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Publications

# Digital Mapping Toolkit

National Association of Local Councils

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## OVERVIEW

# FOREWORD

Cllr Sue Baxter, NALC Chairman

I am delighted to introduce the Digital Mapping Toolkit for town and parish (local) councils. The National Association of Local Councils (NALC) believes it is vital for local councils to understand the geographical area their council covers and believes digital mapping can make the process of understanding and editing maps a lot easier.

Local councils have been using maps for years to help with things like their neighbourhood plans, tree maintenance and asset management, to name a few.

Until recently, most local councils relied on principal authorities to provide mapping support, however, digital mapping software is getting much cheaper and easier to use and NALC is encouraging local councils to use them.

NALC has formed a partnership with Parish Online and Pear Technology, with the aim of raising the awareness of how digital mapping can help local councils and guide them through the process.

Digital mapping can enhance the effectiveness of service delivery, make local councils more efficient and help them plan for the future. Digital mapping is another tool in a local council's armoury to help them deliver during this challenging time.

NALC hopes digital mapping will also help build relationships between the different tiers of local government, businesses and community groups, and get them communicating about the local challenges facing communities.

This toolkit will give you an insight into digital mapping, how it is changing the local council sector and how it could help you.

# INTRODUCTION

Maps are essential for town and parish (local) councils. From looking at how many people live in a certain area, to how many roads have been adopted by a council, to where the gulleys, streetlights and bins are located, to reviewing planning applications, maps are needed daily.

Digital mapping can be an easy, time efficient and cost-effective way for local councils to map their assets and visualise the area they are responsible for. Digital mapping can be effective for:

- fulfilling essential legal requirements;
- maintaining key records;
- forward planning;
- communicating effectively.

In recent years it has only been available to principal authorities due to the price and complex nature of mapping software. Digital mapping software suppliers are now making software easier to use and making it affordable for local councils. Each week, more local councils are using digital mapping leading them to be more efficient and effective.

Ordnance Survey mapping data is available to local councils for free, and the software tools are now available at affordable prices for local councils.

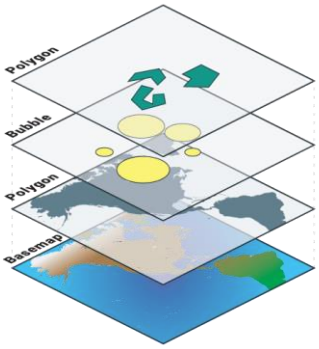
Maps and mapping technology should be part of the standard toolkit for every local council - alongside email, word processing, spreadsheets and accounts.

This toolkit is an introduction to the benefits, how others are benefiting, maps and mapping data and software systems to help you make a real difference in your parish.

# MAPS AND MAPPING SYSTEMS – THE BASICS

A Geographic Information System (GIS, sometimes called a desktop mapping system) is a software package that allows you to quickly and easily answer questions and run queries about where your assets are located. The most effective way of displaying that information is by producing a map.

A map will start with the background mapping (from Ordnance Survey) against which everything else is referenced. This is often termed the 'base map'.




Additional information, from central government departments, principal authorities or maybe your own, is then layered on top of that.

On the top will be the layer(s) of information that you have created - points, lines, shapes (polygons) and text (labels). Layers will allow you to identify where different assets are located.

Layers, unless they are just pictures (eg aerial photography) can have associated data (numbers or text). So a point that represents a tree might have size, species, health information - and a shape (polygon) representing a building may have owner, last redecoration, rental data. Pretty much any amount of data can be held.

Once you have your layers of data together, you can analyse information such as:

- distances and areas
- the features (points, lines, areas) with certain information - eg all of the oak trees, all of the trees in poor health, all the buildings needing redecoration this year
- the number of addresses within 400 metres of the recreation ground
- the total area of weed spraying strip on parish maintained verges
- visual analysis - many things will show up from even the quickest of inspections of a map!

Once you have a digital map you can:

- print it (often to pdf)
- put it in a document (Neighbourhood Plan, contract)
- give it to contractors to work from (tree surveys, grounds maintenance)
- send it to your principal authority
- publish it on your website

## DELIVERING RESULTS

**Whether it is a principal authority or a local council using GIS, the business drivers are the same:**

**Fulfilling legal requirements;**
From maintaining accurate cemetery records, land and property information to being able to report the status of tree inspections, keeping legal is critical;

**Maintaining key records;**
Land, buildings, play equipment, street lights, bus shelters, benches, notice boards, trees, allotments - assets that bring a responsibility for maintenance (either directly or via contractors), insurance and clear response to the community and others. Giving contractors clear maps will simplify communications and will ensure that the right work is done. Knowing which assets are the council's will ensure that local council funds are spent on the correct items, and not on someone else's;

**Forward planning;**
Maps are a must have for neighbourhood plans - from defining the designated area to clearly identifying policy areas. Policy areas will become supplementary planning guidance added to the local plan so it is vital to use the same maps (ie Ordnance Survey) as the local plan uses;

**Effective communication (with community, Principal Authority, etc);**
Maps are a great communications tool - both to the community and to principal authorities and other bodies. Realistically, a simple clear map is going to be understood by all, and conveys information quickly and easily;
**To which further drivers can be added:**

**Saving time and money;**
When council staff are involved, time is money. Having clear, concise and accurate information together is a really simple way to save time. Being able to share that information easily is another;

**Showing competency, demonstrating a professional image;**
NALC's strategic plan for local councils is based on "*improving the competence of parish and town councils to engage on equal terms with principal authorities*". A properly presented map is a very effective way of demonstrating that professional approach;

**Working with partners (principal authority, government departments, businesses);**
When working with principal authorities and other bodies, using Ordnance Survey mapping is vital because it will be the same as they are using.

See the case studies below, and where these benefits can accrue:

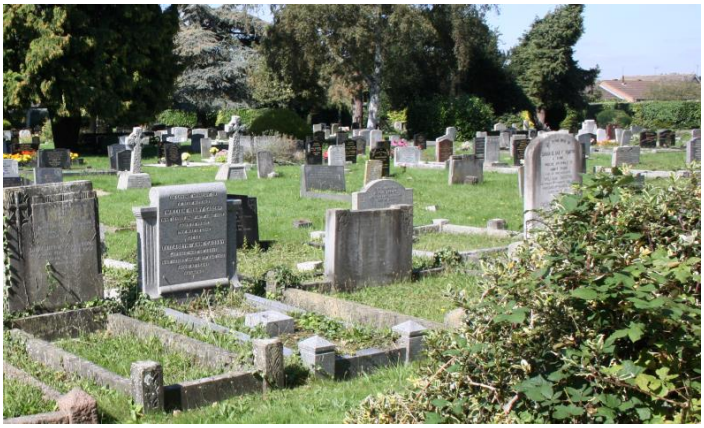
| Benefits | |
|---|---|
| Legal requirements | √ |
| Key records | √ |
| Forward planning | √ |
| Communications | √ |
| Saving time/money | √ |
| Competency, professionalism | √ |
| Partnership working | √ |

# CASE STUDIES

| Benefits | |
|---|---|
| Legal requirements | √ |
| Key records | √ |
| Forward planning | |
| Communications | |
| Saving time/money | √ |
| Competency, professionalism | |
| Partnership working | |

### Cemetery mapping

One of **Higham Ferrers Town Council**'s main concerns was the condition of their existing paper cemetery map. The town clerk, Sandra Mitcham says "We also had a cemetery map which was not to scale and I was concerned that as space was running out. We needed to be able to know exactly what could be accommodated". The inaccuracy of the original cemetery map and other paper documents meant that each request for information about a specific grave took around 45 minutes to resolve and involved a visit to the cemetery to check and confirm the findings.



Pear Technology produced the first draft of the cemetery digital map using the original map, aerial photography and Ordnance Survey maps. After final amendments (which involved a specialist survey of part of the cemetery), the map was linked to the burial administration software which included an access database with a search facility. This allows users to easily locate existing burials or add new ones either through the database, or by clicking a grave on the map and entering the details into the table.

It now takes about five minutes to locate a grave using the cemetery mapping system. Maps showing the location of the grave and burial details can now be quickly and easily printed off if needed. Knowing the map and database is backed up and the information is digitised and safe helps allay any worries about flood or fire damage to the paper records.


The council also bought "Cemetery Searcher", an online cemetery search facility (http://bit.ly/2NOvevC). Accessed via a link on the council website, it allows members of the public to search the burial records for loved ones and locate graves on the map. It can be accessed from a smartphone meaning that users can even search the cemetery records whilst in the cemetery.

The online tool also means that the public can now access and search the burial records themselves at any time of the day. Since the site has been up 2519 searches

have been run, which is an average of 29 a day. Sandra says “the Cemetery software has made a vast improvement to the way in which we manage our cemetery records. It saves time searching for information on the plots and their location.”

**Flood & drainage**

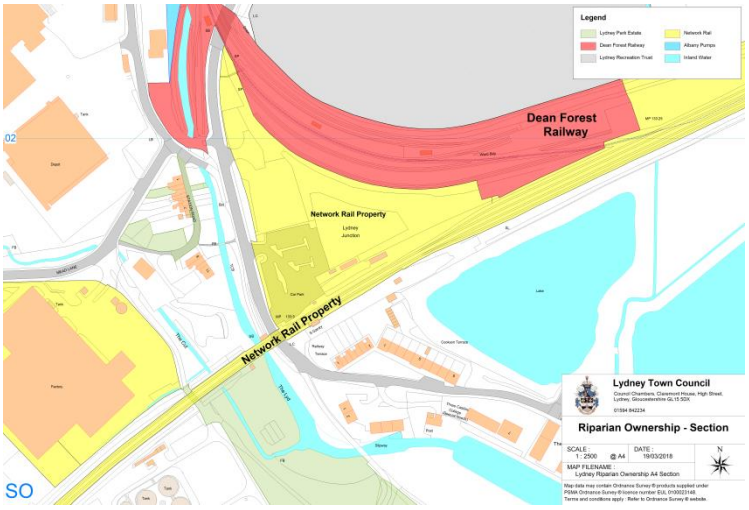
| Benefits | |
|---|---|
| Legal requirements | |
| Key records | √ |
| Forward planning | √ |
| Communications | √ |
| Saving time/money | |
| Competency, professionalism | |
| Partnership working | √ |

After experiencing record flooding, Lydney Town Council formed the Lydney Flood Defence Stakeholder Group with other land owners and community members with the aim of preventing further floods by improving communication and partnership working.

The River Lyd flows through the town and into the River Severn via Lydney Harbour. The topography of the Forest of Dean is a densely wooded and hilly area; water runs off the surrounding woods and makes its way into the River Lyd. Once the river's limited capacity is reached it overflows, travelling over much of the woodland increasing the possibility of blockages in the watercourse, resulting in flooding to residential properties and on several occasions nearly flooding the town centre.

The council did not previously hold details of land ownership, so when a blockage did occur it was impossible to determine which landowner was responsible for clearance work. Furthermore, most landowners were unaware of their riparian ownership responsibilities.

Pear Technology prepared a map to show the owned land and properties adjacent to the river, which enabled the group to easily identify the land owners and educated them on the responsibilities of riparian ownership with the aim of reducing the likelihood of further flooding. Using Ordnance Survey's highly accurate OS MasterMap Topography Layer®, and data from the Land Registry and Environment Agency, the map is now used at every meeting of the group.



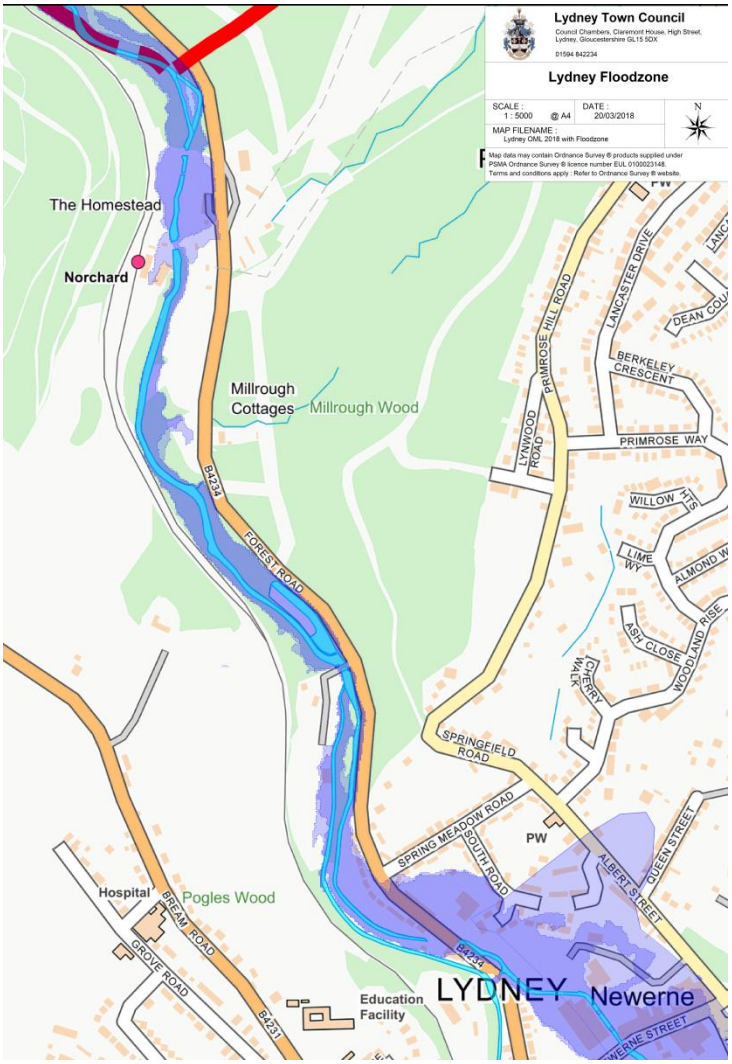

The Lydney Flood Defence Stakeholder Group comprising of representatives from the Local Planning Authority, district council portfolio holder, the Environment Agency, Severn Trent Water, town councillors, landowners and business owners, was formed to facilitate the plotting of land ownership along the length of the Lyd from the top of the parish boundary to the harbour. The group aimed to learn from past flood events

by preparing maps to help depict the areas “at risk” so that it could work to reduce the risk of flooding in the future.

The group identified the requirement for a map to assist them at their meetings. The map would:

a) Identify flood risk areas.

b) Clearly determine which landowners were responsible for river clearance work.




Using information from existing paper maps, the land parcels owned by Gloucestershire County Council and Lydney Park Estate were added to the map as new layers. These new layers were positioned on top of the OS MasterMap® base data. The owned land and properties of other key land owners such as Network Rail to the map was also added.

HM Land Registry publish (under the INSPIRE regulations) the land title dataset. All the land title polygons for Lydney were downloaded, cut out and added to a new layer on the map. This was a useful exercise as the ownership areas could now be checked against this data. There were some land ownership queries and boundary disputes which were able to be investigated, resolved, and the map amended.

The map is now used as a reference tool at all Lydney Flood Defence Stakeholder Group meetings and also every time there is a risk of flooding. Jayne says “it is easier to determine land ownership now that each area has been clearly plotted onto the map. It also assists our partner agencies given our local knowledge of ownership; it ensures all parties are aware of/discussing exactly the same lock gate/flood alleviation measure”.

**Neighbourhood Planning**

| Benefits | |
|---|---|
| Legal requirements | |
| Key records | |
| Forward planning | √ |
| Communications | √ |
| Saving time/money | |
| Competency, professionalism | √ |
| Partnership working | |

The neighbourhood plan is most definitely about place. From the designated area of the plan to the most detailed element of planning policy - it's about location.

What you need is mapping that:

- Is accurate and up to date;
- Has all the details of every property when you need it - or is less detailed when that's what you need;
- Can be printed at the right scale and size for community workshops or to include in the plan itself;
- Precisely matches the maps used by the Local Planning Authority so that policy areas can be accurately transferred.

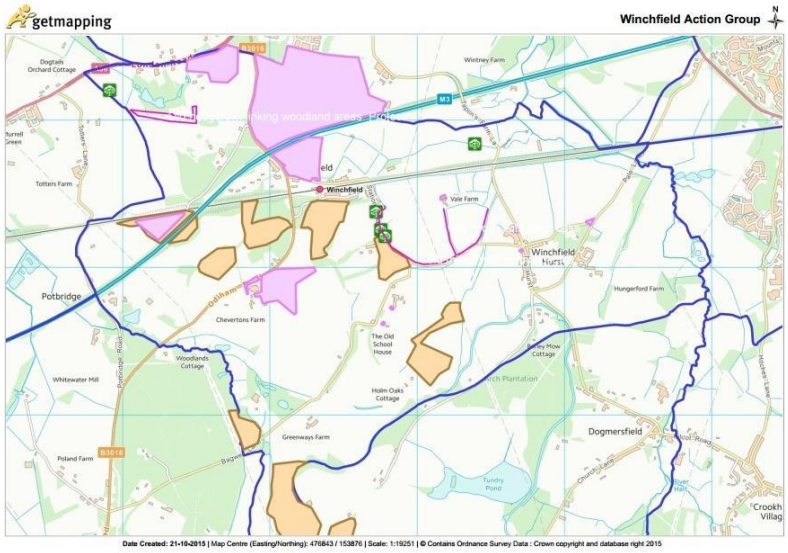
OS maps match those requirements precisely, and are the mapping of choice for neighbourhood plans.

Managing the process of making your own maps gives you far better control, and far better end results, becoming a visual aid to share your vision with others. You can be sure that the maps, and your planning consultation will help to convey the key deliverables of what you intended. People can better relate to maps.

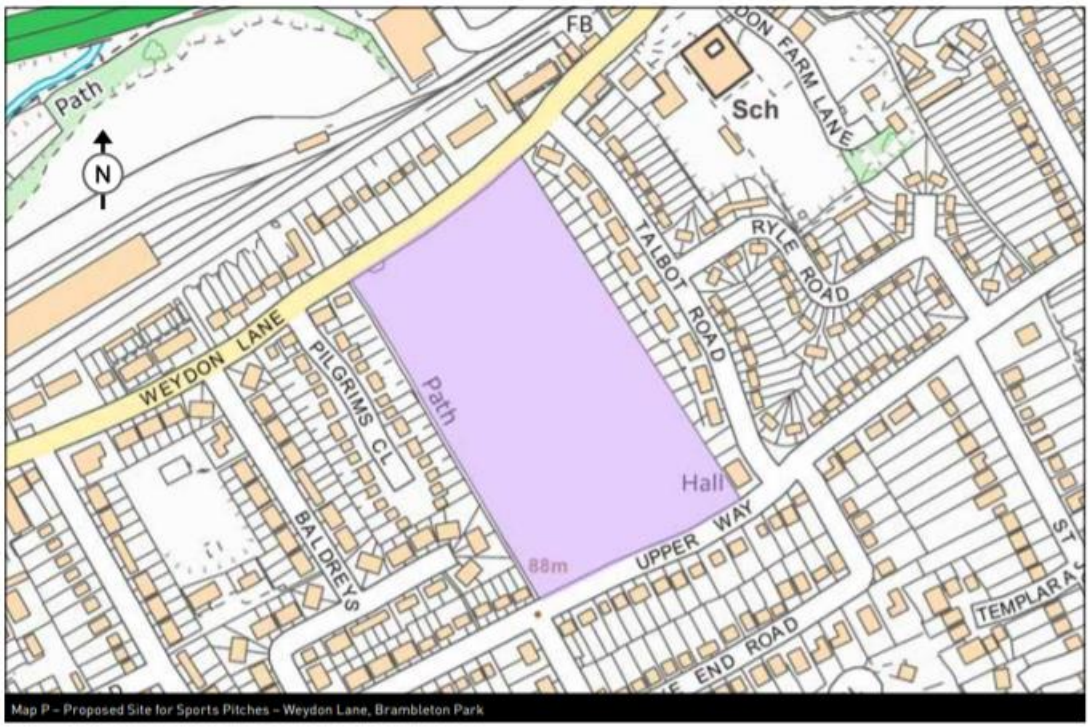
As an example, take the Winchfield Neighbourhood Plan. Andrew Renshaw, Winchfield Parish Council chairman, said: "The plan was praised by the district inspector as an excellent example of a clear and well-presented plan. I don't think we could have achieved such a high standard without the many maps composed and printed by our community team".

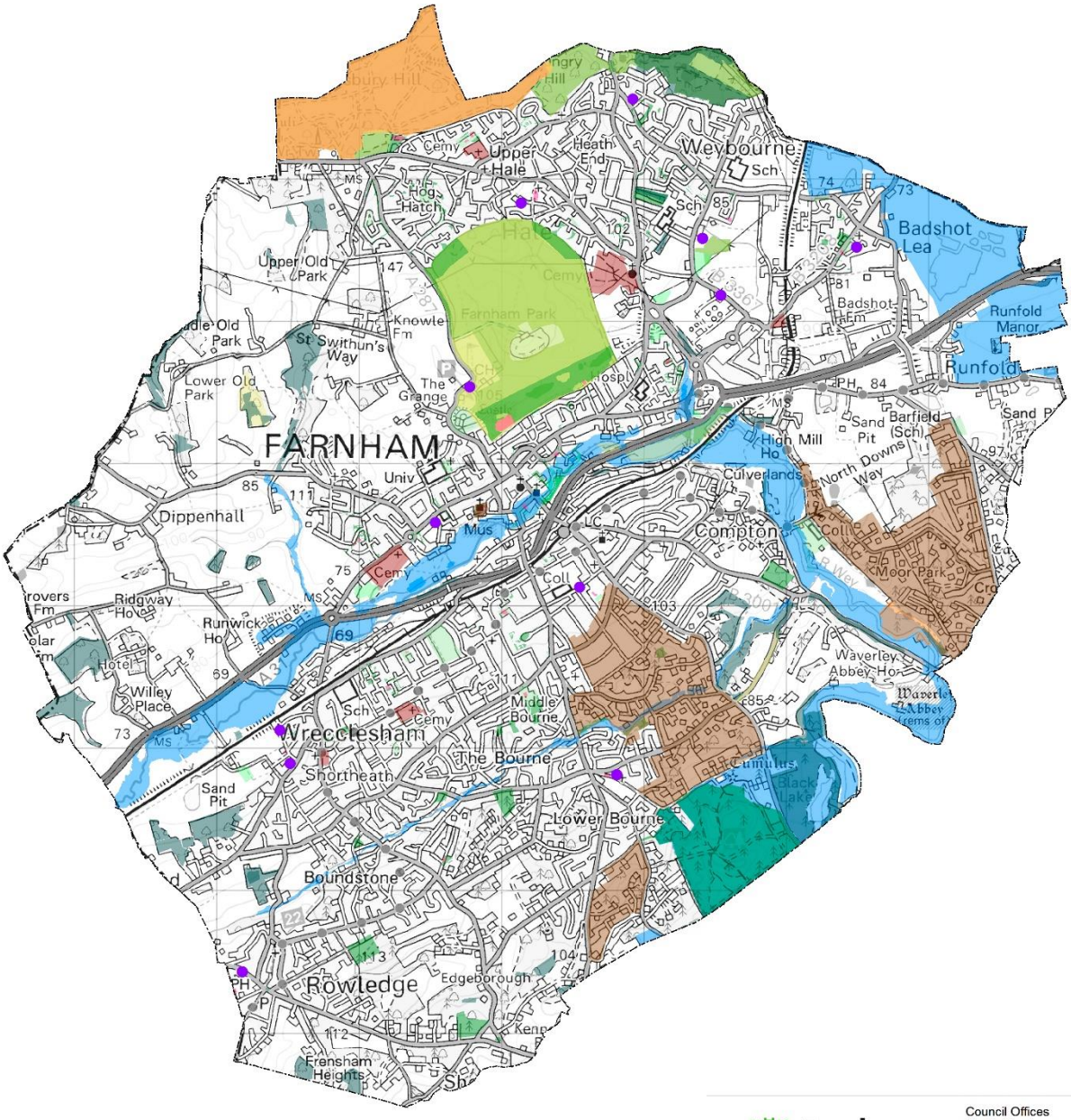
Image: The designated area from the Winchfield Neighbourhood Development Plan http://bit.ly/2yExFdk

Image: An Illustration from the Winchfield Neighbourhood Plan showing Woodland and Hedges




In other plans, given the nature of the area being covered, and the approach being taken, different maps resulted. These maps are from the Farnham Neighbourhood Plan, a town on the western border of Surrey, 35 miles from London. The policies are more concerned with the built environment.






**Legend**

- Parks and Gardens
- Site of Special Scientific Interest
- Sites of Nature Conservation Importance
- Allotment Gardens
- Churchyards and Cemeteries
- Farnham Parish Boundary
- BOA
- Special Protection Areas
- Areas of Ancient Woodland
- Amenity Greenspace
- South Farnham Arcadian Areas
- Outdoor Sports
- Natural Semi Natural Greenspace
- Local Nature Reserves
- Green Corridor Land
- Children and Young People

Farnham Town Council

Council Offices
South Street
Farnham
Surrey
GU9 7RN

## Map H - Green Infrastructure

| | |
|---|---|
| SCALE : Not to Scale | DATE : 03/10/2018 |
| MAP FILENAME : Map H Green Infrastructure | |

N

**Assets**

| Benefits | |
|---|---|
| Legal requirements | |
| Key records | √ |
| Forward planning | |
| Communications | √ |
| Saving time/money | √ |
| Competency, professionalism | |
| Partnership working | |

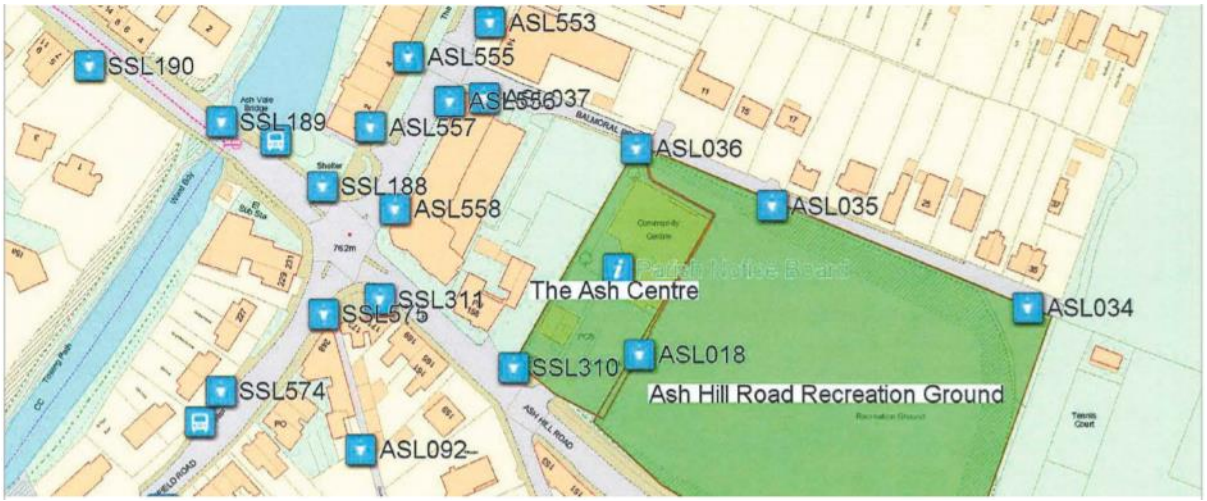
Assets, or liabilities? If you don't know where they are, or what sort of state they're in they're much more likely to be liabilities.

Dog bins, litter bins, benches, street lights, grit bins, bus shelters, play areas and equipment - the list is endless.

And with assets come reports from residents about problems and issues that need fixing and it is vital local councils are able to quickly identify the right one! So where there is any possible scope for confusion, identifying labels/numbers are critical. Here your GIS can help - each point, line, shape that you add to the map is not just pictorial, you can also hold information - as a simple database.

This allows you to identify reference numbers, dates, colours and prices to name a few. All sorts of vital day to day information can be held. Maps are an essential tool when handling calls from members of the public - allowing a quick and effective response.

Ash (Surrey) Parish Council used digital mapping to map the location of more than 600 street lights that it is responsible for.

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Note that the displayed map not only shows location, but also the identification number.

Once Ash Parish Council started to use this tool, it quickly identified a significant advantage - in addition to managing street lights, it could also oversee its entire assets, producing a comprehensive online log, which included property, local green spaces, sports grounds, cemeteries, parish notice boards, bins and bus stops - this exceeded all expectations.

The parish reported the following benefits:

- Low cost partner solution has created savings

- Independence in managing its local assets.
- Ash Parish Council now able to print detailed maps for councillors and contractors, providing information on demand when it is needed.
- Geographic information has assisted in providing a safe town for the community - well-maintained street lighting has helped to reduce crime and has improved public safety.
- By having direct access to Land Registry® information, Ash Parish Council saves around £100 per year in fees. More noteworthy, the 'man hours' redeemed equates to considerable savings of time and money.

Graham Bidwell, Administrator for Ash Parish Council, reported (see http://bit.ly/2tFw5lN):

"Inputting all of our assets into one place has saved us a considerable amount of time, energy and money. By using digital mapping we can plot our own assets in real time, deal with problems instantaneously whilst providing detailed maps of the local area to councillors. We will also be using these maps in our neighbourhood planning. When we want to know where something is we print off a map, it's as simple as that. We now have the tools to take ownership of our local assets."

## Trees

| Benefits | |
|---|---|
| Legal requirements | √ |
| Key records | √ |
| Forward planning | |
| Communications | √ |
| Saving time/money | √ |
| Competency, professionalism | |
| Partnership working | |

Trees are like any asset, we need to know where they are, what state they are in, and be able to uniquely identify them.

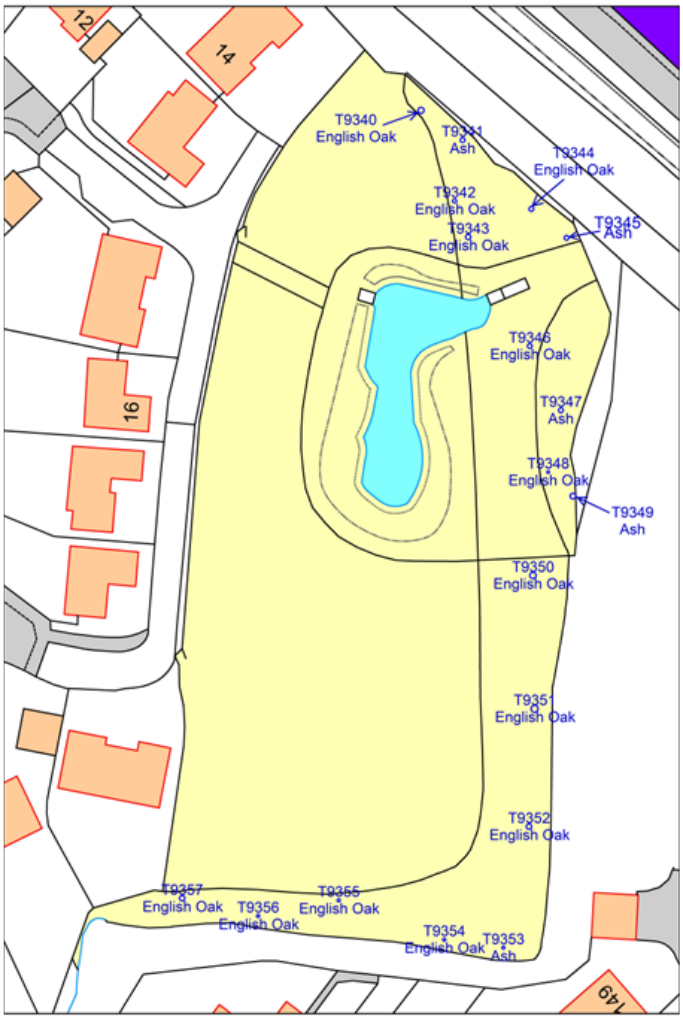
It is essential for safety reasons that trees are regularly inspected. Many local councils use professionals with the appropriate liability insurance, and inspection intervals varying depending on the location and type of tree.

Failure to inspect, or even the inappropriate location for a specific species of tree, can result in fatal accidents[1]. Furthermore, it can inadequate, or if poorly recorded, inspections can invalidate a council's liability insurance, potentially exposing the council to meet the full cost of any claim[2].

There are a number of ways to use mapping to simplify the process of tree management, and to save money.

Firstly, the survey. Most professional arboriculturalists today will use some form of GIS to present the results, and a handheld GPS device to capture tree locations, and allow the recording of necessary details.

The results should be presented back to the council on a map, along with a printed report. The contractor will typically purchase the necessary background mapping from Ordnance Survey to generate the map.

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However, as part of the Public Sector Mapping Agreement (PMSA), you can provide the necessary mapping to your chosen contractor. They will

[1] Around 6 people a year are killed by falling trees, or falling branches. And around 55 people a year are injured.
[2] Witley Parish Council, Surrey had to meet the costs of a £500,000 claim due to failings in its inspection process - see: http://bit.ly/2MQUGwF

need to sign (at no cost) a contractor licence[3], and then you can download and provide the mapping that they need.

In addition to the paper map and report, you should also get the survey results in GIS form for loading into your chosen GIS package. By doing so, you will be able to:

- record and display the result of the survey (eg using different colours to record urgency of any necessary work)
- generate your own maps for tree surgeons to work from
- have a map of the parish trees for the next survey

As with any other mapped asset, this will be an invaluable tool when handling queries from the public.

For subsequent surveys, of course, the GIS data and background OS mapping can be provided to the next arboriculturalist contractor. This will assist in planning works, since the history of individual trees will be clear.

[3] Available from the Ordnance Survey website, together with guidance - http://bit.ly/2KnrifW

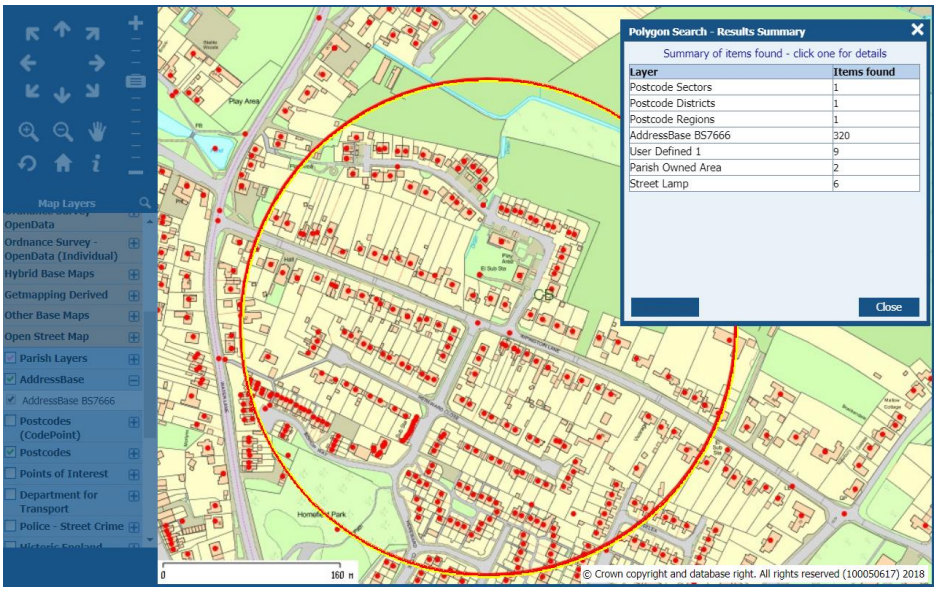
## Consultation

| Benefits | |
|---|---|
| Legal requirements | |
| Key records | |
| Forward planning | |
| Communications | √ |
| Saving time/money | √ |
| Competency, professionalism | √ |
| Partnership working | √ |

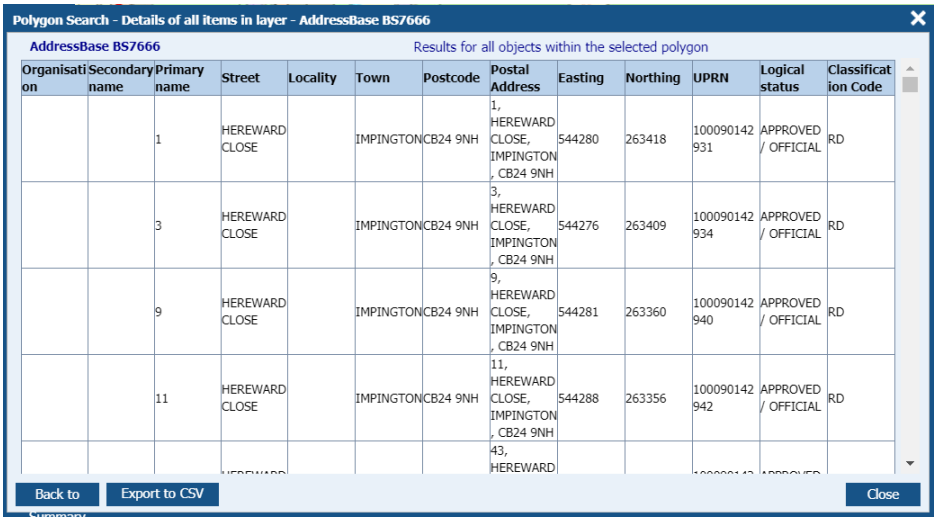
Engagement and effective communication with the community are vital. As is, increasingly, consulting the community - whether for participatory budgeting, neighbourhood plans or a whole range of other issues.

Digital mapping can help in two ways here.
Firstly, it can identify the number of addresses in an area of interest. Whilst the number of properties in a parish may be well known, determining the number in a portion of the community is more challenging.

The OS AddressBase® product links addresses to a map location. And this allows all those addresses to be shown against the mapping as below. It is then possible to *select* addresses of interest. In the image below, the addresses within the circle are shown in a count, together with other details.




Clicking on "AddressBase BS7666" gives you the complete list - which can be exported to CSV and used in a mail merge.



The second way that the mapping system can assist is to answer the question: "are the responses we're getting representative?" In every consultation it is vital to know whether coverage is complete - and if not, why not.

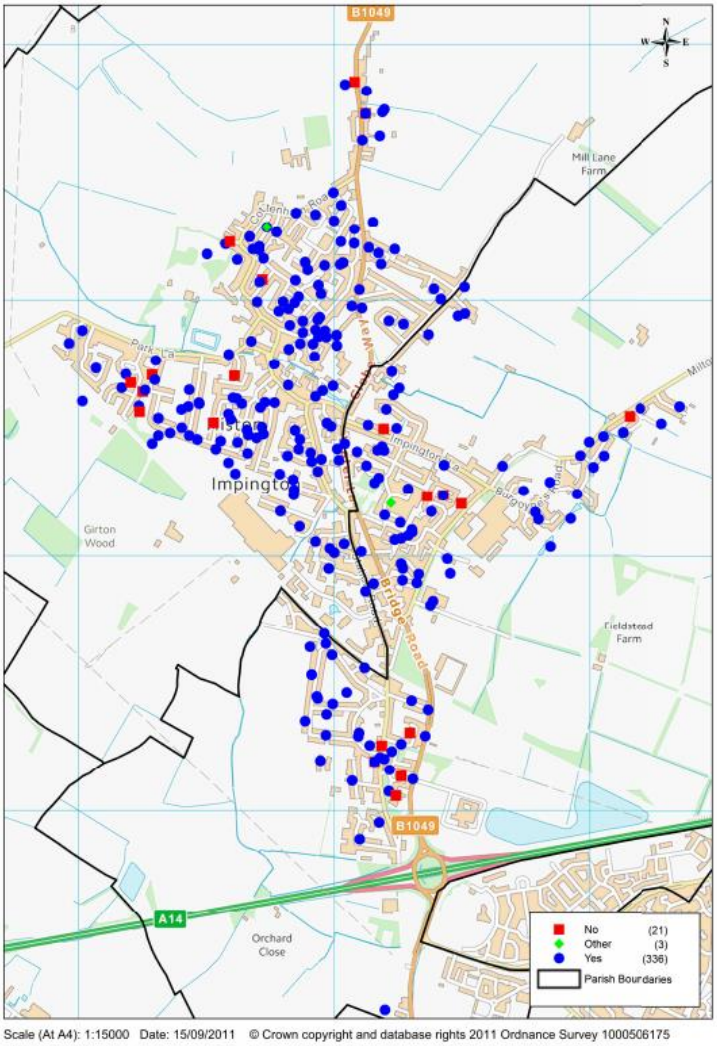
The consultation needs to collect the postcode, and not the full address, for each response.

The OS Code-Point® product gives a point for every postcode. This allows each consultation response to be mapped. Some GIS provide automatic tools for this process of geocoding. Once mapped, consultation responses can be shown in different colours depending on the vote being recorded.

This example comes from a vote as to whether or not to group[4] two parishes, presented to the principal authority - in this case the district council. The case study is at: http://bit.ly/2K9CAbg

The Chairman of Impington Parish Council said:

"Being able to show the consultation results on a map gave us confidence that we'd got the message out to the whole community - there weren't any gaps! And that map helped convince the district council in two ways - both as to the coverage and the presentation of a professional and thorough case."




[4] Grouping merges the local councils, but leaves the existing parishes as they were. It is a quicker and easier route than merging the parishes.

**Working with a principal authority**

| Benefits | |
|---|---|
| Legal requirements | |
| Key records | |
| Forward planning | √ |
| Communications | √ |
| Saving time/money | √ |
| Competency, professionalism | |
| Partnership working | √ |

Martin Laker leads the GIS Team at Bath and North East Somerset Council (B&NES). He has been funding a Parish Online Group Licence since 2011 for all the 49 local councils in the district. Martin says "The Group Licence for Parish Online has been an outstanding success - the local councils love it and they often say that it's the best thing B&NES has ever done for them!"

The benefits of the Parish Online Group Licence include:

- Training and Support: With the help of Parish Online we provide training and an annual conference for all the local councils. This encourages local councils to make the most of Parish Online

- Improved Decision Making: Digital mapping provides local councils with access to many national datasets (eg Ordnance Survey, Natural England, English Heritage, Land Registry, and Environment Agency). In addition, we (the unitary authority) publish over 300 local datasets via Parish Online (Local Plans, Planning Applications, Highways data, Park and Ride etc). Instant access to all this up-to-date information improves the quality of local council decision making

- Cost Savings: The group licence more than halves the cost of individual licences. In addition, we estimate that we fully recover the entire cost of the group licence through the savings we make in responding to requests for information. For example, we have recently conducted a consultation on our local plan which we published to all the local councils so that each local council had full access to all the local plan maps and supporting data. The last time we conducted such a consultation we had to provide paper plots of all the maps to each local councils and our office was inundated with queries and support calls.

- Working Together: Digital mapping encourages local councils to work together more effectively and to share information. For instance, four local councils in the Chew Valley have collaborated on a neighbourhood plan using digital mapping to share data and create maps for the combined area. Digital mapping also allows local councils and the principal authority to manage incidents such as fly-tipping, pot-holes, and waste collection, where a two-way communication is required.

- Improving Parish Data: Digital mapping allows local councils to collect and maintain their own data layers to their own specification. Good examples are inventories of road signs, lighting, play-ground equipment, and trees (including ownership, TPOs and safety). Localism is transferring more responsibility to local councils and it is increasingly important for local councils to have the tools to manage their responsibilities.

- Improving Aggregate Data: Local councils use digital mapping to provide data updates back to the principal authority and this allows us to create and maintain aggregated datasets. For instance, we are developing an aggregated dataset of

local council owned land across the whole district, which is vital for efficient and safe management.

- Challenging Bath and NE Somerset: Local councils have been so empowered by digital mapping that they are starting to use the system to challenge the principal authority. For example, Freshford has created a road signage layer which they are using to demonstrate to the Highways department that there are too many road signs.

Martin continued: “In summary, the quality of local council management and the efficiency of local council/principal authority communications has been transformed by using digital mapping, and I cannot imagine how we managed without it. I strongly recommend that every principal authority should seriously consider a Parish Online Group licence.”

## GETTING STARTED WITH YOUR GIS

Hopefully, the above will have given you a good grounding in maps, mapping and what you can do with them.

What next?

1) **Sign up to the PSMA**
   Signing up to the PMSA will give you the PSMA number which you'll need later, and you can, if you wish, start to download data and access information. You can do so here: www.ordnancesurvey.co.uk/business-and-government/public-sector/mapping-agreements/pre-sign-up.html

2) **Choose your system.**
   NALC has formed a partnership with the two principal suppliers to the local council market, Parish Online and Pear Technology. They have also recently formed a partnership to provide an integrated suite of products and services designed to address all the different mapping requirements of local councils.

   Parish Online and Pear Technology recommends that local councils use Parish Online as a basic mapping system, and that larger local councils (or councils with more specialist mapping requirements) use Pear Technology as an additional resource for tasks such as cemetery or allotment management.

   Both Parish Online and Pear Technology provide a period of free access to their systems. This is a great opportunity to test the systems. Allow yourself time to go through learning materials so that you can get the best out of the allowed access.

3) **Plan**
   You're going to need to do two things - learn how to use the system *and* gather the data that you need to solve your challenges.

   Under the Parish Online/Pear Technology partnership you will get access to all Ordnance Survey data from the PSMA as well as a wide range of other national datasets (from Natural England, English Heritage, Land Registry, Environment Agency and many others).

   However, you will need to plan to map your own assets, cemeteries, policy areas etc - Pear Technology (and other suppliers) can help you to do this for an additional fee.

4) **Get trained**
   Training is available through Parish Online/Pear Technology. Training may be in the form of documentation, or online sessions - working through this is important to stop you wasting time later!

5) **Talk to other users!**
   There'll be other users of your system in your area. Your supplier will be able to put you in touch. If there's a user group - go to it!

## 6) Other sources of information

If you've still got questions - here are some possible sources of information:

- Your supplier!
- Your principal authority. In PSMA terms the person who signed up is known as the principal PSMA Contact - the PPC. Every public sector organisation who is a member of the PSMA (local council, district, borough, unitary, county) has a PPC. In many cases that person will also be a GIS expert.
    - If you have a Parish Liaison Officer, that is likely to be the best route. Otherwise, direct contact - though some principal authority PPCs have so many local councils to support they may not be willing to handle individual questions.
- Your County Association (ALC).
- For specific questions about OS products, licensing, copyright et al - the OS PSMA Helpdesk. psma@os.uk or call 03453 757595
- For specific questions about Aerial photography. support@apgb.co.uk

## SOFTWARE AND SERVICES SUPPLIERS

NALC has formed a partnership with the two principal suppliers to the local council market, Parish Online and Pear Technology.

These systems have been designed to meet the needs of the majority of local councils. Necessary documentation, training and support will be provided within a standard maintenance/licensing agreement.

## PARISH ONLINE AND PEAR TECHNOLOGY INTEGRATED MAPPING SOLUTION

In August 2018 Parish Online and Pear Technology signed a partnership agreement to provide an integrated mapping solution for local councils.

Figure 1 illustrates how Parish Online and Pear Technology's products and services interact to provide an integrated solution:

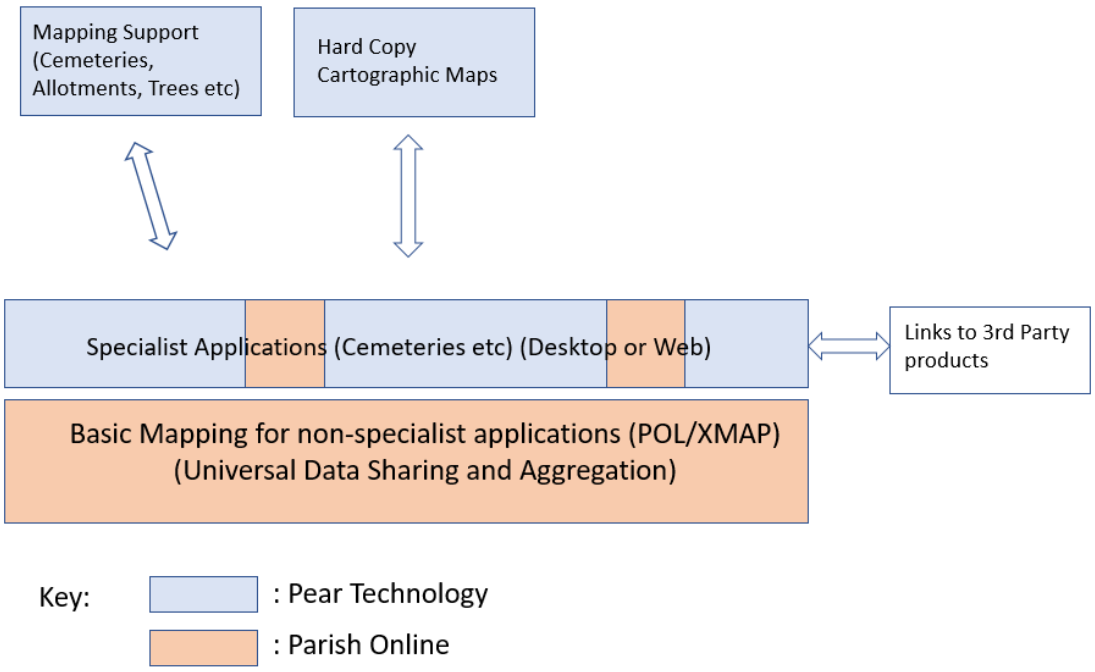



*Fig 1: Parish Online and Pear Technology Products and Services*

Notes:

a) Parish Online is a simple web-based mapping tool which is intended to be used by all council staff for accessing and analysing maps and other geographic data. Parish Online provides access to over 100 maintained layers of National Data (Ordnance Survey MasterMap and Addresses, Aerial Photography Great Britain, Natural England, English Heritage and many others). There is no limit to the number of staff within a council who can access Parish Online so everybody who needs to use maps can do so. The

aim of Parish Online is to provide a common platform for accessing and sharing data between all tiers of local government.

b) Pear Technology provides a range of specialist mapping applications which have been designed to work seamlessly with Parish Online. In particular, Pear provides desktop applications for Cemetery, Allotment and Tree mapping

c) Local councils often need support to create their maps for cemeteries, allotments and trees from existing records. In addition, councils may need to create new maps by commissioning a survey. Pear Technology specialises in both these tasks.

# PARISH ONLINE KEY FEATURES

Parish Online was launched in 2008 and is now used widely across England and Wales. Full details of the system are available at www.parish-online.co.uk

The key features and benefits of Parish Online are:

**Web-based**

Parish Online is web-based. This means that it can be accessed from any computer anywhere by entering the username and password. Every local council officer can access the system from home or from work (provided there is an internet connection). There is no need for the local council to buy and maintain any special computers, software or storage devices.

**All local council data stored remotely**

All the information that a local council creates, such as neighbourhood plans and asset registers, are stored remotely by Parish Online in a highly secure and robust data centre in the UK. Local council data is kept securely and cannot be lost (as it can be in a filing cabinet or on a private computer). In addition, there is no work or risk involved in handing over to a new clerk – all that is needed is the username and password of the Parish Online account.

**OS and other national datasets**

All Parish Online accounts come complete with Ordnance Survey maps and address data as well as over 100 other national datasets from Natural England, Historic England, Environment Agency, DEFRA, Land Registry and the Police. Aerial Photography is also included free of charge from Aerial Photography Great Britain (APGB). From the outset local councils have access to all the national data they need to evaluate planning proposals and to build their neighbourhood plans. They also have access to OS mapping and addressing data on which to build their own parish layers.

**Data sharing with other tiers of local government**

Parish Online is designed to be used by all tiers of local government (counties, districts/unitary authorities and parish/town councils) and to enable data to be shared between them. This allows councils to collaborate on creating high quality data sets (such as publicly owned land) and on managing incidents such (as fly-tipping) in a seamless and efficient way

**User profiles**

Local councils can set up any number of user accounts which control what data layers each officer can see and edit. This enables the clerk to delegate data layers to individual local council officers without the risk that they will edit data for which they have no responsibility.

# PEAR TECHNOLOGY KEY FEATURES

For the last 15 years Pear Technology has provided mapping products and services to support the local council sector. Full details of the system are available at www.peartechnology.co.uk/

The key features and benefits of Pear Technology's products and services are:

**Specialist applications**

Pear Technology's products are intended to support specialist needs (such as the management of cemeteries, allotments and trees) and therefore supplement Parish Online (which does not provide the same level of functionality for those tasks). Their cemetery and allotment maps also link to burial and allotment administration systems provided by third parties. Pear Technology applications provide a level of specialist support which complements Parish Online.

**Mapping consultancy and training**

Pear Technology specialises in providing mapping consultancy and training for both Pear Technology and Parish Online products. Many councils need consultancy and training before they can use their digital mapping systems with confidence.

**Map preparation and data transfer**

Pear Technology has a mapping team which will prepare all the relevant maps for a local council from existing records (eg spreadsheets and paper maps). Local councils do not always have the time or skills to transfer their existing data to the Parish Online/Pear Technology infrastructure.

**Map Surveys**

Pear Technology has a specialist survey team which will create maps for councils, say for a cemetery, allotment or for council trees. Surveys are an essential first step to using mapping tools effectively in cases where the existing data is inadequate.

**Hard Copy Cartography**

Pear Technology has a cartographic team which can create bespoke high-quality cartographic maps for a local council, for instance for a notice board or for a neighbourhood plan.  Parish Online and Pear Technology screen-shots cannot present map data as elegantly and forcefully as a bespoke map produced by a professional cartographer.

# APPENDIX – THE PUBLIC SECTOR MAPPING AGREEMENT

The Public Sector Mapping Agreement (PSMA) is an agreement between OS and the government. It covers nearly every public sector organisation in England and Wales. That includes:

- Central Government
- Local Government
- Town, parish and community councils[5] - specifically:
    - Town councils
    - English community and parish councils (and parish meetings)
    - Welsh community councils
- Health
- Emergency services - including some search and rescue volunteer bodies

The agreement started in April 2011 and runs for 10 years. Negotiations have started (2018) about the detailed provisions to be included in the next agreement, to run from 2021.

The agreement is free to join. Completion of a simple online form from: https://www.ordnancesurvey.co.uk/business-and-government/public-sector/mapping-agreements/pre-sign-up.html starts the process.

Members of the scheme:

- Can use a wide range of Ordnance Survey data (including addresses using Royal Mail PAF© data) freely to meet internal and external business needs, including the production of maps
- Can share data to and from other bodies (such as Principal Authorities, relevant Central Government bodies, other Local Councils etc)
- Can provide data and maps to contractors[6] (eg grounds maintenance contractors, tree surgeons etc)
- Get support from a dedicated helpdesk
- Have access to tools to report errors and omissions in the maps and data

However, you can't, for example:

- Use OS data for any commercial service under the member licence – meaning any activity which involves or intends to involve you making money.
- Engage in competing activity. You must not compete with, or be likely to compete with, any third-party licensed for the same data, or OS's products

[5] Note that there is a similar arrangement in Scotland under the One Scotland Mapping Agreement (OSMA) for Scottish Town and Community Councils

[6] If you use contractors frequently, ContractorLink - www.emapsite.com/mapshop/contractorlink.aspx which manages and distributes mapping data to contractors may be worth exploring.

and services - so, for example, you cannot publish a map without your own data over the top of it.

There is a detailed licence, and extensive documentation and guidance on the OS website.

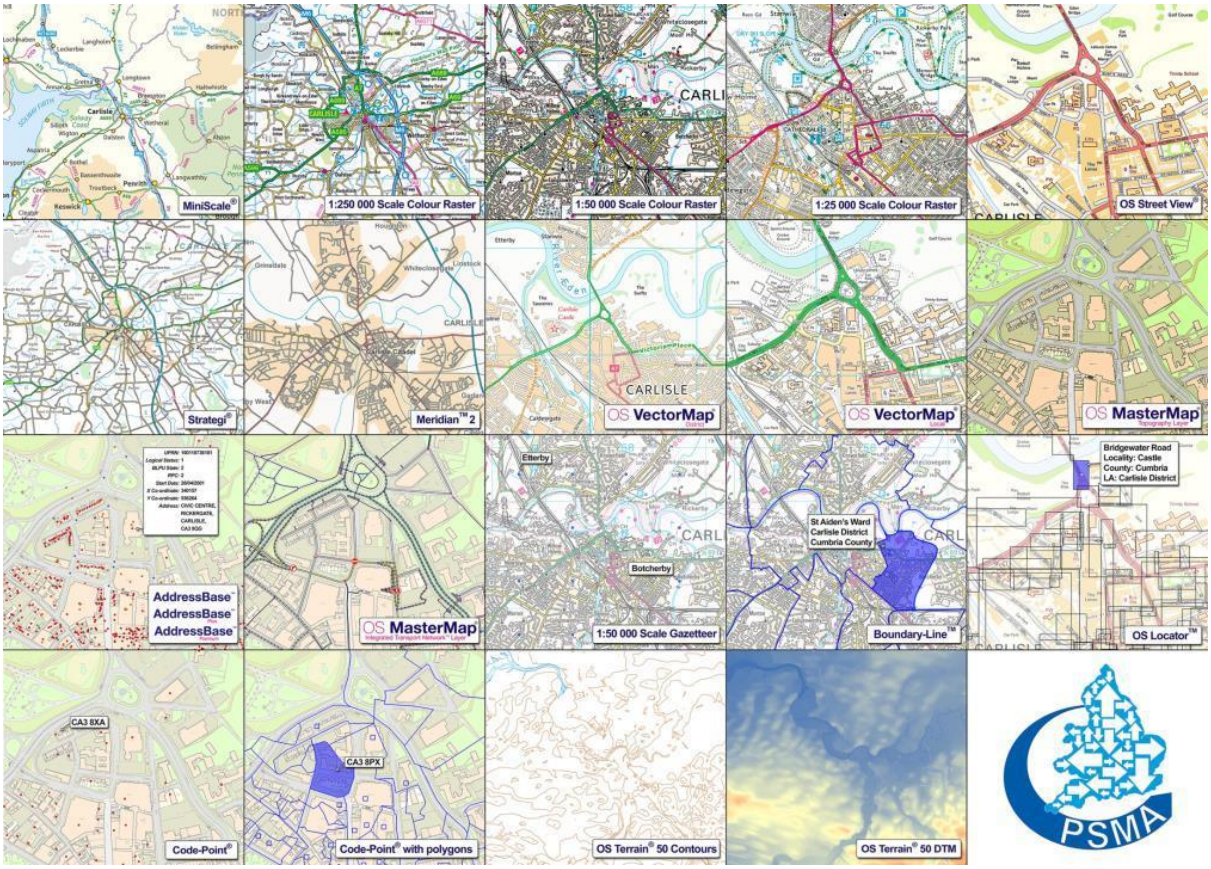
Similar conditions apply to the use of the aerial photography made available under the Aerial Photography for Great Britain (APGB) agreement.

# APPENDIX – MAPPING DATA

## Ordnance Survey

### Maps

This graphic shows the wide range of mapping available under the PSMA.




Depending on the area covered by a map you need a different level of detail in the mapping - and that's one reason for the wide range of maps provided. A map of a county would often be based on the 1:250 000 scale mapping, and any larger area would often switch to Miniscale®. However, if you want a parish map, then OS VectorMap Local® or OS MasterMap® would be better. OS MasterMap® is the most detailed and up to date of the map products, and is used for maps at 1:2500 or 1:1250 scale - though anything in between will work as well.

Some of these OS maps are in raster format (for example Miniscale®, 1:250 000 scale, 1:50 000 scale). That means that they are just a picture, there is no additional information with them. Roads, rivers, buildings (or groups of buildings) can be seen, and that is sometimes more than good enough.

Ideally (and best) raster maps should be loaded into a GIS (geographic information system) but, as pictures, they can be loaded into any appropriate package[7]. Zooming into a raster map quickly shows the individual pixels.

[7] Note that if a GIS is not used, then there is a risk of distorting the map by stretching or compressing more in one direction or another. This risk also applies to images of maps included in documents.

The remaining maps (and particularly OS MasterMap®) are vector (made of lines, points, areas) maps, and require a GIS to load and display them. Each feature (building, river, road etc) will have additional information available that can be found via the GIS (eg its area). As you zoom into a vector map, the quality does not decrease. Zooming out, however, will often produce a map that shows so much information that it becomes confusing.

Note that some GIS (most usually the web based solutions) will handle everything necessary about managing the different scales and types of OS maps.

**Addresses and postcodes**
Addresses come from two sources - Royal Mail, and Royal Mail addresses include that vital postcode, and also from your District (or Unitary or Borough) Council's Street Naming and Numbering function.

OS publish a number of products exploiting these two sources for addresses:

- AddressBase - is a family of three products, AddressBase, AddressBase Plus and AddressBase Premium. With increasing numbers of addresses and amounts of information in Plus, and Premium, the most complete product.
- CodePoint - this is a list of all postcodes (and note that some premises, typically commercial premises, may have their own postcode) with a position. This will be the average position for all properties with that address
- CodePoint with Polygons - is CodePoint, but also with the area covered by each postcode. Useful, for example, in producing shaded maps if you have information associated with each postcode.

**OS Open Data**
In addition to the vitally important mapping data provided under the PSMA there are important products available for free (to anyone) from OS.

These include:

- OS VectorMap District - which is at a scale intermediate between OS VectorMap Local® and the 1:50,000 scale raster.
- OS Terrain 50 - a terrain model of the landscape that adds the 3rd dimension.
- Boundary Line™ - maps every administrative boundary from Euro constituencies to District/Unitary council wards and parishes in detail. Note that it does not map parish wards.

**Mapped Networks**
In addition to maps, the PSMA includes two network products - OS MasterMap Highways Network, and OS MasterMap Networks - Water. These use of these products require the most powerful GIS systems.

These two products show roads and paths (OS MasterMap Highways Network) and the drainage network (rivers down to drains - OS MasterMap Networks - Water). In each case, the critical difference from the vector maps that will also show roads, rivers etc is that they are connected.

Therefore, for example, the Highways Network can be used by automated systems to calculate shortest or quickest routes etc. And similarly the Water Network will allow the generation of catchments, and the route of flood water.

**Copyright**
Is a legal right under the law of the UK (and most countries in the world) that gives the creator of original work (eg maps, postcodes, aerial photography) exclusive rights for its use and distribution?

The OS material, and aerial photography, are therefore covered by licence terms that should be understood by anyone dealing with the data. The terms are not onerous, and support any use that is the business of the Council, as well as use by contractors.

In all cases the copyright of the material must be acknowledged. The normal form on a printed document is: "© Crown copyright [and database rights] [year of supply] OS [licence number]."

**Sharing and publishing maps**
Any map that you produce that includes your data and the correct copyright acknowledgements can be freely published. That includes, for example, putting a pdf of the map on your website.

Interactive maps on website are also possible, but care needs to be taken to ensure that the OS content is not delivered in a form that can be reused by others.

**Aerial Photography**
Aerial photography can be a very powerful addition to the presentation of map based information - people are not that experienced in understanding large scale (ie detailed) maps, and may find aerial photos easier to understand. That's not to say that even aerial photos are always that easy to understand - we're not used to looking down on our communities!

Since April 2018 detailed and up to date aerial photography has been provided to members of the PSMA under a parallel agreement (Aerial Photography for Great Britain agreement). That means that this is also available at no cost to members, and can be used under terms (copyright, licensing) that mirror those for the OS mapping.

The process for ordering data is shown at: https://www.apgb.co.uk/order and requires the PSMA membership number. Orders may be accepted from other than the PSMA contact for the Council (PPC - the PSMA Principal Contact) but will require to have an email address with the same domain name.

**Other sources of GIS data**
OS maps (or the aerial photography) is the base of your mapping system - it provides the critical reference against which everything else is shown. It's sometimes termed "background mapping".

At the national level there are many layers of geographic (and mapped) data available from Government departments. DEFRA (Department for Environment Food

& Rural Affairs) is the main department - and includes the Environment Agency and Natural England among others.

From these you can get:

- Sites of Special Scientific Interest (SSSIs), Areas of Outstanding Natural Beauty (AONBs), Ancient Woodland, Special Protection Areas (SPAs), National Parks, Coastal Heritage sites etc
- Listed Buildings, Battlefields, Scheduled Monuments etc
- Land Registry polygons (to find land ownership information)
- Flood zones. Surface Water runoff, etc
- Census Polygons
- And more - https://data.gov.uk/ holds over 8,000 sets of data under the Mapping category

At the more local level, Principal Authorities will themselves hold large numbers of layers of mapped information. Some of this will be published as open data[8] either via data.gov.uk or via their own website. Other data will often be available on request.

Principal Authorities would be expected to hold hundreds of layers of data, including:

- Local Plans
- Mineral and Waste Plans
- Land and Property Ownership
- Planning Applications
- Public Rights of Way (and their associated Traffic Regulation Orders, Section 31(6) deposits)
- Registered Village Greens, Commons
- School Catchments
- Gritting Routes
- Verge cutting/maintenance
- Tree Protection Orders
- Adopted roads
- Street Lights

[8] Open data is the idea that some data should be freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control

# APPENDIX – SUPPLIERS AND CONTRACTORS

**Suppliers**
Principal Authorities (and commercial users) will be using systems from a variety of suppliers. In some cases these have been supplied to local councils, and also may be relevant to super councils.

NB There are many commercially available GIS packages. These are some of the leading ones in use in the UK:

- ArcGIS (and other members of the Arc family, including ArcGIS Online) - www.esri.com/en-us/home
- AutoCAD Map - www.autodesk.co.uk/products/autocad/included-toolsets/autocad-map-3d
- Cadcorp - www.cadcorp.com
- MapInfo® Pro - www.pitneybowes.com/us/location-intelligence/geographic-information-systems/mapinfo-pro.html

In addition, some Principal Authorities are switching to open source[9] systems that can be freely downloaded from the web. Training is either from online material, or at cost from commercial suppliers. Support is also available both from online forums and from commercial suppliers.

The most commonly used product is QGIS - www.qgis.org though there are many more.

There are clear advantages to having the tools and technology available to staff and councillors to produce your own maps. However, even with the assistance of supplier staff there may be times when a council may wish to outsource the whole task of map production. Latitude Maps are one such service supplier.

**Latitude Maps**
Latitude Maps (www.latitudemaps.co.uk/) are able to offer bespoke maps of parish and town council areas.

These can range from a simple outline of the Parish boundary overlaid onto a suitable Ordnance Survey base map to a full Parish Plan.

1. Council Boundary Map
   a. Sized to suit your requirements.
   b. Based on the latest OS data at a scale to suit the size of the map.
   c. Council boundary is highlighted with the surrounding areas faded back.
2. Parish & Town Plans
   a. Based on the latest OS map data at a scale to show the level of detail required.
   b. Council boundary highlighted and surrounding areas faded back.
   c. Areas of proposed development, land use, properties, assets etc. Highlighted, colour coded and keyed as required.

[9] en.wikipedia.org/wiki/Open-source_software

Latitude is an OS Partner, with access to the latest OS map data and can supply the required OS base map data.

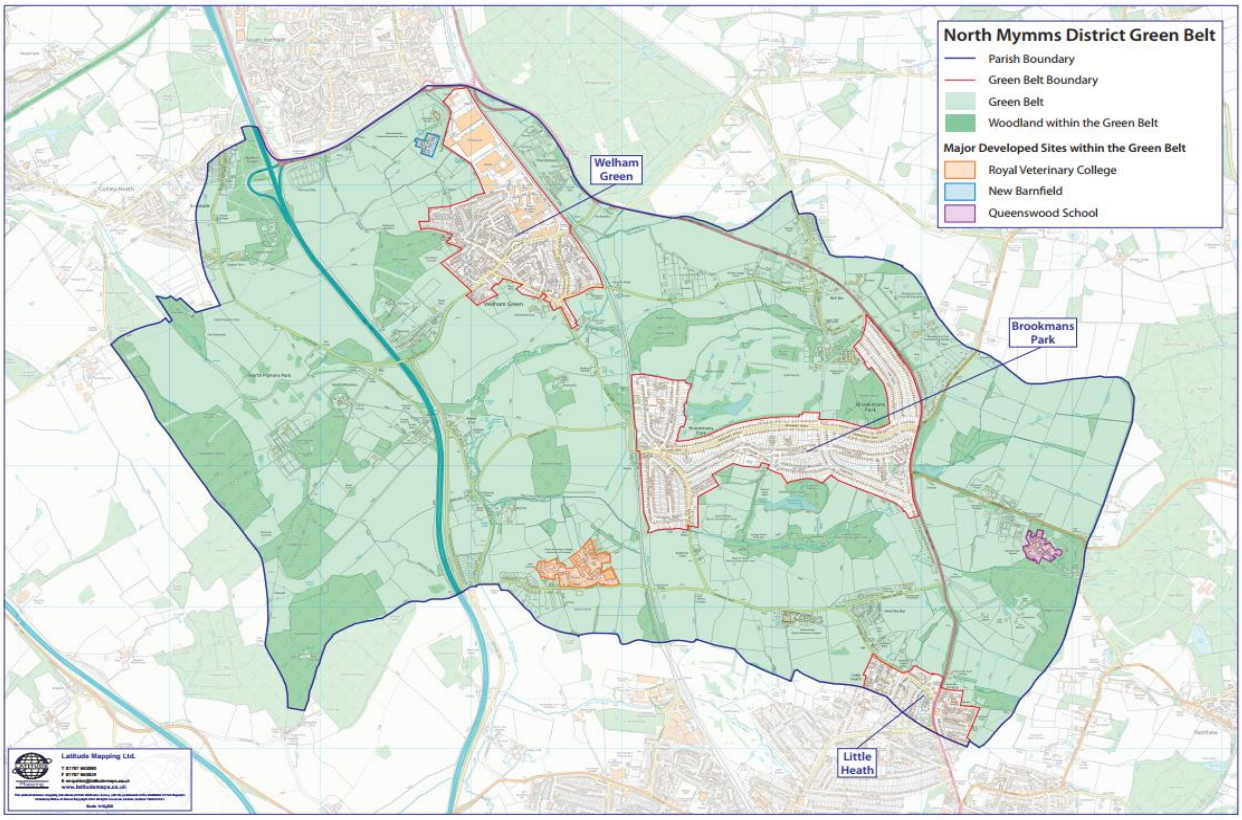


Image: Example of latitude map

OS map data is available to councils under the Public Sector Mapping Agreement (PSMA) and we therefore advise that the council signs up to the PSMA.

We will discuss your individual requirements and endeavour to produce a map for your needs. Full costings, and proofs as necessary will be supplied.

Examples from previous projects are available

# GLOSSARY

| | |
|---|---|
| APGB | Aerial Photography for Great Britain |
| geocode | Converting addresses (or postcodes) into a geographic position so that markers can be placed on the map |
| GIS | Geographic Information System. A computer system designed specifically to manipulate, manage, analyse and present geographic data. It can be used to link seemingly unrelated data and help you understand spatial patterns and relationships |
| GPS | Global Positioning System. Is a satellite based system that allows receivers to identify where they are. Built into smart phones, satellite navigation and advanced survey tools. With appropriate tools accuracies significantly less than a metre are possible. |
| INSPIRE | An EU directive (2007/2/EC - Infrastructure for Spatial Information in the European Community) aimed at ensuring the publication, in usable forms and formats, of key environmental information so that it can be effectively shared and used in a "joined up" manner. |
| OS | Ordnance Survey. The national mapping agency for England, Wales and Scotland. It was formed in 1791, and is one of the world's largest producers of maps. It operates as a government owned company |
| OSMA | One Scotland Mapping Agreement. Similar to the PSMA, covering Scotland. Note that there is a small overlap at the border to provide for emergency services that need to operate across the border |
| pdf | Portable Document Format. An electronic format of documents (text, text and images or purely images) that can be transferred without loss of information or presentation. |
| pixel | Picture element. The individual coloured dot (usually square) from which an raster map (or any image) is constructed |
| PPC | Principal PSMA Contact - the person who signed up to the PSMA, who gets information and updates from the secretariat and from OS |
| PSMA | Public Sector Mapping Agreement. See - The Public Sector Mapping Agreement - above |
| Raster map | A map in pictorial (bitmap) format, as would be produced by putting a paper map through a scanner. Can be displayed and handled by a wide range of software |
| Vector map | A map made up from points, lines, areas and text presented in a specific, computer readable format. Used for more detailed maps, and allows the user to select features and their colour, line width etc. Requires the use of a GIS |