Executive Summary Single Stage Business Justification Case (BJC) – LPWAN Project

Connected Campuses Project

Ambition North Wales

July2024

V3.0

Version Control (Full BJC)

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Authorisation

Version		Approval Date
1.0	CC and CKSaC Project Boards	20/04/2023
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	NWEAB	Pending

Contents

1 INTRODUCTION

The business case presents information required to secure approval for Growth Deal investment to procure LoRaWAN gateways and their installation across the region. The new network will supplement existing gateways in public ownership and support both public sector service delivery and innovation across the private sector in adopting IoT (Internet of Things) applications. The scope of the project, which originally had a rural focus, was outlined in the Digital Programme Business Case in preparing the Growth Deal Portfolio Business Case (2020). This Business Justification Case refines the requirement with a case for change, preferred option, procurement arrangements, a financial appraisal and a delivery plan.

The use of Low Power Wide Area Networks (LPWAN) has been growing in the region in recent years, notably the use of one particular type, LoRaWAN (Long Range Wide Area Networks), by the public sector to support a range of services requiring remote monitoring of environments and assets.

The approach has also created an 'open access' network allowing private sector users to trial applications and innovate, removing an affordability barrier. While promotion of LoRaWAN has been taking place since before the Growth Deal was signed in 2020 there remain coverage gaps preventing trialling, innovation and adoption in particularly rural areas. Other parts of Wales have pursued similar initiatives and networks now exist to some extent in all regions, in part sponsored with Welsh Government investment.

LoRaWAN is also recognised by both Ofcom and the UK Government as playing an important role in supporting industries across the economy to realise benefits, such as cost savings and increases in performance and productivity. More recently initiatives such as Welsh Government's Smart Towns (led by Menter Môn) has promoted the use of IoT to support economic activity in towns and councils such as Wrexham County Borough Council have expanded their use considerably to consider a wider range of applications to support service delivery. Agriculture has been another focus of demand stimulation in the region with a demonstration facility at Glynllifon showcasing the benefits to farm businesses, for example.

A preferred option to develop LPWAN in the region emerged from consultation with the project board as an expansion of current LoRaWAN coverage managed by the councils. Growing this coverage to target the whole of the region has been costed at £1.1m with Growth Deal investment proposed to cover capital costs. Aside from benefits to the public sector, demand stimulation activity will promote the network for businesses to trial applications and explore opportunities for innovation.

2 STRATEGIC CASE

2.1 Context

The LPWAN investment is part of the overarching *Connected Campuses* project in the Digital Programme. The Connected Campuses project is supported by two business cases; this *LPWAN* Business Justification Case and a three stage business case for the higher value *Advanced Wireless* project. *The Connected Campuses* project aims to deliver investment in wireless technologies across the region and the two business cases represent distinct but complementary sets of technologies and applications.

- **LPWAN** – investment in low power wide area networks expanding coverage of existing publicly managed assets with a core scope of supporting public services (anchor use) and wider benefits for the private sector though open access supporting innovation within businesses.

- **Advanced Wireless** – investment for private sector and public sector organisations to adopt a wide range of wireless technologies consistent with the UK Wireless Infrastructure Strategy. This project is currently at Outline Business Case stage and identifies a grant scheme as the preferred option.

2.1.1 Regional Strategies and initiatives

The development of LPWAN networks is recognised by councils as the region as an important enabler of service delivery with specific examples provided below.

- Cyngor Gwynedd Digital Plan 2023-28
- Conwy County Borough Council Digital Strategy 2022-27
- Flintshire County Council Digital Towns
- Smart Gwynedd a MÔn: *a Gwynedd and Anglesey County council funded project delivered by Menter Môn, supporting high street regeneration by introducing new technology and encouraging data driven decision making.*

2.1.2 National Strategies

LPWAN and IoT technology is recognised by both UK and Welsh Governments as key enablers across the economy.

- UK Wireless Infrastructure Strategy, UK Government 2023
- Digital strategy for Wales, Welsh Government 2021

2.2 Case for Change

2.2.1 Spending objectives

Project Spending Objective	Programme Spending Objective
• To deliver affordable and simple to use LPWAN connectivity to prioritised locations in the six North Wales counties by 2027, enabling efficiencies across public services and supporting innovation in the private and public sectors	• To ensure that the region is empowered to participate in innovation and commercialisation of new digital infrastructure technology to achieve and consolidate a long-term role in a strategically important industry
• To support between £0.1m-£0.5m investment in the region by 2032	• To deliver a total investment of between £37m and £46m through the programme by 2036
• To support the creation of 20 jobs in the region by 2032	• To create between 315-380 new jobs in North Wales through the programme by 2036
• To support the adoption of 10-20 new applications of LPWAN technology across the public and private sectors in the region by 2032	

2.2.2 Existing Arrangements

LPWAN coverage in the region is currently provided by both private and public sector organisations, notably by the region's councils which have deployed gateways providing extensive LoRaWAN coverage. LoRaWAN is a technology which provides long range, low power connectivity. The coverage is achieved through installation of 'gateways'.

Other technologies in the region may support IoT applications commercially by the private sector, including NB-IoT, Sigfox and 2G, 4G and 5G. Commercial services support applications such as energy smart meters and management of utilities, vehicle tracking.

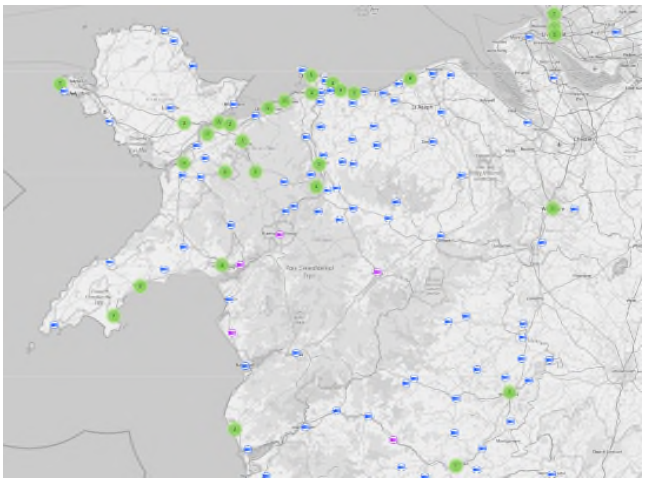

Figure 1 Distribution of LoRaWAN gateways registered to The Things Stack https://ttnmapper.org/heatmap/

LoRaWAN coverage used by councils is provided through The Things Network[1]. The distribution of gateways in the region is shown in Figure 1.

2.2.2.1 Public sector LoRaWAN

Council owned gateways are installed on or within council premises with power and internet connectivity. Gateways are installed to provide network coverage to support council services in the locality, either to trial applications or to support established requirements, including:

- Environmental conditions (e.g. humidity) in social housing (Denbighshire County Council Optimised Retrofit Programme, Adra)
- Flood risk monitoring, carbon dioxide levels in classrooms, room temperature, refrigeration unit temperature monitoring (Conwy County Borough Council)
- Flood risk / measuring water levels of particular interest (Cyngor Gwynedd)

Wrexham County Borough Council has undertaken a significant expansion of its investigation into LoRaWAN applications in 2023 and 2024, led by a dedicated Smart Towns Officer.

LoRaWAN is relatively established in some councils, others are at an early stage of investigation. Gateways have been installed within the last 2 years with an expected effective lifetime of up to 10 years. Costs include internet connectivity, via existing connections or 4G, and power (ca. 25W). Staff costs for maintenance are minimal once gateways are installed. Purchase costs are ca. of £3,000 with installation undertaken either in-house or by contractors requiring ca. 3hrs installation and commissioning.

Other councils have extensive networks, including Ceredigion, Pembrokeshire and Carmarthenshire. These enable innovation and allow public and private users to deploy sensors e.g. road temperature, flood and coastal erosion monitoring[2].

2.2.2.2 Other LoRaWAN networks

[1] The Things Network

[2] Ofcom, Connected Nation 2021https://www.ofcom.org.uk/siteassets/resources/documents/research-and-data/infrastructure-research/2021/connected-nations-2021-wales.pdf

- Welsh Government's *Smart Towns* delivered by Menter Mon have developed a network of stakeholders within which applications are being identified. With open access, these gateways extend access to other users alongside the coverage provided by councils.

- Welsh Government and Farming Connect / Menter a Busnes. Grwp Llandrillo Menai's Glynliffon farm supports a range of applications supporting productivity. Cyngor Gwynedd and Arloesi Gwynedd Wledig created a test bed at Glynllifon to encourage development of rural IoT applications.

2.2.2.3 Employment

The number of jobs supported by LPWAN regionally cannot be accurately quantified without firm information on the business users. The effect on employment is clearer across the public sector where ICT teams provide network support.

2.2.3 Business Needs

Coverage

- Extension of coverage, investment in network equipment, investment in expansion and innovation of applications to support network coverage growth

Demand stimulation

- Sustained and coordinated activity to promote benefits amongst public and private sectors and educate about network use. Investment in expansion and innovation of applications across sectors to support network coverage growth

Potential Scope and Services

Core	Desirable	Optional
• LPWAN coverage across the region providing connectivity in all areas for existing and future demand • Funding support for use cases to stimulate demand for network coverage and incentivising innovation • Promotion of network availability beyond the public sector to incentivise innovation	• Coverage providing connectivity resilience in all areas	• Network densification, providing greater proximity between applications (e.g. sensors) and network gateways, improving effective signal quality where demand is greatest.

2.2.4 Main Benefits

Benefit category	Beneficiary	Benefit class
Service delivery efficiency	Local authorities, Registered Social Landlords	Indirect public sector, cash releasing and non-cash releasing
• Social Housing – (ref. WG Optimised Retrofit Programme[3]) monitoring of environmental conditions allowing early prevention of damp, reducing repair costs and safeguarding human health (preventative) • Social Care – monitoring service user activity supporting early identification of health issues, reducing serious incidents and subsequent intensive treatment (preventative) • Car park management – monitoring space usage, reporting to public in real time to find available spaces faster, incentivising usage, increased income from charges, better informed charging decisions		
Public sector innovation	Local authorities, wider public sector	Indirect public sector, Qualitative but not readily quantifiable
• Trialling applications to explore potential further indirect cash releasing and non-cash releasing benefits • E.g. flood risk, building energy usage, air quality in classrooms, road temperature sensing, bin level monitoring		
Private sector innovation	SMEs	Wider benefit to UK businesses Qualitative but not readily quantifiable
• Trialling applications to explore potential monetisable, quantifiable benefits • Applications are extensive, including; refrigeration and water hygiene compliance, security (e.g. farm gates and machinery tracking).		

2.2.5 Main Risks

[3] Optimised RetroFit Programme | GOV.WALES

Risk	Mitigation
If the level of take up by the private sector is limited the wider indirect benefits associated with innovation, growth and employment may not be realised.	Key mitigation is demand stimulation at a local level to be confirmed in the councils' deployment plans. Seek further revenue funding to expand engagement, e.g. SPF. There is potential for the Digital Programme's *Advanced Wireless* project to further incentivise adoption funding to businesses and this will be considered in the OBC, (NWEAB review September)
If councils do not successfully identify productive applications which can generate benefits there is a risk that the extended gateway coverage may become unsustainable.	Managed through local deployment plans. Key mitigation is intensive promotion and review of opportunities within public sector. Sharing of expertise across the region's councils will be needed to support services understand the opportunities.
If end users do not provide an accurate assessment of their demand for LPWAN connectivity there is a risk that requirements will not be met and the benefit delivery limited.	Local delivery plans will be agreed with participating councils as a condition of funding approval, formalised in a grant funding agreement.
If revenue funding for the operation and maintenance costs of the connectivity cannot be met there is a risk that new network coverage may not be sustainable	Deployments to be agreed by councils in the local deployment plan and grant approval subject to councils' commitment to ensure sufficient resource is in place to sustain the network for the term of the project.

2.2.6 Constraints and dependencies

- Delivery of services may be subject to the Public Contracts Regulations and Subsidy Control Act.
- The number of sites and locations where gateways will be deployed will be a function of the level of budget available for the project.
- ICT Service support from councils will required for the duration of the project to ensure that gateways are installed and operated to plan.
- The project is targeting wider innovation in the region through the open access network and for wider indirect benefits to be achieved there is a dependency on local level promotion to stimulate demand.

2.3 OPTIONS ANALYSIS

2.3.1 Critical Success Factors

The following critical success factors (CSF) are defined for the project.

Strategic Alignment	The option supports the delivery of the ANW Portfolio strategic economic objectives
Optimises Value for Money	The option delivers long term value for money for the public purse in terms of costs, benefits, and risks – net benefit

Achievable in Market	Suppliers are able to deliver the required services; appealing to the supply side
Affordable	Cost of the option is affordable through available funding sources
Achievable by ANW	ANW has the capacity and capability to deliver the option

2.3.2 Main Options

An initial preferred option which involved the procurement of a supplier to undertake network design, installation and management was subsequently reviewed by project board members. It was concluded that this option carried too much operational risk due to it being inconsistent with the business as usual arrangements and meant that councils would not have full control of gateways which they would be dependent upon. A new preferred option was selected. While not a requirement for this business justification case, estimates for Net Social Present Social Value were considered. Options were compared based on the balance of advantages and disadvantages, consistency with Critical Success Factors, Spending Objectives and affordability.

Do minimum	Preferred Way Forward	Do maximum
The market chooses which sites to serve in its own commercial plans and customer demands, continuing to provide its own choice of technology. There will be a one-time capital deployment with no exploitation activity undertaken. ANW will subsidise parties with requirements for LPWAN coverage, through a voucher scheme.	LoRaWAN coverage across the whole region with procurement of suppliers to survey, design and install the solution. Capital deployment with a short-term project to drive user uptake and benefits, including funding support for the adoption of applications (i.e. sensors). Where LoRaWAN coverage for hardest to reach areas is unaffordable but demand is clear the user may adopt an NB-IoT solution where coverage allows at its own cost.	LoRaWAN coverage across the whole region with a supplier being procured to survey, design and build the solution and ANW able to determine deployment of gateways for prioritised locations. Capital deployment with a short-term project to drive user uptake and benefits. Coverage to be deployed as demand emerges and ANW funding supplemented with other funding, for example from Welsh and UK Governments.

2.3.3 Recommended option

The Preferred Option is Option 3 LoRaWAN coverage across the whole region with suppliers to survey, design, and install the solution. Where coverage cannot is unaffordable any immediate LPWAN connectivity requirements are proposed to be met through existing NB-IoT coverage where necessary, paid for by the user.

Deployment undertaken in areas with mature network demand, later deployment to extend coverage as the anchor demand grows. Deployment with a short-term project to adoption and benefits, capital funding to support new applications. Further capital funding to incentive adoption may be available

through ANW's *Advanced Wireless* project.

2.4 PROCUREMENT ROUTE

Network design - Mapping of the network is low value procurement undertaken though seeking a minimum of three quotes.

- Complete geographical coverage
- Network resilience
- Network densification

Provision of gateways - LoRaWAN gateway procurement through Crown Commercial Services agreement 'Technology Products and Associated Services 2', Lot 2 Hardware. Public sector partners will purchase gateways from the framework according to their deployment schedule, informed by the network design work.

Installation of gateways - To be procured through a preferred suppliers list which is expected to include local companies.

Supply of sensors - Councils may procure these according to their requirements.

2.4.1 Payment to delivery organisations

Capital costs incurred by participating councils to be reimbursed according to the delivery schedules. Councils retain responsibility for all purchasing of capital items.

2.4.2 Legal or personnel implications of the recommended option

Core use of the new network coverage will be an effective extension of existing networks. Hardware is owned by councils which have responsibility for maintaining and replacing them according to their service requirements. A funding agreement has been produced (see Appendix B) for each council to join. Ongoing provision of LoRaWAN connectivity for other users and compliance remains the responsibility of the councils.

2.5 FUNDING AND AFFORDABILITY

Costs are associated with network coverage (capital) and ongoing operation and demand stimulation (revenue). Capital investment is funded from the North Wales Growth Deal and ongoing revenue costs are to be met by the public sector organisations deploying gateways.

Capital expenditure (items 1-5, **Gwall! Ffynhonnell y cyfeirnod heb ei ganfod.**) consists of

- Initial mapping of the new network confirming quantities and locations (design)
- Purchasing of gateways
- Installation services
- Project management

Revenue expenditure (items 7-11,**Gwall! Ffynhonnell y cyfeirnod heb ei ganfod.**) consists of

- ICT support costs to manage the new gateways
- Network connectivity costs for new network coverage. Cost assumes that there is no existing connectivity at the locations to be confirmed upon the initial mapping and survey work.
- Procurement of the new network
- Demand stimulation

2.5.1 Cost assumptions

i. Gateways (equipment) Assume price based on preferred model (Multitech Conduit IP67) retail £1,556[4]. Allow 12% for contingency for cost increase and potential accessories requirements to allow installation.

ii. At some sites, total £1,750. Quantities confirmed following initial mapping. An estimate of up to 250 gateways is considered reasonable at this stage based on coverage from existing equipment.

iii. Sensors (equipment) - Assume average cost per sensor of £150 based on wide range of applications ranging from ca. £60-£300[5]. Quantities required subject to councils' requirements. Representative sample of ca. 150 per council (total 900) may allow trialling or scaling up of particular applications.

Fixed asset costs (item 1, **Gwall! Ffynhonnell y cyfeirnod heb ei ganfod.**) consist of gateways, sensors and connection costs

- Gateways £437,500
- Sensors £135,000
- Connection costs £6,250
- Total £578,750

iv. Gateway installation (capitalised costs) - Assume officer time to commission and supervise installation, 3 hrs (ref. WCBC, CG, CCBC estimates) at ca. £40/hr, total £120. Assume contractor at £1,500 per gateway (ref. WCBC, CG estimate). Total £1,620 per gateway

Revenue costs for the project are associated with the management of new gateways, any additional connectivity requirements where it is not already present and work required to undertake demand stimulation activities.

2.5.2 Affordability

The total capital costs of £1,140,852 covering the 8 year lifecycle of the project will be fully funded by Ambition North Wales' Growth Deal and the total operating expenditure of £500,363 by Local Authorities (year 1 procurement costs by Ambition North Wales). No revenue income is envisaged. As stated in the assumptions

[4] MultiTech Conduit IP67 LoRaWAN Gateway - Alliot Technologies

[5] https://www.forestrock.co.uk/product-category/wireless-sensors-gateways/lorawan-devices-and-sensors/lorawan-sensors/

section most of the project costs are based on estimates rather than quotes. A reasonable level of contingency has been built into the estimates to minimise risk of overspends.

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Total
Capital Expenditure										
1	Fixed assets (gateways, sensors connection)	£ 57,875	£289,375	£ 231,500	£ -	£ -	£ -	£ -	£ -	£ 578,750
2	Gateway mapping	£ 20,000	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ 20,000
3	Other Capital item (equipment renewal)	£ -	£ -	£ -	£ -	£ -	£ -	£ 21,875	£ 21,875	£ 43,750
4	Capitalised Staff costs (ANW, project mgt.)	£ 31,117	£ 31,117	£ 31,117	£ -	£ -	£ -	£ -	£ -	£ 93,352
5	Capitalised Staff costs (gateway installation)	£ 40,500	£202,500	£ 162,000	£ -	£ -	£ -	£ -	£ -	£ 405,000
6	**Total Capital costs (CAPEX)**	**£149,492**	**£522,992**	**£ 424,617**	**£ -**	**£ -**	**£ -**	**£ 21,875**	**£ 21,875**	**£1,140,852**
Operating Expenditure										
7	Support costs	£ -	£ 19,370	£ 19,370	£ 19,370	£ 19,370	£ 19,370	£ 19,370	£ 19,370	£ 135,590
8	Network costs	£ -	£ 26,250	£ 26,250	£ 26,250	£ 26,250	£ 26,250	£ 26,250	£ 26,250	£ 183,750
9	Demand stimulation	£ -	£ 53,182	£ 53,182	£ 53,182	£ -	£ -	£ -	£ -	£ 159,545
10	Staff costs (procurement)	£ 21,477	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ 21,477
11	**Total Operating costs (OPEX)**	**£ 21,477**	**£ 98,802**	**£ 98,802**	**£ 98,802**	**£ 45,620**	**£ 45,620**	**£ 45,620**	**£ 45,620**	**£ 500,363**
Total Expenditure										
12	**Total Project Costs (CAPEX + OPEX)**	**£170,970**	**£621,794**	**£ 523,419**	**£ 98,802**	**£ 45,620**	**£ 45,620**	**£ 67,495**	**£ 67,495**	**£1,641,215**
Funding										
13	CAPEX funding (Growth Deal)	£149,492	£522,992	£ 424,617	£ -	£ -	£ -	£ 21,875	£ 21,875	£1,140,852
14	Third party funding (OPEX if any)	£ 21,477	£ 98,802	£ 98,802	£ 98,802	£ 45,620	£ 45,620	£ 45,620	£ 45,620	£ 500,363
15	**Total funding**	**£170,970**	**£621,794**	**£ 523,419**	**£ 98,802**	**£ 45,620**	**£ 45,620**	**£ 67,495**	**£ 67,495**	**£1,641,215**

Table 1 Project capital and revenue expenditure

3 DELIVERY ARRANGEMENTS

3.1.1 Roles and responsibilities

The delivery project will need the following resources to be provided by ANW in addition to those provided by the supplier:

- **Senior Responsible Officer**: to provide overall direction and governance for the Project. The SRO, Niall Waller, and Deputy SRO, Prof. Paul Spencer, are already in place.
- **Project Board members**: to review progress and make decisions regarding the project, focusing on delivery of benefits and risks.
- **Digital Programme Manager**: to provide oversight of the project in the context of the overall Digital Infrastructure Programme
- **Project Manager:** to coordinate and manage the project.

In addition, each participating council will supply officers to manage gateway purchasing and delivery of gateway installations according to their delivery schedules.

3.1.2 Delivery plan

The project is split into the initial network design and procurement phases and subsequent delivery. Delivery itself will be structured according to individual deployment plans agreed with the councils. A summary of the delivery plan is provided in Table 2.Local deployment plans

Initially a deployment plan will be provided for Wrexham County Borough Council which has a current demand for gateway coverage. Remaining councils will confirm their requirements within 6 months of the project start.

Schedules will set out:

- Locations and numbers of gateways to be installed.
- Plan for deployment, indicating dates, roles and responsibilities within the council
- Deployment plans will detail the applications to be supported per gateway installed
- The project budget will be confirmed in the deployment schedule, itemising the approved costs

Deployment plans will also set out the requirements for reporting of benefits, including direct job creation within the council (or jobs safeguarded) and the economic value of service improvements and efficiencies realised as a consequence of the project.

The councils will set out plans for demand stimulation, confirming the activities to be undertaken and schedule of these across the term of the project. A minimum of three events per year, per council are proposed, to engage SMEs and other public bodies to promote the network. Ambition North Wales will host information about LoRaWAN and the network for other organisations on its website. Other activity will be pursued where possible with other organisations promoting the use of IoT, such as Coleg Cambria, Menter Môn and Welsh Government.

As part of the demand stimulation activity the participating councils will monitor adoption where possible, e.g. biannual surveys and promotion of case studies. This activity will be a principle source of data for monitoring indirect benefits.

- **Gateway supply procurement**

A single supplier framework will be appointed for the provision of gateways once the quantities of gateways are identified from the mapping. This procurement will be undertaken in parallel with the production of the local deployment plans and led by the Digital Programme Manager and Procurement and Social Value Manager in consultation with the project's Technical advisory Group.

- **Gateway installation service procurement**

Following the production of the initial local deployment plans the procurement of a multi supplier framework will be undertaken. This procurement will be led by the Project Manager and Procurement and Social Value Manager in consultation with the project's Technical advisory Group and/or the lead council contacts identified in the Local Deployment Schedules.

- **Application equipment procurement**

Councils will be responsible for procurement of the equipment (e.g. sensors) to support the applications described in their local deployment plans. This is expected to involve the direct award of low value purchases.

3.1 Project assurance

An initial external Critical Friend Review (CFR) will be undertaken following network design and prior to delivery to provide technical assurance that the technical design is appropriate. This approach has been agreed by the Welsh Government's Assurance Hub and represents a proportionate level of assurance for a project of this value and level of risk.

3.2 Change management

Change management will be led by the Project Manager in accordance with Ambition North Wales' Change Management Strategy, with escalation to through the hierarchy of boards as necessary.

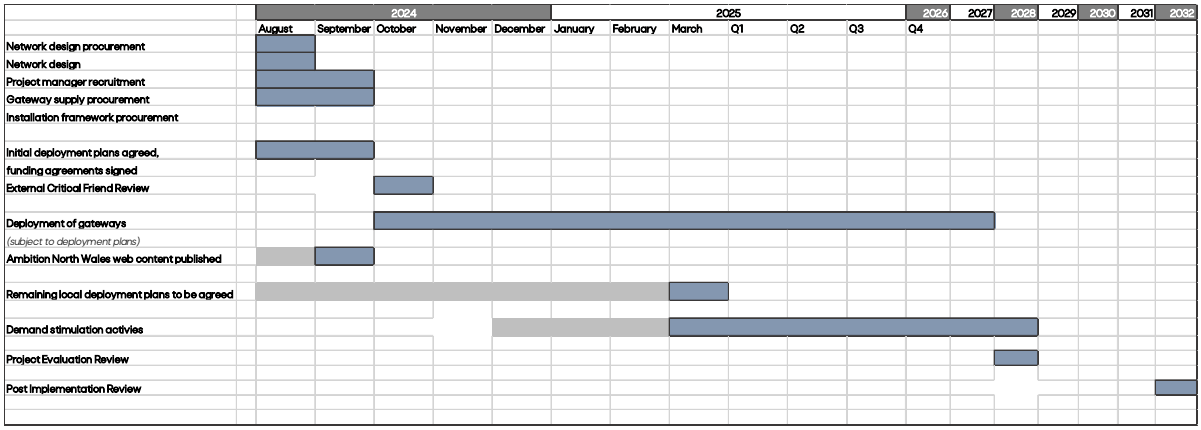

Table 2 Summary delivery schedule

3.3 Benefits realisation

The principle source of benefits reporting will be via the councils who will monitor adoption of the network within their councils services and report on indirect job creation / safeguarded, increases in efficiencies, innovation and delivery of new services. Through the demand stimulation activities case studies will be sought to report on benefits within the private sector, including job creation and biannual survey will be undertaken to attempt to capture further benefits.

The Strategic Case has set out the types of enabled benefits that the project will support. The councils' Local Deployment Plans will associate their direct benefits with identified, specific applications which will be added to as new applications are adopted, successively building the benefits profile to support the final evaluation of benefits at the end of the project. The primary focus will likely be on the projects' outputs, in the form of the level of LPWAN coverage provided in line with the targets specified.

3.4 Risk management

Any risks requiring strategic input or resolution will be escalated by the Project Manager to the Digital Programme Manager and Project Board for review and resolution. Where risks and issues cannot be resolved they are escalated to the Programme Board or Portfolio Board as appropriate. Risk Register is provided in Appendix D.

3.5 Contract management

There are four principle contract arrangements to be managed within the project:

- Funding Agreements between Ambition North Wales and the participating councils
- Mapping Service (single supplier)
- Gateway supply (single supplier)
- Gateway installation (multiple suppliers)

3.6 Post evaluation arrangements

The project has a three year implementation period starting in Q3 24/25. The project will conduct a Project Evaluation Review around Q3 27/28 to determine the success of delivery against time,

budget and specification. At the end of the project a Post Implementation Review to evaluate outcomes and benefits achieved is undertaken. The service for both requirements will be delivered by an external contractor procured by Ambition North Wales.cA Lessons Learned workshop will also be conducted and the findings shared with other public sector bodies and relevant stakeholders to add to the body of knowledge about digital infrastructure procurement and deployment.

Appendices

Appendix A LPWAN technologies
Appendix B Council funding agreement
Appendix C Social Value Framework
Appendix D Risk Register
Appendix E Benefits Realisation Framework
Appendix F Costs and Benefits assessments
Appendix G Options appraisal
Appendix H Integrated Impact Assessment
Appendix I Supporting information LoRaWAN Farming Connect