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SCOTTISH FUTURES TRUST

Department for Digital, Culture, Media & Sport

April 2023

Infralink-Exchange

Playbook

infralink exchange

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Please note that the information provided in this Playbook is for information and assistance only and does not constitute advice by the Scottish Futures Trust to any public authority or other person. In addition, this document is not intended to provide an exhaustive statement of the matters that will be required for consideration by public authorities in connection with engagement with the mobile industry or granting rights to use their assets by mobile operators. Scottish Futures Trust does not take any responsibility for any decisions made by a public authority or any other person based upon the contents of this Playbook and will have no liability for it or for any other body's project. To that end, it is recommended that advice is sought both internally and externally, as required.

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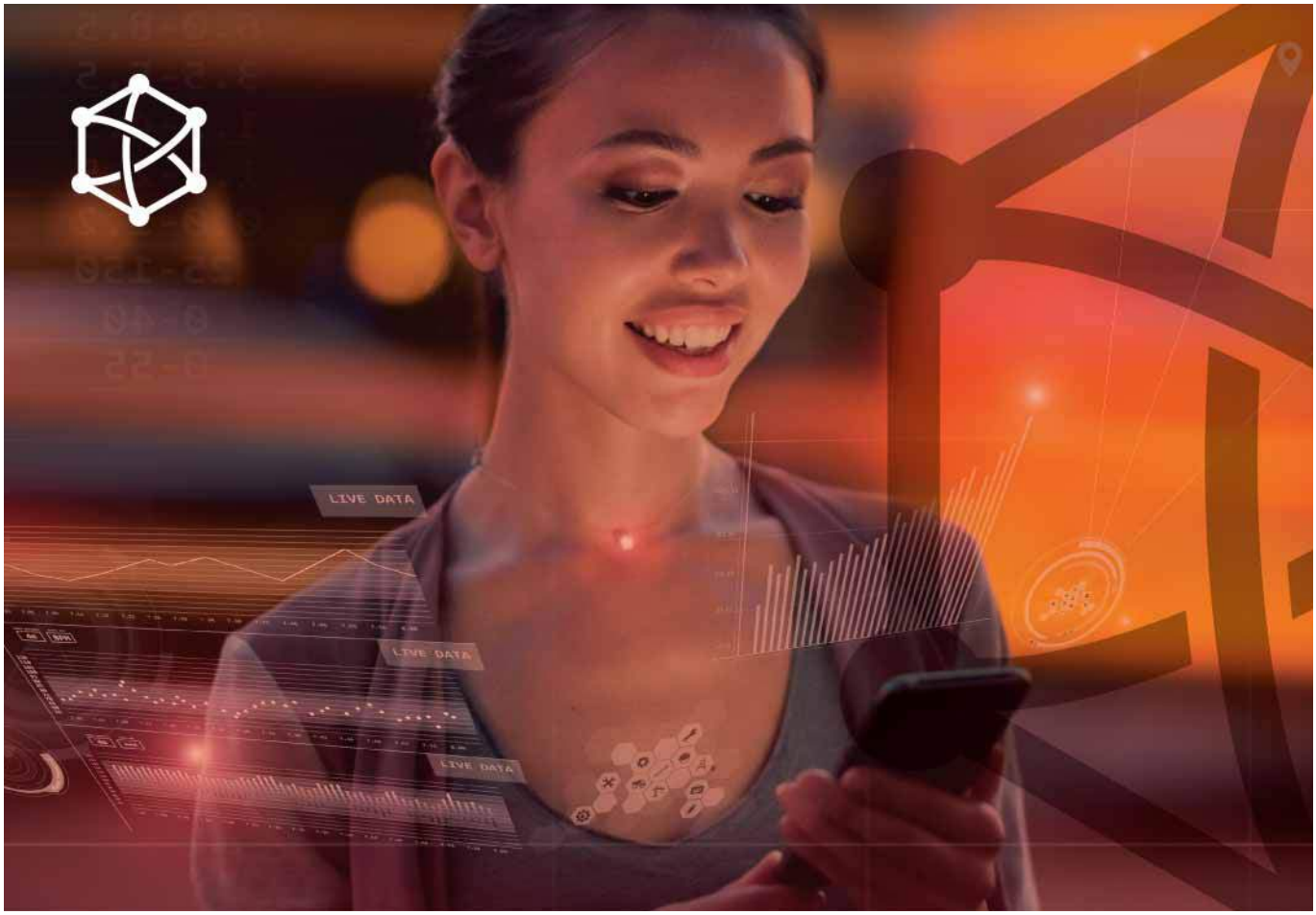
Section 1
Background



In today's interconnected world, access to fast and reliable mobile coverage is not a privilege, but an essential part of how we work, live and create a world class digital nation. A huge uplift in mobile connectivity to many rural areas in Scotland is still required. Currently, Scotland has lower 4G mobile network coverage than the UK, at 46% 4G geographic coverage from all Mobile Network Operators, compared with 70% at a UK level (Ofcom Connected Nations 2022 (December 2022): figures as at September 2022). With improved mobile connectivity will bring new opportunities to work and be educated remotely, improve people's ability to stay in touch with family and friends, open up new business opportunities and stream entertainment.

Looking to the future, 5G small cells will transform how digital services are provided, connecting machines to machines in local areas to drive efficiencies, and provide new services using greater data collection capabilities, faster upload and download speeds and quicker response times.

Agreeing on where digital infrastructure should and can go to support this need for better mobile connectivity is a complicated process requiring collaboration between public bodies, mobile network operators and the community. It relies on the use of land, building and street furniture to site 4G and 5G macro infrastructure and 5G small cells.

In 2016, in response to industry feedback, the Scottish Government in its *Mobile Action Plan*, first committed to exploring the creation of new guidance to facilitate such usage of publicly owned assets. This was affirmed in the Scottish Government's 2019 5G Strategy and associated establishment of the *Scotland 5G Centre*. At this time, the infrastructure body *Scottish Futures Trust*

(SFT), launched Infralink – a digital infrastructure programme aimed at helping all parties start off on a positive footing and accelerate meaningful negotiations about mobile infrastructure.

The project, led by SFT and funded by the Scotland 5G Centre, established a number of commercial tools that are balanced, transparent and work across different areas of Scotland. These include standard template documents and payment guidance covering land and buildings in urban and rural locations, as well as 4G and 5G macro and 5G small cell technologies.

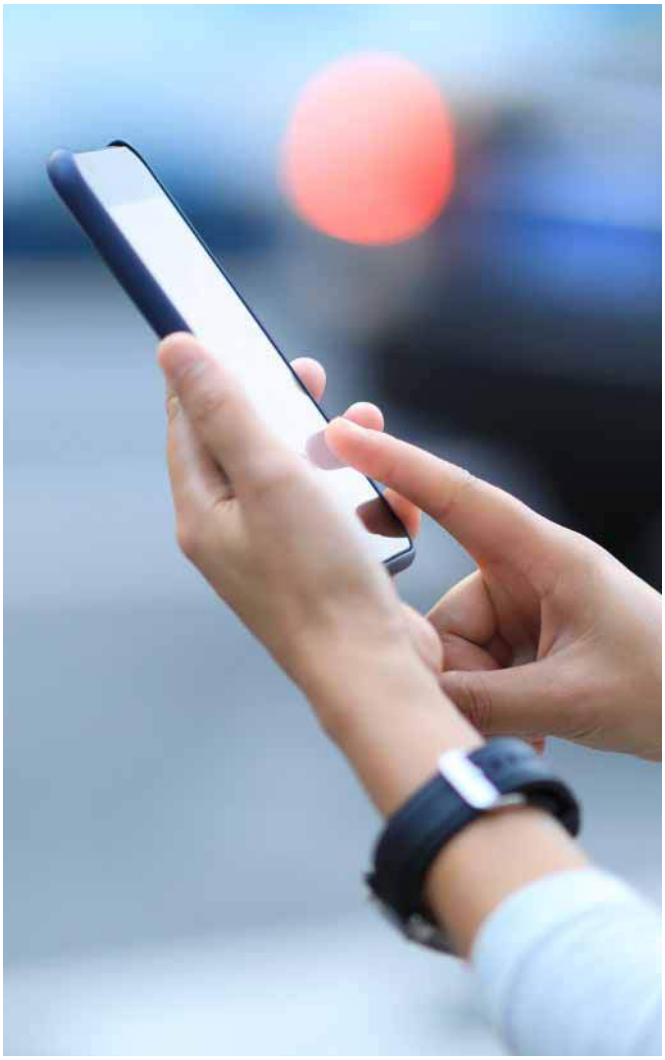
Exploratory work was also undertaken into how organisations could potentially create a sustainable 'connectivity marketplace' at scale to allow the sharing of public sector asset data. Utilising this data, the mobile industry could then identify potential public sector assets to host mobile infrastructure and engage with the owner to commence negotiations.

Building on this initial work, in early 2022 *Infralink-Exchange* was given funding from the Scottish Government and the UK Government Department for Digital, Culture, Media and Sport to be one of the pathfinder projects in the Digital Connectivity Infrastructure Accelerator programme.

The *Digital Connectivity Infrastructure Accelerator* programme is funding eight projects initially for 13 months across the UK. This is to support the implementation of digital asset management solutions for mapping and brokerage of publicly owned assets for use in the rollout of wireless communication networks.

The aim of the Infralink-Exchange project is to utilise the existing standardised tools and develop new ones to overcome the challenges of identifying assets from willing local authority landlords and accelerate the conclusion of agreements to enable more rapid roll out of wireless infrastructure.

In doing so, it has made the process of identifying, agreeing and rolling out mobile infrastructure more efficient, attracting the mobile industry to work with these local authorities, and encouraging early investment in improved mobile coverage in communities across the region.



Infralink-Exchange is a collaboration between Scottish Futures Trust and the Tay Cities region made up of Angus, Dundee City, Fife and Perth and Kinross Councils, with the support of services from Sitenna, Connected Places Catapult, the Improvement Service, The Digital Office for Scottish Local Government and FarrPoint.

While the Infralink Exchange programme concluded in March 2023, the Infralink programme is being continued by Scottish Futures Trust to continue to share best practice for breaking down mobile deployment barriers.

Section 2
Executive Summary

In order to extend mobile coverage, Mobile Network Operators (MNOs) need sites to host mobile infrastructure. Finding the right sites, in the right places, at the right time, is a continuing challenge for MNOs. Anything which helps reduce that challenge is beneficial to delivering the best mobile connectivity.

Specifically, helping MNOs to quickly and efficiently assess where a potential site is, what the site is, its availability for mobile network use and obtain the contact details for the site owner will accelerate deployment for 4G and 5G macro connectivity, and in the future 5G small cells.

Infralink is a Scottish Government funded programme led by Scottish Futures Trust that is using standardised tools, upfront data and proactivity to stimulate better engagement between local authorities and the MNOs.

Forming part of the Infralink programme, the *Infralink-Exchange* project is a pilot project that utilises the existing standardisation tools (agreements and payment guidance) and has developed an approach using existing local authority asset data that can be quickly provided to a private platform provider, to create a starting point for discussions between asset owners and mobile sector tenants.

Working with the Tay Cities region (Angus, Dundee City, Fife and Perth & Kinross Councils), data platform provider – Sitenna –, local government support agency, the Improvement Service, and innovation agency, Connected Places Catapult, a platform with over 140,000 land, buildings and streetlighting columns and asset management capabilities has been created to provide a comprehensive database and platform for engagement about assets across the Tay Cities region.

The key benefits of using a standardised set of commercial tools and a platform to make public assets available to industry include:

- Facilitating the identification of suitable site options by MNOs;
- Streamlining interactions between public asset owners and industry, with a central repository for communications and relevant documents (including contracts) that relate to individual assets;
- Increasing visibility across different local authority teams in relation to assets that may be used for multiple purposes (such as electrical vehicle charging points in addition to digital infrastructure);
- Facilitating the management of assets in life, such as coordinating maintenance and upgrade work on assets by tenant operators (digital and/or electrical vehicle charging);
- Demonstrating a proactive stance by local authority to supporting mobile connectivity.

Even when using existing commercial tools and a data aggregator, like the Improvement Service Spatial Hub that ensures that the use of data is maintained and updated with minimal impact on local authority resources, there are a number of steps that still need to be taken to get the data 'ready' for uploading to the platform and internal matters within the local authority that need to be considered to support a new approach and make it work.

Local authorities need to ensure they have dedicated resource (sometimes called a Single Point of Contact) to support the promotion of digital connectivity in their area, who are supported by strategies and policies that recognise the role connectivity plays in the economic and social development and growth of a region.

By transforming the approach to engaging with MNOs and taking a proactive stance on mobile connectivity, local authorities can see improvements in their region for job opportunities, the reduction in digital exclusion and more sustainable growth.

Infralink-Exchange provides a case study on how mobile connectivity 'barrier busting' can be achieved to attract more investment into your area and better mobile connectivity, from which the whole of Scotland's public sector can benefit.

Section 3
Playbook Introduction

In its 2019 5G: strategy for Scotland, Scottish Government estimated that by enhancing 5G capability, Scotland has the potential to add £17bn to its GDP by 2035, create 160,000 new jobs and increase productivity by £1,600 per worker.

That strategy document also highlights that 5G could play a part in creating 3,100 new businesses and see export volumes grow by £3.3bn.

Within the *5G: strategy for Scotland*, Scottish Government outlined six, short-to-medium term actions to achieve these economic outcomes, the second of which was focused on securing access to public sector assets, by:

- Developing rental guidance to *facilitate the use of public sector assets*, including land and buildings, for the siting of 4G, 5G and other telecoms infrastructure; initially focused on those owned by the Scottish Government, and
- Developing the case for *the creation of an asset register* and coordinate its development at local level and national level. Due to the required proliferation of small cells to create a 5G ecosystem, local authorities will be targeted by the mobile telecoms industry to offer their assets for use. An asset register would allow operators to examine the location and condition of local authority assets.

To help deliver these actions, in March 2021, Scottish Government formally announced the Infralink programme. Funded by Scottish Government and managed and delivered by infrastructure body, the Scottish Futures Trust, Infralink is aimed at streamlining and speeding up the process of installing digital communications equipment on public sector buildings and on land they own.

The Future Telecoms Infrastructure Review also highlighted in 2021 the UK government's commitment to high quality mobile connectivity where people live, work and travel. Advanced wireless networks (including 5G) are likely to entail greater deployment of digital infrastructure, including on publicly available assets (such as land, buildings and street furniture) to provide extra capacity in specific locations.

The *Digital Connectivity Infrastructure Accelerator (DCIA) programme*, made up of 8 pilot projects from across the UK, will help accelerate both investment in and the deployment of advanced wireless networks. The pilot competition supports this aim by helping to create efficiencies for local authorities and network providers using publicly available assets to support digital infrastructure.

On the back of the Infralink work, Scottish Futures Trust was announced in February 2022 as one of the eight pathfinder pilot projects. The Infralink-Exchange project aimed to utilise the existing commercial tools and create an online platform that hosts a database of public sector owned assets, such as land, buildings, streetlights and CCTV cameras, that would be suitable for use by the telecoms industry.

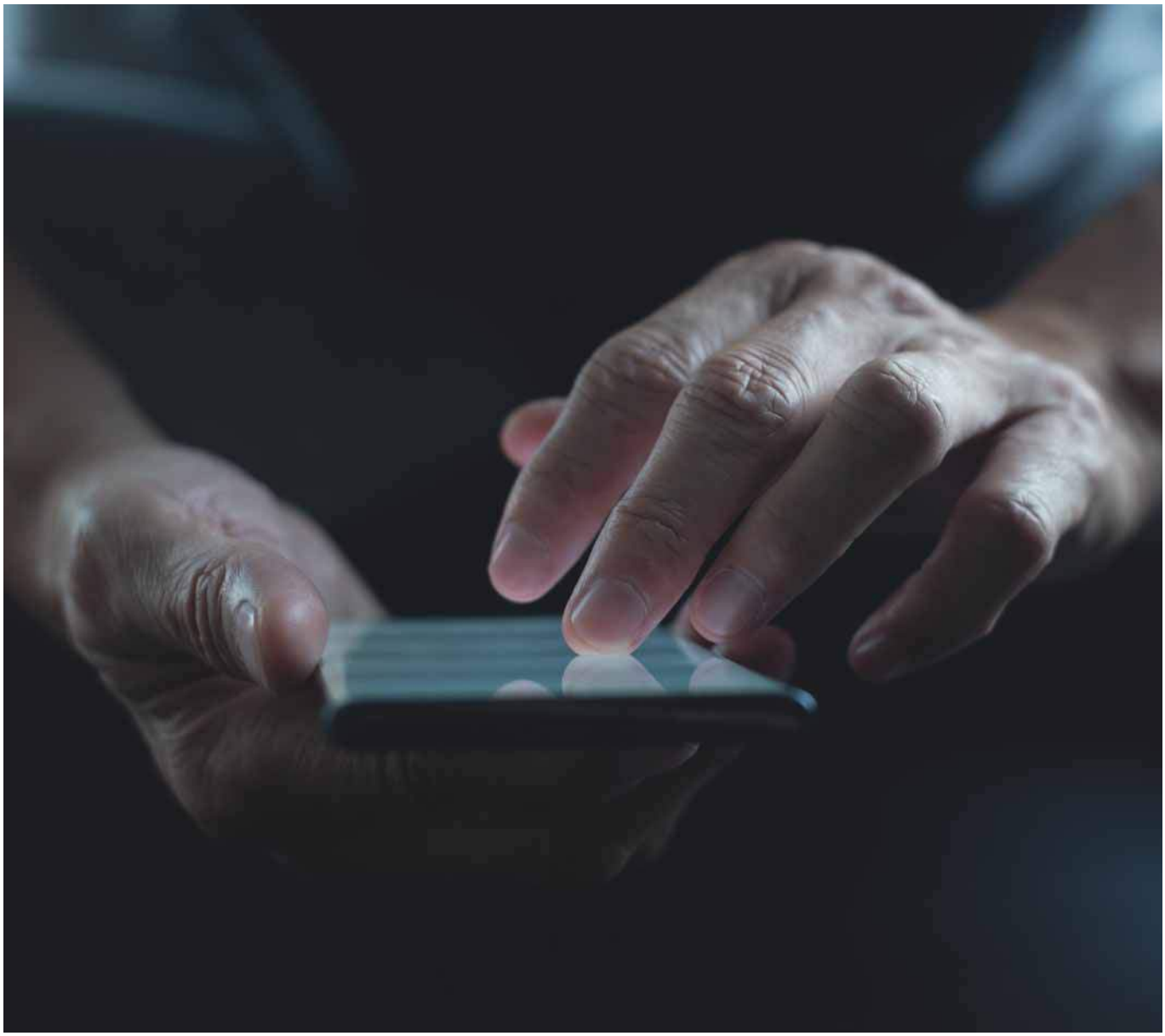
In July 2022, the Sitenna online platform was launched showing the locations of over 140,000 public sector land, buildings and street furniture assets from across the Tay Cites Region promoting conversations about where mobile network equipment can potentially be installed.

The Tay Cities local authorities have seen the pilot project as a positive catalyst for change within their organisations, leading to the amendment of 30 year old telecoms policies, better understanding of the data being held, open channels of engagement with MNOs and a better understanding of the role local authorities play in the deployment of mobile infrastructure. The Tay Cities region plans to continue their transformation activities beyond the pilot with support from the SFT Infralink team to realise the benefits of the change in approach and create a new business-as-usual.

This ‘Playbook’ is sharing what has been learnt from the Infralink-Exchange project with other organisations to allow them to take steps towards a better engagement approach with the mobile industry. It has been collaboratively produced by the project team and themed into four pathways:

- Management Pathway
- Stakeholder Engagement Pathway
- Data and Security Pathway, and
- Supply Chain and Procurement Pathway

These pathways will help other public bodies understand the steps that must be taken to deliver a successful digital project. Further to the launch in November 2022, the Playbook has now been updated in April 2023, with further guidance and the final findings from the pilot project.



Section 4
Management Pathway

The Management Pathway aims to provide local authorities with guidance to successfully set up a project team and gain internal buy-in within their organisation to start the project.

The aim of the project should be to improve engagement between the local authority and the mobile industry that will lead to better mobile connectivity in the area. In turn this will:

- Create more job opportunities in the area based on improving connectivity infrastructure;
- Increase productivity in a variety of sectors that rely on connectivity and capacity in mobile networks;
- Support the 'levelling up' agenda to ensure that everyone across the community has access to good reliable connectivity thereby reducing inequality;
- Support ambitions to be net-zero and sustainability by allowing the mobile industry to upgrade their network thereby reducing energy consumption and reusing assets;
- Drive innovation in the support of small to medium sized enterprises to engage with their market and suppliers in new ways.

ANGUS COUNCIL:

"Consistency is the key point, we are trying to encourage the operators to come to our area because the processes are streamlined and easier, rather than areas where there is more financial benefit, but the processes are difficult and complicated."

FRESHWAVE

NICK WIGGIN, HEAD OF PARTNERSHIPS

"The Infralink approach helps create a single source of truth. This is great for local government and the Telecommunications Industry to identify what assets are available and where.

4.1 Pre-requisite criteria

When preparing to engage on a project, local authorities should consider the following pre-requisite criteria:

- Is there a strategy that supports better connectivity in your area? This will be key to the reasoning behind doing the project and the outcomes it can deliver. It will also show strategic/senior management support for the project and its outcomes
- Are there any policies that prevent the local authority assets from being used to site mobile infrastructure on them? Some asset management policies may prohibit use of land, building or street furniture other than for its core purpose due to health and safety concerns or legal restrictions.
- Is the organisation up to speed with the Electronic Communications Code? This piece of legislation introduced in 2017, gives Mobile Network Operators rights to access assets and use them for mobile infrastructure. It is a good starting point to know where you stand as a potential landlord and the potential risks if there is non-compliance. (Infralink has a handy FAQs that can assist but it always best to get expert legal advice)
- Does your organisation have a lease or agreement template that it can use for agreeing the use of a site? This needs to be in compliance with the Electronic Communications Code but also needs to be relevant to the asset type, location and use of the asset. Infralink has template leases for land and buildings in urban and rural areas, along with template small cell agreements that are a balanced place to start discussions.

- How much will you charge for use of the asset? Again, considerations need to comply with the Electronic Communications Code otherwise matters may end up in legal proceedings. A credible and balanced starting point is the Infralink *Payment Guidance* that sets out suggesting valuations and reasoning behind those valuations. There is also an *advice note* for local authorities about compliance with the 'best consideration' obligation.
- Who will be the main point of contact in your organisation that will coordinate activity with the mobile industry and drive activity internally? It has been recognised that without a Digital Champion, there is no change either in terms of engagement levels with industry or internal change regarding policies and processes. Mobile UK has set out a *list of qualities* that a Digital Champion needs to have. Who this is in each organisation may be different, but often the Digital Champions are found in economic development.
- Do you have a data management plan is place? Do you understand what data relevant to this project your local authority already holds, in what format and how it can be extracted for this project?

FIFE COUNCIL:

"It's helpful having the tools available. It helps speed the process up considerably – otherwise it can take weeks or even months to get sites agreed and then leases and payments.

"It helps to create a more streamlined approach for suppliers. Using the templates will hopefully ensure the customer experience is consistent and helps improve response / resolution timescales."

4.2 Suggested Project Team Structure

The outlined structure is recommended for local authorities developing their Project Team at the beginning of their journey. Local authorities are all different, therefore titles and structures will vary, and, in some cases, roles below may be combined for some organisations.

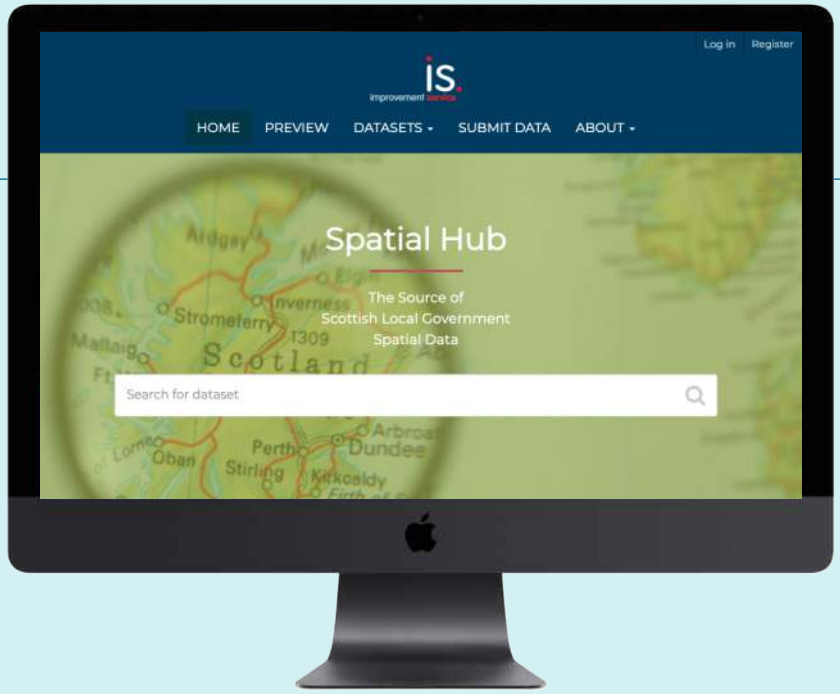
Role	Reason for Involvement
Project Lead	Managing the project from the onset to completion.
Roads Team	Supporting any civil works that is required, i.e., cabling, road closures.
Legal Team	Reviewing and signing contracts.
Assets / Estates Team	Assessing wayleaves and providing access to buildings and/or land.
GIS Team	Supplying data for the platform.
Street Lighting Team	Providing access to street lighting data and reconfiguration of power supplies.
Facilities Management	Permitting access to buildings, especially out of hours.
Planning Team	Providing expertise and support if planning permission is required or permitted development.

PERTH & KINROSS COUNCIL:

"The benefits of getting policies and strategies lined up in advance were that we were able to raise awareness of the need to update our strategy for telecommunications and produce a new Telecoms Policy Statement, that is more pro-active in encouraging telecoms deployment in Perth & Kinross."

Case study

The Improvement Service



The Improvement Service (IS) is the 'go-to' organisation for local government improvement in Scotland.

The IS was established in 2005 as the national improvement organisation for Local Government in Scotland. It was set up to deliver improvement support that would help councils to provide effective community leadership, strong local governance and deliver high quality, efficient local services. The Improvement Service is a company limited by guarantee, with 34 members – COSLA, Solace and Scotland's 32 local authorities. It is governed by a Board of Directors which meets quarterly.

When the Infralink Exchange team were identifying the project team, they recognised the national role that the Improvement Service already plays for local authorities in terms of collating data and how this could be used to create a sustainable and efficient process for gathering, managing and transferring data.

The Improvement Service *Spatial Hub* is an online resource that provides a single point of access to quality-assured Scottish local authority data, in a consistent format.

Data themes include planning, administrative boundaries, environmental, transport and community facilities. Every local and national park authority provides data to the Spatial Hub where it is conflated into standardised and up-to-date national datasets.

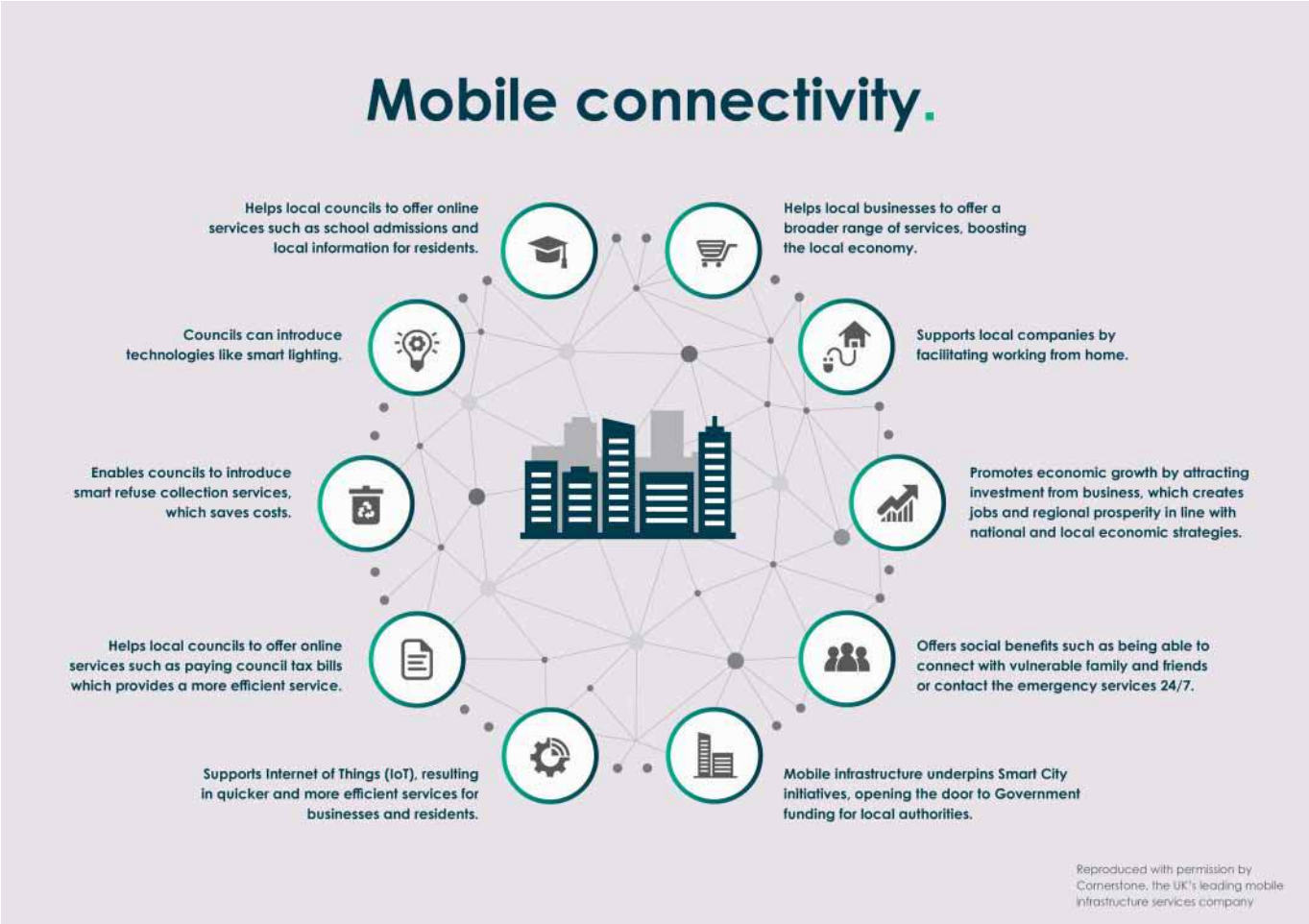
The Improvement Service have also developed a series of different licences that enables data sharing with each sector or organisation.

This benefits local authorities by:

- Saving time, money and effort in preparing and publishing as it removes the need to develop their own portals to publish data.
- Reducing the resources needed to efficiently answer Freedom of Information requests about spatial data.
- Exposes data to a larger audience which increases the value of the data itself.

Find out more about how the Improvement Service collated, managed and transferred data for the Infralink-Exchange pilot project in the *Data and Security Pathway*.

4.3 Benefits of Mobile Connectivity



This image has been reproduced with permission by Cornerstone, the UK's leading mobile infrastructure services company.

Over the next decade, wireless networks will evolve significantly and will become woven into the fabric of life. Mobile connectivity has the potential to transform all aspects of our lives and work - manufacturing, health, social care, transport, education, public services - helping us overcome old challenges and providing new opportunities. For this reason, all areas need to be able to access good connectivity and this can't happen unless the relevant infrastructure is put in place to deliver that connectivity.

4G technology has enabled the consumer to access a world of knowledge and do more while on the move. With 5G mobile internet connectivity, we will be able to access more data, in more places, with better security and energy efficiency. This will however bring more congestion unless we put in place the additional mobile infrastructure to service this future demand.

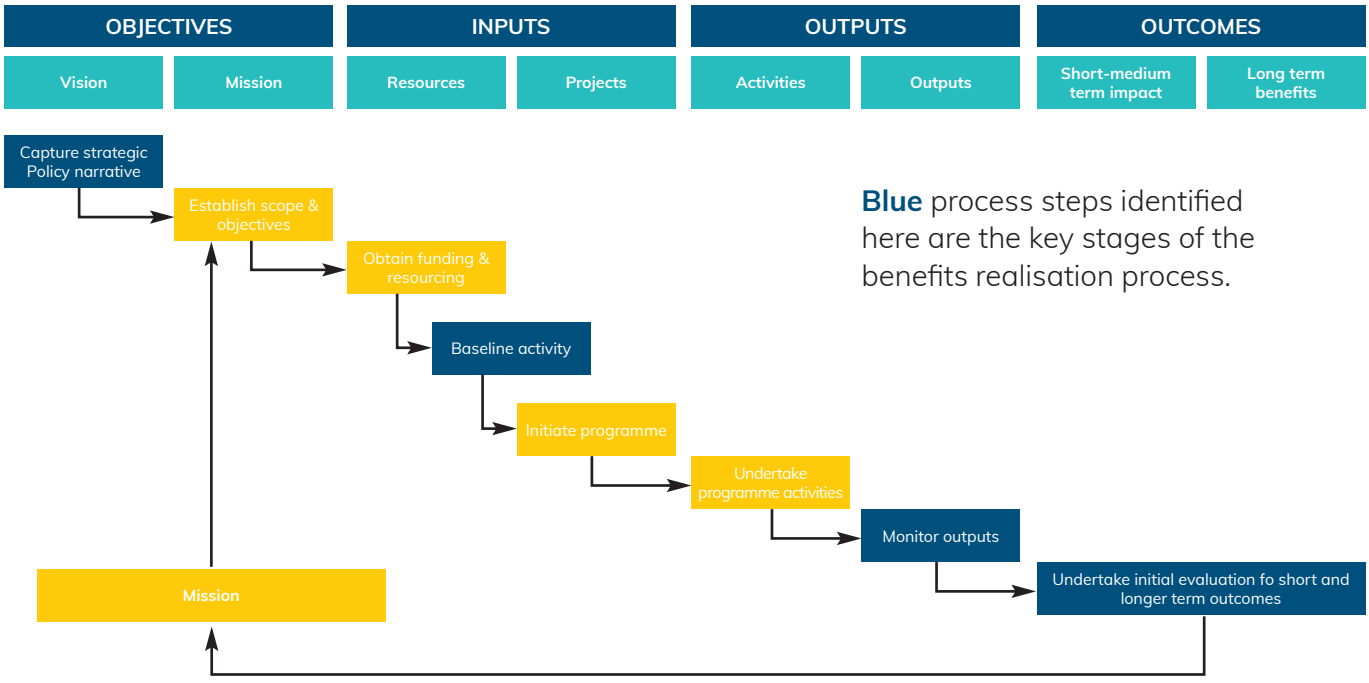
4.4 Benefits Realisation

The most important element of a successful project is that it delivers its intended outcomes /objectives. Benefits realisation is about the identification, definition, planning, tracking and the returning value of an intervention to justify investment.

Benefits management is one of the few elements of project delivery which truly spans the whole lifecycle of a project, from conception to evaluation post-delivery. As benefits form a common thread throughout all stages of project delivery, good benefits management starts early and evolves as the project matures.

With that in mind, it is important that local authorities establish a clear approach to monitoring and evaluating the project as it develops. In line with the policy process (contained within the figure below), this approach will be based around four key steps:

1. Establish a benefits realisation framework based upon the strategic policy narrative
2. Baseline activity
3. Monitor outputs and outcomes
4. Evaluate, and use learning to reassess project objectives and activities



Blue process steps identified here are the key stages of the benefits realisation process.

It is essential that the framework is based around the accountability of decision makers, as it will ensure that any decisions made within the development of the project are aligned to supporting policies and programmes. The stakeholders within the project are responsible for demonstrating how it has delivered its objectives. This is simplified in the high-level policy to programme alignment illustration below.

ANGUS COUNCIL:

"A standard toolset enables good customer experience to external / internal users, reducing the paperwork and timescales. The experience should be the same throughout the four local authorities."

ACCOUNTABILITY

Government Policy	Local Policy	Project Objective
• Inclusive and sustainable economic growth (i) - Productivity improvement, (ii) - Digital Skills, (iii) - Job creation, (iv) - Achieving Net Zero • Connectivity improvement • Scotland as an innovator • Enhance Scotland's international standing	• Drive economic development • Empower and promote inclusion • Innovate and internationalise • Support investment in key infrastructure and improvements in regional connectivity) - Job creation, (iv) - Achieving Net Zero • Connectivity improvement • Scotland as an innovator • Enhance Scotland's international standing	• Encourage deployment of infrastructure in the region • Enable practical proactive engagement between the public sector and industry in the deployment of digital infrastructure • Produce a national sustainable approach • Drive engagement between local authorities and MNOs • Encourage proactive activity by Local Authorities to make best use of infrastructure

RESPONSIBILITY

By considering accountability, it will you to establish the strategic policy narrative and ensure the project objectives align with national and local policies. From there, a Benefits Realisation Matrix can be produced to capture the key outcomes and benefits of the project. It will focus on demonstrating the impact that the project has delivered against the policy narrative set out within the framework.

OBJECTIVES	INPUTS	OUTPUTS	OUTCOMES
Creating Jobs	Project Partners	Increased number of sites available	Improved mobile connectivity
Boosting Productivity		Improved Stakeholder engagement	Reduced environmental impact due to re-use of assets
Inclusivity		Reduced response time	Improved sustainability of infrastructure
Net Zero		Impoved knowledge	

NB. Objectives, outputs and outcomes listed above are for illustrative purposes.

To structure the matrix, it can be broken down into four key areas:

1. **Process** - Capturing impact on the efficiency of processes both internal within the local authorities as well as between the local authorities and providers.
2. **Platform** - Understanding the effectiveness of the platform within the project.
3. **Assets** - Identifying the impact on both the identification of potential asset locations and the utilisation of the publicly owned assets.
4. **Knowledge** - Ascertaining the knowledge/ findings shared with the 5G ecosystem - including activity related to disseminating knowledge/ findings from the project.

4.4.1 Creating a baseline

Why do we create a baseline?

Establishing a baseline is paramount to understanding the current situation and therefore it is a necessary step in assessing performance throughout the duration of a project. If you don't know the starting position, how will you know if there has been any change?

Baselining establishes the validity of the project relative to strategy, policy, or funding principles i.e. evidence of a problem or opportunity in step with the intervention.

If the baselining is not done properly, then the process would have to be based around a range of assumptions and thus the results of the evaluation will not be robust, and the benefits of the project will not be captured.

Obtaining funding will be based on putting in place a robust monitoring and evaluation process, so the initial baselining of activity and outcomes must be thorough.

A detailed evaluation matrix and resultant metrics should be created and agreed by all stakeholders:

- Collect data from all the key stakeholders, for an initial baselining/ monitoring report to assess conditions prior to any intervention
- This evaluation will involve a range of different measures including the collection of both:
    - **Quantitative data**, where it is available and appropriate to understand aspects such as the availability and use of assets and the platform
    - **Qualitative information**, more qualitative measures will be used to understand processes and knowledge transfer

4.5 Risks

The following risks should be considered by local authorities before commencing the project. These risks should be incorporated into a risk register and monitored throughout the project.

Description of risk	Factors to consider
Industry deployment plans	Industry may have pre-determined deployment plans in place which may not align with local authority timescales. It may be helpful to target a wide range of sector stakeholders e.g. Mobile Network Operators, neutral hosts to support a wide range of uses in varied locations to attract interest.
Readiness of local authority back-end processes	Processes should be ready to progress any industry requests in an efficient way. Local authorities will need to understand processes, procedures and what needs to be in place to get from asset enquiry to contract stage.
Data security	Security should also be a primary risk consideration and built into the design process to ensure the confidentiality, integrity and availability of information held within the solution. In practice, it is unlikely that a solution implemented would hold much (if any) personally identifiable or sensitive information however a risk assessment should be undertaken for the types of asset information held within the solution and whether a loss of such information might represent a physical security risk.
Data quality	If the data to be used is taken from varying sources of data and has varying update cycles, there will be a large variation in data quality, leading to discrepancies and loss of faith in the output. Using a data aggregator can minimise risks around data quality.
Readiness of policies	Check policies allow infrastructure on assets. If not, look at steps required to change policies.
Lack of usable assets	Understand requirements of industry stakeholders to identify what is ‘usable’, equally, understand any restraints around what may not be suitable for inclusion.
Resource availability	Consider capacity of the individuals/ teams involved.
Knowledge sharing	Have plans in place for if key resource is off unexpectedly or leaves the authority.

4.6 Security Considerations

As with any digital initiative, security should be designed into any solution from the very start, in line with cyber security principle of "Secure by Design" focused on protecting the confidentiality, integrity and availability of information. Given the focus of the information is on assets and infrastructure, there should be less (if any) personally identifiable data, or personally sensitive data to protect, however careful consideration should be made relating to any possible physical risks to assets and infrastructure associated with a data breach. The *National Cyber Security Centre Connected Places Catapult Cyber Security Principles* may help to evaluate such risks.

It is also likely that solutions make use of cloud computing. National Cyber Security Centre (NCSC) also provide valuable principles for securing cloud-based solutions: *Read the cloud security principles now.*

- **Establish the context**

  Determine all the elements which compose your system, so your defensive measures will have no blind spots.

- **Making compromise difficult**

  An attacker can only target the parts of a system they can reach. Make your system as difficult to penetrate as possible

- **Making disruption difficult**

  Design a system that is resilient to denial of service attacks and usage spikes

- **Making compromise detection easier**

  Design your system so you can spot suspicious activity as it happens and take necessary action

- **Reducing the impact of compromise**

  If an attacker succeeds in gaining a foothold, they will then move to exploit your system. Make this as difficult as possible.

Potential areas of risk are as follows:

- Privacy of personal data
- Privacy of physical buildings and infrastructure
- Privacy of the location of telecommunications equipment

It is highly recommended that you consult your internal data protection officer and security professionals in your organisation before commencing any project to assess the risks and put in plans to manage those risks. Further guidance on data security can be found in the *Data and Security Pathway* of the Playbook.

4.7 Project Plan Guidance

A project plan is the formal approved document that is used as a baseline to manage and control the project within local authorities. The project plan should establish that there is a feasible, achievable and realistic path to get from the current state of play to where you need to get to.

It should cover:

- The reasons for the project
- What you are trying to achieve by doing the project

- How you are planning to deliver the project with strategies for risk, quality, communications, stakeholder management, monitoring and control and any other considerations
- When you plan to deliver the project
- How much the project will cost
- Any geographical considerations around what areas the project will cover/ involve
- Who will deliver the project and the core project team

Some high-level areas you may want to consider are:

- Project management - project initiation, completion of key project documentation, etc
- Governance - project board/ steering group meetings, progress reporting
- Communications – what you will communicate, how, when and to who
- Data - defining what asset data sets will be required, sourcing and management of the required asset data, testing data accuracy, data governance
- Process requirements - reviewing what processes are in place and suitability for what you are trying to achieve and if they are not fit for purpose what may be required to change this

When putting a project plan together, it should involve the project team, users and suppliers to ensure the plan is realistic and achievable. It is vital to get realistic timescales from the beginning.

Section 5
Stakeholder Engagement Pathway

The Stakeholder Engagement Pathway aims to provide local authorities with awareness of the internal and external stakeholders that they will need to engage with throughout the project.

Local authorities have a duty to ensure that the right digital connectivity is in place within their area to support business activity, social interaction and delivery of public services.

To successfully do this and engage with key internal and external stakeholders, it is important for local authorities to have a Digital Connectivity strategy that covers infrastructure and mobile networks. As highlighted in *FarrPoint's recent Digital Connectivity Survey 2023*, this strategy should detail how connectivity can be used to support priority sectors and industries within their area and include clear actions, deliverables and timescales to maximise benefits.

In addition to having a Digital Connectivity strategy, it is also advised that local authorities align their policies with their strategy e.g. a Telecommunication Policy to support the deployment of telecommunications equipment to enhance digital connectivity. Currently, the Tay Cities Region has been developing a Digital Infrastructure Strategy and in the interim Perth and Kinross Council has updated and approved their *Telecommunications Policy Statement*. This is available to read for support.

5.1 Stakeholder Engagement at Strategic Level

External Stakeholders

The tables below identify broad groups of stakeholders that influence and impact upon deployment of mobile connectivity, either indirectly (by shaping policy, national guidance or expressing support) or directly (by interacting with mobile operators to grant required planning permission and/or provide sites for network and infrastructure).

Stakeholder Group	Motivations for engagement
National Parks	Planning authority in some local authority areas
Regional/City Deal Group	Get more strategic support if link with wider strategic objectives
Economic Organisations – Scottish Enterprise, Highland and Islands Enterprise, South of Scotland Enterprise	Support more connectivity in rural areas to enable rural businesses
Local community organisations	Support more connectivity to enable local communities

Local Authority Internal Stakeholders

As previously indicated within the Management Pathway of this Playbook, the following internal stakeholder groups are key to influencing the deployment of mobile connectivity.

Mobile UK has recognised that local authorities with a Digital Champion are 4 times more likely to smooth the rollout of mobile infrastructure. Identifying a Digital Champion within this stakeholder group, to coordinate activity with the mobile industry and drive activity internally is key for successful engagement. To support local authorities to embed Digital Champions, Mobile UK has created a list of qualities for a *Digital Champion*.

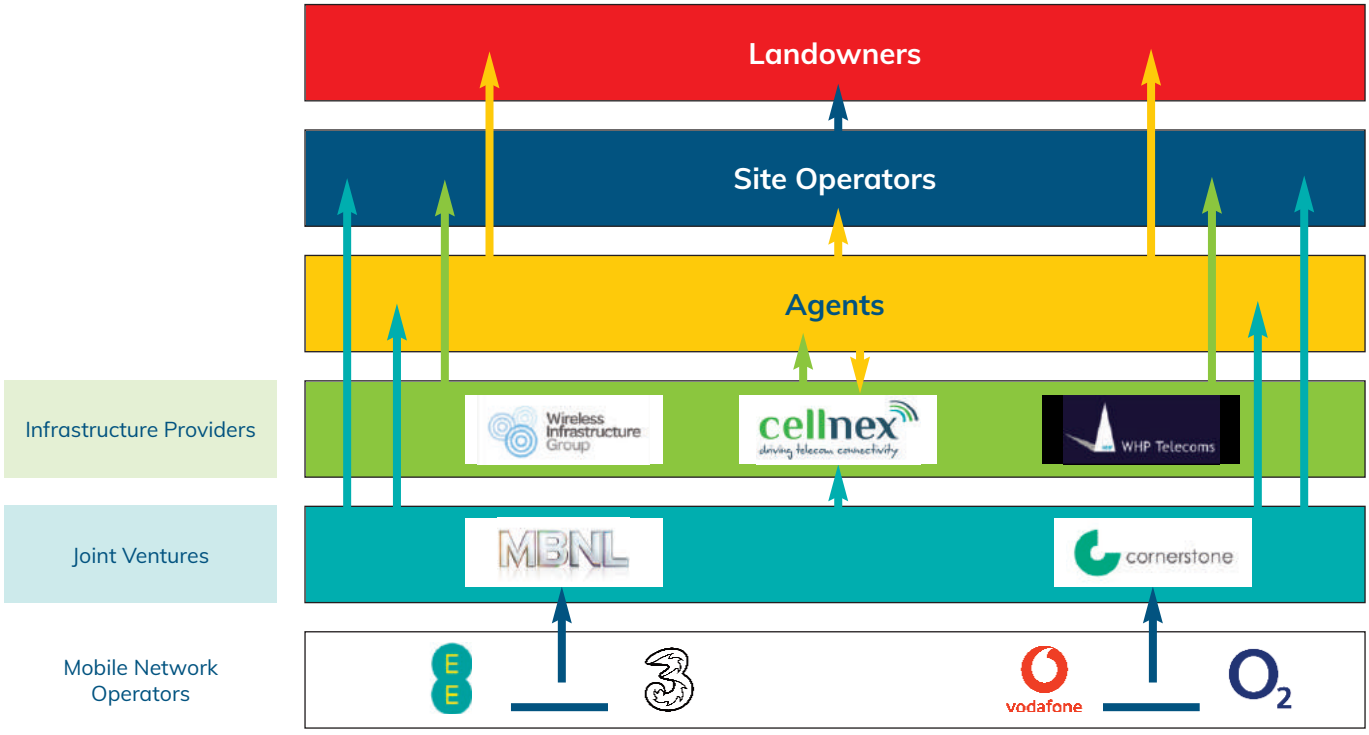
Stakeholder Group	Motivations for engagement
Estates	First point of contact for Council land to determine department ownership. Estates will then collect service comment (internal), collect councillor comment (external) then determine outcome.
Transportation / Roads	The Roads team support any civil work that is required including cabling and road closures. If the road is adopted, the request goes to Transportation, relying on the Scottish Roadworks Register. There is a local co-ordination team that meet every three months.
Roads & Lighting Asset Management	Contact for lighting apparatus and a contact for non-lit street furniture.
Facilities Management	Gain access to building with the local authority particularly out of hours.
Legal	Review and sign off contracts to ensure compliance with legislation and internal requirements.
Finance	Consult on new payment process e.g. potentially using platform payment process.
Development Management (planning)	Engage and consult on new process, they can feedback on any new requests coming in.
GIS Team	Holders and suppliers of local authority data and information to the Improvement Service and MNOs.

ANGUS COUNCIL:

"Each service has their own processes and way of doing things, this approach tries to get them all working together rather than individuals. The platform gives a central focus point."

5.2 Stakeholder Engagement at Operational Level

Industry Stakeholders



This diagram shows the relationship of various industry players and stakeholders with the mobile operators being the top of the 'demand food chain'.

Mobile Network Operators

There are four licenced MNOs in the UK:

- Everything Everywhere (EE) - owned by BT
- Three UK (3)
- Vodafone
- Virgin Media O2

MNOs also use neutral host providers such as Freshwave who install networks used by multiple MNOs.

Joint Ventures

Acting on behalf of the MNOs are two strategic joint ventures set up as management vehicles for network rollout (deployment) and site management:

- Cornerstone (acting for VMO2 and Vodafone)
- Mobile Broadband Network Ltd – MBNL (acting for EE and 3)

Through use of combined resource these joint venture companies (JVCOs) drive efficiencies in both cost and process.

Infrastructure Providers

The next tier of the stakeholder map shows Wireless Infrastructure providers (WIPs). These include:

- Cellnex
- Wireless Infrastructure Group (WIG)
- WHP Telecoms (S4GI tower portfolio owners)

The business model for WIPs is effectively to act as 'hotel' operators providing accommodation via fully equipped network sites for consumption by MNOs. Antennas, radio equipment and ancillaries installed on WIP sites remain MNOs property whilst 'passive' site elements (tower/support structure, fenced compound, communal buildings, gantries etc) belong to the WIPs. Besides providing accommodation (ready-built infrastructure) for MNOs, WIPs supply a range of other management services to MNO customers including acquisition, design and build work for new sites.

Agents/Site Operators

The fourth tier of the industry stakeholder map contains the supply chain serving all tiers below. This includes specialist suppliers, agents and representatives that provide all services required by MNOs, JVCOs and WIPs.

Many facets of the supply chain are common as the skills involved are highly specialised and the resource pool is limited. Consequently, the various industry players don't have their own dedicated agents or supplier companies and will pick from a common pool.

The services delivered include site acquisition/estate management, town planning, design, build, installation and commissioning, rigging. Some larger suppliers (Tier 1) provide a wide range of required services whilst others focus on specialised areas. Established suppliers include:

- WHP (Tier 1)
- Clarke Telecom (Tier 1)
- Solutions30
- Daly International (Teligent)
- Galliford Try
- Mitie
- Waldon Telecom
- Avison Young
- Cluttons
- DOT Surveying
- Needham Haddrell
- Galloway Estates

Data Stakeholders

In order to turn the raw data needed by MNOs into a format that is useable, there are certain parties which your local authorities internal project team need to engage with to perform certain functions with the data:

- **Data source** - this maybe your local authority or could be an existing data ource and aggregator like the Improvement Service who holds a wealth of data for all 32 local authorities in Scotland. They may collate the data for other purposes and obtain a variety of 'attributions' for an asset. Consideration is needed as to which ones you will utilise and share with the mobile industry.
- **Data processors** - these parties will assist you with the review, filtering and cleansing of data ready for use by industry or to be included in a platform. They may be found internally or be an external consultant/resource. The *IS Spatial Hub* can help with this.
- **Platform Providers** - those private sector organisation that already have or will develop a platform that can take input data and 'display' it to the mobile industry. It is most likely that the platform provider will need to be procured and so thought should be given as to what will be required from the platform provider. Some providers offer asset data hosting and management services.

PERTH & KINROSS COUNCIL:

"I think it's always difficult to change ways of doing things but when we have got various stakeholders around the table and explained to them the new ways of doing things and why we are doing it they have all come on board."

5.3 Stakeholder Engagement between Local Authorities and the Industry

Having an efficient engagement process between local authorities and the mobile industry is key to rolling out advanced connectivity solutions across the country in an efficient and collaborative manner.

It is common that local authorities have their own processes for engaging with enquiries about use of their assets, which are likely to be different. Some may not have a separate process for engaging with MNOs given they may not have been previously approached by Telecoms Providers for use of their assets. This makes it more time consuming for MNOs to deliver their infrastructure projects at both a local and regional level.

To try and assist both MNO's and local authorities, several process maps have been created as a starting point for process transformation:

- **Appendix 9.1: *Standardised Asset Request Process for Land***
- **Appendix 9.2: *Standardised Asset Request Process for Roof Tops***
- **Appendix 9.3: *Standardised Asset Request Process for Street Furniture***

These process maps detail the processes that would be required to be undertaken from the initial request through to conclusion. Each of the appendices are slightly different to reflect the different processes associated with the asset request for Land, Rooftops and Street Furniture.

The process maps are designed to highlight how it can be beneficial to have defined processes that are the same for all local authorities involved in the project, working together at a regional level, so that MNO's have a standard documented process where the interaction between all parties is effective, efficient and timeously.

5.4 Useful resources to inform and engage stakeholders on the benefits of mobile telecoms

To assist with stakeholder engagement, it is important to know the current status of mobile coverage in your area. Information about coverage levels is provided by Ofcom, the telecommunications regulator. The most recent report can be found here. Connected Nations and infrastructure reports - Ofcom

Mobile infrastructure is an area of expertise and there are a few misconceptions. Mobile UK are an industry representative body and have provided some basic facts to help stakeholders working or engaging with the mobile sector. *Mobile Facts | Networks & Connectivity in the UK | Mobile UK*

UK 5G has collated case studies from the UK Government's 6G test bed and trials programme to show the possibilities for 5G. Take a look at these on the dedicated website - *UK5G Innovation Network - Events, News & Resources*

ANGUS COUNCIL:

"Working together towards a common goal, each local authority has invested time / effort in the project, working as a group rather than individual LAs to bring investment to the area."

Section 6
Data and Security Pathway

The Infralink-Exchange project demonstrated that one of the key ingredients for improving the engagement between the public sector, MNOs and communities, is data. Improving access to data can help to provide a common understanding of where to locate telecommunications equipment, and the location of public sector assets that could possibly host equipment. The Data and Security Pathway of this Playbook aims to walk project teams through the process of populating the solution with data about infrastructure and assets: from the identification of possible data through to its publication and use.

6.1 Identifying the Relevant Datasets

Individual local authorities have different datasets that may be useful to MNOs. As an initial step, it is recommended that an individual local authority performs a data "discovery" audit of what data they have available, the specific datasets that may be relevant to the project and who holds it.

MNOs are generally interested in local authority data that can help them pinpoint the most suitable place for them to install their telecoms equipment on. This includes (but is not limited to)

- Local authority owned land,
- Local authority owned buildings
- Local authority owner street assets such as street lighting columns, CCTV locations, bus shelters and traffic systems where there is height and/or power.

MNOs are also interested in any restrictions that might be in place locally which could prevent them for installing their equipment on the assets e.g., Conservation Areas, Greenbelts, Local Nature Reserves etc.

The aim shouldn't be to provider MNOs with all the data that they require, but to allow the start of an informed conversation. Even the provision of the data shows an authority is willing to engage, which is a good starting point.

6.2 Accessing the Datasets

In some cases, the datasets required may be already published as open data which will mean that providing access to MNOs should be straightforward because it will already be publicly available under license.

Where it is not open data, permission will usually be required to share or open the data from the appropriate data owner or data steward. Typically, the data required will be held within operational systems such as Geographical Information Systems (GIS) or a management information system. Once approved, the means for extracting the data need to be identified and agreed.

It may be that there are technical capabilities in place to enable this extraction such as Application Programming Interfaces (APIs) /Web Services. In some cases, it might require bespoke development or a manual extract of the data.

In these cases, the project lead will need to ensure relevant staff from the local authority are engaged and available to support the project from the start, to understand the data requirements for the project and to provide support for making the data available.

Consideration should be given at the start of the project to the appropriate method of updating and transferring the data on a 'regular' basis and how this will impact existing resource. To ensure that the new approach is continued it is crucial to make the process sustainable and manageable.

Benefits of doing the data side through the Improvement Service

PERTH & KINROSS COUNCIL:

"The Improvement Service was already in place. That gave us a head start as each local authority in the Tay Cities had already provided them with our buildings, streetlights and other asset data to be simply migrated onto the Sitenna platform."

DUNDEE CITY COUNCIL:

"Having an existing and nationally recognised single-point-of-contact for quality assured spatial data like the spatial hub has massively decreased the amount of work needed to source the initial asset data for the platform."

ANGUS COUNCIL:

"There are processes in place already that allows the transfer of data from the LA's to the Improvement Service, this has prevented additional work having to be carried out by the LA's. The majority of the data was ready to be imported into the platform."

6.2.1 Ensuring the Data is Useful – Data Standards

For the data to be useful to MNOs, a minimum content standard is required before data is published. This includes (but is not limited to):

- Data to be published using a standard geospatial format, or if it isn't, a column/field in the dataset attribution table that represents the location (e.g., XY or latitude/longitude) of the feature to enable it to be plotted on a map
- A persistent Unique ID/identifier column/field in the dataset attribution table to enable the feature to be uniquely identified
- For certain datasets, it will also be necessary for mandatory population of certain columns/fields in the dataset attribution table (e.g., Unique Property Reference Numbers (UPRNs), address, height, etc.)

Asset Datasets

- Land and Buildings – Unique, persistent identifier, address/UPRN, XY (or latitude/longitude) location, contact details

Much of this data can be found in the Council Asset Register already produced by local authorities and shared with the Improvement Service.

- Street Lighting Column – Unique, persistent identifier, address, XY (or latitude/longitude) location, height, power, contact details
- CCTV - Unique, persistent identifier, address, XY (or latitude/longitude) location, height, power, contact details
- Traffic Signals - Unique, persistent identifier, address, XY (or latitude/longitude) location, height, power, contact details

Contextual Datasets

- Planning Designation - Name/Unique, persistent asset identifier, XY (or Lat/Long) location, contact details

If the data does not meet these standards, the individual records for the specific datasets should be removed from the data load.

6.2.2 Data Management and Data Governance

If the data available does not meet the minimum data standards, remediation activities will be required to meet the standards as part of the project. It is recommended that whilst doing this, the opportunity be taken to support data quality improvement and to map out the current "as-is" process with regards to data management.

IMPROVEMENT SERVICE:

"To make accurate business critical decisions and reduce risk, it is imperative that the MNOs have access to high quality and timely data. This can only be achieved by local authorities providing accurate data from their internal Management Information Systems. The Infralink-Exchange project is a fantastic example of a use case where good quality and timely data is imperative, and this goes hand in hand with good data management and a data driven culture within the organisations involved."

Consideration should be given to implementing data governance processes that will support your data management plan. Data governance aims to ensure that the data is at the desired quality, secure, reliable, and available to transfer to the Improvement Service. At its core, data governance is about agreeing and documenting what role and responsibility each stakeholder will have to support the data management plan. Data governance can be a broad topic but it's

useful to look at it in three key areas – data quality management, data security management, and data operations management.

Data quality management is about ensuring that the data transferred to the Improvement Service or a platform provider is at the desired quality. Areas you should consider include:

- Defining/implementing minimum data requirements
- Putting a process in place to review data that has not been accepted
- Records and archiving

Data security management is about ensuring that the data is secure while at rest, while being transformed, while being transferred, and when being viewed at all stages of the process. Areas you should consider include:

- Ensuring data is secure when being stored
- Ensuring data is secure when being processed
- Ensuring data is secure when being transferred to the Improvement Services (assuming they are used as data aggregators)
- Managing access to the data
- General Data Protection Regulations (GDPR)
- Using due diligence if you are using a third-party provider system outside of your local authority IT systems

Data operations management activities are aimed to support the sustainability of the process on an ongoing basis. Areas you should consider include:

- Stakeholder management and review process
- Securing the supply of data to the Improvement Service (assuming they are used as data aggregators)
- Data discovery
- Processing the data to the requirements
- Agreement on transfer method with the Improvement Service
- Ensuring license agreements are in place if required
- Processes in place to manage MNO requests

You can use the Data Governance Framework example below to help you put a data governance plan in place with the stakeholders in your organisation. The key is that every stakeholder is aware of and has agreed to their roles and responsibilities.

Area	Task	Sub-tasks	Responsible
Data quality management	Defining/ implementing minimum data requirements		
	Putting a process in place to review data that has not been accepted		
	Records and archiving		
Data security management	Ensure data is secure when being stored		
	Ensure data is secure when being processed		
	Ensuring data is secure when being transferred		
	General Data Protection Regulations (GDPR)		
	Managing access to the data		
	Using due diligence if you are using a third-party provider system		
Data operations management	Stakeholder management and review process		
	Securing the supply of data		
	Data discovery		
	Processing data to the requirements		
	Agreement on transfer method		

6.3 Testing Data Quality

Before making data available to an MNO, it is important that the data is of good quality, so it can be used as a truthful source. This section outlines an approach for testing the quality of asset data loaded onto the platform. These tests are designed to ensure all asset data meets the information needs of MNO users, thereby enabling the platform to provide a valuable service to these stakeholders.

The tests should be completed every time data is uploaded onto the platform, as the long-term maintenance and viability of the platform depends on consistent data quality. The approach for each test is set out below along with a set of questions that each local authority should ask themselves as each test stage.

6.3.1 Test 1: Completeness of required asset information

For the platform to provide maximum value to users, it is important that the minimum data set provided in section 6.2.1. is available and that the data be tested for completeness and quality before being published. For example, all assets should contain the following fields:

- **Asset identifier** - Each asset must be uniquely identifiable . This will ensure MNOs and asset owners can begin negotiations over a unique asset
- **Location** - The location of the asset is crucial to MNOs, as where they deploy equipment will strongly depend on location and how it serves their network. Both geographic coordinates and text addresses are needed. Coordinates are needed for visualisation of the asset, whilst text addresses provide more context to identify assets
- **Type of asset** - This information enables further filtering of sites according to MNOs' needs
- **Owner** - Local authority contact details will be necessary for the MNOs to procure the asset for use

Questions for local authorities

For each of your asset datasets, fill out answers to Questions 1 and 2 in this table.

Required attribute	Question 1 - Field name(s) in dataset	Question 2 - Percentage of assets that contain information
Asset identifier		
Location		
Type		
Owner		

Question 1	Is each of these attributes present in your dataset? List the corresponding field names in the table below.
Question 2	What percentage of assets contain values for each field?

6.3.2 *Test 2: Uniqueness and consistency of asset identifiers*

As the uniqueness of asset identifiers is critical to ensure that there is clarity about which asset is being considered, it is important to check this field specifically for duplicates.

Additionally, to ensure existing data is not lost when new data is uploaded, asset identifiers must stay the same over time (e.g., they must be persistent). This is often an issue for asset datasets, as some common methods of assigning identifiers to assets do not actually produce consistent identifiers.

For example, some local authorities may store their data in a GIS system that automatically produces an Object ID for each asset. However, this ID is based on the order of the assets in the dataset. Therefore, if assets are removed or added, many of the identifiers will change. There needs to be another, more stable field for asset identifiers.

To avoid this issue, discuss the process of how asset identifiers are generated with the team who produce the dataset. Based on this discussion, work together to agree on an identifier assignment process that will remain consistent.

Questions for local authorities

For each of your asset datasets, answer the following questions.

- What percentage of asset identifiers are unique?
- What is the process for assigning identifiers to assets? Does each asset have a stable identifier?

6.3.3 *Test 3: Accuracy of asset location and type*

In this context, accuracy can be defined as whether the location and type information are sufficient for users to identify the correct asset on a digital map, not whether the coordinates point to the exact asset. This is because MNOs are likely to undertake site visits regardless of how much asset information is available on the platform, but they still need to identify a specific asset to begin discussions with asset owners.

Our suggested workflow for validating the accuracy of information is as follows:

- **Step 1 - Pick a random sample of assets to validate.** The more assets included in this sample, the more trustworthy the accuracy rate. However, the validation process will also take longer. To balance concerns around time and statistical significance, it is suggested that you chose to validate 120 assets for each dataset.
- **Step 2 - For each asset, enter the coordinates into a mapping application.**
- **Step 3 - Check the coordinates point to the asset, and if relevant, whether the asset type is correct.** If coordinates do not point to the exact asset, check whether the text address description can help you identify it. Make a note of whether you used the coordinates or the text address to identify the asset. Additionally, use Google Street View to confirm.

Occasionally, it may be impossible to verify the existence, location, or type of an asset via Google Street View. In these cases, either the information could be verified physically, or the asset could simply be marked as inaccurate.

Question for local authorities

- For each of your asset datasets, what percentage of assets have accurate location and type information?

6.4 Data Publication Guidance

There are different options for publishing data for MNOs:

- **Option 1** - Publication of data via existing local data portal
- **Option 2** - Publication of data via direct data sharing with a third-party platform provider
- **Option 3** – Data Publication via Data Aggregator (e.g., Improvement Service Spatial Hub) and a third-party platform provider

There are a number of considerations that might inform which option to choose:

1. **Availability** of data publication infrastructure and capabilities within the local authority or public body.
2. **Sensitivity** of the infrastructure and asset data (see Security section) and whether it is suitable for publication as open data or not.
3. **Scale** of the data required, for example whether it is being published by a single or multiple local authorities/public bodies or represents multiple administrative areas.
4. **Confidence.** Whether there is sufficient confidence in the data, and if not, whether resources are available to ensure that the data is: -
    a. Cleansed (e.g. removing gaps, duplicates, etc)
    b. Reliable, accurate, and good quality
    c. Maintained
5. **Standards.** MNOs will want to have a seamless experience across local authorities in a region and public bodies. This means

that data will need to be provided in a standard and consistent manner. Consideration should be made as to whether data can easily be published to industry standards, and whether the resources are available to maintain the publication of data to standards.

In the case of the Infralink-Exchange project, Option 3 – Data Publication via Data Aggregator (Improvement Service Spatial Hub) was chosen. The benefits of this approach were:

- A single organisation, the Improvement Service, to manage and coordinate all data requirements on behalf of SFT and local authorities;
- An established process for data collection, conflation and publication including the development of mandatory fields, common schemas and quality assurance reporting for data at a national level;
- Existing good relationships with key local authority data contacts across a region and dedicated resources available to assist and advise local authorities when appropriate.

6.4.1 Option 1 - Data Publication via local data portal/hub

In this option, relevant data is published to a local open data portal/hub where local authorities are able to make them available to MNOs directly or to a third-party solution provider such as Sitenna. It requires local authorities to have an open data portal/hub, and the resource available to maintain the publication of the data to the quality and standards required. It also might not be an option where local authorities/public bodies are collaborating on a regional basis and where data from multiple sources needs to be aggregated.

6.4.2 Option 2 – Data Publication via Data Sharing with Third Party Platform Provider

In this option, the local authority would enter a data sharing agreement with a third-party platform provider directly, and would therefore take sole responsibility for cleansing, maintaining data to expected standards, and publishing the data to the solution provider on a regular basis.

6.4.3 Option 3 – Data Publication via Data Aggregator (e.g. Improvement Service Spatial Hub) and Third-Party Platform Provider

In this option, a data aggregator is used to offload some or all the data maintenance and publication responsibilities from the local authority/public body. It is this option that was chosen by the Infralink-Exchange project, particularly as it enabled data from multiple local authorities to be aggregated.

At a technical level, once the local authority data has been uploaded to the Improvement Service Spatial Hub, it is processed via a conflation process, to “join” the local authority column/fields in the dataset attribution table to the existing national column/fields.

Once this has been done for all local authority datasets, some quality assurance tests are run on the data and a quality report is published outlining any quality issues (both geometric and attribute based) that are discovered. This enables local authorities to improve their data before the next scheduled upload.

The published Web Feature Service (WFS) API is available to any organisation within the *Public Sector Geospatial Agreement* (PSGA) along with the ability to download the data directly via GeoJSON or Shapefile format.

Case study

The Improvement Service Spatial Hub

Infralink has always worked on the basis of promoting engagement based on best practice and an approach that is sustainable and has the potential to be applied across multiple local authority areas and even nationally.

When the Infralink team were exploring options for how a connectivity marketplace could be delivered, it identified a number of existing datasets that were wanted by the mobile sector and were already being collated and managed by the Improvement Service.

By working with the Improvement Service and utilising the Spatial Hub, there would be a ready-made data aggregator for all 32 local authorities that could be repurposed for mobile telecoms. The Infralink team recognised the value in not placing a further burden on already stretched local authority resources to collate data and manipulate it.

This approach has been utilised in the Infralink-Exchange project across 4 local authorities. As anticipated, this has removed the burden from local authorities, whilst ensuring good data governance procedures are in place with the local authorities as owners of the data.

From initialising the project in March 2022, Infralink-Exchange was ready to publish the data for over 140,000 assets within 3 months thanks to the utilisation of the Spatial Hub as the data source. It has also been good value for money, harnessing and repurposing the investment already made in the *Spatial Hub* and is a unique resource in the UK.

Process for engaging with IS to implement data

The Improvement Service provide an online portal for the upload (and download) of local authority data that is needed for the project. This is called the *Spatial Hub*.

The local authority data that is required can be in any recognised geospatial format e.g., a Web Feature Service (WFS) API, a zipped shapefile, or even a CSV or Excel spreadsheet. A user account needs to be created by a user before they can access the upload section of the Spatial Hub portal. Once logged in, an upload screen needs to be completed for the relevant dataset the user wants to upload data against.

In many of the datasets there are some mandatory fields which need to exist in the uploaded data (such as description or site ref) to ensure that the data can be conflated with other local authority data. Details of these fields are available on the relevant dataset page on the Spatial Hub website.

Once a quarter (in January, April, July and October) all local authority uploaded datasets are processed, conflated and published as national (Scottish) layers of geospatial data on the Spatial Hub website via an API. A quality report is also published outlining any quality issues (both geometric and attribute based) that are discovered to enable local authorities to improve their data before the next scheduled upload.

For more information, please contact spatialhub@improvementservice.org.uk

PERTH & KINROSS COUNCIL:

"The Improvement Service was already in place and that gave us a head start as each local authority in the Tay Cities had already provided them with our buildings, streetlights and other asset data to be simply migrated onto the Sitenna platform."

IMPROVEMENT SERVICE:

"To make accurate business critical decisions and reduce risk, it is imperative that the Network Mobile Operators have access to high quality and timely data. This can only be achieved by local authorities providing accurate data from their internal Management Information Systems. The Infralink-Exchange project is a fantastic example of a use case where good quality and timely data is imperative, and this goes hand in hand with good data management and a data driven culture within the organisations involved."

Case study

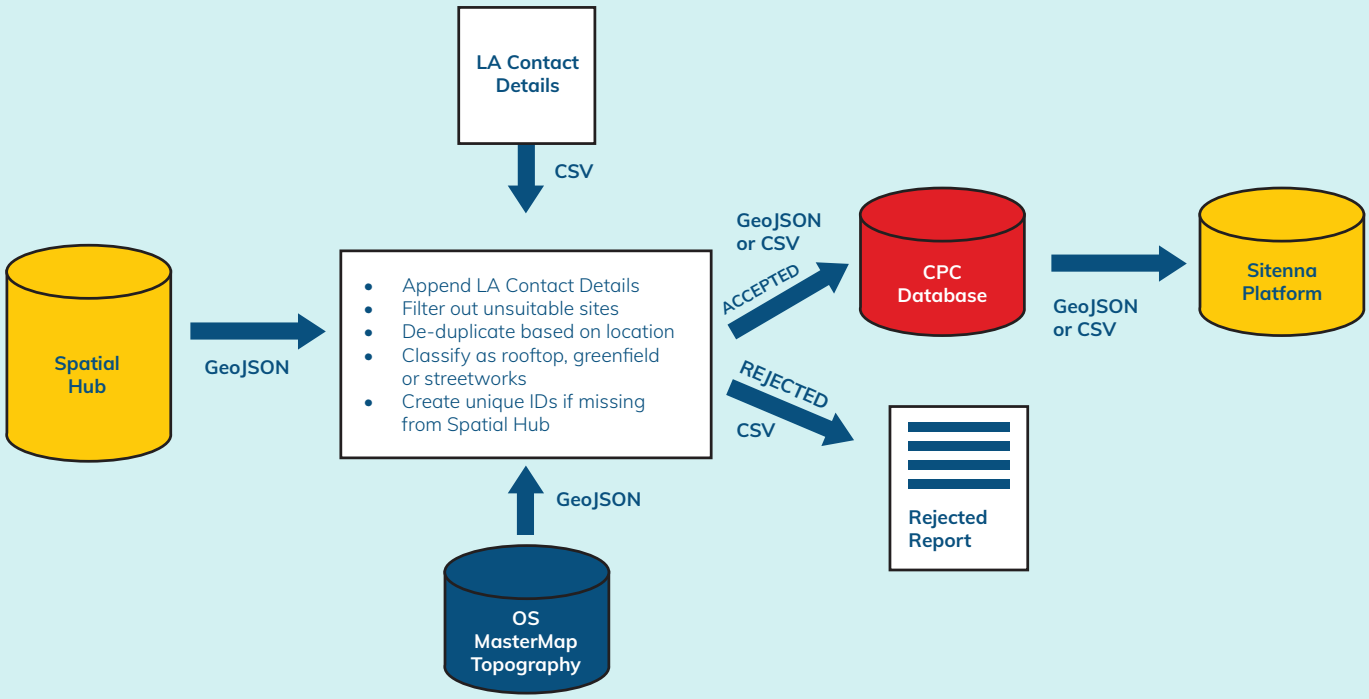
Infralink Exchange Data Pipeline

Below shows the initial pipeline of activity to collate, test and transfer the data from the Improvement Service Spatial Hub to the Sitenna platform. This approach was used to test what could be achieved in a short timeframe to get quality data on the platform and so was more labour intensive utilising the additional resource in the project team.

As a starting point for the Infralink-Exchange pilot, Connected Places Catapult took the WFS API from the Spatial Hub and transformed it according to platform requirements using a custom Python script. Asset datasets were filtered to remove sites with duplicate coordinates, unsuitable sites for mobile infrastructure deployment (such as graveyards or allotments), and sites without unique identifiers. The assets were then categorised according to the platform's site classification scheme.

As part of the data transformation workflow, a quality report was generated to list assets that were filtered out. This provided transparency

Infralink Exchange Data Pipeline



around which assets were not available on the platform.

A data refresh exercise was carried out 6 months later where the Improvement Service utilised their existing data platform, technology stack and business processes to create a bespoke collection, amalgamation and publication process that could be sustained by the local authorities and the Improvement Service on an ongoing basis.

This process used CKAN (an online data portal for the storage and distribution of data, Geoserver (an open-source server that allows users to share, process and edit geospatial data) and FME (a geospatial extract, transformation and load software platform).

The local authority data provided as part of the refresh (and which met the criteria for inclusion in the Sitenna platform) was outputted in GeoJSON format and provided to Sitenna for loading into their platform. Comma Separated Values (CSV) files for each of the 4 datasets and for the 4 local authorities, were provided where any of the data was either missing key mandatory attributes, (e.g., a persistent unique feature id, or an address), where there were duplicates with another feature at the same location (e.g., a street lighting column with 2 lights attached), or where “nice to have” data such as height & power was missing.

It was a valuable exercise to show how the process could be maintained post the pilot project without the support of additional resource and the areas for further improvement.

6.5 Data Security

As in every situation where an organisation holds, manipulates, transfers or shares data, it is important to identify security vulnerabilities, put in place mitigations and then test these mitigations. Steps should be taken to ensure the data is secure during all stages of the data pipeline.

In the case of a data platform there should in particular be an understanding and testing of the data security measures in place at each step from source to platform. Without any information on additional attachments, asset data is unlikely to be used maliciously. This makes it difficult to communicate the risks of data aggregation to asset owners and for them to take steps to store and handle it in a secure way.

As part the Infralink Exchange project a risk matrix has been developed to categorise the data security vulnerabilities along each step of the data journey. Figure 2 provides suggested entries using the Risk Matric in Figure 1 and mitigations for the using a data platform in the same way the Infralink Exchange did. For each vulnerability, the potential severity has been assessed based on the risks of a data breach or loss. Please note this is only an example and each organisation should obtain their own data security advice and assess the risks based on each organisation’s own data platform and process for transferring data.

Figure 1: Risk matrix

Likelihood x Severity			
	Low (1)	**Medium (2)**	**High (3)**
High (3)	Moderate (3)	Major (6)	Major (9)
Medium (2)	Minor (2)	Moderate (4)	Major (6)
Low (1)	Minor (1)	Minor (2)	Moderate (3)

Figure 2: Security weaknesses in data journey

Potential weakness	Likelihood (1-3)	Severity (1-3)	Risk Score	Mitigations
Data being transferred from Local Authority to Improvement Service in a non-protected manner	3	1	3	Use Improvement Service spatial hub API Use encrypted emails
Responding to Freedom Of Information requests in relation to singular infrastructure asset datasets. Can become risky if data from different datasets are aggregated.	1	2	2	Keep record of who is requesting datasets and why
Information such as power or fibre being appended to infrastructure assets in the future could make that dataset sensitive	2	2	4	Being aware of the potential risks when aggregating data

Points to consider:

a. The utility of data security measures depends on the risks of a data breach or loss: stringent data security measures are most important where the possibility of malicious data use is higher. Otherwise, data security measures could prove overly onerous. For example if it is shared whether specific assets had fibre or power connections, this information could be used to plan malicious attacks if enough data is aggregated.

b. The potential impact of a data breach or loss varies at each stage of the data journey. Each stage should therefore be considered separately.

c. With the negative public perception of 5G, and the potential use of personal contact details in the processing pipeline, the severity of a data breach is highest closer to the platform. As such, data pipeline and platform security are paramount.

d. Given the negative perceptions of 5G technology, another major risk is vandalism of assets selected for 5G deployment. Allowing unauthorised access to the platform increases this risk, as bad actors could have access to negotiations over assets.

The following are some of the options explored and used as part of the Infralink Exchange project to assess and mitigate these risks and should be for consideration by an organisation:

- Data Protection Impact Assessments
- Internal data security policies relating to access control, cryptography, data management, information security role and responsibilities and secure development
- ISO accreditation and SOC2 compliance
- Consideration of whether data should be included or not. Consider the need to share the data with MNOs and the ability to maintain the data against the risk to data security.
- Consideration of whether data should be published as ‘open data’ (there may be internal processes and approvals to be followed to assess and achieve this status).

Section 7
Supply Chain and Procurement Pathway

The Supply Chain and Procurement Pathway aims to provide local authorities with guidance on the considerations that must be sought during the process for procuring a platform provider.

This information is provided for assistance only and Scottish Futures Trust (SFT) will have no liability for it or for any other body's project. To that end, it is recommended that advice is sought both internally and externally, as required.

7.1 Procurement Options

There are a few options, whether inhouse or commercial, that a local authority can consider to help them present their data to MNOs. It must be kept in mind that this is a long-term commitment, that needs to be maintained and operated in a consistent manner, and that depending on the number of assets and data layers included, could be a sizeable task.

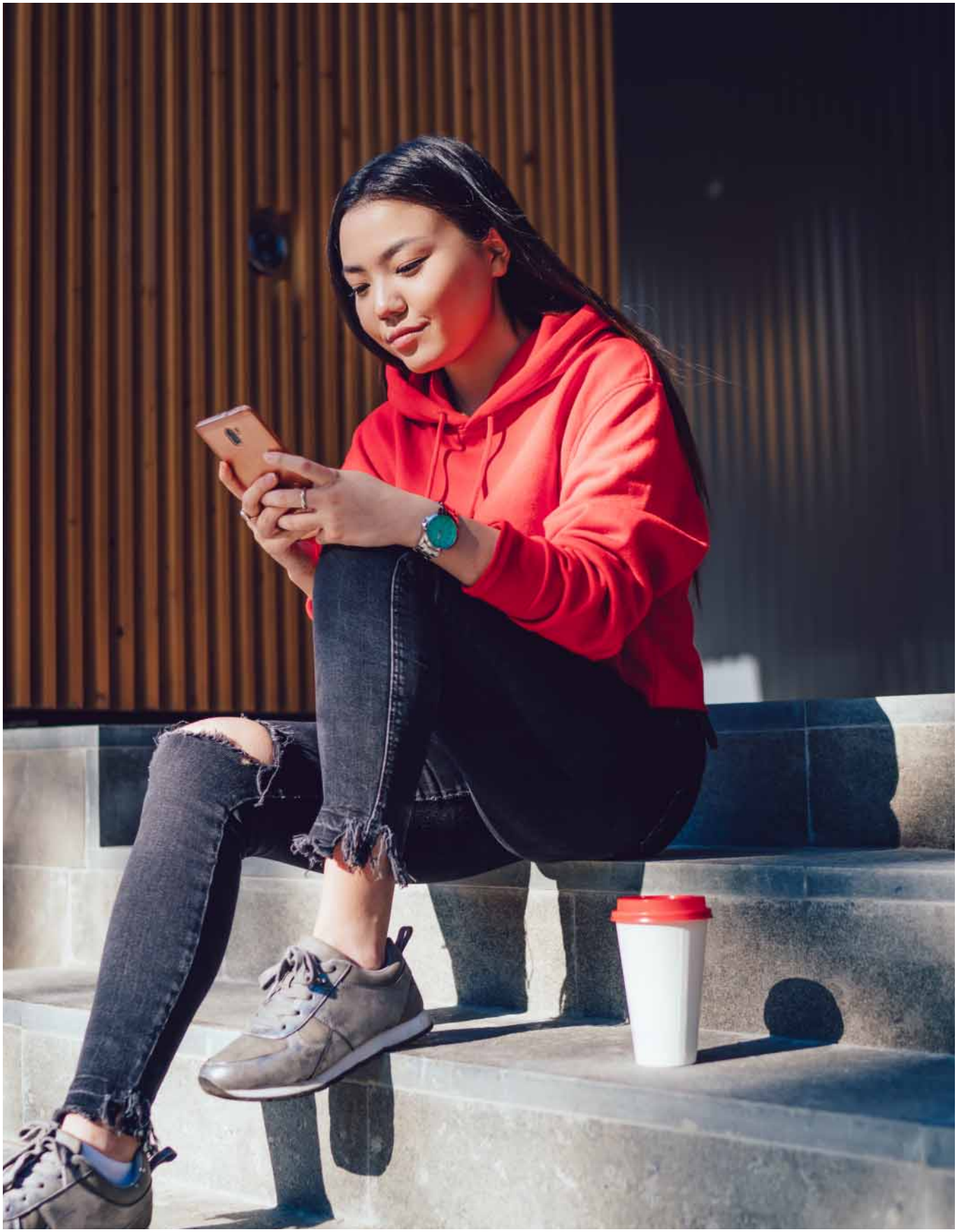
If a local authority decides to utilise an external platform provider, consideration should be given to the following areas prior to any procurement exercise:

- Do you require only an asset promotion platform or do you also want a lease management platform?
- Who on an industry side do you want to have access to the platform – must third parties sign a contract and/or make payment to get access or is it an open platform?
- What format do you want the platform to accept data transfers?
- Are there any additional licences that will be required to be granted to the platform provider to use the data e.g., Ordinance Survey?
- Do you want the ability to put additional datasets on the platform for your area, that may not be provided for other areas? Do you need to obtain any additional datasets?
- How secure do you want the data? Where do you want the data to be stored – does it have to be in the UK, or can it be in the EU or elsewhere?
- How do you want the platform to interact with your finance and asset management system? Are there any systems it needs to be compatible with?
- Do you want the ability in the platform to include a template lease and payment guidance for your assets to put all your Ts and Cs for assets upfront?

The process followed in this Playbook is one of the potential options available to those local authorities or public bodies wishing to undertake a similar project. It is designed to provide guidance and examples of best practice which may be of assistance when undertaking your own project. Your organisation may also wish to engage other organisations, consultants or firms to assist you.

It is important that your organisation follows their own policies and procedures in relation to finance, procurement, governance, legal and other matters. In particular, careful consideration of whether and which procurement rules apply, based on the nature and total projected value of a project, is essential on an individual project basis.

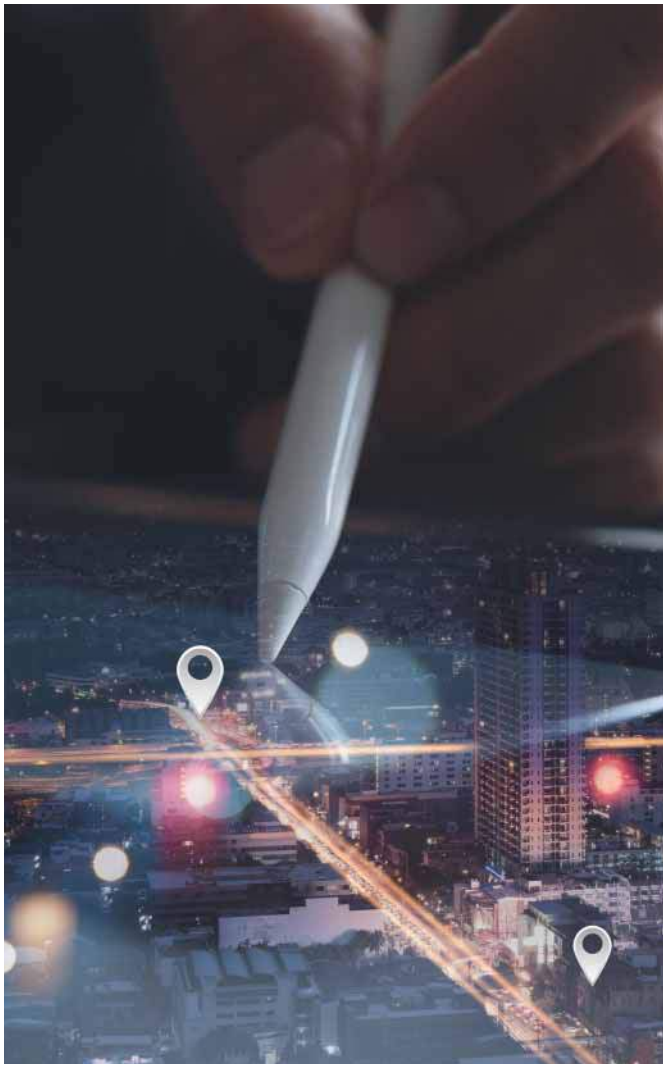
For example: a platform provider may not charge upfront for use of the platform, but given there could be a charge in the event of the successful conclusion of a lease, and there could be a number of these in a contract period, then this would still be counted as a consideration and procurement legislation would still apply. Early contact should be made with your legal and procurement team in that respect.



7.2 Licensing

It is also important that consideration is given to whether any licences are required and whether these will need to be sub-licenced to the procured third party. In order to use the Improvement Service Spatial Hub, a sublicense will need to be granted by the local authority, ensuring all the terms of the Spatial Hub licence are complied with.

Another consideration to be aware of is licencing required to use the Ordnance Survey data, often used with polygon data such as planning restriction data. All local authorities can access this data under the *Public Sector Geospatial Agreement* and will need to grant a commercial licence to any third parties that will use this data.



7.3 Standard Terms and Conditions

In addition to promoting asset data, consideration should be given to a local authority having and promoting the terms and conditions that it will engage on regarding its assets. Standard leases and payment guidance are a recognised route for putting forward a balanced starting point for negotiations that already take into consideration the requirements of the *Electronic Communications Code* other internal public sector requirements such as 'best consideration'.

Infralink has published lease templates, master agreements and payment guidance for land, buildings, street lighting columns, in rural and urban areas that apply to 4G/5G macro and 5G small cells. The leases and guidance have been developed in collaboration with local authorities and the mobile industry and build off leases already being used in practice.

They are available on the *Infralink website* and can be uploaded onto most data platforms. They are regularly reviewed by Scottish Futures Trust to ensure they are in line with legislation, case law and industry practice.

FIFE COUNCIL:

"Standardised documents help to create a more streamlined approach for suppliers. Using the templates will hopefully ensure the customer experience is consistent and helps improve response / resolution timescales."

Section 8
Further Resources

The following resources are available to support local authorities further with their journey to deliver a successful digital project that promotes mobile connectivity.

Digital Connectivity Infrastructure Accelerator (DCIA)

The Digital Connectivity Infrastructure Accelerator programme, facilitated by DCMS, funded the Infralink-Exchange pilot. Find out more about DCIA and the other pilot projects on their website. *Access the website now*.

Scottish Futures Trust - Infralink Website

The Scottish Futures Trust - Infralink Website provides information and tool kit guides to support users through the process for siting and operating mobile network equipment. This tool kit enables an easier and faster approach to ensure Scotland has the best digital connectivity for its diverse communities. *Access the Website now*.

Mobile UK – What is a Digital Champion? Report

The Mobile UK – What is a Digital Champion report outlines the importance and impact that Digital Champions within local authorities has on the rollout of mobile infrastructure. *Read the report now*.

Mobile UK – 5G Check the Facts Guidance

The Mobile UK 5G Check the Facts Guidance details factually accurate information to improve understanding about 5G. *Read the guidance now*.

Public Sector Licensing Guide

Some data that may be used in a platform will be based on Ordnance Survey data (OS data). Many public sector bodies are permitted to use the OS data under the Public Sector Geospatial Agreement (PSGA). In addition, public bodies that sign up to the PSGA can grant contractor's licences for third parties to use the OS data. *Read the guide now*.

The Cloud Security Principles

The National Cyber Security Centre's 14 cloud security principles are designed to support organisation to choose a cloud supplier that meets their security needs. *Read the cloud security principles now*.

The Improvement Service Spatial Hub

The Improvement Service Spatial Hub is an online resource that provides a single point of access to quality-assured Scottish local authority data, in a consistent format. *Access the Spatial Hub now*.

The National Connectivity Alliance

The National Connectivity Alliance (the NCA) is an alliance of telecommunications providers, infrastructure providers, landowners and their professional advisers. The Alliance brings together these stakeholders to collaborate on areas of mutual interest with the goal of delivering world class connectivity for all. *Access the website now*.

Case study

The importance of having Council policy support mobile infrastructure deployment.

Perth & Kinross Council was conscious of the need to develop a new Telecommunications Policy Statement to support the Infralink Exchange project and provide a clear indication that the local authority was open to the deployment of telecommunications equipment to enhance digital connectivity.

The Councils existing Telecommunications Policy dated back to November 2001 and was developed at a time when mobile telephone ownership and usage was still low and smart phones weren't available (the first iPhone came out in 2007). Now 97.5% of the UK population have a smart phone (rising to nearly 100% of 18-24 year olds) and nearly half the population says they use smart phones more now than before the pandemic.

In 2001, the then council policy restricted installation of telecommunications masts on Perth & Kinross Council properties primarily due to health concerns. Before this, there had been a moratorium on siting of equipment on properties in continuous educational, public or staff use, and extending to power and signal cables where they served telecoms developments adjacent to excepted Council properties. The policy was also confined to equipment on council land and buildings

There are now potentially up to 30 more masts (or so called 'macro') sites to be deployed over coming years under the *Shared Rural Network* in Perth & Kinross and private MNO investment. Together, these amount to over £1bn of investment split equally between private and public funding. The Electronic Communications Code (ECC) also came into force in December 2017 and this required the Council's telecommunications policy to be reviewed and updated. The ECC brings a significant change to the law in this area, allowing for the siting of masts and associated infrastructure under permitted development. Many local authorities also have outdated telecoms policies that pre-date the ECC and – given the amount of telecoms development being planned in the area – the opportunity was taken to update the policy.

Linked to this, the Scottish Government is keen to improve the mobile network infrastructure and has been in the process of working with operators to deploy further masts across Scotland through the Scottish 4G Infill programme (S4GI). It is also supporting the Scottish Futures Trust Infralink programme and a suite of guidance and tools that have helped the Tay Cities local authorities with the lease and charging agreements for telecoms equipment. These tools are now available for all local authorities to use and new policy states that these will be used by the Council .

The Council agreed the new Telecommunications Policy Statement in November 2022: It is broader than the existing policy; updates on the ECC and the requirements to support new mobile network installations; puts in place a Single Point of Contact for the mobile industry to engage with; and commits to using the Infralink tools to speed up the installation process.

Case study

Assisted by the pro-active approach set out in the policy statement, the Council has now agreed its first small cell agreement with Freshwave - a neutral host provider- in a period of one month compared to the industry standard six months. This is a signal to the market that Perth and Kinross Council are keen to engage with the mobile industry on how to improve mobile connectivity in the area.

The policy can be accessed on their Telecoms pages on the Invest in Perth website. *Read the policy now*.

FRESHWAVE

NICK WIGGIN, HEAD OF PARTNERSHIPS:

"Infralink-Exchange has pioneered the sharing of best practice to improve digital connectivity for communities in Scotland. By bringing stakeholder groups together, from local authorities, the mobile network operators and industry providers, they help promote better understanding of the different challenges each of these groups is facing and increase engagement in the process of rolling out digital infrastructure. Providing standard templates, such as open access agreements, is invaluable in accelerating the speed of digital deployment and its associated benefits. Making it easier and more inclusive for local government can only be a good thing; as a connectivity infrastructure specialist I think the more initiatives like this the better."

The adoption of a standardised template

Perth & Kinross Council are working collaboratively with Tayside Contracts to deliver connectivity to office premises at Collace Quarry with technical input supplied by Rapier Systems. A public asset will host the required apparatus, specifically the roof of Blairgowrie High School.

The willing parties need documentation to regulate operation and maintenance of the apparatus and have adopted the Infralink template lease (Urban - Building). Openly available on the *Infralink website*, using the template lease is advantageous as it represents current best practice and complies with current legislation in terms of the Electronic Communications Code 2017.

By giving a fair and balanced starting point, the template lease will help reduce time, cost and resource burden to deliver a final document that meets the needs of both parties reflecting the asset type and subject location. This demonstrates the Infralink engagement tools (Template Leases and Payment Guidance) can be a helping hand to local authorities in any scenario – not only mobile network deployment.

PERTH & KINROSS COUNCIL:

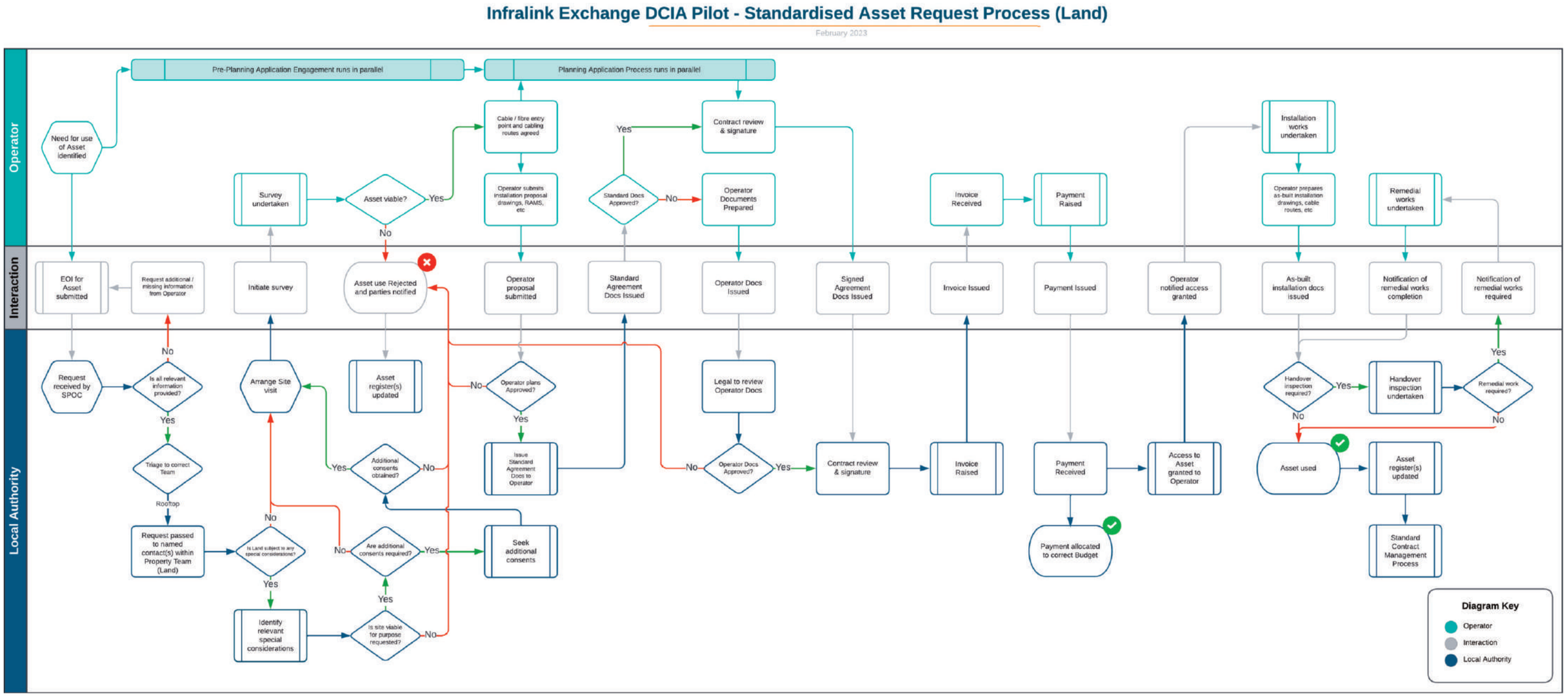
"It's helpful having the tools available it helps speed the process up considerably – otherwise it can take weeks or even months to get sites agreed and then leases and payments."

ANGUS COUNCIL:

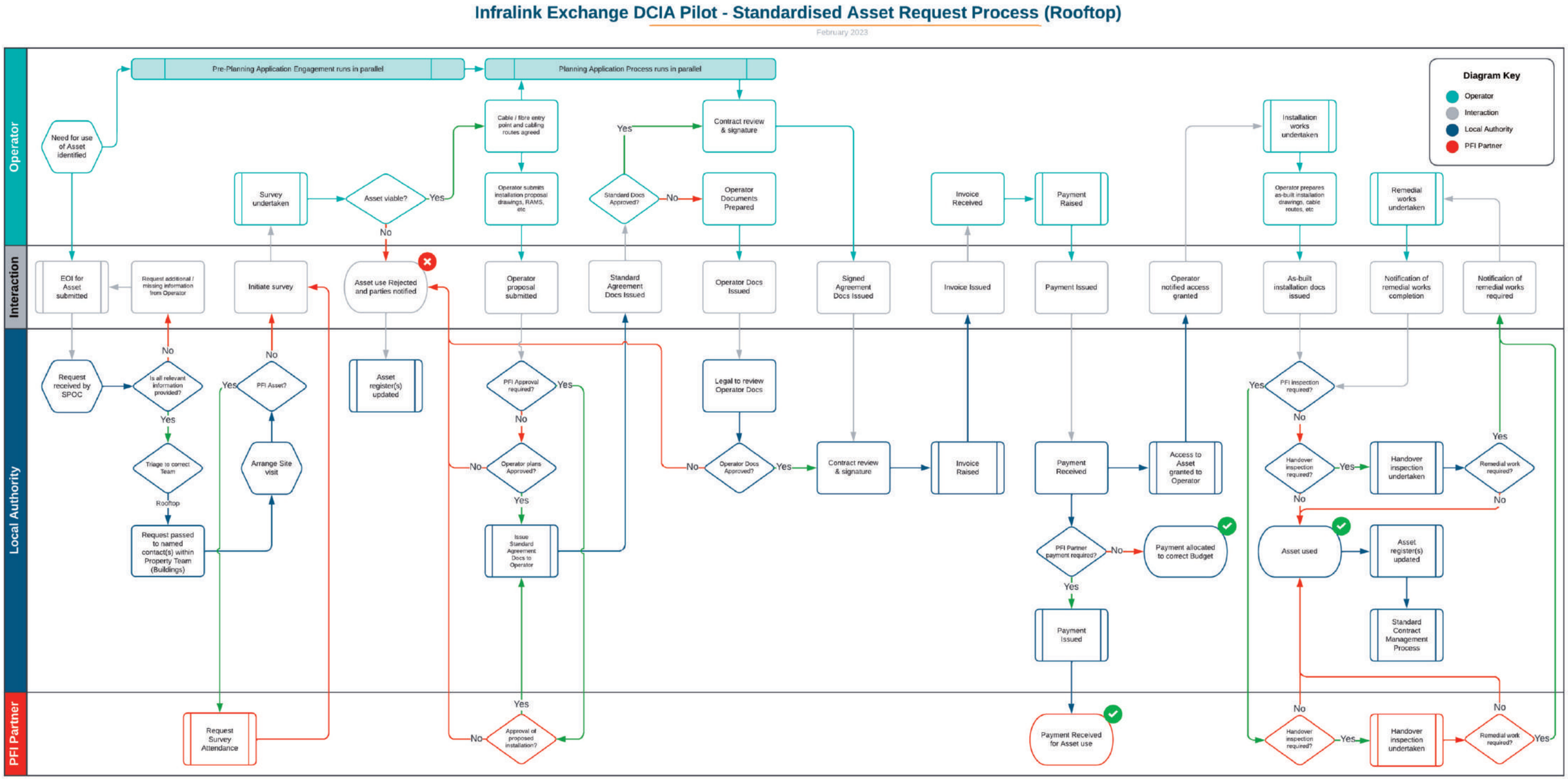
"A standard toolset enables a good customer experience to external / internal users, reducing the paperwork and timescales. The experience should be the same throughout the four LAs."

Section 9
Appendices

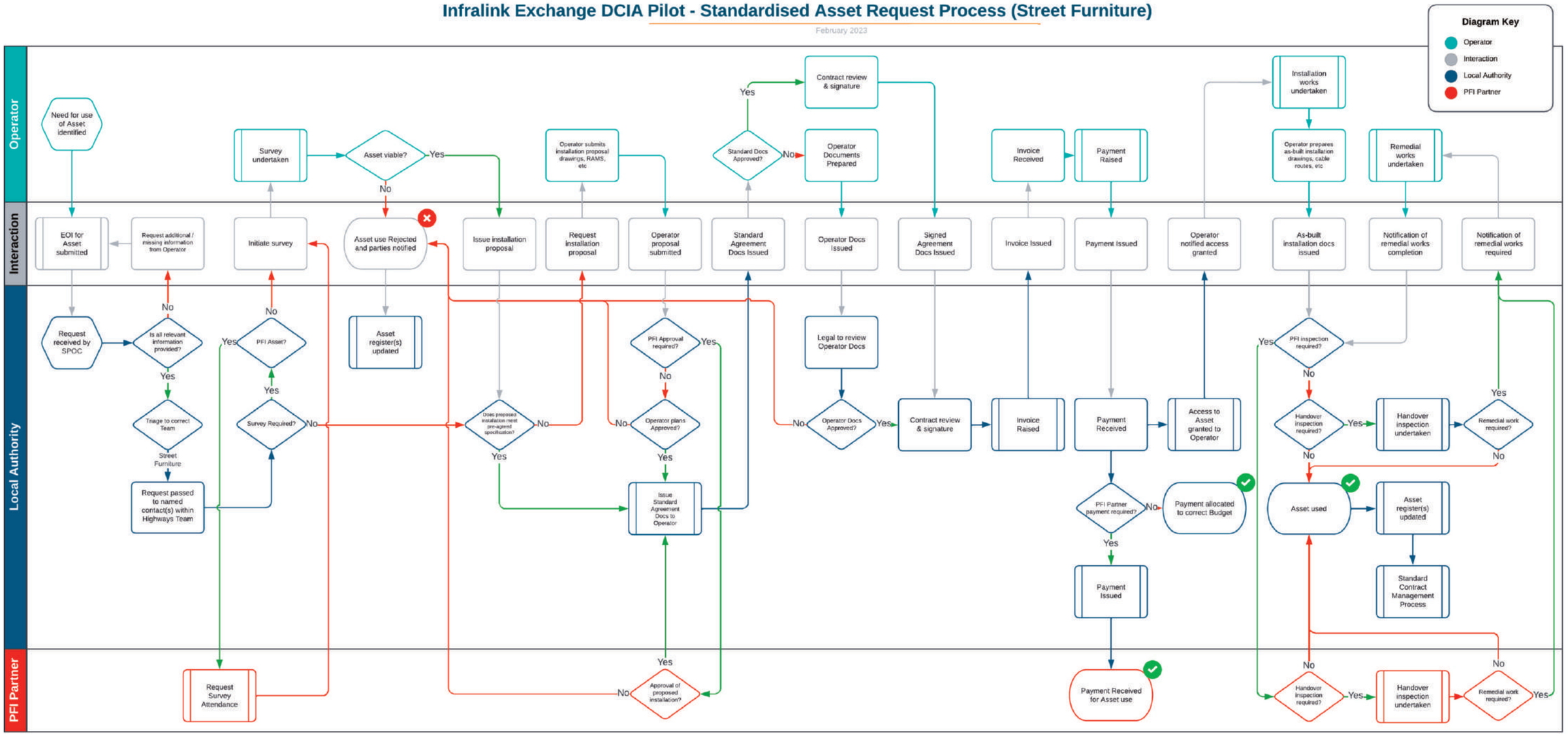
9.1 Standardised Asset Request Process for Land



9.2 Standardised Asset Request Process for Rooftops



9.3 Standardised Asset Request Process for Street Furniture



Section 10
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Angus Council

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Fife COUNCIL

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