DERRY CITY AND STRABANE DISTRICT COUNCIL

LOCAL DEVELOPMENT PLAN (LDP) 2032



EVIDENCE BASE EVB 15

PUBLIC UTILITIES (Updated May 2017)

This Document is one in a series, which builds up to form the 'evidence base' that informs the preparation of the Local Development Plan (LDP).

It comprises initial Workshop Paper(s) on this Planning topic that were presented to Council Members during 2016 / 2017, which have been subject to Member discussion and input, before further discussion at the Planning Committee (LDP) and in turn feeding into the LDP Preferred Options Paper (POP) and then the Plan Strategy (PS) and eventually the Local Policies Plan (LPP) which together form the LDP.

The afore-mentioned evidence base will be continually updated, to additionally include the latest information, input from public engagement, statutory consultees, stakeholder groups, Sustainability Appraisal and from other Departments within the Council, including Community Planning.

The Evidence Base is published as a 'supporting document' in accordance with Article 10(a) and 15(a) of the Planning (LDP) Regulations (NI) 2015





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Paper 1: Public Services and Utilities

Purpose of Paper: Purpose: To consider the adequacy of the existing Public Services and Utilities up to 2032 and to assess the additional land use needs of Public Services and Utilities in the Derry City and Strabane District Council Area.

Content: The paper provides information on:-

- (i) Regional and Policy background;
- A profile of the current baseline Public Services and Utilities provision – water, sewerage facilities, drainage, rivers and flood risk, waste disposal, energy facilities, natural gas, cemeteries, telecommunications, air quality;
- (iii) Adequacy for needs to 2032;
- (iv) Implications for the LDP;
- Conclusion: Councillors should note the contents of this paper in relation to public services and utilities and provide input/feedback on how this aspect should contribute to our LDP.



1.0 Introduction to Paper

- 1.1 This Paper is one in a series, building up the evidence base that will inform the preparation of the Local Development Plan (LDP).
- 1.2 The discussion and input from Council Members at Workshop 9 will then feed into a forthcoming 'Options' Paper on these matters to the Planning Committee (LDP) for decision, which will in turn feed into the LDP Preferred Options Paper (POP) which is due out in Spring 2017.
- 1.3 The information presented in this paper will assist the Council in developing an informed and innovative approach to setting clearly defined aims and objectives for the further development of public services and utilities in the District, as well as considering their implications for other developments and land uses.
- 1.4 This paper will provide the evidence base information to assist members and officials in considering how the LDP can facilitate the development of vital public utilities and services over the plan period. This will enable Members to begin to:
 - To make informed planning decisions, particularly within the plan making context.
 - Consider baseline information which will inform planning policy making at local level; and
 - To understand the link between national policy, regional policy and the development of other strategies such as the Community Plan.

Public Services and Utilities

1.5 This paper will cover a broad range of essential infrastructure which facilitate and support the wider development of the District during the plan period. This will include public services and utilities provisions such as water, sewerage facilities, drainage, rivers and flood risk, waste disposal, energy facilities, natural gas, cemeteries, telecommunications and air quality. The adequacy, or absence, of these features will also be an important constraint/opportunity affecting the various land uses.



2.0 Legislation and Regional Policy Framework

Regional Planning Policy

2.1. The regional policy context is provided by the Regional Development Strategy (RDS) 2035 which presents regional guidance (RG) under three sustainable development themes - economy, society and environment.

This section sets out the policy objectives in relation to telecommunications, energy supply, waste management, flood risk, drainage, water supply and sewerage. The relevant policies of the Strategic Planning Policy Statement (SPPS) and Planning Policy Statements (PPSs) for each of the above areas are identified under the relevant headings.

(a) Regional Development Strategy (RDS) 2035

- 2.2 The RDS set 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. Any proposed housing development will be dependent on the availability of all necessary infrastructure, including the availability of sustainable water resources and sewerage capacity.
- 2.3 The RDS sets out 8 main aims for the region which includes strengthening Derry as the principal city of the North West, improving connectivity to enhance the movement of energy and information between people and taking steps to take action to reduce our carbon footprint and facilitate adaptation to climate change. Management and delivery of our public services and utilities will be key to delivering aspects of these aims.

Telecommunication

2.4 The Executive recognises the need for a modern efficient telecommunication infrastructure. The draft Telecommunications Action Plan (2011-2015) aimed to ensure that a comprehensive range of next generation telecommunications services and data rich applications are made as widely available as possible across the region. The most common way of delivering both voice and broadband is via copper lines, often suspended overhead using wooden poles. However, these are increasingly being delivered using alternative technologies including fibre optics, cable and wireless (including mobile). Installing new ducts and cables in the ground is expensive. Incorporating telecommunications ducts with publicly funded infrastructure projects has been used very successfully in Europe.



- 2.5 The RDS 2035 envisages that next generation broadband services will be available to provide support for 85% of businesses.
- 2.6 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 the essential services. Further innovations and advancement upon the existing rural telecommunication infrastructure will work to lessen this disadvantage.
- 2.7 The key policy aims of the RDS 2035 regarding telecommunications are:
 - Invest in infrastructure for higher broadband speeds.
 - Improve telecom services in smaller rural areas to minimise the urban/rural divide
 - Increase the usage of broadband
 - Capitalise on direct international connectivity

Energy Supply including Renewable Energy

- 2.8 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.
- 2.9 Development of Northern Ireland's renewable energy sources is vital to increase its energy security, help combat climate change and achieve the renewable energy targets. The Strategic Energy Framework sets a target of 40% electricity consumption from renewable sources and a 10% renewable heat target by 2020, in line with mandatory EU renewable targets. This is likely to mean an increase in the number of wind farms both on and off shore and the need to diversify renewables to include electricity from other sources such as tidal stream and bio-energy sources. A renewable heat strategy is likely to require new renewable heat infrastructure to support it.
- 2.10 To facilitate the provision of additional renewable power generation it will be necessary to strengthen the electricity grid in many parts of Northern Ireland. Grid upgrading will also be needed to ensure that proposed tidal stream and off-shore wind developments are planned for properly. This will involve a significant programme of investment in grid strengthening in the north and west of the region.
- 2.11 SFG 6 seeks to develop a strong north west and identifies the need to improve the energy infrastructure across the region to ensure that the North West, in particular, has access to reliable sustainable energy supplies to support economic growth and connectivity and to maximise the North West's significant renewable energy resource.



2.12 The key policy aims of the RDS regarding energy supply are:

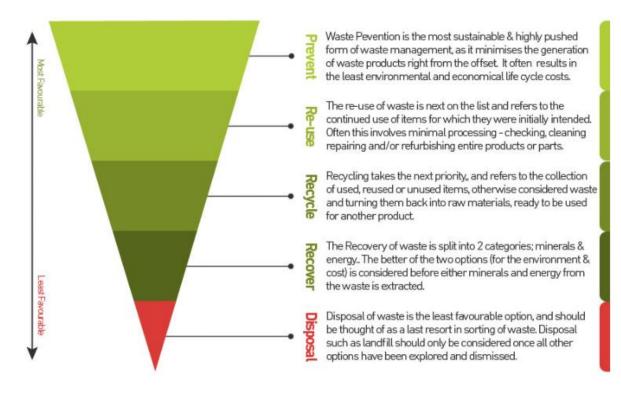
- Increase the contribution that renewable energy can make to the overall energy mix. There will be a significant increase in all types of renewable electricity installations and renewable heat installations.
- Strengthen the grid. With an increasing number of renewable electricity installations as well as increasing numbers of renewable heat installations there will be a need to strengthen the grid.
- Provide new gas infrastructure, including the provision of gas to new areas of Northern Ireland which would enhance the diversity of energy supply.
- Work with neighbours. This will ensure a secure energy supply from competitive regional electricity and gas markets in the EU's Internal Market.
- Develop "Smart Grid" Initiatives. This will 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.

Waste Management

- 2.13 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 the Directive sets out a waste "hierarchy" as a priority order for the 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.
- 2.14 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).







2.15 To manage waste sustainably, RG10 promotes the use of the "proximity principle" which emphasizes the need to treat or dispose of waste as close as possible to the point of generation in an effort to minimize the negative effects of waste transportation.

Water, Sewerage and Flood Risk

- 2.16 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, change 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.
- 2.17 The Housing Evaluation Framework (HEF), 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.



- 2.18 The key policy aims of the RDS 2035 regarding water and sewerage are:
 - Integrate water and land-use planning. Land-use planning should be informed by current water and sewerage infrastructure and future investment programmes. This will involve close co-operation between planning authorities and the water industry in the preparation of local development plans and long-term water strategies.
 - Manage future water demand. Reducing water consumption by reducing waste can lead to a lower carbon footprint as less water will need to be abstracted, treated and pumped. There will also be significant economic benefits through reduced energy and chemical costs. To help manage future water demand in new developments, consideration should be given to including measures such as grey water recycling and rainwater harvesting.
 - Encourage sustainable surface water management. Greater use of Sustainable Drainage Systems (SuDS) should be encouraged, particularly as part of significant development proposals. SuDS provide a water quality benefit and if designed appropriately can help control flows into rivers and drains thereby reduce the risk of flooding. All new urban storm water drainage systems should incorporate measures to manage the flow of waters which exceed design standards (exceedance flows) in order to help protect vulnerable areas.
- 2.19 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.
- 2.20 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.



(b) Strategic Planning Policy Statement (SPPS)

- 2.21 The SPPS (published in final form by the DOE (now DFI) in September 2015) explains the Local Development Plan and Development Management system requirements and consolidates the existing suite of strategic subject planning policies into a single document. In preparing LDPs, Councils must take account of the SPPS. This is a very important document in setting out the requirements of the LDP.
- 2.22 The SPPS contains objectives in respect of a range of the utilities included in this paper and sets out considerations that Councils may wish to pursue in the preparation of LDP's.

Telecommunications

- 2.23 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.
- 2.24 The Regional Strategic Objectives for telecommunications are to:
 - ensure that where appropriate new telecommunications development is accommodated by mast and site sharing;
 - ensure that the visual and environmental impact of telecommunications and other utility development is kept to a minimum;
 - minimise, as far as practicable, undue interference that may be caused to radio spectrum users (for example mobile phone services, media broadcasting and wireless broadband services) by new telecommunications development; and
 - encourage appropriate provision for telecommunications systems in the design of other forms of development.
- 2.25 In plan-making, Derry City and Strabane District Councils should bring forward policies and proposals to set out the detailed criteria for consideration of new telecommunications development in their local area which should address important planning considerations such as: siting, design, and impact upon visual amenity. To inform plan preparation, councils may consult with telecommunications operators, and other relevant stakeholders, in relation to the anticipated extent of the network coverage required over the plan period.
- 2.26 In certain circumstances and, subject to technical limitations on location and siting, Local Development Plans (LDPs) may allocate specific sites for major new telecommunications development.
- 2.27 In particular, planning authorities should take account of the potential effects of new telecommunications development, and any necessary enabling works, on visual amenity and environmentally sensitive features and locations.



Energy Supply and Production

- 2.28 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.
- 2.29 The regional strategic objectives for renewable energy are to:
 - Ensure that the environment, 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.
- 2.30 Derry and Strabane District Council should set out policies and proposals in their LDP that support a diverse range of renewable energy development, including the integration of micro generation and passive solar design. Furthermore, LDPs must take into account the regional strategic objectives, local circumstance and the wider environmental, economic and social benefits of renewable energy development.
- 2.31 DCSDC is encouraged when formulating policies and proposals for the LDP to take particular care when considering the potential impact of all renewable proposals on the landscape, as, for example, some landscapes may be able to accommodate wind farms or solar farms more easily than others on account of their topography, landform and ability to limit visibility.
- 2.32 A cautious approach for renewable energy development proposals will apply within designated landscapes which are of significant value, such as the Sperrins Areas of Outstanding Natural Beauty. In such sensitive landscapes, it may be difficult to accommodate renewable energy proposals, including wind turbines, without detriment to the region's cultural and natural heritage assets.
- 2.33 In relation to power lines, current Government policy is that exposures to power-line Electro Magnet Fields (EMFs) should comply with the 1998 International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines. A voluntary Code of Practice Power Lines: Control of Microshocks and other indirect effects of public exposure to electric fields A voluntary Code of Practice (DECC, July 2013) has been agreed by the Department of Energy and Climate Change, the Department of Health, the Energy Networks Association, the Welsh Government, the Scottish Government, and the Northern Ireland Executive. It sets out what is regarded as compliance with



those aspects of the EMF exposure guidelines that relate to indirect effects as far as the electricity system is concerned. Further Government policies relating to EMFs from overhead power lines, advise that as a precautionary measure they should, where reasonable, have optimum phasing. This is the subject of a companion Code of Practice "Optimum phasing of high voltage double-circuit power lines". This Code of Practice applies in England, Wales, Scotland, and Northern Ireland.

2.34 Any proposal for the development of new power lines should comply with the 1998 International Commission on Non-Ionizing Radiation Protection (ICNIRP). Furthermore, such proposals will be considered having regard to potential impact on amenity and should avoid areas of landscape sensitivity, including Areas of Outstanding Natural Beauty (AONBs).

Waste Management

- 2.35 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. The key government policy is set out in The Northern Ireland Waste Management Strategy – "Delivering Resource Efficiency" and this sets out the EU Waste Framework Directive (WFD) target of recycling (including preparing for re-use) 50% of household waste by 2020, as well as the Executive's Programme for Government commitments. In line with the RDS, this Strategy promotes the 5 step Waste Hierarchy.
- 2.36 The regional strategic objectives for waste management are to:
 - 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.
- 2.37 Derry City and Strabane District Council will have to set out policies and proposals in the Local Development Plan (LDPs) that support the abovementioned aim and policy objectives, tailored to the local circumstances of the plan area. In doing so, the DCSDC 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.



- 2.38 Sites and proposals for waste collection and treatment facilities must meet one or more of the following locational criteria:
 - it is located within an industrial or port area of a character appropriate to the development;
 - it is suitably located within an active or worked out hard rock quarry or on the site of an existing or former waste management facilities including a land fill site;
 - it brings previously developed, derelict or contaminated land back into productive use or where existing or redundant buildings can be utilised;
 - in the case of civic amenity facilities, the site is conveniently located in terms of access to service a neighbourhood or settlement whilst avoiding unacceptable adverse impact on the character, environmental quality and amenities of the local area; or
 - it is suitably located in the countryside, it involves the reuse of existing buildings or is on land within or adjacent to existing building groups. Alternatively where it is demonstrated that new buildings/plant are needed these must have an acceptable visual and environmental impact.
- 2.39 In the case of a regional scale waste collection or treatment facility, its location should relate closely to and benefit from easy access to key transport corridors and where practicable make use of the alternative transport modes of rail and water.
- 2.40 LDPs should also identify the need for appropriate waste management facilities within new development.
- 2.41 A presumption in favour of waste collection and treatment facilities, and waste disposal (land filling and land raising) will apply where a need for such development is identified through the Waste Management Strategy and the relevant Waste Management Plan. In the case of Waste Water Treatment Works (WWTW's) need must be demonstrated to the satisfaction of the Department or relevant authority.
- 2.42 In all circumstances, particular attention should be given to the potential impacts of existing and approved waste management facilities on neighbouring areas and the need to separate incompatible land uses.



Flood Risk and Drainage

- 2.43 The aim of the SPPS 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.
- 2.44 The regional strategic objectives for the management of flood risk are to:
 - prevent inappropriate new development in areas known to be at risk of flooding, or that may increase the flood risk elsewhere;
 - 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 Local Development Plans (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;
 - manage development in ways that are appropriate to the four main sources of flood risk in Northern Ireland, i.e. fluvial, coastal, surface water and water impoundment (reservoir) breach or failure;
 - 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



(c) Existing Planning Policy Statements

- 2.45 **PPS 10: Telecommunications** During plan preparation, telecommunications operators may wish to discuss the likely extent of the network coverage for the plan area. The plan may allocate particular sites for major telecommunications developments, such as tall masts, in order to encourage site sharing.
- 2.46 **PPS 11: Planning and Waste Management** During plan preparation, Council waste management groups may wish to discuss the likely extent of future waste management facilities for the plan area. Sites for the development of waste management facilities may be identified together with the need for appropriate waste management facilities associated with new development. Development plans will also consider the potential impact of existing or approved waste management facilities when zoning adjoining lands for other forms of development and the need to separate incompatible land uses. The COMAH Directive (EU Directive 96/82/EC) requires development plans to consider the location of hazardous installations including 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.
- 2.47 **PPS 15: Planning and Flood Risk** Flood risk management is an important aspect of sustainable development as flooding has far reaching and long term implications for society, the economy and the environment. 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 the zoning of land for various uses. Development Plans should avoid zoning sites for development in flood risk areas. Outside of such areas, it may still be appropriate for the Plan to mitigate against the risk of possible flooding, for example, by requiring susceptible areas within development sites to be retained as open space or indicating where the use of water resistant materials and forms of construction will be considered necessary.
- 2.48 Flood risk may also be an important consideration in the definition of settlement limits and in the designation of new settlements. Development plans may also need to consider the potential implications of flood risks beyond the Plan area.
- 2.49 As part of the precautionary approach, the council may also need to review extant development plans with a view to addressing flood risk issues which have been identified recently as a result of the emerging flood risk information. This may be necessary, for example, where undeveloped land previously zoned for development is now known to be located in a flood plain. In such circumstances and providing the flood risk cannot be properly managed through the development management system, a formal amendment to the Plan may need to be considered.



- 2.50 Local Development Plans (LDPs) have a role to play in furthering a more sustainable approach to flood management. This includes measures such as:-
 - Flood avoidance through the careful selection of housing and economics zonings;
 - identifying flood plains and safeguarding them from development likely to impact upon their flood storage and conveyancing capacity;
 - identifying and safeguarding from development areas of storm exceedence; and
 - promoting sustainable drainage schemes (SuDS).
- 2.51 **PPS 21: Sustainable Development in the Countryside** Policy CTY 16 states that planning permission will only be granted for development relying on non-mains sewerage, where it can be demonstrated that this will not create or add to pollution.



3.0 Current Area Plans for Derry City and Strabane District

- 3.1 Derry Area Plan 2011: The DAP was adopted in 2000 and has 4 proposals/policies under Chapter 13 Public Utilities:
 - Policy PU 1 Development near Sewage Treatment Works The Department will control development in the vicinity of Drumahoe sewage treatment works.
 - Policy PU 2 Areas at Risk from Flooding Development will not normally be permitted in areas known to be at serious risk from flooding.
 - Policy PU 3 Telecommunications Development Telecommunciations apparatus which requires planning permission will normally be permitted, provided it does not detract from the natural or man-made environment or the character of its setting.
 - Policy WD 1 Waste Disposal within Areas of Scenic Quality Planning permission will not normally be granted for the disposal of waste materials within the Sperrins AONB, Bonds Glen and Ness Wood/Ervey Wood Countryside Policy Area or within the Areas of High Scenic Value.
- 3.2 Strabane Area Plan (SAP) 2001 was adopted in 1991. The SAP stated that mains water supply is available throughout the District and is mainly supplied by extraction from the River Derg. Water is also extracted from Lough Bradan (near Drumquin, Omagh) and Caugh Hill (near Dungiven, Limavady) which are not located in the District, whilst storage is provided at a large number of service reservoirs.
- 3.3 A new STW was completed in Strabane when SAP was launched which was deemed of a sufficient capacity to meet the needs in the town throughout the Plan period. The situations in Castlederg, Newtownstewart and Sion Mills were also similar. New and extended provision was required in some villages and hamlets and it was recommended that development should be phased in line with the provision of sewerage infrastructure.



- 3.4 SAP affirmed that surface water run-off from within zoned lands can be accommodated by existing watercourse systems, subject to the approval of points of discharge. In some cases, the downstream improvement of works would be required prior to significant development.
- 3.5 Strabane was affected by major flooding in 1987 and SAP stated that a feasibility report confirmed the need to upgrade flood defences along the River Mourne in order to protect the low lying areas of Strabane. The recommendation to replace flood defences along the southern boundary of the town centre has been carried out during the plan period.
- 3.6 The SAP stated that waste disposal would continue to be disposed of in landfill. SAP identified two sites that the district uses for landfill i.e. at Spamount, for inert materials and at Carricklee where most of the waste was disposed by the Council, and which had a life expectancy of 7 years. As this plan was adopted in 1991, the two sites have become defunct during the plan period.

Derry City and Strabane District Community Plan

- 3.7 The District's Community Plan is expected in Spring 2017, with higher level strategic policies, as well as incorporating existing strategies/proposals for the District. Relevant themes in the Community Plan are 'Enterprise and Ecomony', 'Physical & Environmental Regeneration' and 'Infrastructure'.
- 3.8 The new style of LDP provides a unique opportunity for the Council to genuinely shape the district for local communities and will enable them to adopt a joined up approach, incorporating linkages to other functions such as regeneration, local economic development and community planning. The Local Government Act introduces a statutory link between the Community Plan (CP) and the LDP, in that the preparation of the LDP must 'take account of' the CP which provides the higher-level strategic aspirations for economic development in the District. It is intended that the LDP will be the spatial reflection of the CP and that the two should work in tandem towards the same vision for the Council area and our communities and set the long term social, economic and environmental objectives for the District.



The One Plan (llex, 2012)

- 3.9 The Plan set out a number of Transformational Themes that cover key areas for the regeneration of Derry and its surrounding area.
- 3.10 Theme 1: Growing the Digital Economy centres on Derry's status as the Digital City on the island of Ireland. The key areas identified relating to telecommunications infrastructure are as follows:
 - exploitation of Project Kelvin
 - maximize use of Broadband Infrastructure
 - need to make the latest superfast broadband infrastructure available to all.
 - creation of cross border information hubs
 - creating the environment where we can fully capitalise on the unique digital position of the City.
 - maximising the BT investment of £3.75m which will lead to the City being the first Digital City on the island of Ireland and one of the first in the UK to be 100% super fast broadband.
- 3.11 Theme 1 set out a number of key outcomes which are relevant to telecommunications infrastructure. It sought to have 100% super-fast broadband across the City by October 2011 and to create additional infrastructure with Data Centre development and associated cross border power supply led by the private sector. An OFCOM report in June 2014 reported there was 99.99% access to super-fast broadband by 2013.
- 3.12 Theme 5: Sustainable and Connected City Region has approaches including sustainability in Energy and Built Environment and Carbon Neutral Development an approach to regeneration that ensures that all new builds make use of sustainable materials, are energy efficient and use renewable sources of energy. The plan also promotes renewable and sustainable technologies for farmers and rural businesses.



Public Utility Provision in Derry City and Strabane District

4.0 Water Supply

- 4.1 The responsibility for the provision of water supply facilities in the Plan Area lies with the Government-owned company known as Northern Ireland Water (NIW). The duty to promote the conservation of the water resources in Northern Ireland and the cleanliness of water in waterways and underground strata falls to Government Department, Northern Ireland Environment Agency (NIEA). NIEA undertakes this duty by preparing water quality management plans, controlling effluent discharges, monitoring water quality and taking action to combat or minimise the effects of pollution.
- 4.2 Water supplies to Derry area come from two water treatment works at Carmoney, near Eglinton and at Caugh Hill, near Dungiven. Water supplies for Strabane are provided by water treatment works at Derg, Lough Braden, Glenhordial, Loughmacrory and Caugh Hill.

Implications for LDP 2032

4.3 There are no significant proposals to be shown in the Plan. The lack of water supply is not considered likely to be a constraint in the Plan, to development in any of the settlements.

Sewerage Facilities

- 4.4 The provision of sewage treatment facilities in the Plan Area is also the responsibility of Northern Ireland Water (NIW). The Urban Waste Water Directive 91/271/EEC aims to protect the environment from any adverse effects due to discharge of such waters by setting down minimum standards for the discharge of treated effluent from WWTW. It requires that all significant discharges of sewage be treated whether the discharge is to inland surface waters, groundwater, estuaries or coastal waters.
- 4.5 It is important to consider the impact that housing need will have on the existing sewage infrastructure in the District. The RDS 2035 Housing Growth Indicator (HGI, revised 2016) proposes that the Derry City and Strabane District will need approximately 5,000 new houses by 2025. If this figure is extrapolated on a pro-rata basis to the end of the plan period in 2032 the figure would be approximately 6,545. However it should be taken into account that there is a significant level of committed residential development. The former Department of Environment (DOE) completed a Housing Monitor in 2013 (see tables 1 & 2), which concluded that there was a remaining potential of 14,941 of units from extant and partially implemented planning approvals.



	Units completed as monitored between 1999 & 2013	% of all Derry District Urban completions 1999 -2013	Remaining Potential Units	% of all Derry District Remaining Potential
Derry City	10,805	79.46%	10,129	91.55%
Villages	2,441	17.95%	866	7.84%
Small Settlements	353	2.59%	70	.61%
Total Urban	13,599	100%	11,065	100%
Countryside	507 (est)	3.7%		

Table 1: Derry District – Housing Completions and Remaining Potential

	Units completed as monitored between 1999 & 2013	% of all Strabane District Urban completions 1999 -2013	Remaining Potential Units	% of all Strabane District Remaining Potential
Strabane District Town	1,982	49.40%	652	16.83%
Local Towns	857	21.36%	1,255	32.38%
Villages	1,008	25.13%	1,573	40.58%
Hamlets	164	4.11%	396	10.21%
Total Urban	4,011	100%	3,876	100%
Countryside	1,552 (est)	38.7%		

Table 2: Strabane District – Housing Completions and Remaining Potential



- 4.6 Development adjacent to WWTWs can occasionally cause nuisance, so in selecting land for development, it is generally desirable to avoid land near existing treatment works. Guidelines with respect to development adjacent to WWTWs have been agreed between Planning and Northern Ireland Water. NIW has developed a policy on Development Encroachment/Odour Assessment that will replace the old cordon sanitaire procedures. Where a developer proposes to construct a new development in proximity to a wastewater treatment works, a specific Development Encroachment/Odour Assessment will be undertaken at the developer's expense if an assessment has not previously been completed. The Odour Assessment Procedure may recommend the need for the developer to procure an Odour Dispersion Model and Report to Northern Ireland Water specification and requirements. This Odour Dispersion Model and Report will determine the 'Area of Development Restraint' and what, if any, mitigation measures it may be possible for the developer to provide.
- 4.7 The LDP must take into consideration the potential impact that any new development will have upon the existing sewage treatment system of the area. Similarly, the extent and limitations of the existing system will affect the amount and location of new development that the Plan can propose.
- 4.8 The availability of sewerage infrastructure will be an important consideration in determining the amount / location for development in the various settlements, in the Plan. This information is fed into the Resource Test as is part of the (RDS) Housing Evaluation Framework in each Settlement Appraisal. However it should be noted that inadequacies in existing sewerage provision does not necessarily prevent development. The problem may be resolved through private sector finance. Public sector finance for upgrading works will come from NIW and is identified in the Capital Works Programme. However, the Capital Works Programme is relatively short-term and will be subject to ongoing review over the Plan period. Where settlements are at or reaching capacity now, the developer would have to provide finance for appropriate sewerage facilities or wait until the settlement is accommodated in a new Capital Works Programme.



- 4.9 Northern Ireland Water have been contacted in preparation for this paper and in relation to the capacity of the WWTWs for each of our settlements. NIW have been developing a new informative that will convey both the present capacity condition of each of its Wastewater Treatment Works and also provide an estimation of how this condition may change depending on a range of potential growth scenarios. Whilst the format of this informative is still in draft form, the working example is based on two sets of indicators; one relating to current capacity and the associated impact on availability of new sewerage connections; the second is an estimated projection of treatment capacity were prescribed growth factor is applied to the existing drainage catchment flows. The indicators are a combination of Red, Amber, Green (RAG) traffic lights for current capacity and a variety of tick box symbols for future capacity. The distinct formats were adopted to help emphasise the certainty of the current status compared with the more speculative conclusion looking forward. The respective keys as shown in Appendix 4 explain the relevant implications. The information that is provided in Appendix 4 at this stage will be limited to those Settlements served by public treatment facility serving population equivalents of greater than 50.
- 4.10 The provision of new WWTWs in some locations will have the effect of making land in their immediate vicinity unsuitable for most forms of development. However the anticipated closure of WWTWs in some other locations will allow land to become available for development which was previously within the exclusion zone. Where known, the Plan will take account of these areas within settlements.
- 4.11 Where WWTWs are not available, the Plan will promote investigation of the use of wetland or biological systems for the treatment of sewage instead of, or in addition to septic tanks, as well as SUDS. Beyond settlement limits, it will necessary for the LDP to review/confirm regional planning policy in PPS 21, Policy CTY 16 will apply.

Surface Drainage

- 4.12 Northern Ireland Water (NIW) is also responsible for the provision and maintenance of facilities for draining and depositing of surface water and runoff from roofs and any paved ground surface within the curtilage of premises. However, the service is only provided if it is within reasonable cost, in accordance with the Water and Sewerage Services (NI) Order 2006.
- 4.13 NIW considers that the provision of storm sewerage to new developments can be a problem area. They feel that if a site cannot be drained to a suitable watercourse because of its topography, or if the area is associated with a floodplain, then these areas should not be zoned for development.



- 4.14 Rivers Agency (Department for Infrastructure-Dfl) is the statutory drainage and flood protection authority and will be consulted in relation to Plan proposals that are likely to involve significant runoff that may affect watercourses and floodplains, or alteration of watercourses.
- 4.15 In accordance with government policy, Rivers Agency is committed to the introduction of procedures for the recovery of developer contributions towards the costs of drainage infrastructure improvement work. Currently, drainage improvements necessary to permit development are subject to strict 'cost/benefit' criteria and scheme prioritisation. While drainage works to facilitate development may be identified as viable in principle, their implementation is dependent on the availability of resources. This situation may apply to sites proposed for housing in the LDP. This will be updated as part of statutory consultation with Rivers Agency.
- 4.16 For those sites where necessary infrastructure improvements are not viable, Rivers Agency will not normally consent to additional run-off beyond existing flow rates. Alternatively, SuDs can, in the right circumstances, offer developers the opportunity to proceed with developments which would otherwise be refused because of the increased flood risk they would pose. SuDs provides options for draining an area and falls into three broad groups that aim to:
 - Reduce the quantity of run off from the site (source control techniques);
 - Slow the velocity of run-off to allow settlement filtering and infiltration (permanent conveyance systems); and,
 - Provide passive treatment to collected surface water before discharging into land or to a watercourse (end of pipe systems)
- 4.17 Local streams not only have limited capacity to receive treated sewage, but also have a limited ability to accept increased rates of storm water run-off from areas of new development. In some circumstances, improvement works may be necessary. Such improvement works if viable, are dependent upon other competing priorities within the Rivers Agency and this may be a factor in the timing of development in some circumstances.
- 4.18 Rivers Agency undertakes maintenance for all "designated" watercourses and a 5-metre wide access strip should be retained free from all permanent structures along at least one riverbank. Accordingly, the LDP should not propose development where it would necessitate the loss of access to a watercourse for future maintenance.

Implications for LDP 2032

4.19 There are no significant drainage proposals to be shown in the Plan. NIW and Rivers Agency, will be consulted regarding specific candidate development sites and they will point out any sites that have particular limitations.



4.20 The Plan will seek to promote a move to SUDS and, in large developments where there will be significant runoff, this must be taken into account.

Rivers and Flood Risk

- 4.21 Rivers Agency (Dfl) is responsible for dealing with flood risk and advises on the implications of development proposals on drainage and flood defence issues.
- 4.22 The EU "Floods Directive" (2007/060/EC) came into force in November 2007 and aims to establish a framework that will contribute to reducing the impact of flooding on communities and the environment. Flood risk and hazard maps were published under this directive in 2013, and have been updated since.
- 4.23 The Water Framework Directive (00/060/EC) established a new system for the protection and improvement of all water environments in the EU to ensure they are managed in a sensible and consistent manner. Each river basin must have a strategic management plan with specific objectives for the water bodies within the river basin, allowing a comprehensive programme of measures to be prepared.
- 4.24 The flood risk management plans highlight the flood hazards and risks in the 20 most significant flood risk areas in Northern Ireland from flooding from rivers, the sea, surface water and reservoirs. The plans identify the measures that will be undertaken over the next 6 years and they set out how the relevant authorities will work together and with communities to reduce the flood risks.
- 4.25 Rivers Agency published the North Western Flood Risk Management Plan (NWFRMP) in December 2015 and council should ensure that the LDP is compatible with this FRMP as it contains specific advice relating to the Derry and Strabane District.
- 4.26 The NWFRMP is based on the **North Western River Basin District** (see Figure 2 below). The North Western River Basin District covers an area of around 4,900 km². It takes in large parts of County Fermanagh, County Derry and County Tyrone.



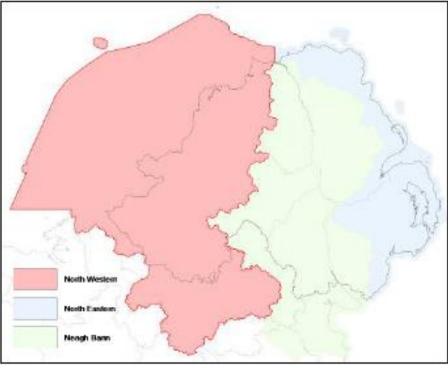
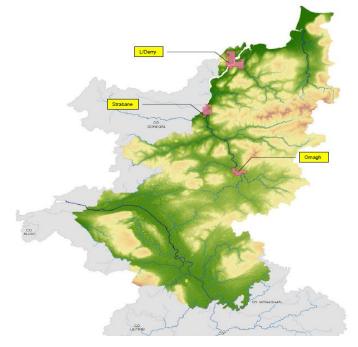


Figure 2

- 4.27 Following the Preliminary Flood Risk Assessment (PFRA) in 2009, twenty areas of potential significant flood risk were identified within Northern Ireland. Three of the Significant Flood Risk Areas (SFRAs) are located in the North Western River Basin District and named as follows:-
 - Derry/Londonderry SFRA
 - Strabane SFRA
 - Omagh SFRA



The key contents from the above two SFRA reports are summarised in the following pages, because of their important potential impact on land uses in



the LDP. Figure 3



Londonderry Significant Flood Risk Area – River Foyle and River Faughan LMAs

4.28 The core boundary of the Londonderry SFRA, which has been determined through the PFRA, is located within River Foyle and River Faughan Local Management Areas (LMAs) and illustrated in Figure 4 below.

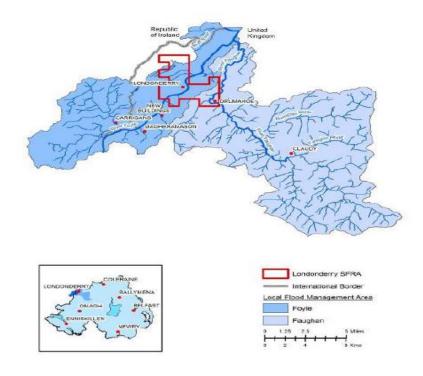


Figure 4

4.29 The Foyle System is located in Northern Ireland and accounts for a significant portion of the region west of Lough Neagh. There are a large number of tributaries and some of the headwaters are located in the Republic of Ireland.

The Foyle study area includes three smaller watercourses which drain the coastal land to the east of Derry, all of which discharge to the tidal Lough Foyle. None of these are hydraulically linked with the Foyle catchment. The most easterly of these is the River Roe, flowing through the towns of Dungiven and Limavady. Muff River drains a much smaller catchment (29 km²), flowing through Eglinton. To the west is the River Faughan, a larger system draining 296 km² of land around Claudy and Drumahoe.

4.30 The NWFRMP identifies both coastal and pluvial flood (floods due to rainfall) risk models for the Derry area. The coastal models centre on impacts on the city and takes into account key infrastructure such as Coolkeeragh Power Station. The fluvial models (floods due to rivers overflowing) identify key areas on the east and west banks of the Foyle. The models illustrate the predicted extents and depths from potential flooding and also detail the impact of flooding on property and key infrastructure.



4.31 The fluvial areas identified on the west bank of the Foyle are as follows: Pennyburn Stream and Creggan Burn. The areas identified on the east bank of the Foyle are Woodburn Park Stream, Burngibbagh and Ardnabrocky Drain.

4.32 Development Plans

In the preparation of new Development Plans for the City, Rivers Agency advises against bringing forward sites or the zoning of any land, particularly for built development, that has been identified from the flood maps as being within the 1 in 100 year fluvial floodplain/1 in 200 year coastal floodplain/reservoir inundation area or is susceptible elsewhere to surface water flooding. Rivers Agency have stated in the NWFRMP that they intend to review the existing Development Plan for Derry with a view to addressing flood risk issues which have only recently been identified as a result of the new flood maps.

The main (undeveloped) flooded areas, amongst others, within the Londonderry Significant Flood Risk Area

are:-

• Areas within the floodplain of the River Faughan – for example near Ardlough Road.

Flood maps can be viewed at the following link: http://riversagency.maps.arcgis.com/apps/webappviewer

4.33 Areas at Risk of Surface Water Flooding

For those sites outside the 1 in 100 year AEP fluvial floodplain/1 in 200 year coastal floodplain that are located in an area where there is evidence of a history of surface water flooding (identified by flood hardship payments), Rivers Agency will further consider the application through the appraisal of the accompanying Drainage Assessment that will need to demonstrate suitable flood mitigation measures. Where there is potential for surface water flooding as indicated in the 'purple' predicted areas on the Surface Water Maps, Rivers Agency will advise that the applicant should assess the flood risk and drainage impact to the site and construct in an appropriate manner.

The main areas identified in the City as being at surface water flood risk are:-• The low lying areas behind the quays on the west bank of the Foyle – for example, Foyle Street, Strand Road and Rossville Street.

4.34 Areas at Risk of Flood Inundation from Reservoirs

For all development proposals that are located within the potential flood inundation area of a controlled reservoir, Rivers Agency will further consider the application through the appraisal of the accompanying Flood Risk Assessment that will need to demonstrate suitable flood mitigation measures. If it is a new development proposal, Rivers Agency will also need the applicant to demonstrate that the condition, management and maintenance regime of the reservoir is appropriate to provide sufficient assurance regarding reservoir safety.

The controlled reservoirs identified in the Derry area are:-

Creggan Lower; and



• Creggan Upper.

4.35 Potential Schemes in Derry SFRA

Coastal

Given the coastal damages calculated, it is proposed that the City is considered for a Flood Alleviation Scheme and it should be prioritised for the Works Study Programme.

Fluvial

Given the fluvial damages calculated it is proposed that the following watercourses are considered for Flood Alleviation Schemes and prioritised for the Works Study Programme:-

- Ardnabrocky Drain;
- Burnagibbagh;
- Woodburn Park Stream; and
- Pennyburn Stream.

Strabane Significant Flood Risk Area – Finn, Deele, Burndennet and Foyle LMA

4.36 The core boundary of the Strabane SFRA, which has been determined through the PFRA, is located within the Finn, Deele, Burndennet and Foyle Local Management Areas (LMAs) and illustrated in Figure 5 below.

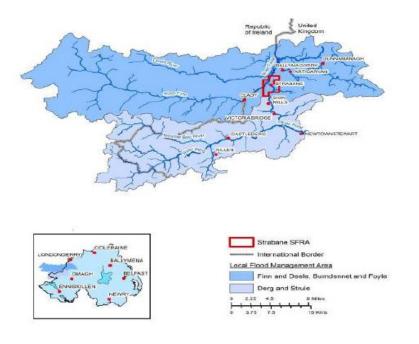


Figure 5

4.37 Strabane is at the confluence of the River Mourne and the River Finn. Downstream from the confluence is the River Foyle. The Burndennet River flows west and joins the River Foyle some distance downstream of the Strabane SFRA. Both the Finn River and Deele River flow east from Donegal.



The Deele River joins the River Foyle downstream of the Strabane SFRA. The catchments are mainly rural with Omagh and Strabane being the only significant urban areas. There is a history of significant flooding the urban area of Strabane. After floods in 1987, flood defences were improved along the southern edge of the town centre. Rivers Agency records show that the improved walls have withstood all the flood flows to date. In recent years, Rivers Agency has dealt with isolated drainage problems many of which related to surface water. In order to address specific drainage issues, Rivers Agency has carried out major culvert replacement works on Nancy Burn in the 1990s.

4.38 The NWFRMP identifies 3 models of potential flood risk areas in the Strabane area. These are locations are at Urney Road/Glenfinn Park Area, Park Road Drain/Lifford Road and Roundhill.

4.39 Development Plans

In the preparation of new Development Plans for Strabane, Rivers Agency advises against bringing forward sites or the zoning of any land, particularly for built development, that has been identified from the flood maps as being within the 1 in 100 year fluvial floodplain or is susceptible elsewhere to surface water flooding. Rivers Agency have stated in the NWFRMP that they intend to review the existing Development Plan for Strabane with a view to addressing flood risk issues which have only recently been identified as a result of the new flood maps.

The main (undeveloped) flooded areas, amongst others, within the Strabane Significant Flood Risk Area are:-

Areas behind river flood embankments – for example, between the River Foyle and the Barnhill Road/Derry Road and between the River Finn/Mourne River and the Great Northern Link.

4.40 Areas at Risk of Surface Water Flooding

For those sites outside the 1 in 100 year fluvial floodplain that are located in an area where there is evidence of a history of surface water flooding (identified by flood hardship payments), Rivers Agency will further consider the application through the appraisal of the accompanying Drainage Assessment that will need to demonstrate suitable flood mitigation measures. Where there is potential for surface water flooding as indicated in the 'purple' predicted areas on the Surface Water Maps, Rivers Agency will advise that the applicant should assess the flood risk and drainage impact to the site and construct in an appropriate manner.

The main areas identified in Strabane as being at surface water flood risk are behind the flood defences.

4.41 Areas at Risk of Flood Inundation from Reservoirs

For all development proposals that are located within the potential flood inundation area of a controlled reservoir, Rivers Agency will further consider the application through the appraisal of the accompanying Flood Risk Assessment that will need to demonstrate suitable flood mitigation measures.

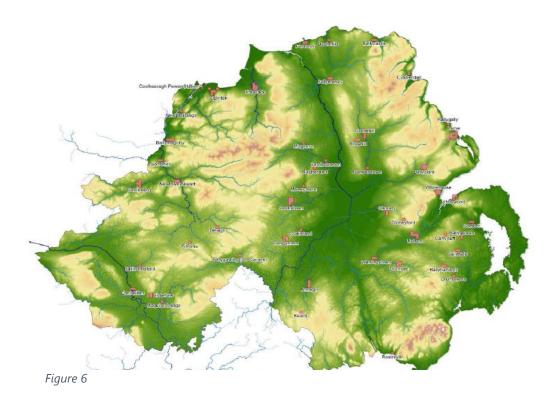


If it is a new development proposal River Agency will also need the applicant to demonstrate that the condition, management and maintenance regime of the reservoir is appropriate to provide sufficient assurance regarding reservoir safety. There are no controlled reservoirs identified in the Strabane area.

4.42 Potential Schemes in Strabane SFRA

Given the fluvial damages calculated it is proposed that the following watercourses are considered for Flood Alleviation Schemes and they are prioritised for the Works Study Programme:-

- Urney Road/Glenfinn Park (undesignated watercourse);
- Urney Road Drain and Urney Road Drain Extension;
- Park Road Drain; and
- Roundhill Drain.
- 4.43 The North Western Flood Risk Management Plan identifies a number of locations within the District which will be considered as areas of further study. These include Ballymagorry, Castlederg, Coolkeeragh,Eglinton, Newbuildings, Newtownstewart and Sion Mills. Please see figure 6 for location of areas of further study.





Energy Supply

- 4.44 The main source of energy in Northern Ireland is electricity. The majority of electricity is generated from fossil-fuel burning power stations. In 2013/14, 1,595 GWh of electricity in Northern Ireland was generated from indigenous renewable sources. This was equivalent to 19.5% of total electricity consumption in that period, an increase of almost 6 percentage points on the previous year when 13.7% of total consumption was from renewable sources. Northern Ireland Electricity (NIE) is the main responsible organisation.
- 4.45 Locations of Significant Electricity Generation in Northern Ireland Figure 7 below illustrates the Transmission System Network for Northern Ireland showing the 3 main power stations located at Ballylumford (Islandmagee, Antrim), Kilroot (Carrickfergus) and Coolkeeragh (Derry) which supply electricity to a wholesale market known as the Single Electricity Market (SEM). Mutual energy Limited also supplies electricity to the pool via the Moyle interconnector, the North-South Interconnector between Tandragee and Louth.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. A current proposal for a major North-South Interconnector between Co. Monaghan and Co. Tyrone is subject of a Public Inquiry.
- 4.46 SONI, part of the EirGrid Group since 2009, is the electricity system operator for Northern Ireland: They are responsible for the consistent and reliable transmission of electricity on our high-voltage grid, matching supply and demand for power across Northern Ireland, every second of every day. SONI also operates the all-island wholesale electricity market with EirGrid through the Single Electricity Market Operator (SEMO) which has been in operation since November 2007.
- 4.47 SONI have identified potential capacity issues in relation to the Magherafelt to Coolkeeragh Circuit, however there is no major capital works planned for this at this stage. ESB (Electricity Supply Board) are the owners of Coolkeeragh and have recognised that the progress of the North-South Interconnector is of great importance to how Coolkeeragh operates. Last July ESB Executive Director Paddy Hayes told a Northern Ireland Affairs Committee it had had to take a write down on its accounts in respect of Coolekeeragh. Mr. Hayes also told the committee: "Without looking exactly at the numbers, it seems to me that in about the winter of 2021, absent the North-South interconnector and absent anything else, there is a challenge. "What would happen then if the north-south interconnector was not going to happen by 2021? Maybe two years in advance of that it would be important to commission some emergency generation or some alternatives - to bring some generation out of retirement, if that was possible, or commission emergency generation that could be brought in within the space of a year or 18 months, subject to planning."



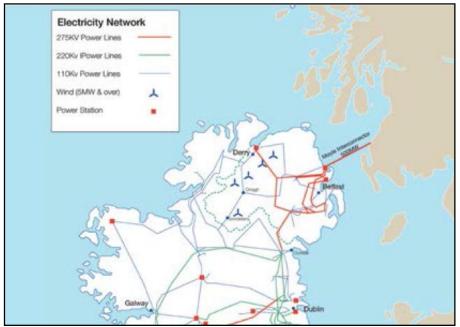


Figure 7 The Electricity Network- Framework for Co-operation: Spatial Strategies of Northern Ireland & The Republic of Ireland.



Renewable Energy

4.48 The European Commission's Renewable Energy Directive (2009/28/EC) establishes the overall policy for the production and promotion of energy from renewable sources in the EU and sets a binding target to reduce EU greenhouse gas emissions by 20% by 2020.

The UK Government passed the Climate Change Act in 2008. This Act sets ambitious targets beyond those agreed by Europe in setting legally binding targets to reduce carbon emissions by 80% by 2050, from 1990 levels.

4.49 The Strategic Energy Framework (SEF) (DETI 2010) set new and challenging renewable energy targets for Northern Ireland. The SEF makes it clear that on shore wind will continue to provide the largest proportion of renewable electricity generation in the period to 2020. The SEF states that NI will seek to achieve 40% of electricity consumption from renewable sources by 2020.

Additional targets have been set by the Programme for Government 2011-2015, this requires Northern Ireland to seek to achieve 20% of its electricity consumption from renewable resources and a 4% renewable heat by 2015. Electricity generated from on-shore wind farms has been identified as the most established, large scale renewable source in Northern Ireland and the main source to achieving this target.

Draft Programme for Government Framework 2016-2021 is a new approach which does not set any targets for renewable energy generation. Its focus is on the major societal outcomes that the Executive wants to achieve and provides a basis for all sectors to contribute to the development of plans and actions. There are 14 strategic outcomes which, taken together, the Executive believes best describes the society we wish to have. The outcomes are supported by 42 indicators which are clear statements for change. Strategic outcome No2 of the PFG is to be a society which lives and works sustainablyprotecting the environment. This document is currently in it consultation stage, the full draft Programme for Government Framework 2016 will be published in due course.

4.50 The main sources of renewable energy are the wind, the sun (solar), moving water (hydropower), heat extracted from air, ground and water (including geothermal energy) and biomass (wood, biodegradable waste and energy crops). Relative to the district, the key issues regarding each of these energy sources are summarized below. (See Paper 3 of Workshop 7: Renewable Energy for full details.)



- 4.51 Electricity generated by onshore wind farms 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. 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%).
- 4.52 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.
- 4.53 As of October 2016 in the Derry City and Strabane District, there are 18 wind farms which have received planning permission with a further 6 proposals under consideration. There is also a current proposal to extend an existing windfarm at Monnaboy. (See Appendix 1, Tables (I) and (II)).

Applications for Single Wind turbines in the District

4.54 In 2014/15 in the Strabane district, 22 applications were received of which 12 were decided with 5 approvals. In the Derry District, 14 applications were received of which 10 were decided with 5 approvals. While in 2013-2014, in the Strabane District, 29 applications were received of which 35 applications were decided with 28 approvals. In the Derry District, 12 applications were received of which 17 applications were decided - with 17 approvals.

Between 2002/2003 and October 2016, 280 applications for single wind turbines were received in the Strabane District. 182 applications were decided with 145 approvals (80% approval rate). In the Derry District, 102 applications for single wind turbines were received, of which 66 applications were decided with 55 approvals (83% approval rate).

There have been considerable issues of difficulty in providing connecting electricity line network between turbines and sub-stations within the District.



4.55 There are a number of other renewable sources that currently make a smaller contribution to energy supply. These include biomass/Anaerobic Digesters (Ads), solar, hydropower and heat source energy. Details of the current status of these sources were covered in Paper 3 of Workshop 7:Renewable Energy.

Natural Gas/Gas to the West

4.56 The North-West gas pipeline, from Carrickfergus to Derry, serves Coolkeeragh power station in Derry and enabled the development of gas networks along the route.

Firmus Energy (Firmus) is engaged in work to develop the natural gas market outside Greater Belfast along the routes of the North-West gas transmission pipeline (completed November 2004) and the South-North gas transmission pipeline (completed October 2006). This work involves rolling out the gas distribution network in the 10 towns and cities of Derry, Limavady, Ballymena, Ballymoney, Coleraine, Newry, Craigavon, Antrim, Banbridge and Armagh. To date, Firmus has connected around 28,000* customers in the 10 urban areas, including taking natural gas to some additional urban areas, such as Tandragee, Warrenpoint and Bushmills.

4.57 In January 2013, the Northern Ireland Executive Committee agreed to provide a subvention of up to £32.5m to assist the extension of the Northern Ireland natural gas network to the five largest towns in counties Tyrone, Fermanagh and South Derry. These being; Dungannon including Coalisland, Cookstown including Magherafelt, Enniskillen including Derrylin, Omagh and Strabane. Figure 8 outlines the existing and potential gas routes in Northern Ireland.

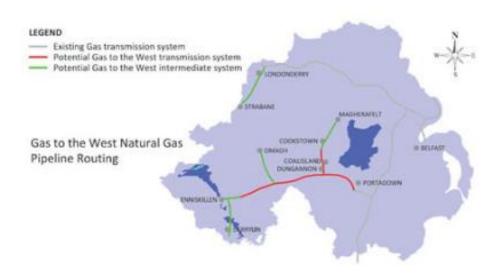


Figure 8 Existing and Proposed Gas pipelines



- 4.58 The Northern Ireland Authority for Utility Regulation (the Utility Regulator), will be responsible for the grant of the necessary licences, under Article 8 of the Gas (Northern Ireland) Order 1996 (the Gas Order). The Department of Enterprise Trade and Investment (DETI) is responsible for the published criteria against which licence applications will be judged. Two licences are to be granted. A High Pressure licence will relate to all the new transmission assets needed to connect the designated towns to the existing natural gas network. The Low Pressure licence will relate to all the distribution assets required in the designated towns to provide connections to individual supply points.
- 4.59 In August 2014, the Utility Regulator announced Northern Ireland Energy Holdings (Mutual Energy Ltd) and Scotia Gas Networks as their preferred applicants for the High and Low pressure licences respectively. The competition will see upwards of £200m invested in a new gas pipeline to the west of Northern Ireland. The pipeline will allow up to 40,000 new customer connections and has the potential to generate an additional £200 million of economic benefits, from energy savings and reduced greenhouse gas emissions. It is hoped that this significant investment will provide choice, strengthen the competiveness of the Northern Ireland energy market and promote further investment while also bringing the benefits of natural gas to domestic and commercial consumers in the west of Northern Ireland.

Waste Disposal

- 4.60 The collection and disposal of refuse is the responsibility of Derry City and Strabane District Council. Recycling and composting is similarly the responsibility of the Council and is facilitated through the provision of domestic recycle bins, bottle banks and civic amenity sites throughout the District. The Council provides a 'bulky household waste' collection service for those who cannot transport their waste to civic amenity sites.
- 4.61 The revised Northern Ireland Waste Management Strategy entitled 'Delivering Resource Efficiency' (October 2013) sets the policy framework for the management of waste in Northern Ireland, and contains actions and targets to meet EU Directive requirements and the DOE's Programme for Government commitments.
- 4.62 It builds on and retains the core principles of the 2006 Waste Management Strategy, and places a renewed emphasis on the Waste Hierarchy. The new 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 provides a framework for the preparation by District Councils of Waste Management Plans (WMPs) under Article 23 of the Waste and Contaminated Land (Northern Ireland) Order 1997.



- 4.63 Derry City and Strabane District Council forms part of the Northwest Region Waste Management Group (NWRWMG). This voluntary grouping has prepared a Waste Management Plan aimed at improving waste management practices through a regional approach to economies of scale and resourcesharing. One of the main objectives of this plan is to promote recycling / recovery and reduce the reliance on landfill sites as the primary means of waste management
- 4.64 During 2015/16 there was 70, 901 tonnes of municipal waste collected in the Derry City and Strabane District Council area of which 24, 734 tonnes was recycled/re-used and 19, 648 tonnes landfilled (DAERA).
- 4.65 Derry City and Strabane District Council operate 12 Civic Amenity sites, 7 in Derry District and 5 in Strabane District. They are currently located at:
 - Brandywell
 - Glendermott Road
 - Pennyburn
 - Strathfoyle
 - Eglinton
 - Claudy
 - Park
 - Strahan's Road, Strabane
 - Strabane Road, Plumbridge
 - Berryhill Road, Donemana
 - Killen Recycling Centre, Killen
 - Douglas Road, Newtownstewart
- 4.66 A new multi-million pound waste station and recycling centre has recently opened (December 2014) at Strahan's Road in Strabane. The £4.2m project involved the construction of a waste transfer building and an office building with adjoining garage. The Strahan's site was chosen as a central location for the residents of Strabane, Sion Mills, Glebe, Clady, Ballymagorry, Artigarvan and the surrounding district. The new state-of-the-art facility replaces Carricklee Recycling Facility ('Urney dump') and the leased Waste Transfer Shed at Strabane Road in Newtownstewart. The facility is a large fully enclosed industrial unit capable of handling various types of waste collected by Council. The unit also acts as a facility for the segregation of waste including furniture, carpets, washing machines, fridges, cookers, windows, doors, plumbing items, kitchen units, garden waste and coal bunkers.



- 4.67 Pennyburn Recycling Centre has recently underwent a major refurbishment works to transform it into a new multi-functional Recycling Centre. It is a key capital development project representing an investment of over £1.5m from Council, including £250,000 from Rethink Waste. The new facility will also be more accessible, safer and more user friendly and is key in the Council's ongoing commitment to improve recycling across the Council area.
- 4.68 The LDP will identify the main existing waste disposal sites and proposed sites, which will help to achieve a sustainable management of waste in the Plan Area. It has recently been indicated that there is a requirement for new or upgraded waste management facilities in the Waterside, area of Derry, Eglinton, Newbuildings and Castlederg. There is no landfill site within Derry and Strabane District therefore the Council will have to carefully consider the destination of their waste and sustainable options. Council could also investigate recycling and up-cycling leading to employment generation e.g training schemes operate at the 4Rs recycling centre in Pennyburn.

Cemeteries/Burial Grounds

- 4.69 Whilst many cemeteries in both Districts continue to be provided by various churches, Derry City and Strabane District Council have a duty of responsibility for the maintenance of their public cemeteries. There are 4 active cemeteries in the former Derry District and 7 active cemeteries in the former Strabane District. Appendix 2 Tables (III) and (IV) outline the location and status of all cemeteries in the Council area.
- 4.70 The Plan will take into account the possible expansion of cemeteries in the District. In particular, there is an identified need for a new cemetery on the west bank of Derry City. The City Cemetery is calculated to reach capacity in 6 years and given that there is no natural scope for expansion at this site the Council will have to consider a new site elsewhere on the west bank of the city. Based on burials rates for the city, it is envisaged that a site of somewhere between 30 and 50 acres will be required.
- 4.71 The LDP must carefully consider the location of any new cemeteries in terms of people and traffic generation and residential amenity. The choice of location will also have to take into consideration site specific issues such as the soil, groundwater, and nearby surficial water systems. Leachates emanating from embalming methods have the potential to contaminate groundwater and nearby water systems and therefore careful site selection and design are essential so as to avoid contamination. It is not clear if a crematorium will be required in the District over the plan period.



Air Quality

- 4.72 Air quality standards and their objectives have been enacted through the Air Quality Regulations (Northern Ireland) 2003. The Environment (Northern Ireland) Order 2002 requires Councils to undertake air quality reviews and assessments, and in areas where the air quality objectives are not expected to be met by the specified dates, Councils are required to establish Air Quality Management Areas (AQMAs) as a means to improve air quality and prepare Air Quality Action Plans (AQAP), setting out the measures it intends to put in place.
- 4.73 Derry City and Strabane District Council has 5 active Air Quality Management Areas in Derry at Creggan Road, Dales Corner, Spencer Road, Strand Road and Buncrana Road and 3 in Strabane at Railway Street, Newtownstewart and Castlederg. The AQMAs in Derry were declared due to high nitrogen dioxide concentrations from traffic sources at busy road junctions, whilst the AQMAs in Strabane were declared for domestic emissions of particles (PM10) from members public burning fossil fuels.
- 4.74 Air Quality Action Plans were agreed for the district and will be reviewed in late 2016.
- 4.75 The LDP will include appropriate references to the AQMAs in Derry, Strabane, Castlederg and Newtownstewart and to the desirability of improving air quality generally within the Plan area. The Strategic Environmental Appraisal accompanying the Plan will also consider how the issue of air quality, in relation to public health and well-being, can be incorporated in the Plan.

Telecommunications

- 4.76 British Telecom primarily provides fixed telecommunications within the Plan area. In recent years, significant growth of mobile telecommunications has occurred. A number of providers currently operate third and fourth-generation networks, including, O2, EE, Vodafone and 3. During the Plan period, further growth in telecommunications infrastructure is anticipated, particularly to accommodate the introduction of new digital broadband technology.
- 4.77 Project Kelvin established a direct international link between the North of Ireland and North America, with the Tele-house facility located at the Fort George site, Derry. The €29.5m project is a collaborative initiative between DETI and the Rol's Department of Communications, Energy and Natural Resources (DCENR) and funded under the Interreg IV Programme. The link was completed in March 2010. The direct international link is attractive to global companies, such as leading financial houses, exchange markets, service and media companies, who require fast, low latency bandwidth that avoids traditionally congested routes, such as around the New York and London waterways. This also improved existing links to Europe with high bandwidth. Connectivity supports foreign direct investment and offers a significant competitive edge for the benefit of the Region.



Broadband

- 4.78 The SuperConnected Derry programme was funded by the Department of Culture, Media and Sport to the value of £2.2million, through the Urban Broadband Fund. The initiative aimed to place Derry at the forefront of digital technology. Businesses in Strabane also to benefitted from the scheme, offering companies funding towards the upgrade to superfast broadband. Through the scheme small to medium sized businesses across the city have been availing of grants of up to £3000 to improve their existing broadband capabilities and vouchers are allocated on a first come first served basis. The initiative allowed local businesses access to high-grade broadband and wireless connectivity and targeted companies whose performance may be directly impacted by inadequate broadband services. It was available to any small and medium sized enterprise, business or voluntary sector business within the Derry City Council and Strabane District and covered initial connectivity and installation costs, to the maximum value of £3000, and a minimum of £100. The £2.2million made available through the fund for Derry and now also Strabane – is to boost digital capabilities and promote the region as an area worthy of foreign direct investment.
- 4.79 The development of the city's economic infrastructure, including an excellent communications network infrastructure, will be essential in promoting growth and inward investment. The SuperConnected Derry project will support this growth. Digital inclusion is important if Derry is to maximise the potential for economic growth. In 2014 it was reported that Derry is the best city in the UK for high-speed broadband availability, according to the national regulator OFCOM. Derry is the best-performing city for availability at 99.99% in accordance with the OFCOM report dated June 2014, which it can be viewed at the following link: https://www.ofcom.org.uk/about-fcom/latest/media/media-releases/2014/cities-summary-report.
- 4.80 The Northern Ireland Broadband Improvement Project is a scheme to provide for the first time, increase or improve broadband services in certain areas. The project aims to provide basic broadband in areas that have no service and to improve broadband services 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 broadband 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 through telephone lines. Basic broadband speed is two megabits per second. Superfast broadband speed is more than 24 megabits per second.
- 4.81 Following procurement, BT was appointed, and work began in February 2014. It was scheduled to finish by December 2015 and, when completed, it was intended that it would bring more choice and improve speeds to over 45,000 premises. Broadband improvement work has already taken place in the following areas of Derry City and Strabane District:



- Bready
- Castlederg
- Claudy
- Dunamanagh
- Eglinton
- Newtownstewart

Improvement work was planned in other areas of Derry and Tyrone in 2015 and beyond.

4.82 The Northern Ireland Superfast Rollout Project, managed by the Department for the Economy (DfE), is aiming to extend the availability of Superfast Broadband across Northern Ireland. DfE - Telecoms Branch is currently undertaking a consultation exercise to confirm those areas that do not have Next Generation Access (NGA) broadband infrastructure delivering at least 30Mbps, or where there are no plans to provide such infrastructure over the next three years (these are described as "white NGA areas"). The purpose of the consultation is to enable all interested stakeholders - the public, businesses and telecommunications providers to comment on the proposed white NGA areas before further coverage is committed. DfE will then submit its final proposals for the NGA white areas, taking account of the outcome of

the consultation, to Broadband Delivery UK's (BDUK) National Competence Centre for clearance.

To support this exercise, Derry City and Strabane District Council has requested stakeholders to submit addresses and post codes of areas that are experiencing minimal or no broadband coverage in the Derry City and Strabane District Council Area. This exercise commenced on 16th November and has now been completed with 186 responses received by council. Early analysis of the information highlights residents in the following areas are receiving minimal or no Broaband coverage:

- Artigarvan
- Plumbridge
- Castlederg
- Claudy
- Newtownstewart
- Strabane
- Ballymagorry

All information will be collated and a detailed analysis of the responses will be prepared. A full response is to be returned to DfE Telecoms Branch by 4th December 2016.

Mobile Phone Coverage



- 4.83 There are four main mobile phone providers in the Derry City and Strabane Council area. There are O2, Vodafone, EE and Three. They all provide the following coverage: voicecalls, 3g Data and 4g Data. The level of service and coverage varies depending on the provider, location and whether the service is being accessed from inside or outside a building. The communications regulator of Northern Ireland, OFCOM, provide data through a series of maps outlining a varying degrees of service available in the district area. The maps can be viewed in Appendix 3.
- 4.84 Proposals for telecommunications infrastructure will be dealt with through the Planning Development Management process under the provisions of regional policy, until the LDP policies are updated. Furthermore telecommunication operators will benefit from a degree of the permitted development rights under the Planning (General Permitted Development) Order (Northern Ireland) 2015. The LDP is unlikely to identify any specific sites for major telecommunications development.



5.0 Conclusions

- 5.1 This paper has provided an overview of utility provision in the Derry City and Strabane District and has looked at the existing provision and spare capacity of public utilities over the plan period until 2032. Utility provision in the Local Development Plan must take account of the Regional Development Strategy 2035 and the Strategic Planning Policy Statement (SPPS) to assist judgements on the allocation of housing growth especially 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 Council, though 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.
- 5.2 The LDP is not likely to 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. It should also be noted that service providers such as electronic/telecommunications code operators, water and sewerage operators, micro-generation companies, gas providers and electricity providers will benefit from a degree of permitted development as set out in the Planning (General Permitted Development) Order (Northern Ireland) 2015. Domestic properties will also benefit from permitted development under the same legislation for works relating to telecommunications and microgeneration.
- 5.3 Where proposals to develop new or replace existing 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 and committed plans to upgrade during the plan period, development may be constrained as a result of this. The LDP will also have to consider the designation of particular land uses adjacent to existing and proposed utility infrastructures. Other important considerations will include the assessment of environmental, the protection of designated sites and building of high importance such as Listed Buildings.
- 5.4 Further consultations are being held with Northern Ireland Water (NIW), Rivers Agency, Northern Ireland Environment Agency (NIEA), Northern Ireland Electricity (NIE) and Environmental Health. Key players including OFCOM and private sector providers will be invited to take part in Stakeholder meetings. This will feed into the evidence base, together with member feedback, in support of the POP and Planning Strategy documents.
- 5.5 Members may wish to consider specific policies/strategies in relation to some of the key themes identified in this paper. Some of the issues are outlined as follows:



Flood Risk, Drainage, and Water Supply

- Ensure that development land is zoned in areas where the headroom capacity of the 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 WWTWs.
- Local Development Plan should be compatible with the North West Flood Risk Management Plan.
- 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 proposes the use of SuDS.

Energy Supply and Renewables

- Adopt a flexible policy approach to adapt to emerging technologies in relation to energy supply including renewables
- Consider a policy position that recognises the value of the provision of renewable energy infrastructure but gives appropriate weight when locating such services in environmentally sensitive areas and also considers greater protection to neighbouring amenity.
- Consider how to site homes and businesses especially to maximise the benefit of the investment in natural gas and other energy infrastructure.

Telecommunications

 Develop an approach which promotes the development of telecommunications infrastructure whilst also playing close attention to the impact such development will have. This may mean for example, that certain areas are designated at local plan policies stage as areas where no telecommunications development will be permitted in order to protect sensitive landscapes, provided there is not recognised 'Not Spot' at that location i.e. no telecommunication coverage at all. Any such policy change may be brought through the introduction of Countryside Policy Areas.

Recycling and Waste Management

• The LDP will have regard to the Waste Management Plan when formulating Plan Strategy and Local Policies Plan.

Air Quality



• The LDP will have regard to the location of the AQMAs within the District when formulating the LDP and will consider the nature of the land-use when allocating land adjacent to these areas.

Cemeteries

- The LDP must carefully consider the location of a new cemetery in the west bank of the City of Derry. When doing so the LDP should consider the impact of the location on people and traffic generation and residential amenity and ensure that a sustainable location is identified.
- 5.6 The research findings contained in this paper together with Members views and advice from the relevant parties/consultees have informed various options, such as those for the spatial strategy and housing, as part of the Preferred Options Paper (POP) process. Further feedback will be required to enable the LDP to be fully informed of future proposals which will be subsequently be subjected to Sustainability Appraisal (SA) (which incorporates the Strategic Environmental Assessment).



Appendix 1

Table (I) Existing and Extant Planning Approval for Wind Farm Development

Арр	roved Applicatio	ons		
Nos	Planning Reference	Name	No. of Turbines	Capacity (MW)
4	J/1994/0220/F	Bessy Bell	10	5
6	J/1993/0286/F	Owenreagh	10	5
14	J/2004/1015/F	Owenreagh II	6	5.1
18	J/2004/0295/f	Bin Mountain	6	9
29	J/2005/0133/F	Crighshane	14	28
36	J/2005/0358/F	ChurchHill	8	16
8	B/2000/0118/F	Altahullion	20	26
25	A/2004/1243/F	Curryfree	6	15
22	A/2004/1130/F	Slievekirk	12	27.6
34	J/2005/0211/F	Carrickatane	9	27
28	J/2005/0104/F	Tievenamenta	15	45
56	J/2006/0883/F	Seegronan	16	14
99	A/2009/0868/F	Monnaboy	4	10
79	J/2008/0088/F	Slieveglass	3	6.9
33	A/2005/0223/F	Eglish	6	15
115	A/2011/0202/F	Slieve Kirk (ext)	5	15
86	J/2008/0240/F	Meenakeeran	4	12
145	A/2013/0630/F	Ballyhanedin	8	24



CURREN	CURRENT APPLICATIONS							
Nos	Reference	Name	No. of Turbines	Capacity (MW)				
70	J/2007/0667/F	Gronan	4	9.2				
102	J/2010/0481/F	Craignagapple	9	20.7				
107	J/2011/0082/F	Crighshane Ext	5	11.5				
122	A/2012/0401/F	Barr Cregg	7	17.5				
133	J/2013/0183/F	Church Hill Ext.	1	2.3				
138	J/2013/0287/F	Meenamullan	5	12.5				

Table (II) Current applications for wind farm development



Appendix 2

Table (III): Cemetery Responsibility in Derry District

SITE NAME	SITE LOCATION (Derry)
CLOSED	
Straidarran	Claudy
Enagh Lough	Enagh
Claudy Cumber	Claudy
Killea	Letterkenny Road
Old Glendermott	Glendermott Road
ACTIVE	
City Cemetery	Lone Moor Road
Alla Claudy	Claudy
Ballyoan	Rossdowney Road,
Ballyoan	Waterside
Altnagelvin	Church Brae, Waterside

Table (IV): Cemetery Responsibility in Strabane District

Name	Settlement	Address	In Use	Not in Use
Strabane		Milltown Road	x	
Cemetery				
Old Urney	Strabane	Urney Rd	x	
Cemetery				
New Urney		Urney Rd	x	
Cemetery				
Patrick St		Patrick St		x
Cemetery				
Paupers		Derry Rd		x
Cemetery				
Castlederg		Drumquin Rd	X	
Cemetery	Castlederg			
Church of Ireland		Main St		X
Cemetery				
Scarvagherin		Scarvagherin Rd		X
Cemetery				
Ardstraw		Magheracolton Rd	X	
Cemetery				
Ardstraw	Newtownste	Urbalreagh Rd		x
Cemeteries	wart			
Ardstraw Parish		Main St		x
Church Cemetery	4			
Corrick Cemetery		Plumbridge Rd	_	X
Pubble Cemetery		Douglas Rd		X
Aughalane	Plumbridge	Glenelly Road	x	
Cemetery				



Badoney		Glenelly Road		X
Cemetery				
Mountcastle		Duncastle Rd	x	
Cemetery	Donemana			
Donagheady		Ardcame Rd		X
Cemetery				
Camus Cemetery	Victoria	Liskey Rd		X
	Bridge			
Cranagh	Cranagh	Glenelly Rd		X
Cemetery	_			
Grange Cemetery	Bready	Grange Rd		X
Leckpatrick	Ballymagorr	Ballyheather Rd		X
Cemetery	y			
Magherakeel	Killeter	Magherakeel Rd		X
Cemetery		-		



Appendix 3

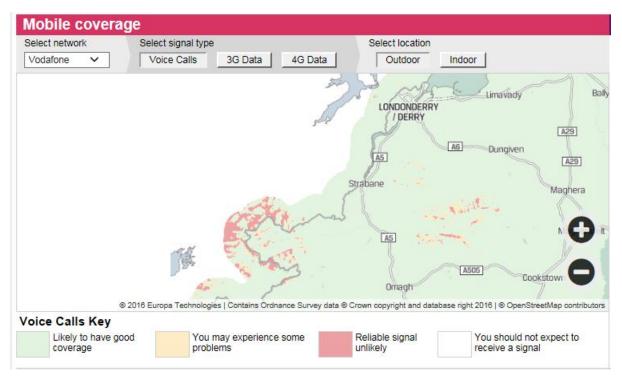


Image 1:Coverage for Vodafone voice calls when outside

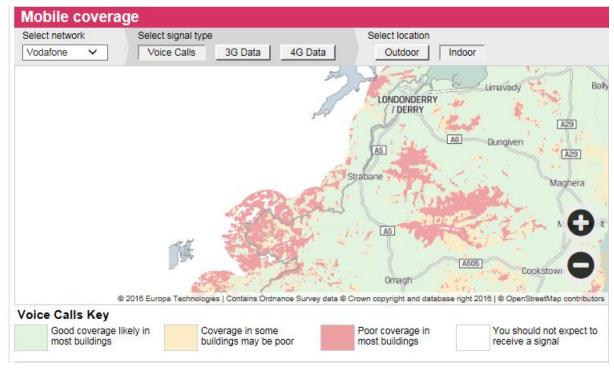


Image 2: Coverage for Vodafone voice calls when inside



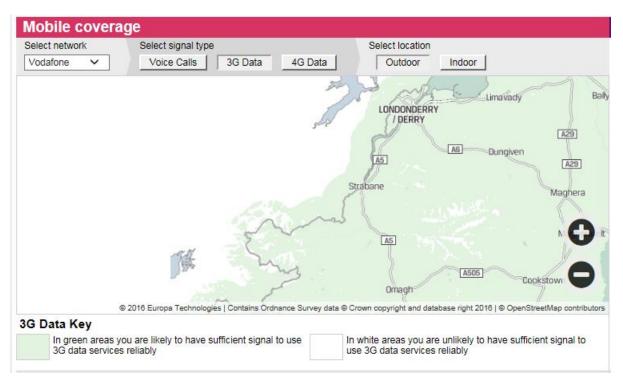


Image 3: Vodafone 3g coverage when outdoor

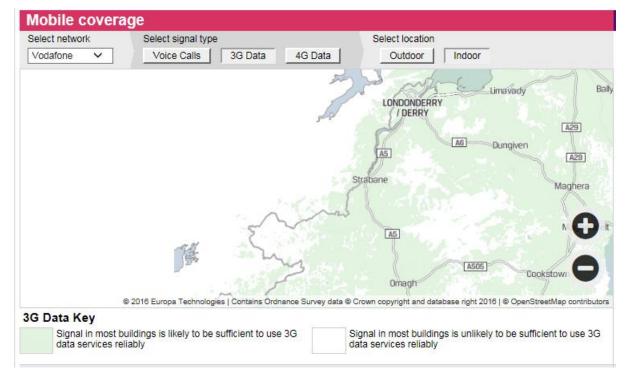


Image 4: Vodafone 3g coverage when indoor



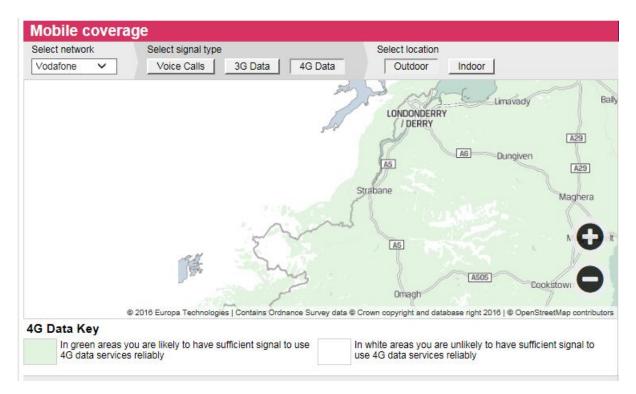


Image 5: Vodafone 4g coverage when outdoor

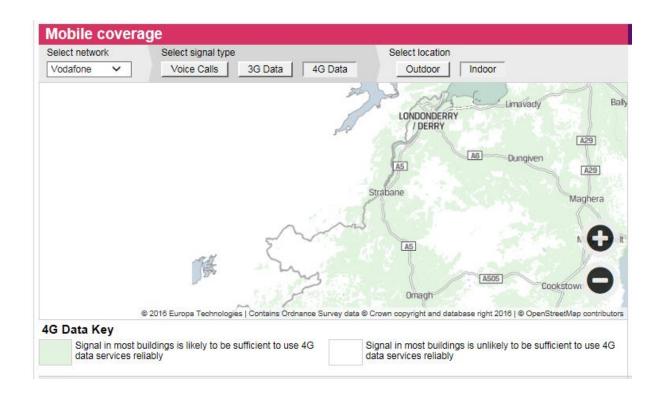


Image 6: Vodafone 4g coverage when indoor



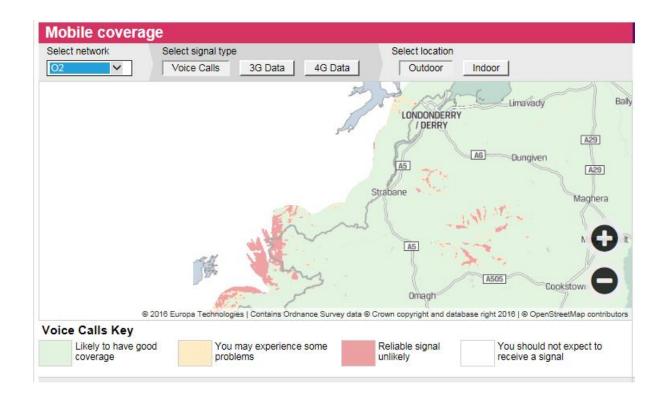


Image 7 Coverage for O2 voice calls when outside

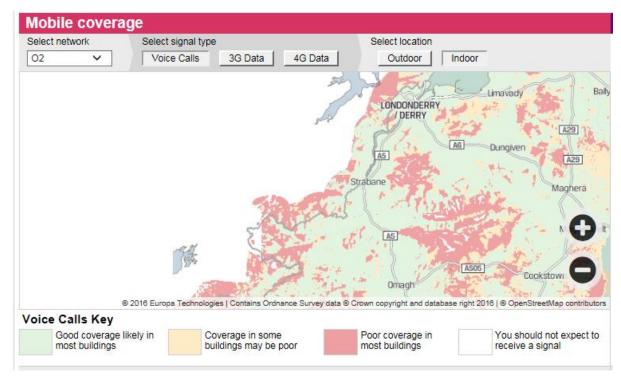


Image 8: Coverage for O2 voice calls when indoor



Select network	age Select signal type			Select location		
02 🗸	Voice Calls	3G Data	4G Data	Outdoor	Indoor	
		~	and and a second	LONDONDERRY / DERRY	Limav	A29
	ji k	S.	73	Omagh	[A505]	Cookstowi
G Data Key	© 2016 Europa Technologies	Contains Ordna	ance Survey data © C	rown copyright and data	base right 2016 ©	OpenStreetMap contributo
-						
In green areas 3G data servio	you are likely to have suf	ficient signal to		white areas you are a 3G data services		sufficient signal to



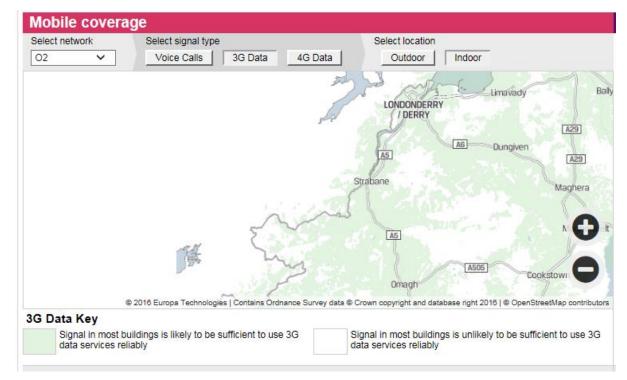


Image 10: O2 3g coverage when indoor



Mobile cover	ade						
Select network	Select signal type		80	elect location			
02 🗸	Voice Calls	3G Data 4G I	Data	Outdoor	Indoor		
	© 2016 Europs Technologie	s Contains Ordnance Sur	Straban	A5 Omagh	A6 Dun	given A29 Magher N Cookstowr	
4G Data Key							
In green areas 4G data servic	you are likely to have su es reliably	ifficient signal to use		areas you ar data services		e sufficient signal t	to

Image 11: O2 4g coverage when outdoor

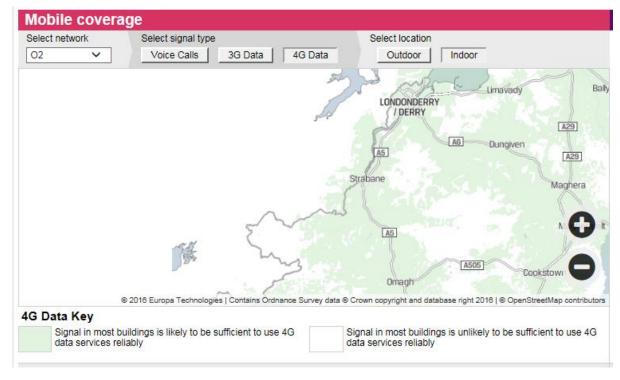


Image 12: O2 4g coverage when outdoor



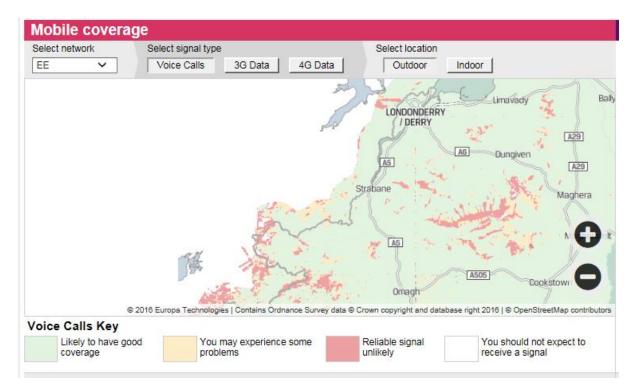


Image 13: Coverage for EE voice calls when outdoor

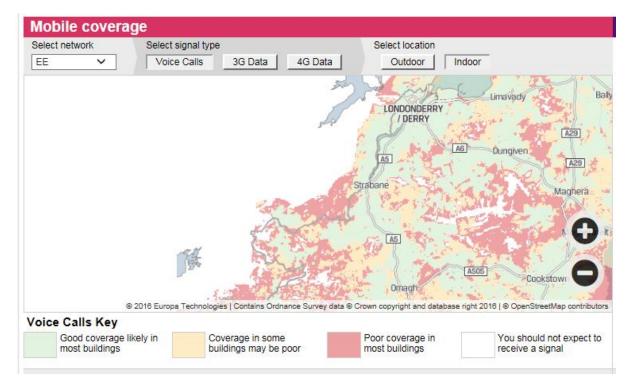


Image 14: Coverage for EE voice calls when indoor



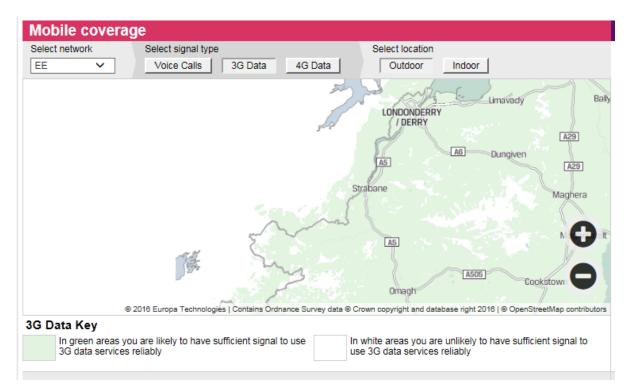


Image 15: EE 3g coverage when outdoor

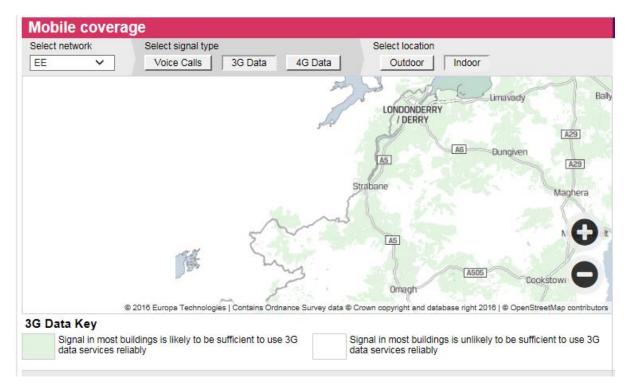


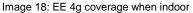
Image 16: EE 3g coverage when indoor





Image 17: EE 4g coverage when outdoor







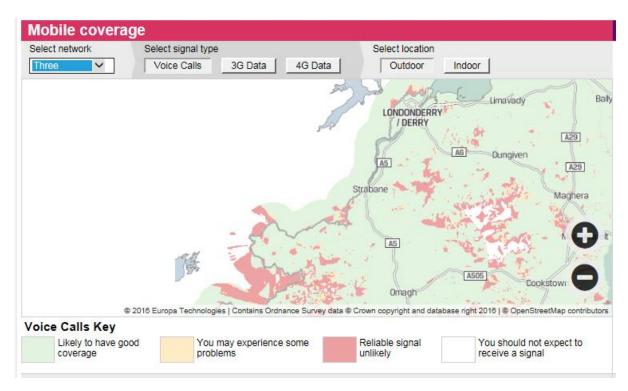


Image 19: Coverage for Three voice calls when outdoor

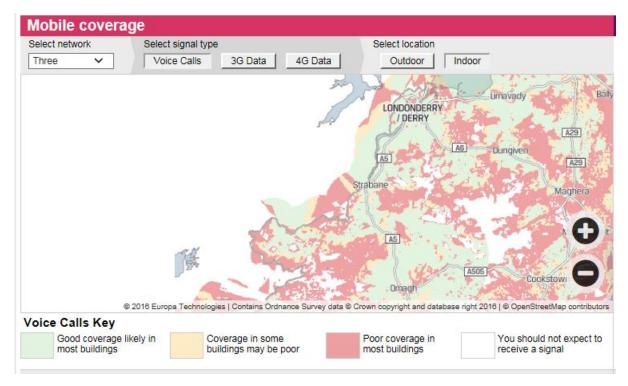


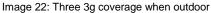
Image 20: Coverage for Three voice calls when indoor





Image 21: Three 3g coverage when outdoor







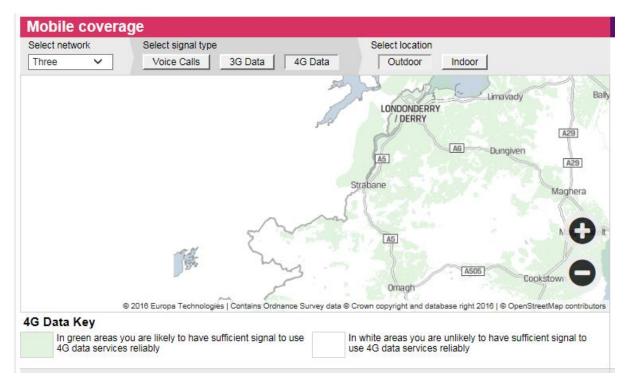


Image 23: Three 4g coverage when outdoor

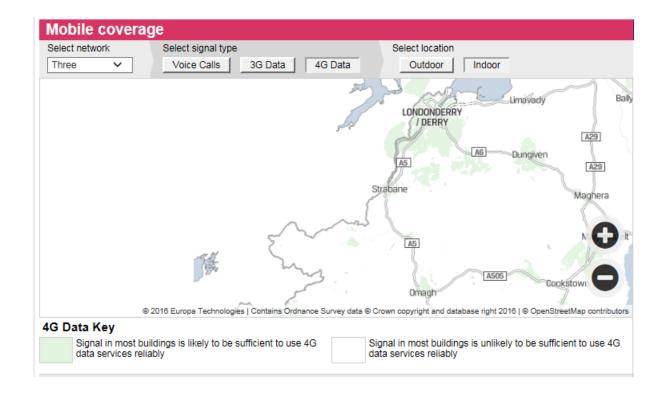


Image 24: Three 4g coverage when indoor



Appendix 4

<u>Settlement</u>	<u>Name</u> <u>of</u> <u>Works</u>	Current Status	Estimation of Future Capacity based on Growth Factor			Comment	<u>Key</u>
			10%	20%	30%		
Any Town	Any Town WwTW		~	~	~		
Any City	Any City WwTW		0	x	x		
Any Village	Any Village WwTW		×	x	x	No public sewerage system exists.	
Any Hamlet	Any Hamlet WwTW		~	~	~	Catchment flows pumped to Any Town WwTW	
Another Village	Another Village WwTW		*	~	~	A project exists within current Business Plan to upgrade this facility	

New Connections permitted – Capacity Available

Restricted Planning – Limited Capacity

New connections refused – No Capacity

- ✓ Works has 'Reasonable Capacity'
- ◎ Works is 'At or Reaching Capacity'
- × Works has 'Insufficient Capacity'



Settlements Served	by Large Wastewater Trea	tment Works	s < 250 pe		
Settlement Name	Receiving Wastewater Treatment Works (WwTW)	Current Planning Status	Estimation of Capacity based on Growth Factor of 10%	Мар	Comment
Derry	Culmore		V		Culmore WwTW's provides wastewater treatment to the following settlements: Ardmore, Culmore, Lettershendoney, Newbuildings, Maydown,Strathfoyle
Strabane	Strabane		\checkmark		
Eglinton	Donnybrewer		\checkmark		Donnybrewer WwTW's provides wastewater treatment to Campsey
Castlederg	Castlederg		\otimes		
Sion Mills	Sion Mills		\checkmark		Sion Mills WwTW's provides wastewater treatment to Glebe settlement
Claudy	Claudy		\checkmark		Claudy WwTW's provides wastewater treatment to Straidarran settlement
Newtownstewart	Newtownstewart		\checkmark		
Artigarvan	Artigarvan		×		
Spamount	Spamount		\checkmark		Sapmount WwTW's provides wastewater treatment to Erganagh settlement
Ballymagorry	Ballymagorry		\checkmark		Ballymagorry WwTW's provides wastewater to Pollockstown settlement
Donemana	Donemana		×		
Clady	Clady (Tyrone)		\otimes		
Park	Park		\checkmark		
Magheramason	Magheramason		\checkmark		
Victoria Bridge	Victoria Bridge		\otimes		
Killen Killen			\otimes		
Key to Current Planr	ning Status		Key to Local Dev	elopme	nt Planning
New conne	ections permitted - Capacity	Available	\checkmark	Works h	as 'Reasonable Capacity'
	Restriction on new connections - Capacity Limited				s 'At or reaching Capacity'
New conne	ections refused - No Capacity	,	x	Works h	as 'Insufficient Capacity'



Settlements Served by Large Wastewater Treatment Works < 250 pe						
Settlement Name	Receiving Wastewater Treatment Works (WwTW)	Current Planning Status	Estimation of Capacity based on Growth Factor of 10%	Мар	Comment	
Plumbridge	Plumbridge		\otimes			
Tamnaherin	Tamnaherin		\otimes			
Ardstraw	Ardstraw		×			
Bready	Bready		\checkmark			
Nixons Corner	Nixons Corner		\checkmark		Nixons Corner WwTW's provides wastewate treatment to Killea settlement	
Key to Current Plan	ning Status		Key to Local Development Planning			
New conn	New connections permitted - Capacity Available				as 'Reasonable Capacity'	
Restriction	Restriction on new connections - Capacity Limited			Works is	'At or reaching Capacity'	
New connections refused - No Capacity			x	Works h	as 'Insufficient Capacity'	



Settlements Served	by Large Wastewater Treatr	nent Work	s 50 - 250 pe	
Killeter	Killeter North		\otimes	
Ballyrory	Gortscreagan		0	
Kildoag	Ardground		0	
Camus Park	Camus		\otimes	
Bready	Cullion		0	
Donagheady	Donagheady		\checkmark	
Douglas Bridge	Douglas Bridge		\checkmark	
Drumenny	Drumenny		\otimes	
Drumlegagh	Drumlegagh Church Road		×	
Garvetagh	Garvetagh		\otimes	
Glenmornan	Glenmornan		\checkmark	
Gosheden	Gosheden		\otimes	
Killaloo	Killaloo		\otimes	
Letterbin	Letterbin		\otimes	
Mulderg	Mulderg		\otimes	
Cranagh	Legcloghfin Road Cranagh		\otimes	
Key to Current Plann	Key to Current Planning Status			elopment Planning
New conne	New connections permitted - Capacity Available			Works has 'Reasonable Capacity'
Restriction	on new connections - Capacity	y Limited	\otimes	Works is 'At or reaching Capacity'
New conne	New connections refused - No Capacity			Works has 'Insufficient Capacity'