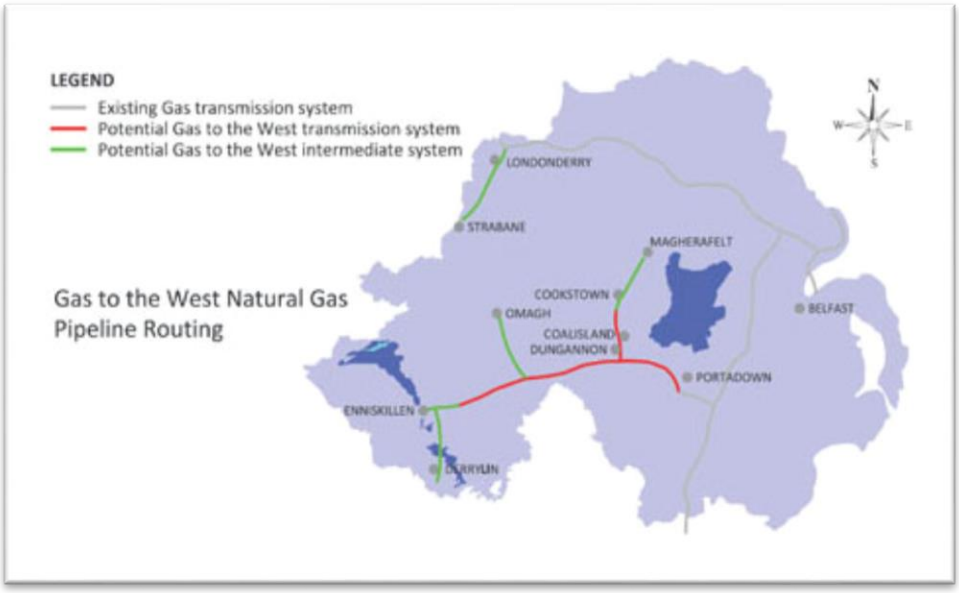
Enniskillen, Derrylin, Dungannon, Coalisland, Cookstown and Magherafelt (Figure 3).

4.11 Over the next three years, pipes will be laid to connect these towns to the existing gas network in Northern Ireland, which involves:

- Constructing approximately 500km of gas mains and services;
- Creating around 80 jobs during the construction phase;
- Sustaining a number of jobs after the network is complete;
- Benefiting the environment by increased uptake of natural gas, the cleanest fossil fuel;
- Connecting up to 40,000 domestic and business customers;
- Bringing local people a reliable and constant fuel supply which is versatile, convenient and controllable;
- Saving customers' money with natural gas appliances and heating.

4.12 Construction on the Maydown to Strabane gas pipeline commenced in November 2015, with first customers to be connected in late 2016. Work to provide the higher pressure pipelines to connect other towns in the West is anticipated to commence during 2017, subject to planning and other approvals being obtained".

Figure 3: Existing and Proposed Gas Pipe Lines



Source: DETI – Gas to the West section

5.0 Waste Management

5.1 The policy framework for the delivery of Waste Framework Directive is set out in the 2013 Revised Waste Management Strategy, containing actions and targets to meet the EU Directive and related Programme for Government

targets. It sets targets of achieving a recycling rate of 50% of household waste by 2020 (EU Directive target) and a recycling rate of 45% of household waste by 2015 (PfG Target). Local Authority Collected Municipal Waste has a recycling rate of 60% by 2020. The document also sets out a number of proposals in relation to reducing the amount of food waste sent to landfill in Northern Ireland. By encouraging more people 'to reduce, re-use and recycle' and 'let's recycle more', steady progress is being made in limiting the amount of waste sent to landfill.

5.2 Current planning policy for waste management is set out in PPS 11 Planning and Waste Management. It promotes the development, in appropriate locations, of waste management facilities to meet need as identified in the Waste Management Plan. Consideration of the impact of existing or proposed waste management facilities should also be given when zoning land for development and ensuring incompatibility of adjacent land uses is avoided. The COMAH Directive (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.

5.3 The draft SPPS supports wider government policy and in line with the RDS, promotes the 5 step Waste Hierarchy. It sets three policy objectives for waste management:

- 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-use.

5.4 The LDP should assess the likely extent of future waste management facilities for Fermanagh and Omagh Council Area, and identify specific sites to be brought forward as waste management facilities with appropriate key site requirements. Operational policy for assessing applications for waste facilities should also be provided within the LDP. Weight should be given to the potential impact of waste management facilities, both existing and approved, on neighbouring properties and uses. LDPs should take into account the 'Waste Hierarchy' in considering delivery resource efficiency.

5.5 Under the provisions of the Waste and Contaminated Land (Northern Ireland) Order 1997 it is the responsibility of the district councils to prepare a Waste Management Plan (WMP). The Southern Waste Management Partnership (SWaMP 2008), of which the former Fermanagh and Omagh Councils were members, prepared a WMP in 2006 which was subsequently reviewed in March 2014. The WMP sets out the arrangements for waste management within the SWaMP Region over the period up to 2020.

5.6 Application of the Waste Hierarchy to minimise waste production and policies to educate the public, industry and young people in particular, in effective resource use and reuse, recycling and composting is facilitated through the

provision of ‘bring facilities’, bottle banks and civic amenity sites which are the responsibility of the Council.

5.7 The main recycling and waste facilities for Fermanagh and Omagh council at are located at Drummee, Enniskillen and at the Gortrush Industrial Estate in Omagh. The Drummee site includes a Recycling site for public use, and a Landfill site which accepts municipal waste from around the Fermanagh area. The site at Gortrush Estate in Omagh operates as a transfer site, for municipal waste, to the landfill site at Tullyvar which was jointly owned by the former Omagh and Dungannon and South Tyrone councils which were part of the SWaMP group. The sites operate under a Waste Management Licence and are inspected and enforced by the Northern Ireland Environment Agency.

5.8 The Fermanagh and Omagh District also operates 13 centres for recycling and disposing of household waste in the District as set out in Table 2 below. Statistics relating to the historical councils indicate that the level of Municipal Waste for Fermanagh was 27,342 tonnes, whilst Municipal Waste for Omagh amounted to 23,841 tonnes in 2013/14. Of this, Fermanagh and Omagh District Councils recycled 38.7% and 43.2% respectively. The bulk of municipal waste for both Council areas ended up as landfill with nearly 60% in Fermanagh and 54% in Omagh.

5.9 Household Waste generated nearly as much waste to manage with household waste for Fermanagh Council amassing 24,486 tonnes and Omagh Council 22,080 tonnes. In 2013/14 the Fermanagh and Omagh District Council area achieved a household recycling (including composting) rate of 39.5% (Appendix 6 and 7). Similar to the Municipal Waste, 62% and 54% of the household waste for Fermanagh and Omagh District Councils was sent to landfill in 2013/2014. The extension of the brown bin collection to villages in the Fermanagh area should contribute to decreasing the amount of waste which is transferred to landfill. There is also an intention to roll out a ‘food waste’ collection service to rural areas with piloting to commence in the near future.

Table 2: Recycling and Household Waste facilities

Settlement	Location
Belleek	Main Street
Garrison	Belcoo Road
Irvinestown	Brownhill Meadows
Kesh	Crevenish Road
Kinawley	Derrylin Road
Lisbellaw	Station Road
Lisnaskea	Fairgreen Car Park
Newtownbutler	Crom Road
Rosslea	Dernawilt Road
Tempo	Brookborough Road
Carrickmore	Ballintrain Road
Dromore	Fairgreen, Camderry Road
Fintona	Lisdergan Road

5.10 In consultation with the Council, the following issues and proposals regarding future waste management are currently being considered or planned for implementation:

- Tullyvar landfill site is due to close in 2017;
- Drummee landfill site has potential to extend capacity to 2025 however this would be dependent upon operational costs;
- Options are being considered for alternative processes to landfill including the potential for the provision of a Mechanical Biological Treatment plant (MBT) at Tullyvar through a joint arrangement with the Mid Ulster and Armagh, Banbridge and Craigavon councils;
- Possible future enlargement of the existing waste transfer station at Drummee;
- As part of a review being undertaken of existing recycling centres in the Fermanagh part of the district, a business case will be undertaken to determine options for the creation of new, 'split-level', modern facilities which allow for 'roll up/roll off;
- Additional 'bring' facilities may also be created.

5.11 The Council will prepare their own WMP this year to replace the two existing WMP's. The Local Development Plan will be prepared having regard to this new Waste Management Plan. Proposals regarding waste management can continue to be dealt with by way of the development management process. The LDP process will allow the Council to safeguard land for waste management to cater for the municipal waste needs of the district over the plan period.

5.12 It should also be noted that the recycling and use of waste for energy production is a growth area in the private sector.

6.0 Flood Risk, Drainage, Water Supply and Sewerage

Flood Risk

6.1 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. Compliance with this Directive is the responsibility of the Rivers Agency (Department of Agriculture Environment and Rural Development) and they have begun implementing the directive by establishing flood risk and hazard maps which were published in 2013.

6.2 The EU Floods Directive[5] confirms that development can exacerbate flood risk and states that the planning authority has a crucial role to play in managing development so as to reduce the risks and impacts of flooding. The Directive highlights the fundamental importance of preventing or restricting new development in flood prone areas.

[5] The European Directive on the Assessment and Management of Flood Risk, Directive 2007/60/EC

6.3 Under the Floods Directive we manage flood risks by:

Prevention: avoiding construction of houses and industries in flood-prone areas; by adapting future developments to the risk of flooding; and by promoting appropriate land-use, agricultural and forestry practices.

Protection: taking measures, both structural and non-structural, to reduce the likelihood and impact of floods.

Preparedness: informing the public about flood risk and what to do in the event of a flood.

6.4 The SPPS states that in preparing LDP's that the planning authority should engage with relevant statutory agencies and other bodies with responsibility for various aspects of flood risk. Typically, this will involve considerable engagement with Rivers Agency and the use of the most up to date information on flood risk which will usually be contained in the Strategic Flood Maps which are provided by Department of Agriculture and Rural Development (DARD).

6.5 The SPPS also states that LDP's should take account not only of current flood risk but also the likelihood of flood risk in the future and should not allocate land for development which may be prone to flooding.

6.6 PPS 15 Planning and Flood Risk operates a presumption against development within designated flood plains, unless the development is of regional importance or it falls into a pre-defined list of categories such as:

- A replacement building
- An essential operational development such as utilities infrastructure
- Sport and recreational uses
- Minerals development
- Seasonal development which will not increase flood risk

6.7 With specific reference to flooding in each river basin, DARD are currently planning to publish specific Flood Risk Management Plans (FRMPs) for the three River Basin areas in Northern Ireland. These plans are currently at consultation stage and are expected to be published in December 2015 and the council should ensure that the new LDP is compatible with these FRMP's

6.8 Rivers Agency Planning Advisory Unit also 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 LDP should be closely aligned with the current planning policy i.e. PPS 15.

6.9 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.

6.10 When preparing local policies as part of stage 2 of the 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. Such zoning would eradicate the natural function of such land as a flood relief pondage area. The LDP should also take account of the "Climate Change" Flood map (Appendix 8) as well as the information contained in the Strategic and Hazard Flood Maps.

6.11 There are two proposals in the Council area to carry out improvement schemes on flood defences. It should however be noted that subject to viability, flood alleviation schemes can take several years from identification of the requirement through to completion of works. The two proposals are:

1. Beragh Flood Alleviation Scheme – due for completion by the end of summer 2015. (This scheme has now been completed).
2. Hunter Crescent, Omagh Flood Alleviation Scheme – no date for commencement as yet. The Opportunity Omagh project is affected by this scheme.

In addition, a pre-feasibility study has been commenced for flood alleviation measures in Fintona as a response to flooding.

6.12 Omagh town centre is defended by Rivers Agency maintained flood defences. These defences were designed and constructed by Rivers Agency following the 1987 flood. Rivers Agency recently completed an extensive programme of river modelling and mapping for areas of significant flood risk that included Omagh. This modelling programme has indicated that the flood defences in Omagh while providing a degree of protection from flooding, are no longer considered to provide the minimum level of protection required under PPS 15. The causes of this are complex and technical but include improved methods of flow estimation and significant advancements in both IT hardware and river modelling software.

Drainage

6.13 The Department for Regional Development (DRD) launched a consultation paper entitled "Sustainable Water" on the best way forward for managing the water supply in Northern Ireland. This paper, Sustainable Water, a Long-Term Water Strategy (2015-2040) was released in March 2016.

6.14 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.

6.15 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 SuDS will need to be employed to ensure this. Examples of such are green roofs, permeable paving, soak a ways, ponds and wetlands.

- Planning Policy should require that SuDS are the preferred option for all new development.

- 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.

6.16 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 the LDP is compatible with and complements 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.

Sewerage Facilities – Waste Water Treatment Works

6.17 The provision of sewage treatment facilities in the Plan Area is also the responsibility of NI Water.

6.18 Over the Plan period Fermanagh and Omagh District will need approx. 6,500 new houses by 2030 so it is important to bear in mind the impact that this housing need will have on the existing sewage network capacity. Most houses are connected to the existing sewage network. However, single houses in the countryside tend to rely on septic tanks and it should be noted that Policy CTY 16 of PPS 21 states that planning permission will only be granted for developments relying on non-mains sewerage where the applicant can demonstrate that this will not create or add to a pollution problem. This will need to be addressed within the PS.

6.19 In the LDP, the potential capacity of the existing sewage infrastructure in an area will have a bearing on the amount and location of new development and whether or not land is zoned for new development. An indication as to the available capacities (headroom) of existing waste water treatment works (WWTW) within the Fermanagh and Omagh District was supplied by NI Water in June 2015. The tables in Appendix 9 show the works by size banded by two categories of small works - those less than 50 Population Equivalent (PE) and 50- 250 (PE) - and those serving larger communities above 250 PE. NI Water maintains all works through a capital maintenance programme (current programme to 2021) and further seeks to address quality and development issues through an enhancement programme which is delivered on a prioritised basis across Northern Ireland within allocated funding. This information will need to be kept under review to ensure an accurate picture of the extent of any constraint placed on development.

6.20 The NI Water data identifies the following settlements has having no remaining headroom and have not been identified for upgrade within the Business Plan period 2015-2021:-

Loughmacrory

Garrison

Ederney

Belleek

Edenderry

Church Hill

No deficiencies have been identified at this time in the other settlements however there is a proposal to upgrade the existing works at Clabby. A planning application was granted in June 2016 for a new treatment works at Edenderry however is not within any current programme of works.

6.21 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. Policy in the PS addresses this. In addition, 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 inhabited development.

6.22 Taking account of this information, the council will, when preparing a 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.

Water Supply

6.23 The responsibility for the provision of water supply within the district is the responsibility of NI Water. The Fermanagh and Omagh District is supplied with water from six water treatment works (Table 3). The service reservoirs associated with each of these water treatment works are annotated on the maps in Appendix 10.

Table 3: Existing Water Treatment Works in Fermanagh and Omagh

Water Treatment Works
Lough Braden
Glenhordial
Loughmacrory
Killyhevlin
Belleek
Derg

6.24 These existing installations are expected to be sufficient to supply the Fermanagh and Omagh District throughout the Plan period. The lack of water supply is not considered to be a likely constraint upon development.

6.25 The Reservoirs Bill (Northern Ireland) 2015 will attempt to ensure that the existing 130-150 reservoirs in Northern Ireland are managed in a more efficient and safety conscious manner. It 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, NI Water has prepared reservoir inundation maps. 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. Consequently, the council should not allocate land for development close to existing reservoirs. To do so would be to require the developer to carry out a flood risk assessment, thus complicating the planning application process. Policy within the PS also addresses the issue of new development proposals within any inundation areas.

7.0 Conclusions

7.1 This paper has provided an overview of utility provision within Fermanagh and Omagh and has examined 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 the allocation of 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 District 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.

7.2 The Plan Strategy 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.

7.3 Where proposals to develop new or replace existing public utilities are known, these will be identified in the LDP (LPP). Where provision of an existing public utility is limited and there are no known plans to upgrade during the plan period, development may be constrained as a result of this. This will be an important consideration when considering the allocation of land for development.

7.4 As such, in developing the plan strategy, the following key elements can be identified in relation to each of the utility themes discussed:

Telecommunications

- Includes policies which promote the development of a high quality, high speed telecommunications infrastructure, particularly within rural areas, whilst at the same time protecting sensitive landscapes.

Recycling and Waste Management

- Facilitate the implementation of the Waste Management Plan

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 greater protection to neighbouring amenity. In relation to biomass development, ensure planning policy provides continued support for such development while ensuring potential impacts are minimised.

Flood Risk, Drainage, Water Supply and Sewerage

- Ensure that development land is zoned in areas where the “headroom capacity” of existing Waste Water Treatment Works (WWTWs) 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 complement 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.

Appendix 1 – Housing Evaluation Framework

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 and 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.

Appendix 2 – Excerpt from Paper 3: Employment and Economic Development

4.0 Renewable Wind Energy, Telecommunications and Shale Gas Extraction

4.1 Areas of work not traditionally associated with Fermanagh and Omagh but have the potential to bring additional economic development to the area, are Renewable Energy Development and Unconventional Shale Gas Extraction. The telecommunications sector is also viewed as having an impact on the potential for economic development and growth.

Renewable Wind Energy

4.2 Ambitious government targets, reflected in the Programme for Government 2011-2015, require Northern Ireland to seek to achieve 40% of its electricity consumption from renewable resources and a 10% renewable heat by 2020. Electricity generated from onshore wind farms has been identified as the most established, large-scale renewable source in Northern Ireland and the main source to achieving this target. Northern Ireland is considered as having one of the greatest wind energy resources in Europe, particularly in the West in Fermanagh and Omagh where the topography, wind speeds and proximity to the west coast line have attracted high numbers of applications for both single wind turbines and wind farms. According to data published in September 2018 by the Department for Business, Energy and Industrial Strategy onshore wind is the leading technology for the generation of electricity from renewable sources within Fermanagh and Omagh. In 2017 Fermanagh and Omagh wind energy contributed to 26% of the electricity generated from renewable sources within Northern Ireland.

4.3 The economic benefits of wind energy are wide ranging from the potential to have a cheaper source of green energy to being able to sell surplus to the grid as well as opportunities within the industry, this includes, planning, project development, engineering, construction and maintenance of the turbines. Turbines will also require input from financial and legal services in addition to marketing and administration posts[6]. Wind energy developments have also the potential to provide economic and social benefits for the surrounding communities which are often in areas that are traditionally economically disadvantaged. Community gain payments made by the developers to local

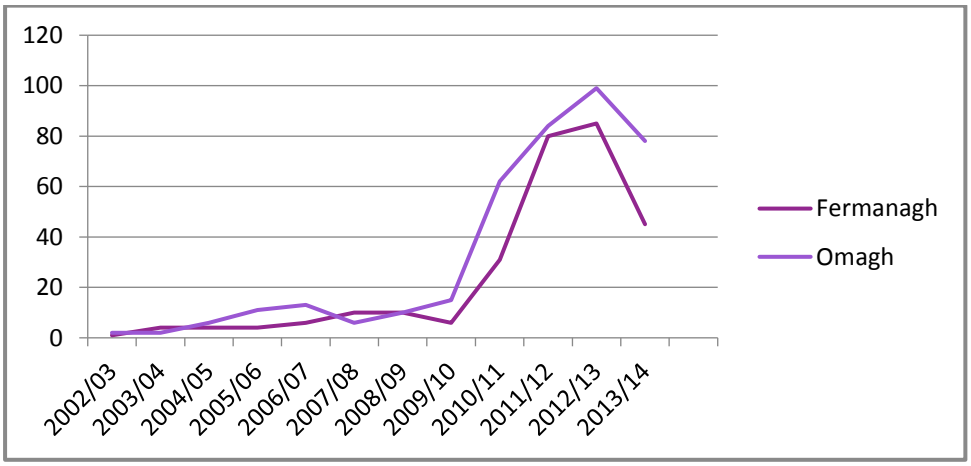
[6] ICBAN Regional strategic framework for the Central Border Region 2013-2027, infrastructural supporting document'

communities as recommended by the Fermanagh Trust, can provide much-needed community benefit funds for local community projects.

4.4 The contribution made by Fermanagh-Omagh to renewable energy is illustrated by the number of applications received since 2002. Fermanagh-Omagh's share of the total of 4,415 applications received since 2002 has been 867 - almost 20%. This is the highest proportion of renewable applications received across all the council clusters. Of the 867, 624 (72%) have been decided and of these, 90% (561) have been approved.

4.5 Since 2002, Fermanagh and Omagh have received 20.7% (716) of all applications for single wind turbines. Of the total number decided (501), 88% have been approved. Significantly, this accounts for 15.58% of applications for all types of renewable energy approved in Northern Ireland - the highest of all 11 council areas. This is a result of particularly high numbers of planning applications for single wind turbines received in Fermanagh and Omagh in the period 2010/11 to 2013/14(Figure 7). Over the periods of 2014/15, 2015/16, 2016/17 and 2017/18 there has been an overall decline in the number of applications being received for single wind turbines.

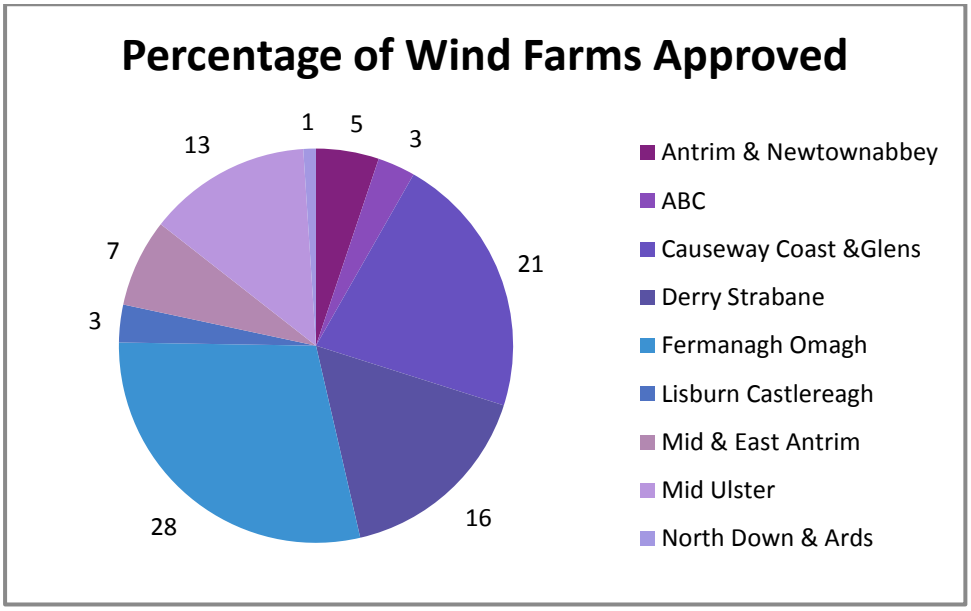
Figure 7: Number of planning applications for single wind turbines received in Fermanagh and Omagh in period 1st April 2002 to 31st August 2013.



Source: DOE Renewable Statistics

4.6 In the period 1st April 2002 to 31st August 2014 a total of 175 applications for wind farms were received by the Department. Of these, 30 applications were in the Omagh District Area and 19 in Fermanagh District which accounts for 28% of all wind farm applications received. Of these, 28 have been approved representing 29.16% of all windfarm applications approved in Northern Ireland (Figure 8). The geographical distribution of these applications is shown in the wind energy maps in Appendix 2.

Figure 8: Proportion of wind farms approved in the period 1st April 2002 to 31st August 2014.



Source: DOE Renewable Statistics

4.7 The concentration of planning applications and subsequent approvals of planning permission for single wind turbines and wind farms in the Fermanagh and Omagh District Council area has provoked a number of outcomes. At present Tyrone has the fourth largest wind capacity in Ireland.[7] One such

[7] Wind energy placing Tyrone back in centre stage, Paul Brogan Ulster Herald, November 20th 2014.

outcome has been the growth of the renewable energy/wind energy construction and maintenance sector and the need to build the relevant skill sets. This is evidenced by the addition of related training and courses being made available at the South West College in Omagh. It has also been suggested that there has been an increase in Turbine Tourism, bringing interested visitors to the area. The level of local objection to applications for single wind turbines and wind farms has grown, with increasing concerns about the cumulative impact wind energy development in the area.

4.8 However, the much reported economic benefits of the wind energy industry are directly impacted upon by the ongoing issues with Grid Connection. Significant delays in the timescales for receipt of quotes for Grid connection from NIE, alongside the high cost of connecting to the grid has resulted in many projects becoming unfeasible.

4.9 Given the increasing prevalence of wind energy development, in particular wind farms, and increasing concerns regarding impacts on more sensitive areas, consideration should be given as to whether or not the development plan needs to develop a policy on how proposals should be treated in those areas.

Appendix 3 – Improvements to Broadband in Fermanagh and Omagh

3.0 Broadband Improvement Project

3.1 This project is designed to 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.

3.2 Work has already taken place to improve or provide broadband in the following areas within the Fermanagh and Omagh District.

- Beragh
- Carrickmore
- Dromore
- Drumquin
- Fintona
- Gortin
- Omagh

Further improvements are planned in the Fermanagh area from mid to end of 2015. Currently there are 4 exchanges in the Fermanagh area that are fibre enabled. This provides opportunity for improved broadband speeds within their vicinity.

- Kesh
- Irvinestown
- Derrygonnelly
- Springfield

Next Generation Broadband Project

3.3 This project was launched by DETI in a bid to increase the competitiveness of local businesses. It aimed to update around 1265 telecommunications cabinets with fibre technology so that broadband speeds could be increased. Work has been completed on this project across Northern Ireland so that towns can now connect to broadband speeds of up to 10MB per second.

Northern Ireland Broadband Fund

3.4 This was a £1.9m fund which was set aside to help support projects which aimed to improve broadband across Northern Ireland. In the Fermanagh and Omagh District, there were three projects which benefitted from this fund:

a) Installation of a WIMAX wireless broadband connection in the Greencastle Area

b) A technology trial completed in 2009, using existing satellite backhaul services to establish if the satellite infrastructure could support delivery of

low cost, reliable 2G and 3G mobile telephony coverage to rural areas in Northern Ireland. The trials in Ballinamallard area were successfully completed in October 2009;

c) Delivery of improved broadband using fixed wireless technology in an area running from Augher to Lough Melvin in Fermanagh.

d) Delivery of a dark fibre network in Enniskillen town using the waste water infrastructure;

e) Installation of a WiMAX Fixed Wireless Access Network in the Fermanagh, area

3.5 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.

3.6 BDUK has three programmes to achieve this:

Superfast Broadband Programme

The ambition is to provide superfast broadband (speeds of 24Mbps or more) for at least 95% of UK premises and universal access to basic broadband (speeds of at least 2Mbps).

Government funding is stimulating private sector investment in broadband to ensure that the benefits are available to all.

The programme is being delivered in three phases:

- Phase 1 aims to provide superfast broadband to 90% of premises in the UK
- Phase 2 will seek to further extend coverage to 95% of the UK
- Phase 3 will test options to rollout superfast broadband beyond 95%.

Super Connected Cities Programme

The Government is investing up to £150 million to support UK cities to develop the digital infrastructure capability to remain internationally competitive and attractive for investors, business and visitors.

There are three components to the Super Connected Cities Programme:

- Broadband Connection Vouchers scheme
- Wi-Fi projects
- Innovative digital projects

Businesses can benefit from broadband connection vouchers available in the 22 ‘Super Connected Cities’ across the UK.

Businesses can check eligibility and apply at the Connection Vouchers website. (This initiative ended in October 2015)

Appendix 4 - Extent of 4G coverage in Fermanagh and Omagh District

4G coverage in Fermanagh and Omagh (Vodafone,O2,EE)
Kinawley
Garrison
Belleek
Stonefort
Brookborough
Derrygonnelly
Knockarevan
Culky
Ederney
Tully
Lower Bracky
Clanabogan
Roscavey
Fintona
Glenfern
Lislap
Barr
Gortin
Dunmoyle
Trillick

Appendix 5 – Types of Renewable Energy Development

- **Wind** – Electricity generated by onshore windfarms is the most established, large scales source of renewable energy in NI. For the 12 month period April 2017 to March 2018, 35.2% of total electricity consumption in Northern Ireland was generated from renewable sources located in Northern Ireland. This represents an increase of 8.1 percentage points on the previous 12 month period (April 2016 to March 2017). In terms of the volume of electricity consumption between April 2017 and March 2018, approximately 7,894 Gigawatt hours (GWh) of total electricity was consumed in Northern Ireland. Of this, some 2,777 GWh was generated from renewable sources within Northern Ireland. Of all renewable electricity generated within Northern Ireland over the 12 month period April 2017 to March 2018, 84.3% was generated from wind[8].

  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 Anerobic Digestion/Biogas (10.5%).[9]

  - 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.

  - **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.

    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

[8] DETI- Statistics on electricity consumption and renewable generation in Northern Ireland –June 2018.
[9] NIE – "Renewables –Sub-groups"

be combusted to generate electricity. Thermal processes can also be used to 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/water borne emissions;
  - Traffic to and from the site in order to transport biomass fuel and subsequent by-products.

- **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 it 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.

- **Solar-** 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 benign 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.

Appendix 6

Table 17: Percentage of household waste sent for recycling (inc. composting), KPI(a), in Northern Ireland, 2002 - 2014/15													
												Unit: Percentage	
Area	2002	2003	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
arc21													
Antrim	19.1%	22.4%	38.4%	44.0%	47.1%	48.7%	48.3%	47.5%	46.0%	49.3%	49.2%	51.9%	50.6%
Ards	9.6%	9.0%	20.4%	24.0%	25.5%	27.6%	33.9%	40.2%	40.6%	41.2%	37.8%	36.7%	37.4%
Ballymena	21.0%	18.0%	23.4%	26.9%	28.2%	26.5%	36.2%	33.3%	32.3%	38.0%	44.4%	49.3%	45.1%
Belfast	4.0%	4.6%	8.9%	14.4%	19.0%	23.2%	26.3%	26.6%	29.8%	31.7%	34.0%	40.1%	43.9%
Carrickfergus	8.2%	10.5%	17.2%	17.4%	21.9%	33.2%	32.9%	34.2%	41.1%	40.9%	38.5%	40.5%	39.6%
Castlereagh	5.0%	12.1%	22.2%	32.5%	34.9%	37.7%	38.1%	37.6%	41.3%	42.2%	40.7%	41.3%	40.9%
Down	13.5%	13.3%	19.2%	33.7%	32.2%	31.6%	32.6%	32.5%	32.5%	33.0%	33.5%	32.4%	34.0%
Larne	6.0%	9.6%	16.5%	25.0%	31.6%	37.4%	40.5%	41.1%	43.7%	50.8%	50.0%	47.1%	45.5%
Lisburn	9.0%	9.2%	12.2%	19.8%	25.1%	31.9%	33.1%	37.0%	39.4%	40.5%	38.0%	41.2%	40.9%
Newtownabbey	16.5%	17.0%	19.9%	22.5%	24.8%	30.3%	35.0%	37.3%	42.1%	43.4%	44.6%	45.8%	43.6%
North Down	11.1%	12.6%	17.2%	24.6%	33.0%	38.1%	40.4%	41.8%	45.0%	45.0%	43.6%	42.3%	42.9%
All arc21	**9.7%**	**10.6%**	**16.7%**	**22.9%**	**26.8%**	**30.9%**	**33.9%**	**35.0%**	**37.5%**	**39.3%**	**39.5%**	**41.8%**	**42.4%**
NWRWMG													
Ballymoney	10.2%	9.9%	24.0%	24.4%	24.7%	26.2%	32.5%	35.5%	35.0%	36.2%	33.3%	34.7%	35.0%
Coleraine	6.8%	11.6%	18.6%	24.3%	25.7%	29.9%	38.4%	34.9%	36.1%	39.8%	39.7%	38.5%	39.5%
Derry	2.7%	7.2%	13.7%	28.1%	24.4%	31.9%	32.6%	31.9%	29.6%	28.8%	26.8%	34.6%	32.8%
Limavady	2.5%	10.9%	27.3%	35.9%	28.5%	36.0%	33.0%	34.3%	35.1%	36.4%	38.5%	38.6%	39.1%
Magherafelt	4.9%	18.1%	31.4%	35.7%	35.3%	38.1%	42.1%	50.0%	53.0%	60.2%	56.1%	54.3%	52.3%
Moyle	2.1%	4.6%	11.3%	25.5%	26.5%	34.5%	30.7%	34.4%	36.2%	41.2%	39.0%	43.5%	43.6%
Strabane	4.1%	8.6%	17.3%	21.3%	22.8%	23.0%	25.7%	26.1%	32.8%	33.6%	30.7%	30.4%	30.0%
All NWRWMG	**4.6%**	**10.1%**	**19.3%**	**27.6%**	**26.3%**	**31.3%**	**34.2%**	**35.0%**	**35.7%**	**37.9%**	**36.2%**	**38.6%**	**37.9%**
SWaMP2008													
Armagh	16.5%	21.0%	23.3%	26.7%	32.8%	37.3%	36.3%	38.3%	40.9%	42.4%	40.6%	40.1%	42.4%
Banbridge	29.5%	33.3%	39.2%	41.0%	45.1%	45.7%	47.9%	49.6%	49.6%	52.0%	53.0%	56.1%	59.0%
Cookstown	17.3%	16.2%	20.1%	28.1%	31.6%	36.3%	39.0%	38.6%	39.5%	41.0%	41.4%	42.5%	49.1%
Craigavon	16.1%	19.3%	23.3%	29.3%	30.0%	34.7%	35.4%	37.1%	39.1%	43.5%	47.3%	42.9%	44.9%
Dungannon	10.9%	13.4%	20.1%	19.5%	24.9%	30.2%	33.3%	33.2%	37.3%	41.6%	42.1%	41.5%	42.1%

Fermanagh	10.6%	17.5%	21.0%	20.8%	27.8%	28.8%	26.7%	29.7%	30.8%	35.4%	34.8%	36.1%	38.4%
Newry & Mourne	9.3%	13.4%	20.0%	24.9%	27.8%	30.1%	32.6%	33.7%	33.0%	37.1%	37.2%	37.6%	38.2%
Omagh	9.1%	12.2%	19.6%	17.8%	27.9%	38.1%	38.1%	39.9%	40.2%	43.4%	43.2%	43.4%	44.6%
All SWaMP2008	**14.3%**	**18.0%**	**23.0%**	**25.9%**	**30.5%**	**34.4%**	**35.5%**	**37.0%**	**38.2%**	**41.8%**	**42.4%**	**42.1%**	**44.1%**
Northern Ireland	**10.0%**	**12.5%**	**18.9%**	**24.5%**	**27.7%**	**31.9%**	**34.4%**	**35.6%**	**37.3%**	**39.7%**	**39.7%**	**41.3%**	**42.0%**
Source: NIEA													
Note: Rates calculated by dividing total tonnage of household waste sent for recycling (inc. composting) by total household waste arisings.													

% Waste Recycling figures for 2015/2016 & 2016/2017 are provided in the form of the new council areas.

Percentage of household waste sent for recycling (inc. composting), KPI(a), in Northern Ireland, 2015/2017		
	2015/2016	**2016/2017**
Antrim & Newtownabbey	**46.8%**	47.5%
Ards & North Down	**40.2%**	**49.2%**
Armagh City, Banbridge & Craigavon	**48.0%**	**48.8%**
Belfast	**40.0%**	**39.4%**
Causeway Coast & Glens	**38.8%**	**42.3%**
Derry City & Strabane	**33.3%**	**40.5%**
Fermanagh & Omagh	**45.5%**	**45.3%**
Lisburn & castlereagh	**41.9%**	**41.1%**
Mid & East Antrim	**42.9%**	**45.35**
Mid Ulster	**49.6%**	**51.6%**
Newrr Mourne & Down	**38.9%**	**40.1%**

Arc21	**41.5%**	**43.3%**
NWRWMG	**36.1%**	**41.4%**
Northern Ireland	**42.2%**	**44.4%**

Appendix 7

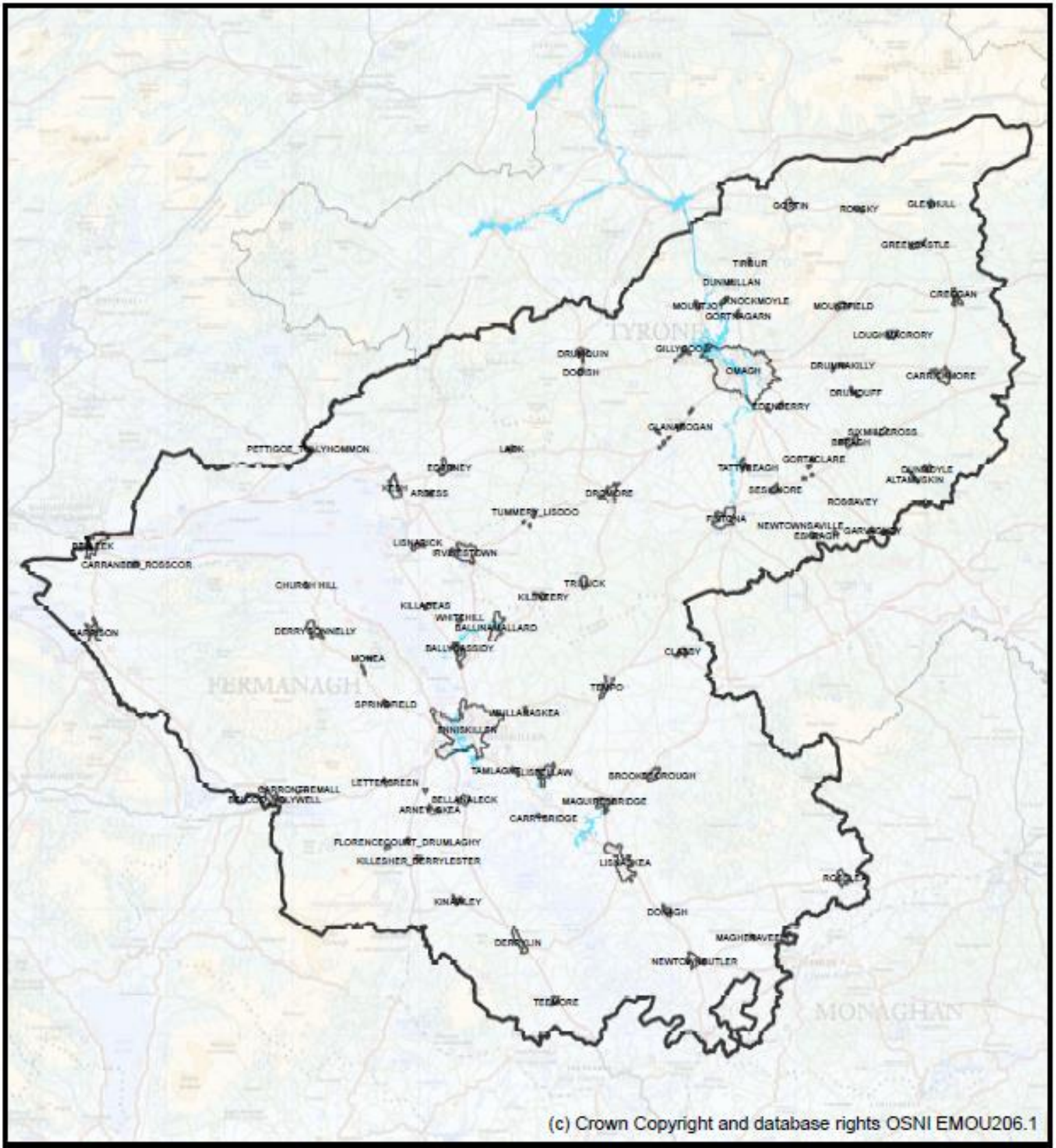
Table 4: LAC municipal waste sent for recycling (inc composting) as a percentage of total LAC municipal waste arisings, KPI(e), in Northern Ireland, 2002 - 2014/15													
												Unit: Percentage	
Area	2002	2003	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
arc21													
Antrim	18.6%	21.8%	39.8%	45.8%	47.1%	47.1%	49.6%	51.2%	48.8%	53.2%	53.6%	56.2%	53.2%
Ards	9.0%	8.4%	19.4%	22.9%	24.5%	26.3%	31.8%	37.2%	37.9%	38.2%	35.6%	34.7%	35.1%
Ballymena	20.1%	17.5%	21.6%	25.7%	26.5%	24.8%	35.3%	34.2%	33.2%	38.3%	44.4%	49.8%	45.8%
Belfast	3.5%	3.9%	8.7%	13.0%	16.9%	20.7%	22.0%	22.3%	25.3%	26.9%	29.8%	35.9%	38.6%
Carrickfergus	7.5%	8.8%	14.6%	15.0%	19.5%	29.3%	28.4%	30.9%	41.3%	46.1%	40.8%	40.4%	40.5%
Castlereagh	4.7%	12.6%	22.7%	33.2%	35.6%	35.7%	37.0%	38.0%	41.2%	42.3%	40.9%	41.7%	41.5%
Down	11.7%	13.3%	16.8%	29.2%	27.8%	26.0%	27.0%	28.3%	29.3%	31.0%	32.0%	28.7%	32.2%
Larne	5.8%	8.7%	14.5%	23.1%	28.4%	32.1%	34.7%	35.3%	38.2%	53.0%	52.8%	50.1%	48.5%
Lisburn	8.1%	8.5%	13.7%	21.1%	24.8%	31.6%	32.6%	36.5%	39.4%	40.0%	37.8%	41.5%	41.6%
Newtown-abbey	15.0%	15.4%	18.0%	20.9%	22.8%	26.9%	32.8%	34.5%	39.4%	40.6%	42.7%	46.3%	44.1%
North Down	9.3%	16.2%	19.8%	20.1%	26.8%	30.6%	32.6%	34.4%	42.9%	44.3%	44.0%	43.6%	45.1%
All arc21	**8.7%**	**10.4%**	**16.5%**	**21.5%**	**24.8%**	**27.9%**	**30.6%**	**32.2%**	**35.3%**	**37.7%**	**38.3%**	**40.9%**	**41.5%**
NWRWMG													
Ballymoney	6.3%	7.5%	22.2%	21.4%	21.9%	24.0%	29.9%	34.1%	33.6%	35.2%	32.8%	33.4%	33.7%
Coleraine	6.2%	10.6%	17.8%	24.0%	22.4%	25.6%	34.4%	29.8%	33.5%	37.8%	36.6%	36.0%	37.1%
Derry	2.3%	6.0%	11.9%	28.3%	23.6%	28.3%	29.6%	29.6%	29.2%	29.8%	28.1%	35.3%	35.3%
Limavady	3.5%	11.1%	24.1%	33.2%	28.1%	36.2%	33.5%	34.9%	35.3%	36.6%	42.2%	43.2%	44.2%
Magherafelt	3.8%	14.4%	27.4%	32.1%	32.1%	35.5%	40.3%	48.4%	51.8%	59.1%	55.4%	53.1%	50.8%
Moyle	1.9%	4.1%	9.5%	18.0%	21.1%	29.0%	28.1%	32.6%	33.9%	38.5%	36.9%	42.3%	42.8%
Strabane	3.5%	7.3%	15.0%	18.7%	20.3%	21.0%	22.8%	23.8%	31.2%	31.7%	28.3%	28.9%	28.5%
All NWRWMG	**4.0%**	**8.8%**	**17.4%**	**26.0%**	**24.1%**	**28.3%**	**31.6%**	**32.6%**	**34.6%**	**37.3%**	**35.9%**	**38.3%**	**38.3%**
SWaMP2008													
Armagh	15.9%	22.8%	25.7%	29.1%	35.0%	38.5%	36.8%	38.7%	41.1%	43.4%	41.0%	41.3%	43.6%
Banbridge	27.1%	34.5%	40.0%	40.7%	44.1%	45.4%	48.7%	51.6%	51.0%	53.3%	55.0%	58.0%	60.6%
Cookstown	16.5%	20.0%	22.4%	26.8%	28.4%	33.4%	37.7%	38.7%	38.9%	41.1%	41.7%	42.4%	45.6%
Craigavon	14.4%	21.5%	21.6%	25.6%	26.2%	29.0%	30.8%	33.1%	36.0%	41.0%	46.5%	42.9%	45.0%

Dungannon	10.0%	12.1%	19.1%	19.2%	23.8%	28.2%	30.9%	31.1%	35.0%	39.2%	40.2%	39.9%	40.0%
Fermanagh	9.6%	15.8%	18.9%	17.7%	24.3%	25.1%	27.0%	31.3%	32.1%	37.0%	37.0%	38.7%	41.2%
Newry & Mourne	8.7%	12.3%	18.2%	22.7%	25.8%	26.0%	27.8%	28.8%	28.9%	32.5%	33.1%	33.7%	33.8%
Omagh	8.5%	11.8%	17.9%	15.9%	23.6%	32.5%	40.0%	37.4%	38.0%	42.8%	42.6%	43.2%	44.6%
All SWaMP2008	**13.2%**	**18.5%**	**22.3%**	**24.2%**	**28.1%**	**31.0%**	**33.6%**	**35.2%**	**36.7%**	**40.5%**	**41.7%**	**41.8%**	**43.4%**
Northern Ireland	**8.9%**	**12.2%**	**18.2%**	**23.0%**	**25.5%**	**28.8%**	**31.6%**	**33.1%**	**35.5%**	**38.4%**	**38.7%**	**40.6%**	**41.4%**
Source: NIEA													
Note: Rates calculated by dividing total tonnage of LAC municipal waste sent for recycling by total LAC municipal waste arisings.													

% Waste Recycling figures for 2015/2016 & 2016/2017 are provided in the form of the new council areas.

LAC municipal waste sent for recycling (inc composting) as a percentage of total LAC municipal waste arisings, KPI(e), in Northern Ireland, 2015/2017		
	2015/2016	**2016/2017**
Antrim & Newtownabbey	**48.4%**	**51.1%**
Ards & North Down	**41.4%**	**48.3%**
Armagh City Banbridge & Craigavon	**48.7%**	**49.0%**
Belfast	**35.7%**	**35.3%**
Cause Coast & Glens	**39.1%**	**42.5%**

Derry City & Strabane	**34.9%**	**42.6%**
Fermanagh & Omagh	**46.9%**	**46.1%**
Lisburn & Castlereagh	**42.9%**	**42.6%**
Mid & East Antrim	**44.5%**	**45.5%**
Mid Ulster	**47.7%**	**49.7%**
Newry Mourne & Down	**36.3%**	**38.6%**
Arc21	**40.65**	**42.6%**
NWRWMG	**37.1%**	**42.5%**
Northern Ireland	**41.8%**	**44.0%**



Fermanagh & Omagh District Council
Comhairle Ceantair Fhear Manach agus na hÓmaí

Appendix No.8 - Q100 Climate Change Flood Extent Detailed

FODC Boundary

Q100 Climate Change Flood Extent Detailed

Settlements

0 5 10 Miles

N

Settlement	Design Size	Planning Status
MAIN TOWN		
Omagh	**>250**	Y
LOCAL TOWNS		
Fintona	**>250**	Y
Dromore	**>250**	Y
Carrickmore	**>250**	Y
VILLAGES		
Beragh	**>250**	Y
Drumquin	**>250**	A
Gortin	**>250**	Y1
Greencastle	**>250**	Y1
Loughmacrory	**>250**	N
Mountfield	**>250**	Y
Seskinore	**>50<250**	A
Sixmilecross	**Pumped to Beragh**	
Trillick	**>250**	Y
HAMLETS		
Altamuskin	**>250**	Y
Clanabogan/	**>50<250**	A
Tattysallagh/	**>50**	Y
Cavanacaw	**>50<250**	Y
Creggan	**N/A**	
Dooish	**>50<250**	Y

Drumduff	**N/A**	
Drumnakilly	**>250**	Y
Dunmoyle	**N/A**	
Dunmullan	**>50<250**	A
Edenderry	**>50<250**	N
Eskragh	**<250**	A
Garvaghey	**>250**	Y
Gillygooly	**N/A**	
Glenhull	**N/A**	
Gortaclare/Moylagh	**N/A**	
Gortnagarn	**N/A**	
Kilskeery	**>50<250**	Y
Knockmoyle	**>50<250**	A
Mountjoy	**>50<250**	Y
Newtownsaville	**N/A**	
Roscavey	**N/A**	
Rousky	**>50<250**	Y
Tattyreagh	**N/A**	
Tircur	**N/A**	
Tummery	**>50<250**	A

Appendix 9 - WwTW Design Sizes and Planning Statuses

Settlement	Design Size	Planning Status
MAIN TOWN		
Enniskillen	**>250**	Y
LOCAL TOWNS		
Irvinestown	**>250**	Y
Lisnaskea	**>250**	Y
VILLAGES		
Ardess	**>50<250**	A
Arney	**>250**	Y
Ballinamallard	**>250**	Y
Ballycassidy	**>250**	Y
Belcoo	**>250**	Y
Bellanaleck	**N/A**	
Belleek	**>250**	N
Brookeborough	**>250**	Y
Carrenbeg/Rosscor	**<50**	A
Carontremall	**>50<250**	Y
Carrybridge	N/A	
Church Hill	**<250**	N
Clabby	**>250**	N1
Derrygonnelly	**>250**	Y
Derrylin	**>250**	Y
Donagh	**>250**	Y
Ederney	**>250**	N

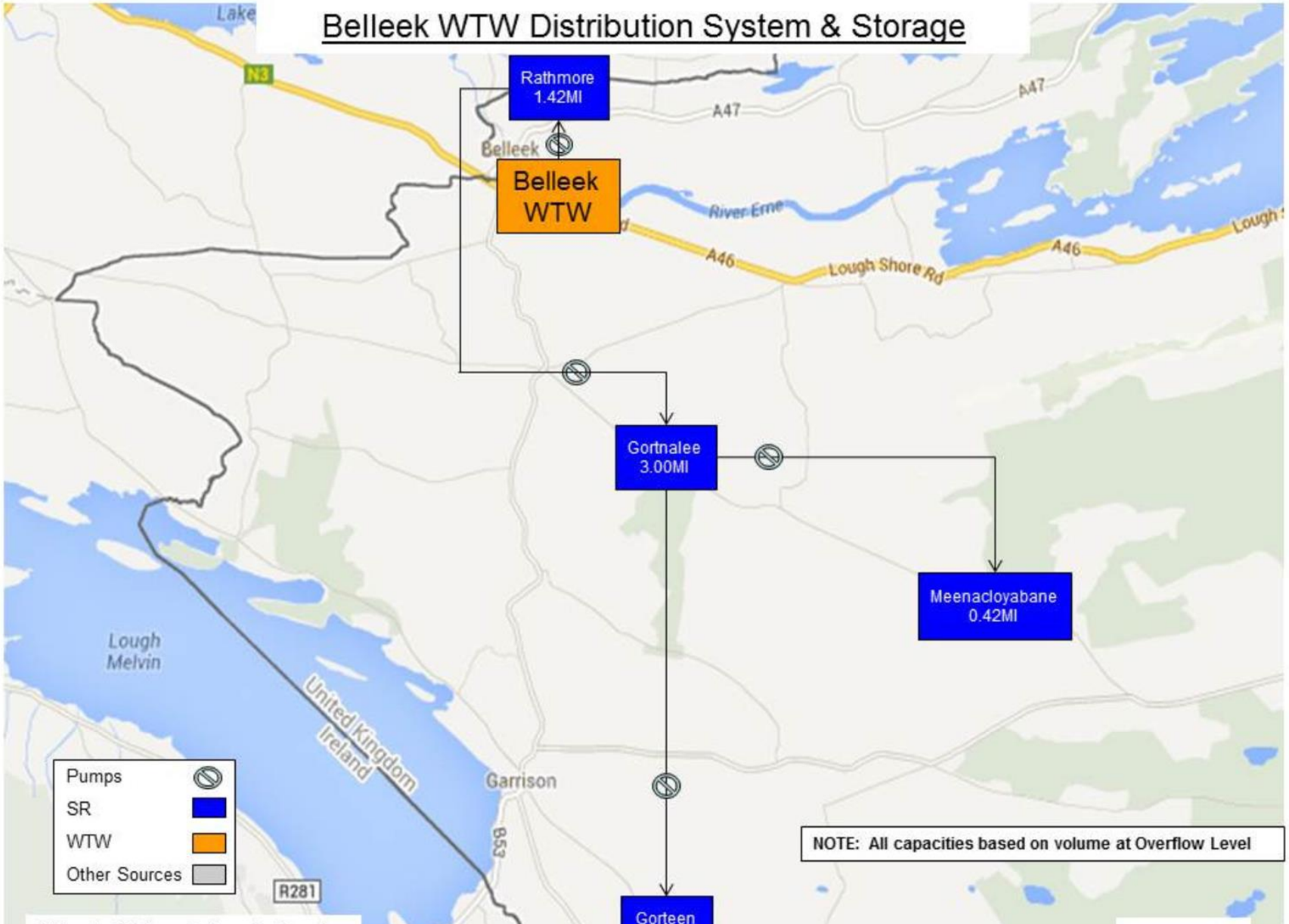
Florencecourt	**>250**	Y
Garrison	**>250**	N
Kesh	**>250**	Y
Killadeas	**N/A**	
Killesher	**N/A**	
Kinawley	**>250**	Y
Lack	**>250**	Y
Letterbreen	**>250**	Y
Lisbellaw	**>250**	Y
Lisnarick	**>50<250**	Y
Magheraveely	**>50<250**	Y
Maguiresbridge	**Pumped to Lisnaskea**	
Monea	**>250**	Y
Mullanaskea	**N/A**	
Newtownbutler	**>250**	Y
Pettigo	**N/A**	
Rosslea	**>250**	Y1
Springfield	**>50<250**	Y
Tamlaght	**>250**	A
Teemore	**>250**	Y
Tempo	**>250**	Y
Whitehill	N/A	

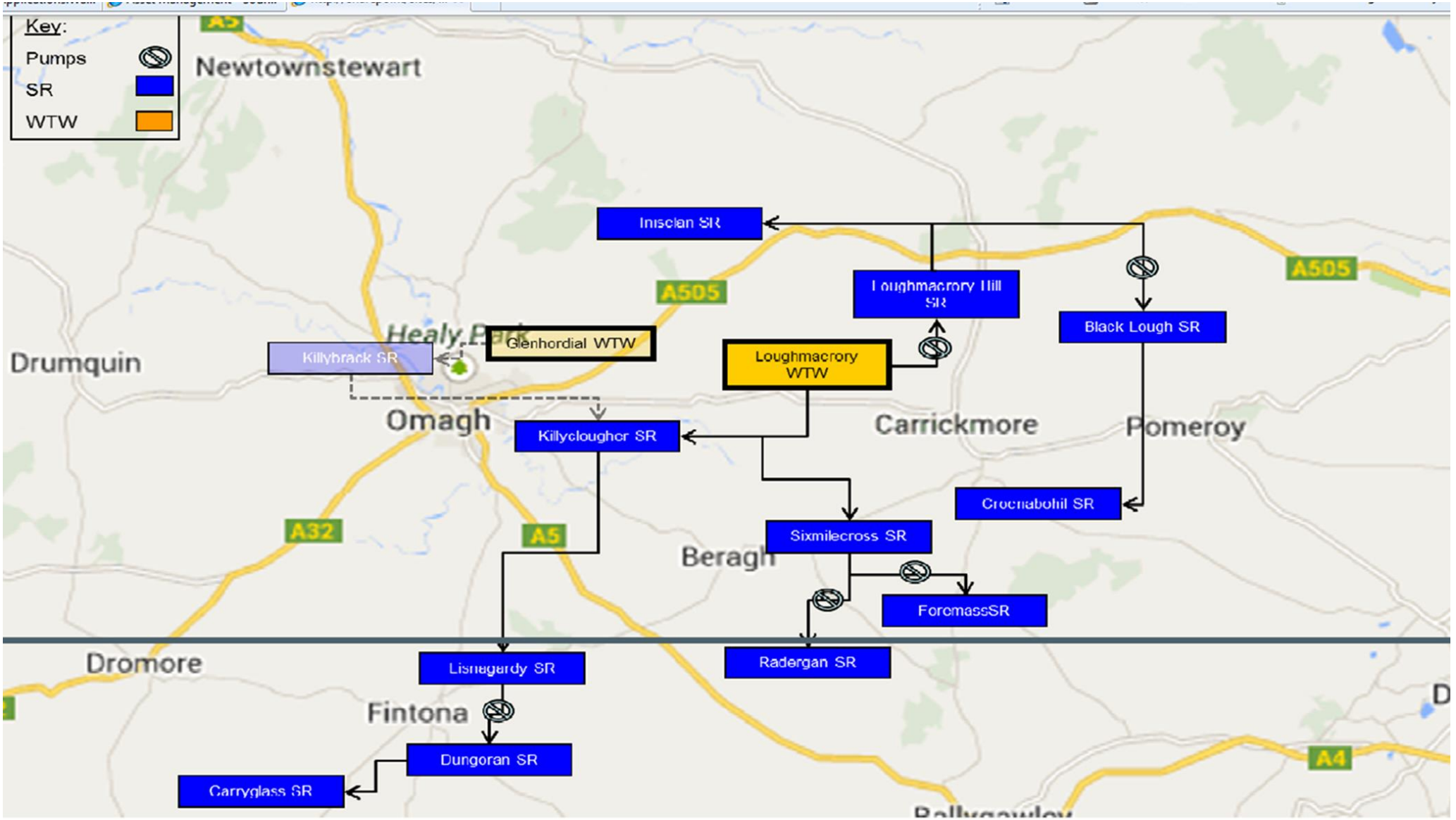
Key:

	Planning
Assessed on Application	A
No Headroom – Not identified for upgrade within Business Plan period (2015/21)	N

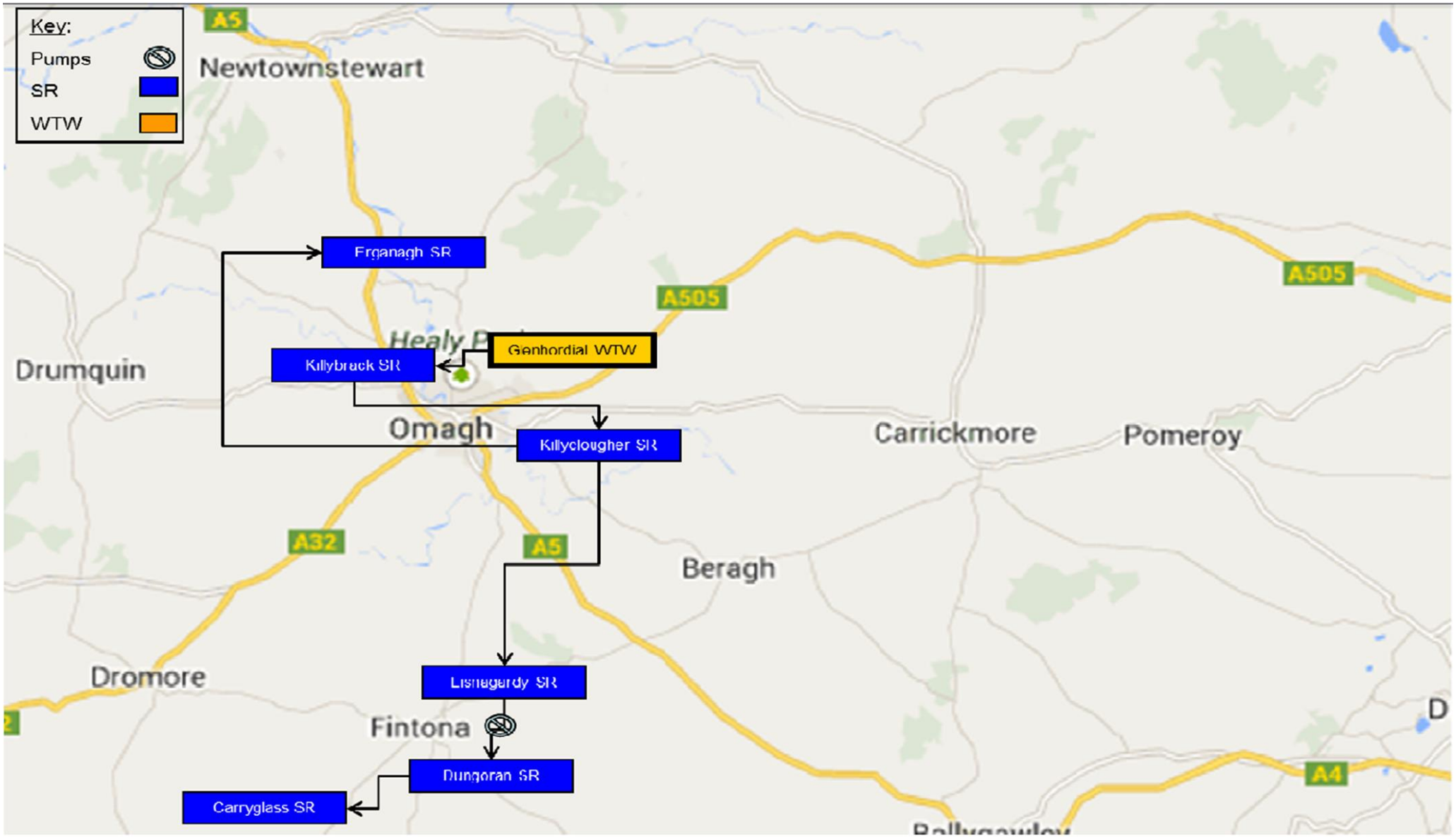
Proposed upgrade – Restricted approval until contract award	N1
Proposed upgrade Restricted approval until upgrade of sewerage scheme	N2
Headroom Capacity at WwTW	Y
Limited Headroom assessed on application	Y1

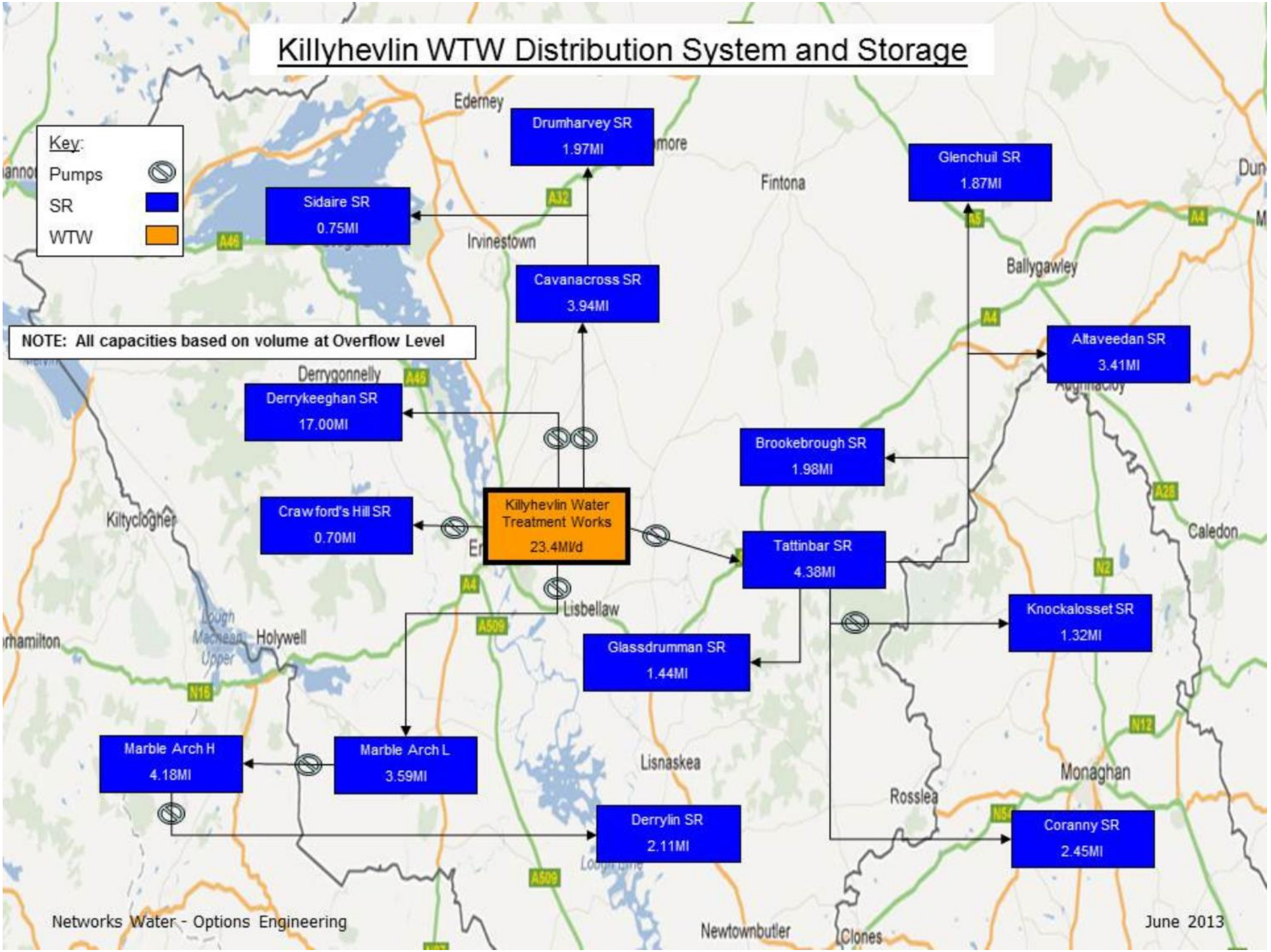
Appendix 10


Belleek WTW Distribution System & Storage
Rathmore
1.42Ml
Belleek
WTW
Gortnalee
3.00Ml
Meenacloyabane
0.42Ml
Gorteen
N3
A47
A46
Lough Shore Rd
River Erne
Lough Melvin
United Kingdom
Ireland
Garrison
B53
R281
Pumps
SR
WTW
Other Sources
NOTE: All capacities based on volume at Overflow Level



rks Water – Options Engineering: October 2013


Key:
Pumps
SR
WTW
A5
Newtownstewart
Erganagh SR
A505
Healy P
Glenhordial WTW
Killybrack SR
Drumquin
Omagh
Killyclougher SR
Carrickmore
Pomeroy
A505
A32
A5
Beragh
Dromore
Lisnagerdy SR
Fintona
Dungoran SR
Carryglass SR
A4


Killyhevlin WTW Distribution System and Storage
Key:
Pumps
SR
WTW
NOTE: All capacities based on volume at Overflow Level
Drumharvey SR
1.97Ml
Sidaire SR
0.75Ml
Cavanacross SR
3.94Ml
Glenchuil SR
1.87Ml
Altaveedan SR
3.41Ml
Brookebrough SR
1.98Ml
Derrykeeghan SR
17.00Ml
Crawford's Hill SR
0.70Ml
Killyhevlin Water Treatment Works
23.4Ml/d
Tattinbar SR
4.38Ml
Knockalosset SR
1.32Ml
Glassdrumman SR
1.44Ml
Marble Arch H
4.18Ml
Marble Arch L
3.59Ml
Derrylin SR
2.11Ml
Coranny SR
2.45Ml
Ederney
Fintona
Irvinestown
Ballygawley
Derrygonnelly
Kiltyclogher
Lisbellaw
Holywell
Lisnaskea
Rosslea
Monaghan
Caledon
Newtownbutler
Clones
Networks Water - Options Engineering
June 2013

Derg WTW distribution system and storage