



Testing Land Valuation Methodologies – Lot 4: Conventional valuation approaches

Executive Summary

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Executive Summary

This report presents the findings of Axion Solutions' work to develop, test and evaluate a transparent, open-data land valuation framework for Wales. Commissioned by the Welsh Government, the project forms part of a wider programme to strengthen the national evidence base on land values as a foundation for spatial analysis, policy development and potential fiscal reform.

The central objective was to determine whether land value can be robustly estimated at small-area scale using exclusively publicly available datasets. The study demonstrates that it can - with clear boundaries and qualifications.

Two established valuation approaches were operationalised:

- A **Residual Value Model (RVM)** reflecting development-led valuation practice;
- An **Income Capitalisation Model (ICM)** capturing existing income-generating potential.

Both approaches are grounded in professional and international valuation standards, but they capture fundamentally different economic mechanisms. The RVM estimates land value as a function of development feasibility, responding primarily to Gross Development Value (GDV), build costs, abnormal risk and developer return assumptions. The ICM derives land value from rental intensity and yield capitalisation, reflecting existing economic use rather than prospective redevelopment.

Applied across nine representative LSOAs spanning urban, suburban, rural, coastal and post-industrial contexts, the models reveal a clear and coherent spatial gradient across Wales. Highest land intensities are observed in strong-demand urban and commuter markets, particularly Cardiff, followed by Bridgend and Monmouthshire. Moderate land values are evident in mixed coastal and rural-suburban areas, while lower intensities are consistently observed in upland and structurally weaker post-industrial LSOAs such as Powys and parts of Gwynedd and Rhondda Cynon Taf.

A key finding is that development-led and income-led valuation signals frequently diverge. In several LSOAs, income capitalisation produces materially higher land values than development feasibility alone would suggest. Conversely, in rural areas with limited rental concentration, both approaches converge at structurally lower levels. This confirms that land value in Wales is shaped by both forward-looking development viability and existing income density - and that neither perspective alone is sufficient.

The introduction of a hybrid (combined) framework, integrating RVM and ICM outputs, proved analytically significant. The hybrid approach reduces distortion arising from reliance on a single method, dampens volatility in high-density urban cores, and prevents development-only modelling from understating land value in income-rich markets. The resulting combined land value per m² measure produces a more stable and policy-ready land intensity gradient across Wales.

The study confirms that open-data land valuation is feasible and robust at **LSOA scale**. A fully transparent, reproducible modelling architecture has been constructed,

integrating transaction evidence, EPC attributes, rateable values and spatial datasets into a harmonised workflow aligned to 2021 LSOA geography. The data pipeline is technically scalable to Wales-wide implementation.

However, the findings are equally clear about limitations. While parcel-level modelling is technically possible, valuation precision at granular intra-LSOA scale is constrained by the quality and resolution of input data. The absence of an openly licensed cadastral dataset, detailed rental evidence, granular construction cost benchmarks and site-specific planning constraints limits parcel-level accuracy. The framework performs most reliably as a comparative, small-area statistical model rather than a substitute for site-specific professional appraisal.

Model sensitivity is concentrated in a limited number of parameters - principally GDV, capitalisation rates, construction costs and developer profit assumptions. The analysis shows that increasing structural complexity without improved data inputs would risk false precision. A transparent, bounded and auditable methodology is therefore more defensible than a highly complex model built upon incomplete information.

The approach is technically scalable across Wales. The computational architecture and modelling workflow can be extended to all LSOAs using the existing open-data ecosystem. However, if higher parcel-level precision or fiscal application is envisaged, access to improved datasets beyond open sources - particularly cadastral, rental and cost data - would be necessary.

In summary, this study demonstrates that:

- A transparent and reproducible open-data land valuation framework can be delivered at LSOA scale;
- Development-led and income-led approaches provide complementary insight into land value formation;
- A hybrid framework produces more stable and policy-relevant outcomes;
- Clear spatial land-value gradients across Wales reflect genuine economic structure;
- Model robustness is strongest where data density is high;
- Granular precision is fundamentally constrained by input data quality;
- The framework is scalable but bounded by structural data limitations.

The work provides a strong analytical foundation for Wales to develop a national land-value evidence base. It establishes both what is currently achievable using open data and what further data investment would be required to enhance precision and support future policy exploration.