



USING LOCATION DATA FOR HOUSING



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The benefits of location data

Growing numbers of housing associations are harnessing location data, or geographic information (GI), to manage their property portfolios.

That's because location data can help housing associations achieve a whole picture perspective of their properties, so they can easily identify opportunities to keep maintenance and repairs cost-effective, tenants satisfied and reduce emissions.

Location data is already proving to be a hugely powerful tool for many housing associations when used as part of a Geographic Information System (GIS). It helps social landlords to harness location data to manage the complexity of maintaining buildings, while making homes more sustainable and safer places to live.

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What is GIS?

At a practical level, a Geographic Information System (GIS) is used to input, store, manipulate, analyse and display location data.

By bringing together data which would otherwise exist across dispersed datasets, insights from location data are unlocked, allowing new opportunities for growth

and sustainability to be identified.

Harnessing GIS goes beyond accessing the data for housing associations. It is an approach

that enhances overall operational effectiveness and is an integral part of wider strategies that use current data to support informed, real-time decision-making.



How can it help you?

The power of GIS lies in its ability to layer all available information in one place and in user-friendly formats.

It can combine data on properties, roads, railways, population density and flooding for instance. By viewing this data together and graphically, housing associations can reveal trends

and patterns in the data that would be otherwise missed when studying tables and data separately.

Housing associations in the UK can leverage geospatial data in several ways to enhance their operations and decision-making, particularly in the areas of asset management and strategic planning.

Some specific areas GIS data could help with include:

- Property profiling and establishing the grading and evaluation of properties by type, materials, rents, voids, points of interest, boundary changes and EPC ratings
- Identifying development opportunities
- Managing stock portfolio
- Planning retrofit projects
- Assessing the surrounding environment
- Managing maintenance for tenants
- Managing and identifying property spread
- Informing the acquisition and disposal process
- Studying what contributes to a neighbourhood's success as a community
- Meeting environmental and sustainability targets

GIS can help you manage the assets of a housing association more effectively, by providing context throughout the life-cycle of a property. Starting with the challenge of identifying suitable land, organising plan designs, supporting the building process, pre-tenancy management and asset management, through to the conveyancing process if a tenant is able to buy their property.

When a housing association's own data is combined with other datasets, such as census data or socio-economic information, GIS can also be used for strategic decision making. For example, complex issues like 'Where should we develop our next generation of social housing?' or 'What type of property should we build?' become easier to handle when all the relevant information is laid out in one place in front of you.

GIS also provides a platform for sharing information with internal teams and external stakeholders, including the ability to access and update in real-time through features such as interactive web maps. This enables housing associations to streamline workflows, track property performance, and respond promptly to emerging needs or issues. By using GIS-based interactive web maps and dashboards, housing associations can improve transparency, communication, and operational effectiveness in managing their property portfolio.

Making the most of a GIS

Implementing a GIS strategy can enhance a housing association's operations and decision-making. Here are some steps to consider when designing a strategy to make the most of your geospatial data:

01



Assess your needs and goals

You need to first define your objectives and clearly identify what you want to achieve with geospatial data. For example, are you looking to streamline property management, or ensure planning and risk assessments are better informed?

The versatility of GIS allows organisations to implement it everywhere to maximise returns on investment. However, to get the most

out of it, it is best to design the roll-out of your plan around a list of business objectives in priority order, to ensure it leads to impactful results.

Also take time to understand the requirements of people using the data within your organisation. Involve stakeholders across the design and implementation of a GIS strategy, rather than just bringing them in at the end. Not doing so will make it hard to get the full value from the location data.





02

Gather the data

Having settled on your objectives, the next step is to work out what business information you have or require.

Collecting the relevant data may initially seem a daunting task, but it should not be. There may be some projects that will require an exercise of information or data collection, but the power and benefit of GIS is to give you another perspective on the data that is already within your organisation. You just need to provide some context or framework to form the foundation of insights and link them together, such as reliable addressing data, which is where Ordnance Survey data comes into its own.

Questions you might look to answer with location data:

- Which buildings need to be retrofitted with new, low emission boilers?
- Do homes on this street have an adequate EPC rating?
- Is the property in a flood-risk area?
- Where should maintenance work be prioritised?

OS AddressBase

AddressBase data from OS is an authoritative dataset, providing each address with a Unique Property Reference Number (UPRN) to identify its exact location with accurate X and Y coordinates. This is a foundational dataset that can be built upon and connected seamlessly with other datasets.

OS MasterMap Topography Layer

This layer can be added on top of OS AddressBase and represents the world in a more realistic way, with information on the location of properties in relation to the real world and the environment. It can incorporate data on types of roads, land types, waterways and transport systems. Having access to this information enables better planning for maintenance tasks and ensures that tenants are kept in healthy environments.

03

Create connections

Geospatial – or geographic data – is information that is linked to a specific location. For example, the occupant of Flat 3B has not paid his rent for two months, all houses on Accacia Avenue have gas central heating, and the housing association is responsible for cutting the grass in front of the block of flats, but the boundary hedge is council maintained. To depict this all context against a map backdrop, the information must be given a location – a process known as geocoding.

The process of geocoding can be largely automated using a postcode or street address to work back to British National Grid coordinates. Unique Property Reference Numbers (UPRNs) are used to uniquely identify addressable locations in Great Britain.

As well as the information held within your organisation, there are several other datasets that may be of use, depending on the problems you are trying to solve:

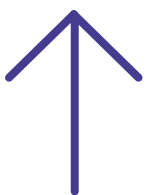
- Overview mapping – access a broader perspective of your total holdings. Useful for statistical analysis and looking for future development opportunities
- Large-scale mapping – to manage your existing properties and land
- Imagery (aerial photography) – complements the mapping, giving further context to the neighbourhood
- Boundary data – either postcode or administrative, giving the ability to analyse and compare different communities
- Address data – aids the geocoding and provides a hook to link and search for other information
- Points of Interest – especially useful when analysing communities and providing

information in a choice-based letting scenario

- Socio-economic data – wide selection available, often sourced from central and local government. Particularly useful when analysing where and what type of property is required in any future development
- Environmental data – useful for considering the location of building new properties or risks to existing properties
- Property condition – to manage maintenance schedules and priorities

You may need one or more of the above, but you do not need everything to start reaping the benefits of your GIS.

OS has a wide range of location data that can be embedded seamlessly into mainstream housing databases for analysis and presentation. Its data is ideal for overviews of the operational area – right down to the details of individual properties. Crucially, it also gives you the power to link in other layers of information simultaneously. These can include rent details, maintenance schedules, demographic trends and all kinds of financial and environmental data.



UPRNs – the golden thread for Halton Housing Association

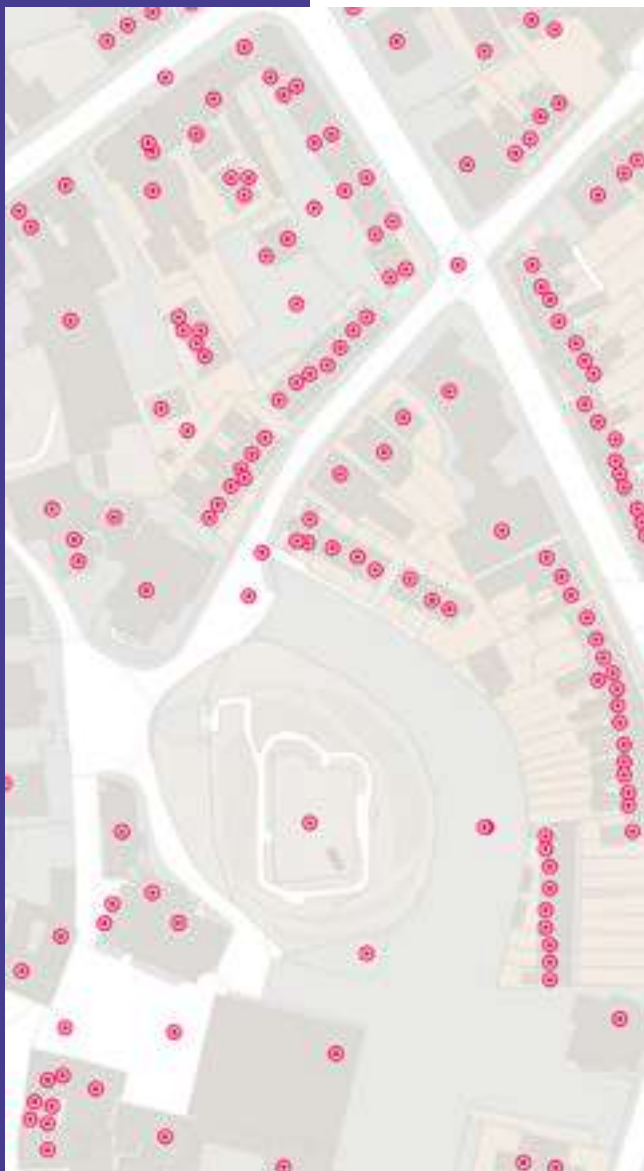
Halton Housing Association has provided over 7,500 homes across Cheshire and the Northwest. Managing such a large portfolio of homes requires precision in data management, particularly to manage risk. Key considerations include fire and building safety, damp and mould, and retrofitting requirements.

A broad variety of datasets are required to produce an accurate and reliable picture of this risk, making the ability to link those datasets with confidence extremely valuable. Links need to be robust, whilst isolating individual properties, making unique identifiers invaluable for Halton Housing Association.

Lee Reeve, Head of Innovation & Architecture, at Halton Housing said:

“We knew that if we started with the right identifier, we’d have a system that could work with almost any dataset. What’s more, we knew that implementing the UPRN as that identifier would be relatively simple.

“The UPRN gives us a pre-qualified reference point, which does two things. First, its authority gives us the confidence we’ve built a durable system. It won’t change during a property’s lifecycle. I reconciled our housing management data against Ordnance Survey’s AddressBase which highlighted some properties that needed further investigation due to discrepancies in their address. This showed that postal data and internal naming or numbering systems don’t always have the governance in place to provide the confidence that’s needed, long term. And second, because it’s simply a numeric identifier, the UPRN makes integration straightforward.”



Speeding up applications at Nottingham City Council

Nottingham City Council's Safer Housing team manages thousands of licensing applications and checks per year. The aim is to ensure private rentals are safe and secure, but the data needed to check these applications, or undertake enforcement checks, is held externally to the Council. Records of property sales within Nottingham City are also used to develop a full picture.

UPRNs help to connect these various datasets together, making the process of confirming applications more efficient. In fact, it is estimated that the time to process applications has been reduced by 15%.



04

Assign a resource

Introducing a champion for Geospatial Information (GI) within your organisation will give your strategy every chance of success. This can be anything from a GIS team, a GIS officer or a director with overall responsibility for delivering GIS alongside corporate objectives.

Taking time to talk to representatives at other housing associations already running

successful GI strategies will help you to understand what is involved. Or speak to OS, or one of our licensed Partners, about how they have supported similar organisations to make the most of their GIS.

GIS does have some prerequisites you need to carry out essential tasks. You need to make a decision on which GIS software solution suits you, source your mapping, geocode your data and create connections into your housing management software. Then you can roll out and develop your strategy.

Technologies continue to evolve, and the housing sector can move rapidly. Your GI strategy should be flexible enough to readjust in line with changing business needs.



“The process isn’t as complicated as it sounds - and many software vendors have tools which speed the process up. It is imperative that your ICT team are involved from the outset and that they understand the advantages to be gained from the introduction of GI.”

Tyrone Field, independent consultant and ex-housing association ICT manager





05

Highlight the value

Entire organisations can reap the benefits that GIS brings daily, from those at the executive level through to frontline staff. With GIS, decision-making and strategic insights become more data-driven, improving operational efficiency as a result.

Regularly communicate the success from each challenge back to your team, to highlight the continuous progress and value that GIS brings to the organisation. By showcasing these positive outcomes, you can ensure that GIS remains a pivotal tool in driving your business forward.

Defining metrics such as key performance indicators (KPIs) that are aligned to the needs and goals set in your geospatial strategy will also enable you to assess outcomes and aid in measuring the impact of geospatial initiatives.

Examples include:

Efficiency

Time saved in property management or planning processes.

Cost Reduction

Reduced maintenance expenses or optimised resource allocation.

Service Quality

Improved housing services based on location-specific insights.

Metrics can be quantitative, like the examples above, or qualitative such as feedback gathered from staff, residents, and stakeholders that enable the assessment of user satisfaction and perceived impact.



Where next?

To get the most from location data using GIS, it is important that you have access to download it, as well as the opportunity to discuss the options with experienced providers.

Their expertise can help to unlock new approaches and opportunities. As the UK's national mapping agency, Ordnance Survey has a broad range of [specialist partners](#) that can help you find the best solution for a variety of needs.



For advice and more information about planning and introducing a GI strategy within your organisation

Speak to OS today for a free consultation:
housing@os.uk



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OS National Geographic Database

The OS National Geographic Database (OS NGD) is a single store for all of Ordnance Survey's authoritative data for Great Britain.

Over 75 richly attributed feature types are organised into nine data themes including Addresses, Buildings, and Land. Housing associations

can combine these datasets to identify trends across the built and natural environment. As an example, the Buildings theme contains data on age, type and

materials to support situational analysis, risk planning, and asset management.

The OS NGD uses enhanced data structures and metadata making it user-friendly, future-proof, and flexible for your evolving needs. Users can access themes that are updated daily via the new OS NGD APIs and OS Select+Build, providing the flexibility to select and build your own data packages rather than relying on pre-selected products.



Identifying hard to heat homes

Cold, damp homes have adverse effects on the health of tenants, particularly those with respiratory issues.

Heating a home is influenced by its age, positioning, and construction materials. By using OS NGD, social landlords can compile datasets containing these 'building attributes' to create an index of homes that need the most support. Visualising this data with income

deprivation and council tax bands can help identify patterns and make informed decisions to support tenants.



[Quantifying accessibility to green spaces](#)



[Identifying high rise buildings for fire safety](#)



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