

Our Falkirk

Mapping Support Services with Open Data



Falkirk Council



thinkWhere

Sally Buchanan

Anna Adamson

Martin Clarke

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Introduction

Poverty & Mapping Services in Falkirk

In November 2018, Falkirk Council partnered with thinkWhere, an open source geospatial consultancy based in Stirling, to tender for the Open Data Institute's (ODI) Local Government Geospatial Stimulus data funding streams.

Our successful bid to the ODI provided an opportunity for Falkirk Council to develop *Fairer Access to Services*, one of four themes within our poverty strategy *Towards a Fairer Falkirk*.

This report describes our experiences using Open Datasets to develop a web mapping application - 'Our Falkirk' – that provides access to information on services in the Falkirk area.

Moreover the project demonstrates how open data can overcome barriers to data sharing, licensing and costs.

We hope our experiences will prove beneficial to local government agencies undertaking similar mapping and data collation exercises.

Falkirk Council Poverty Strategy

At Falkirk Council, we recently refreshed our approach to poverty and although we know that we cannot lift everyone out of poverty, we can take steps to mitigate the impact that poverty has on individuals, children and families in our area.

We know that poverty is both a cause and a consequence of poor access to services. This in turn traps people, families and communities in poverty.

Services that provide money advice, access to food provision, digital access and community support are key to supporting those facing poverty. For example, digital access can help address the £490 per year 'cost of being poor' through online shopping, accessing better financial products and getting better deals for electricity, gas, mobile telephones etc.¹

***1 in 5 children in
Falkirk live in poverty***

Source:
<http://www.endchildpoverty.org.uk/poverty-in-your-area-2018/>

“Poverty is both a cause and a consequence of poor access to services”

Towards a Fairer Falkirk 2019-2024

For our children and young people to reach their life potential, access to education, health, advice and other support services is crucial. A lack of access can limit their life chances.

Recognising the potential of open data to support this service provision was key in developing the thinking behind this project. This involved identifying the current barriers to data sharing within local government and how they might be overcome.

Barriers to Data Sharing

Some local councils have printed service directories of information, most of which is non-spatial data. The resource requirement to maintain these directories is significant and it is only useful if it is to hand when someone needs it. Other information sources may reside within individual services or outside of the council in community and public bodies. Collating and sharing this data, whilst at the

¹ www.turn2us.org.uk/About-Us/News/What-is-the-poverty-premium

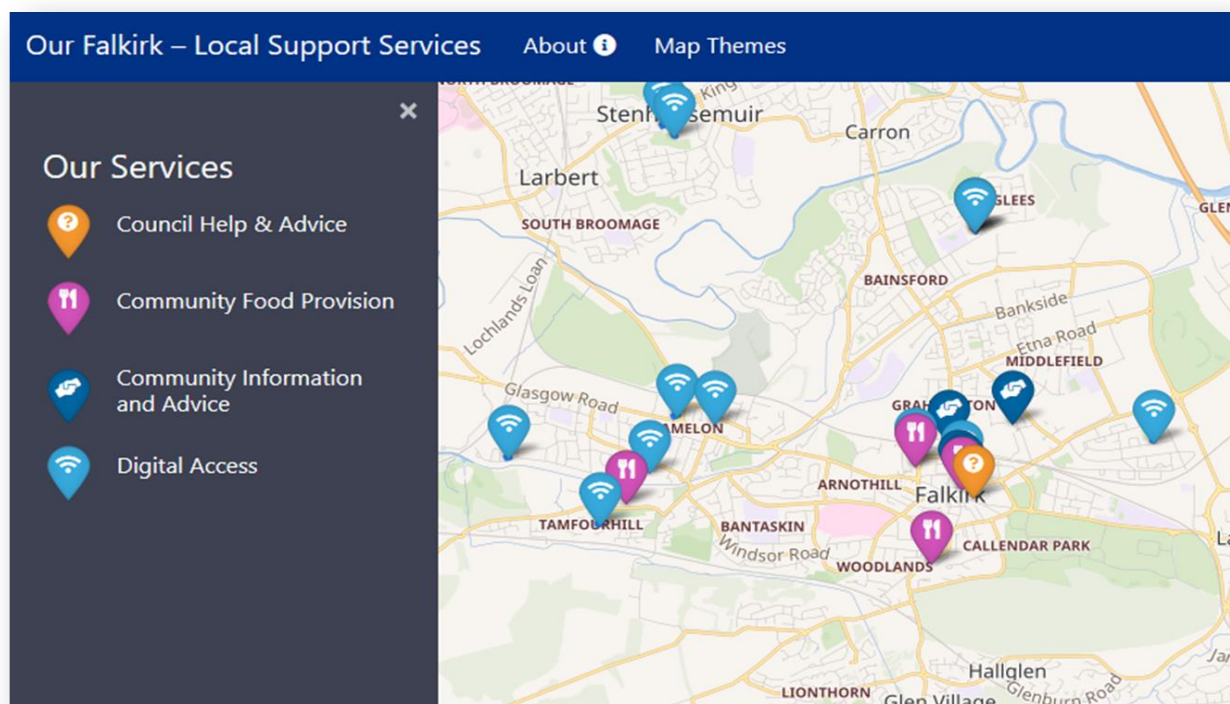
same time dealing with any constraints on licensing and data hosting costs, are all barriers to data sharing.

By making this information readily available online we can allow people to check what is available in their local area. Additionally, this will allow frontline staff in the Council and other organisations to provide more help by quickly checking what other services are available to help someone.

Open data is a gateway to data sharing and for local communities in Falkirk increased data sharing will mean services are more readily discoverable. We believe this will mitigate the impact that poverty has on individuals and families.

The development of our web map 'Our Falkirk' is our solution to support service discovery. This web map allows people to easily access information on services in the Falkirk area, their location, opening hours & accessibility.

However, that is not the whole story...this project was more than the production of a specific map; it was an opportunity to develop practices and methods that will empower data sharing.



The 'Our Falkirk' web map

Moving Towards an Open Data Approach

The conventional approach to data sharing, within web mapping applications, is to take a top-down approach - an organisation holds data which it maintains centrally. This central authority then has the responsibility to maintain, update and manage the data on which the map is based. This raises a number of complexities and challenges, including the requirement for data custodians with the appropriate capabilities and skills, data licensing restrictions, and the cost of IT infrastructure.

The challenge here is how to streamline this process – moving data quickly and easily into the public domain whilst removing the overheads of data management.

Web technologies have driven an explosion in the use of community-created and maintained geographic data. This is a step-change from data management by a central or governing agency. Data of this type are often referred to as Volunteered Geographic Information (VGI) - but what explains this rise in these open datasets and more importantly, how does VGI help us for this project?

The problem with traditionally held data is that it conforms to a set format, or schema, that describes the data structure. But what if we want to capture an important feature or service that is not described with conventional datasets or schemas? Or, what if budgetary constraints prohibit the wide adoption of commercial data? This is where VGI steps in.

Familiar mapping tools such as Google, Bing or Apple Maps have a VGI component in their source data. But, the problem is that these mapping tools are partly or sometimes fully propriety and are therefore 'closed' systems. For this project, we wanted to leverage fully the flexibility of VGI, in terms of the data we create and describe. This led us to adopt an approach that used data from the [OpenStreetMap²](https://www.openstreetmap.org) project.

Why OpenStreetMap?

Firstly, and most importantly – it's free!

Equally importantly users are free to describe data in a way that meets their need, using the concept of 'tags' to attribute data. This is important for this project, allowing us to capture the information we need without the constraints of a specific schema.

² <https://www.openstreetmap.org>

In reality, OpenStreetMap (OSM) data is not a free-for-all; community conventions and guidelines hold some sway in what we can capture and describe, but the concept holds. In addition, the traditional challenges and overheads of data management are surmounted. By using OSM, we are not holding the data centrally, resulting in cost savings for Falkirk Council, nor do we need specialist skills to create or maintain our data.

The following sections describe this open data journey using OpenStreetMap, and how this project defined, captured and disseminated data.

The Data Journey

Defining Data Themes

The 'Our Falkirk' web map displays data through a number of data themes – think of a theme as a logical collection of data defined to meet a particular need. For example, a 'Digital Access' theme shows locations where the public can access free digital services (internet access, access to computers and access to printing / photocopying services).

The idea of themes and how they are defined within OSM data was an important aspect of this project. In traditional data projects, we commonly encounter constraints with data schema, formats and availability that limits how data can be used. Now, with OSM, these constraints are removed. The flexibility of OSM data allowed us to define what data was important to our users. This is a different way of thinking about data, moving the definition of data away from the producers to the users.

So, the first point of call in this journey was to define the data themes – what data was important to our service provision, which in turn focused our efforts on the ways to source our data.

Sourcing Our Data

Starting with two initial pilot themes - Digital Access and Food Provision - our existing knowledge and information on service provision throughout Falkirk was supplemented with information sourced from community groups.

For this information, we relied heavily on the Fairer Falkirk Partnership, a group with representation from a number of organisations across Falkirk including Citizens Advice Bureau, The Salvation Army

and Falkirk Foodbank. Organisations were encouraged to share the data they held on services, and openly share what they felt was important about those services.

Relying on others to provide information on services was challenging at times. Ensuring data accuracy was difficult, especially when the information capture was not first hand.

However, the enthusiasm of our community partners provided us with sufficient data to develop our pilot data themes, and this was later expanded to include two additional themes – ‘Community Help and Advice’ and ‘Council Advice’.

In addition to community sourced information, a number of other channels were used to gather data, including:

- Existing council datasets
- Shared data from partner organisations
- Knowledge of council colleagues
- Internet searches
- Facebook groups

Moving data to the Map

Tagging data

The final port of call in our data journey was to add data to OSM, converting tabular data of locations and services to OSM features that were tagged appropriately.

The challenge at this point was to translate data attributes to OSM tags.

The first step in this process was to discover whether any existing OSM tags were applicable to our features of interest. This process of discovery was based on tagInfo³; an online tool that allows users to search for OSM tags. The resulting searches rank the tags in order of popularity, and provide links to any wiki pages describing the tags’ usage.

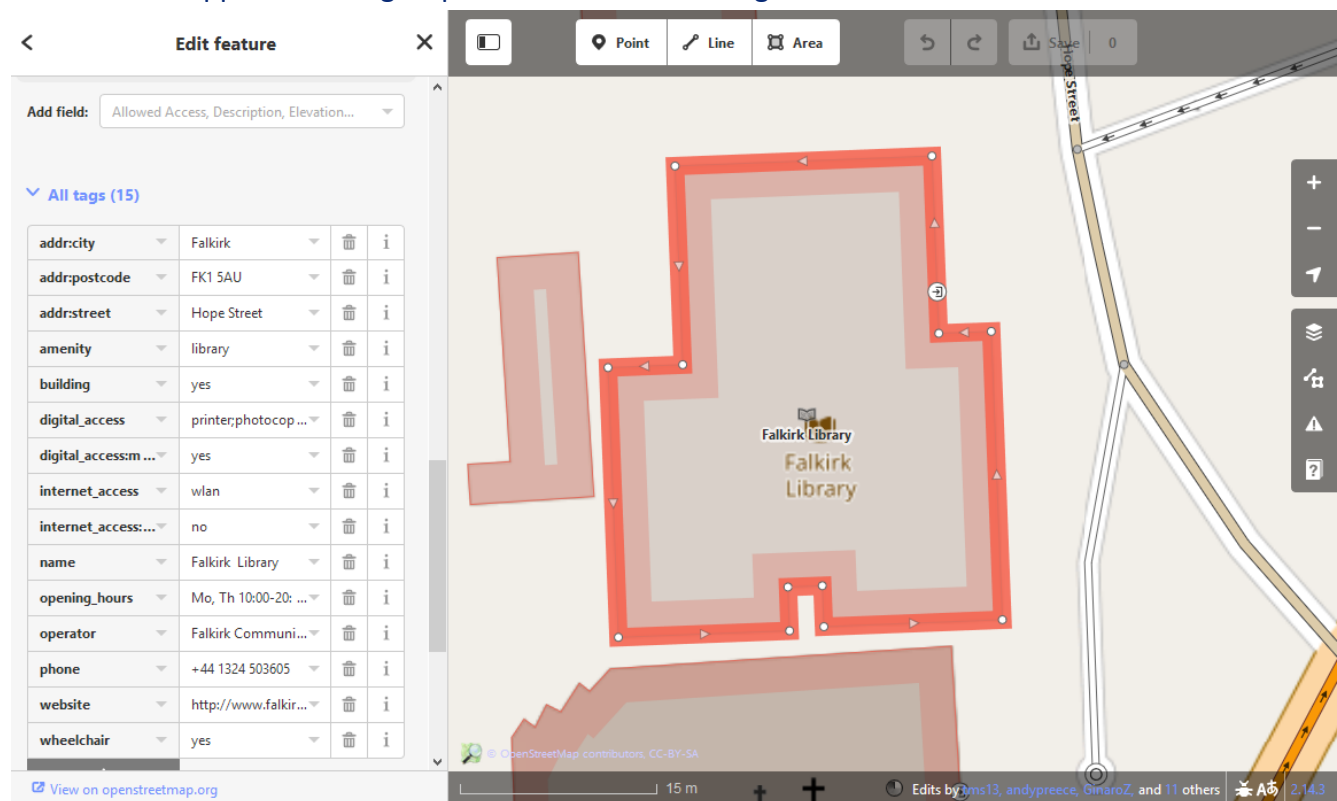
³ <https://taginfo.openstreetmap.org/>

For the majority of our data themes, existing tags were utilised. All the tags used to describe our data themes were documented on an OSM wiki page for future reference.

The capture of digital access services necessitated the use of a new 'digital_access' tag to fully capture the services of interest. In the future, this tag may be submitted to the OSM community for review. This review may result in 'official' adoption of this tag across OSM.

Adding Geographic Features

New geographic features were added to OSM using the default editing tool, idEditor⁴. This tool provides a simple web-browser interface, which allows users to digitize points and polygons and tag features. The software requires no specialist skills and is free to use, another advantage over conventional approaches to geospatial data creation using commercial GIS software.



Adding data to OSM through idEditor⁴

⁴ <http://ideditor.com/>

The Web Map Journey

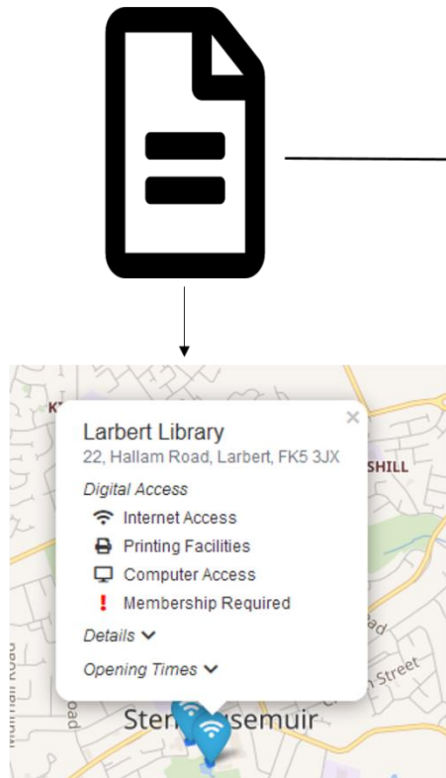
The development of the 'Our Falkirk' web map by the team at thinkWhere ran in parallel with the data collation activities at Falkirk Council. The main aim was to provide a simple web-based user interface using open source tools.

The design of the app tied in with the concept of data themes – the map would need to be extensible, allowing new themes to be easily added.

The map setup is controlled by a configuration file. This configuration controls what themes to load. A set of theme configuration files associates each theme with a set of OSM tags while also giving options to control the look and feel of the displayed data.

Theme definitions are defined in separate files - these theme descriptions can be thought of as simple, lightweight schemas. These schemas define the purpose of the theme, the attributes of interest to display in an information 'popup' for the feature, the OSM tags that capture these attributes and a definition of a query used to pull down data from OpenStreetMap's database. The descriptive information in each theme definition also allows the app to display contextual information about the theme – its purpose and scope – to users.

Theme configuration



Map Themes



Community Information and Advice

Shows community based help and advice offices



Community Food Provision

Locations of food banks and facilities providing food provision. The information for each feature may describe any access limitations such as whether a referral is needed



Council Help & Advice

Shows the location of Falkirk council advice centres



Digital Access

This theme shows locations that provide access to digital services. These include access to printing facilities, access to computers for public use and Wifi / internet access

How Data Theme Configurations are used in the 'Our Falkirk' Web Map

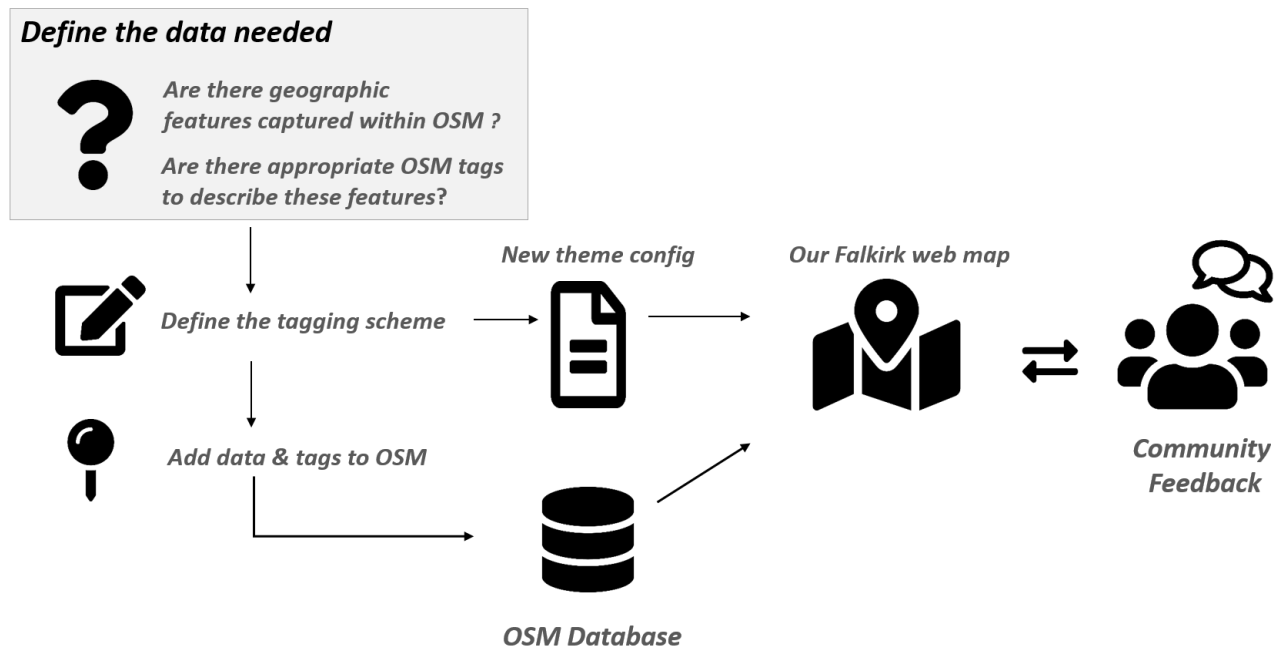
This decoupling of the map code from the configuration and themes, allows non-technical users to add new data themes, without knowledge of how the map is internally accessing and displaying the required data.

The challenges faced during the development lay in how to keep the map and theme configuration simple whilst still providing an extensible and mature application. As part of this process, thinkWhere developed tools to parse the information obtained from the OSM database, returning features' tags to display meaningful information to the end-user.

The resources section provides links to the source code for the map, as well as information and documentation.

An Open Data Workflow

So how do our two journeys – data and web map - come together to create an Open Data workflow? The process is summarised below.



An Open Data Workflow

Community Outreach

Part of the success of this project will be measured on the community buy-in and participation. Moving from a top-down approach to data management and dissemination to a community-based approach necessitates that the community is involved and feels part of the overall process.

In early February 2019, we held a successful workshop with the Fairer Falkirk Partnership. This workshop provided an opportunity to introduce an alpha release of the web app to the group, gather feedback and gain suggestions for future data themes and functionality.

Much of the data gathered for the project has come from both internal (Falkirk Council) and external colleagues. This has been essential in building up information on the different service themes displayed in the web map.

User Acceptance Testing

“Overall I’m impressed and this is a step in the right direction for those needing to find these facilities”

Digital Skills for Life Participant

We held two user acceptance-testing sessions, one with a Work Club at Kersiebank Community Project in Grangemouth and one with a Digital Skills for Life club at Camelon Education Centre. The testing at Kersiebank Community Project helped to identify that the map was not, at that point, compatible with early versions of Internet Explorer. As a number of community projects use older software it is essential that users are able to access the map on these earlier versions. Once this issue was identified, thinkWhere carried out an immediate fix so that nine learners were able to try out the map and provide useful feedback on their experience.

Overall feedback was extremely positive with the majority of learners agreeing that the map was a useful and easy to use tool.

- **8/9 users felt the map would be useful to those living on a low income**
- **8/9 users found the map easy to use**
- **6/9 people wouldn’t change anything on the map**

“... much it will cost to get there”

“I find it very easy to use as it works just like Google maps and directing others on how to use it would be simple enough”



Some participants suggested that in the future the map could:

- Provide more information on each of the services e.g. how to gain membership to a library or how to go about getting a food voucher
- Include additional themes such as Recreation, Waste Disposal, Falkirk Community Trust services, Work Clubs & Railway & Bus information.

Challenges

The Perception of Open Data

A challenge faced by the project has been the perception that open data cannot be relied upon. The concern raised is that the wiki-style nature of OSM, where any registered user can make changes to the data, would risk the introduction of erroneous or misleading information. Although this risk is real, it is also a double-edged sword – errors can be instantly rectified. Again, the community has a role in this, reporting any incorrect information.

The perceived risk can also be mitigated internally at Falkirk Council. Providing an email address on the website page will encourage users to participate through council channels, rather than directly through edits to OSM. This will provide some level of oversight while also ensuring errors/misleading information are quickly corrected.

Data Collation

The data collection process for the data themes has met with mixed success with some data themes being more comprehensively described than others.

This was not unexpected and is largely a function of the type of data being described; for example, data on the digital services at libraries can be captured far more easily than information on food provision from a small community group that operates on a voluntary basis. Some of the groups providing services are small and often don't have permanent premises or regular opening hours – even contacting these organisations can be a challenge in itself.

Project Recap

Before a discussion on future plans and how we can build on this project, it might be useful at this point to take a step back and look at what has been achieved.

In a relatively short timescale – less than three months – we have developed an open data and open source solution to service provision mapping in the Falkirk area. This solution has provided a simplified process to the creation and publication of data.

In addition, the project has not only filled in data gaps in Falkirk Council data, but also contributed to OSM and started a process of community outreach to enable data creation and update.

The main success points of the project include:

Data Themes – The web map showcases four data themes – Digital Access, Food Provision, Help & Advice and Council Advice.

Showcasing the map – An alpha release of the map to the Fairer Falkirk Partnership and other colleagues gained a good response, with a largely positive reaction and useful feedback. Further outreach included user acceptance testing with community groups of a beta release.

Technical successes – The web map journey has been a project in itself. An open source solution has been developed to display data from OSM in a meaningful and user-defined way.

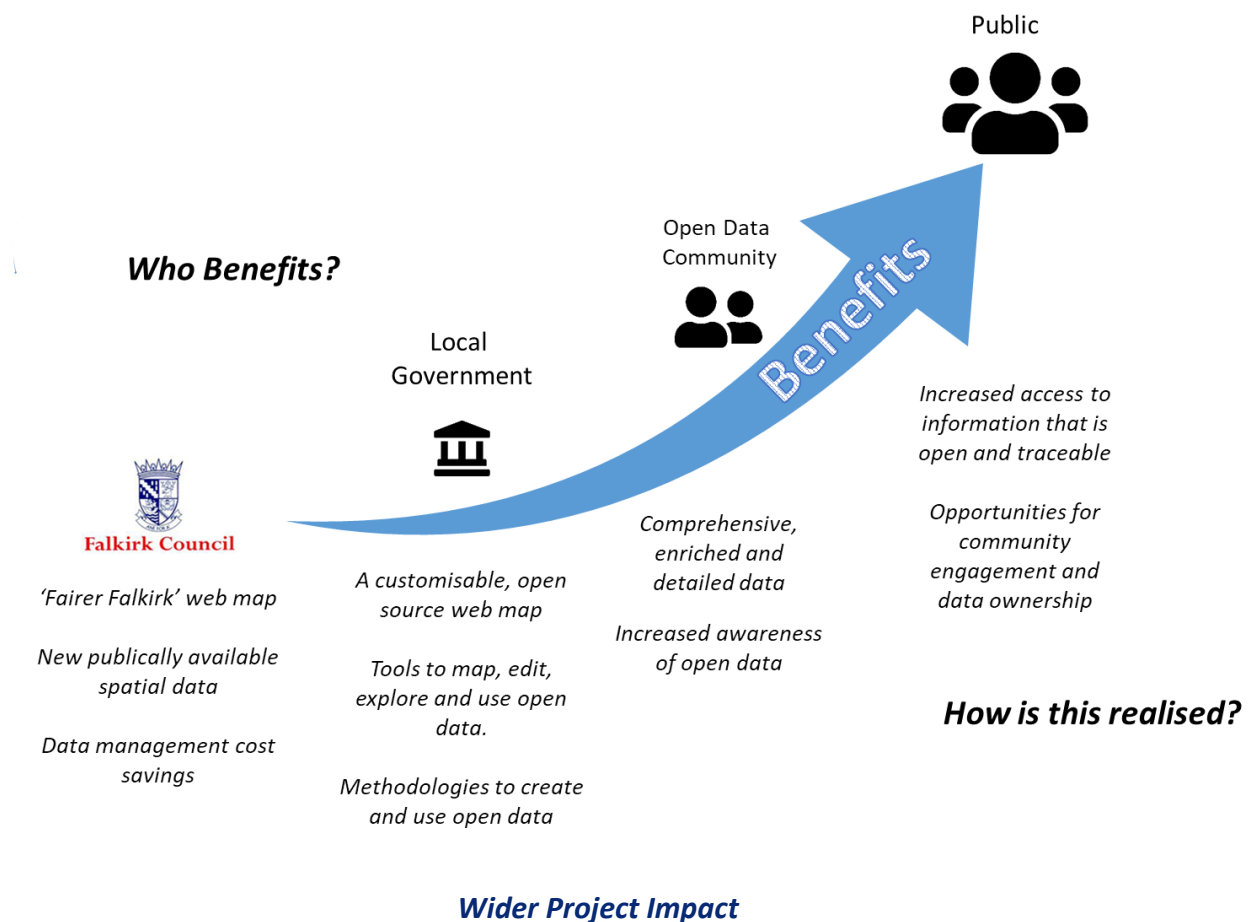
Project Impact

Our ambition for this project was to have a tangible impact on the delivery of our poverty strategy. This is obviously a difficult thing to quantify, especially in terms of the direct impact the use of the map will have on people's lives.

However, we will look to gather case studies from our advice hubs and colleagues in contact with the public and use direct feedback from service providers. We will also make use of Google analytics to monitor the use of the 'Our Falkirk' web map.

The Wider Project Impact

If we look beyond the project specifics for Falkirk Council, the tools and working practices developed in this pilot project have wider community benefits. Here, we are talking about community in terms of the individuals, organisations and groups who will be creating, using and consuming open data. How these benefits are realised are summarised below:



Next steps

We are now looking at how 'Our Falkirk' is best placed in relation to Falkirk Council's website to ensure it is easily accessible for the public and frontline staff.

We will continue to look at additional themes, using suggestions from our outreach activities, including;

- Parent & toddler groups
- Children's activities
- Furniture provision
- Physical Activity

In future developments we hope to explore the use of themes that capture temporary or seasonal services, for example summer and Christmas food projects and school holiday activity programmes.

Promoting and raising awareness of 'Our Falkirk' as a discovery tool/service is key to its wider adoption and use within the community.

The local press and social media will be used to make the public aware of the new service and internal council news bulletins will help highlight the map to council and frontline staff.

Building on our Project

The great thing about 'Our Falkirk' is that it is a community tool. The community themselves have participated in its development. This same community can now take ownership of the data and its continued maintenance and update.

We hope our experiences can be a model and test case that other local authorities can draw upon, and that the tools developed will enable them to develop similar data sharing projects in their areas.

Acknowledgements

We would like to thank James Maddison and Leigh Dodds at the Open Data Institute, for providing guidance and insights into how we could best use open data in this project.

Jez Nicholson from the OSM project, for devoting his time to provide help with the OSM aspects of our project.

Finally we would like to thank all of our colleagues, community organisations and local people in Falkirk for their support in creating data and providing feedback on the project.

Graphics

<https://fontawesome.com/license/free>

Project Resources

Our Falkirk web map

<http://our.falkirk.gov.uk>

Open Source Code

The code behind the *Our Falkirk* is available on thinkWhere's github repository, released under an Open Source licence. This code is an unbranded version of the *Our Falkirk* web map with two example themes included.

<https://github.com/thinkWhere/Open-Data-Viewer>

OpenStreetMap Resources

Project OSM Wiki

This wiki is our project space on the OSM wiki pages. This wiki describes the data themes we have used and the tagging schemes implemented.

[https://wiki.openstreetmap.org/wiki/User:Fairer Falkirk](https://wiki.openstreetmap.org/wiki/User:Fairer_Falkirk)

OpenStreetMap

More information on the OpenStreetMap project can be found here:

<https://www.openstreetmap.org/>

TagInfo

During the process of defining tagging schemes for our themes, we made extensive use of tagInfo:

<https://taginfo.openstreetmap.org/>

Contacts

Sally Buchanan

*Fairer Falkirk Manager
Corporate & Housing Services
Falkirk Council
Municipal Buildings
West Bridge Street
Falkirk
FK1 5RS*

Telephone: 01324 506189

Mobile: 07738 143610

Anna Adamson*Fairer Money Officer**Fairer Falkirk Team**Corporate and Housing Services**Falkirk Council**Municipal Buildings**West Bridge Street**Falkirk**FK1 5RS**Tel: 07738807175***thinkWhere Ltd.***8-10 Corn Exchange Road**Stirling**FK8 2HU**Tel: 01786 476 060**Email: info@thinkwhere.com**Web: <https://thinkwhere.com>*