

ANZLIC RESPONSE TO COOPERATIVE RESEARCH CENTRE FOR SPATIAL INFORMATION STUDIES INTO GEOCODED ADDRESSING

ANZLIC remains committed to making common foundation spatial data ubiquitous across Australia and New Zealand and to building the foundation for a comprehensive spatial data infrastructure for both Australia and New Zealand. This is being achieved through the Foundation Spatial Data Framework (FSDF) initiative which is making good progress, including the recent release of roadmaps for eight of the ten FSDF themes, with just the Geocoded Addressing and Positioning Themes to be published.

Within the FSDF, one of the most important data themes is Geocoded Addressing. Accurate addressing has become vital to the modern economy. In particular, the location element of address is critical in linking geospatial, statistical and social data. An authoritative source of geocoded addresses provides confidence in decision-making when using address as the constant in temporal, geographical, socio-economic and demographic analyses. To maximise the benefit of address information, there needs to be a comprehensive national repository of geocoded addresses. It needs to hold authoritative addresses as well as in-use addresses and link alias addresses.

Recognising the importance of an effective geocoded address data theme and the complexity and vast number of stakeholders involved in collecting and maintaining such datasets, ANZLIC commissioned the Cooperative Research Centre for Spatial Information (CRCSI) to study the existing supply chain of geocoded addresses and identify opportunities for improving the supply and maintenance of this critical data theme. ANZLIC has now received two reports from the CRCSI under this study:

- Report 1 - Optimising the supply chain for Geocoded Address in Australia – Current State Supply Chain Review; and
- Report 2 - The Future of Geocoded Addressing in Australia.

This paper is the initial ANZLIC response to the reports from the CRCSI. Together, the reports represent the first whole of supply chain analysis conducted for geocoded addressing and are a valuable source of information that will drive improvements in the entire supply chain, and stimulate discussion on the future requirements for geocoded addressing.

Notwithstanding that these reports investigate the entire supply chain, by necessity there were limits to the number of stakeholders and jurisdictions that were able to be included in the study. As a result, and as identified in the reports, observations and conclusions drawn

in reference to one group of stakeholders or jurisdiction may not apply to other stakeholders or jurisdictions.

The reports have collected and analysed a significant amount of material that ANZLIC and others will use to drive improvements in this critical FSDF data theme and inform the Geocoded Addressing roadmap. The research and findings go well beyond the specific recommendations contained in the report and ANZLIC will continue to examine the entire report to inform the next steps in developing the geocoded address theme of the FSDF.

In particular the Key Findings (page iii of Report 1, and attached as Appendix 1) provide a comprehensive view of the complexity and challenges involved in improving the supply chain for geocoded address. ANZLIC will focus its actions on addressing the issues identified in the Key Findings.

Some issues raised in the Key Finding are subsequently addressed as part of the recommended improvements, but a number are not and some may have been excluded from the scope of the reports. The Key Findings identify two critical issues that ANZLIC must consider overcoming if it is to meet its challenge of providing a geocoded address data theme that meets the growing expectations of users:

- Participants in the supply chain collect address information for their own purposes which may not align or be consistent with the needs of a national geocoded address dataset. At a national level, there is no effective policy, legislative, incentive or commercial framework in place to bind all participants into contributing to delivering a high quality geocoded address dataset. PSMA Australia’s GNAF product relies on arrangements it has in place between a jurisdiction and PSMA Australia, and these arrangements only transcend part of the supply chain with jurisdictions left to coordinate activities between supply chain participants in their own jurisdiction.
- The complexity of the supply chain and the multiple and varied business objectives of participants in the supply chain, means that there is significant duplication of effort and complex and ineffective feedback mechanisms that are significant obstacles to making improvements to the quality of the address datasets.

ANZLIC will focus on addressing these key issues as well as responding to the specific suggested improvements as follow:

Suggested Improvements	ANZLIC Response
<p>Improvement 1: Undertake a review of national address standards</p> <p>The CRCSI could initiate a review of the ISO standards to deal with the inconsistencies in definitions and terminology being used across and the geocoded address supply chain. The review will have stakeholder representation from all participant groups and seek endorsement from the Inter-Government Committee of Surveying and Mapping (ICSM) to recommend endorsement by the ISO.</p>	<p>Partially Agreed – Standards Australia Working Group IT004, the governance owner of ISO Standards for Australia, in conjunction with the Australian Government’s Department of Communications (Communications) is</p>

	<p>already reviewing AS4590 (Interchange of Client Information), and ISO 19160 (Addressing Standard Conceptual Model).</p> <p>Communications and the ICSM Standing Committee on Addressing are also currently working on creating a machine readable implementation schema for AS/NZS 4819 (Rural and Urban Addressing).</p> <p>ANZLIC may consider: requesting the CRC-SI to review what addressing standards are being used by all of the supply chain entities; and / or developing a formal policy on implementation of addressing standards throughout the supply chain end to end across all jurisdictions. These options will be considered by ANZLIC by June 2015.</p>
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<p>Improvement 2: Provide an unrestricted one-time copy of G-NAF for non-commercial use</p> <p>This will stimulate the development community to take the dataset and host it themselves, learn the data structures and start developing apps and web sites with G-NAF capabilities. General expertise and abilities among the IT community concerning G-NAF would improve and some of those resources could be used in development of the Jurisdictional Address Services (JAS). This will also provide immediate publicity for the Spatial Data Policy initiatives and open data strategies for foundation spatial datasets.</p> <p>VARs would benefit from the innovations in application development that could be commercialised in collaboration with the reseller to a much wider market.</p> <p>Consideration of revenue reduction for PSMA would need to be considered as it will potentially impact the business model; incentive structures and revenues from existing VARS would also need to be considered.</p>	<p>Not Agreed – The proposal is not supported by analysis in the report. Also, G-NAF is owned and distributed by PSMA Australia; ANZLIC has no capacity to require PSMA Australia to release a copy of G-NAF.</p>
<p>Improvement 3: Develop API/web services specification for national geocoded address interfaces</p> <p>This will inform the geocoded address supply chain of the requirements for each jurisdiction (local councils, state and federal contributors) to expose and consume address verification and feedback services. This should be considered as fundamental national data infrastructure guidelines within the context of the FSDF program.</p>	<p>Partially Agreed, subject to outcomes of Improvement 4, including resolution of issues such as the need, responsibility and funding.</p>
<p>Improvement 4: Initiate a nation-wide survey of geocoded address requirements</p> <p>Stakeholder involvement could be extended to a wider group to include all jurisdictions, local councils and utilities to provide statistical validity to the options and statements from stakeholders; solicit issues and ideas that will inform the national debate and contribute to promoting the cause for coordination and improved business benefits and social outcomes that flow from a truly authoritative national geocoded address reference dataset.</p> <p>This survey should not be onerous in terms of the effort required to respond and should elicit specific views in a series of questions where either yes/no or scale ranging responses can be provided.</p>	<p>Agreed – next steps to be determined by ANZLIC by end of March 2015. As part of this improvement, ANZLIC will also consider development of an ‘ideal’ supply chain to guide further improvements.</p>

<p>Improvement 5: Develop a “National Geocoded Address API” available to local councils, notifiable agencies and federated to the jurisdictions.</p> <p>This will give visibility of addressing earlier in the supply chain, including proposed addresses, to authorised participants and facilitate the assignment of persistent identifiers at address creation required by a majority of users. This project could leverage a range of current investments and developments in this area, including G-NAF Live, PSMA Cloud and NBN Co’s Electronic Location Management System (ELMS) project to interact with developers and other supply chain participants at the earliest point of intervention for address creation. Such a capability would:</p> <ul style="list-style-type: none">• Provide an audit of “non-addressed” parcels across LGAs to prioritise areas to be cleansed.• Provide access to authoritative locality boundaries and road names as provided by the jurisdictions for the public to be informed.• Provide an appropriately managed channel for crowd sourcing of alternative / sub addresses and cleaning of existing addresses (backchannel).• Provide a single location for Augmenting Agency address enquires (rather than approach local councils) <p>There are a number of research areas this improvement could benefit from to ensure a greater success than previously achieved, including trust models, provenance, supply chain best practice modelling, incentives and business models.</p>	<p>Partially Agreed, subject to outcomes of Improvement 4, including resolution of issues such as the need, responsibility and funding.</p>
<p>Improvement 6: Design and development of a next generation National Location Management Service to complement G-NAF.</p> <p>This activity would require further investigation and a detailed business case to support the level of investment anticipated. Opportunities could be explored for additional private sector investment or other appropriate commercial arrangements that could be available to fund such a project that could provide additional sources of geocoded addresses information.</p> <p>This improvement would look at new ways to automate processes up and down the supply chain. Provide improved models for managing additional sources of information and be able to track the provenance of the information over time.</p>	<p>Partially Agreed, subject to outcomes of Improvement 4, including resolution of issues such as the need, responsibility and funding</p>

Report 2 - The Future of Geocoded Addressing in Australia provides a good overview of changing expectations and possibilities for geocoded address datasets. ANZLIC will consider the key findings of this report as it works to address the issues above and will use the contents of Report 2 to stimulate discussion and input into the action associated with Recommended Improvement 4 (above).

ANZLIC is committed to fulfilling the vision for the FSDF and geocoded address data theme plays a critical role in spatially enabling the economy of Australia. These reports provide a solid foundation for ANZLIC to continue to improve the provision of geocoded address data products to meet the emerging needs of government, industry and the community.

Yours sincerely



Drew Clarke
Chair

6 March 2015

Attachment:

APPENDIX 1 - Optimising the supply Chain for Geocoded Addressing in Australia –
Current State Supply Chain Review 5.0 - Key Findings

APPENDIX 1 - Optimising the supply Chain for Geocoded Addressing in Australia – Current State Supply Chain Review 5.0 - Key Findings

Stakeholder interviews, documentation reviews and industry analysis produced the following key findings of the current state (as-is) of the geocoded address supply chain:

1. There is considerable variation in the understanding of terms and definitions of addressing throughout the supply chain. This leads to inconsistencies in how addresses are created, interpreted and managed across the different state jurisdictions as well as variability between local government authorities and their respective state jurisdictions.
2. Local Government and hence the land valuation system is interested in the “property” address yet the surveyor and land titling system is interested in the “parcel” for identifying an associated address. This dichotomy of address references causes a large majority of the problems in resolving the correct or most likely address in the aggregation processes at state and national levels.
3. The only legislated creators of addresses that are established through the land development process are Local Government Authorities (LGA). These addresses are either primary addresses (in the case of lot subdivisions) or sub-addresses (in the case where strata titles are created). However, addresses can also be created by other land planning and administration processes that are not necessarily validated by the LGA process. These addresses may never appear in G-NAF or may become a duplicate of an address that already exists in G-NAF.
4. There is no legislation in place to control address creation through the naming and numbering of streets and properties in private estates and complexes such as retirement villages, universities and hospitals. While these “private” addresses fall outside the normal council processes because they don’t include a surveyed division of land or affect land ownership, they are nevertheless an important additional address dataset which should be captured and managed as well as possible.
5. PSMA is recognised by all supply chain participants as the de-facto authoritative source of national geocoded addresses, being the G-NAF products. However, some users suggest that G-NAF needs to be more robust to better meet the needs of key emerging markets. This implies improving the governance related to data lineage to be recognised as a truly authoritative geocoded national address dataset. Authoritative source also implies that PSMA have more control over the upstream supply chain than is currently the case.
6. The supply chain is complex, non-linear and in many aspects convoluted, which creates contradictory evidence in applying confidence levels to address verification and geocoding processes using reference address files compiled from similar sources. Millions of unverified addresses are captured annually and follow various paths through the supply chain, often involving considerable duplication and manual intervention. While most addresses eventually become verified and many ultimately geocoded, a substantial minority will not be verified.
7. Time delays from address data creation at local government level to then becoming available through G-NAF significantly reduces the usefulness of G-NAF to many users.

This encourages bypass mechanisms and work-around strategies by VARs and users to acquire addresses, however poorly managed, that meet their business requirements. These delays are usually a by-product of the land titling system where addresses are established when the development application is approved by the planning authority, but not incorporated into G-NAF until the new property has been processed in the land titling system, which can be many months later.

8. Several competing initiatives to create “authoritative” national geocoded address datasets as potential alternatives to G-NAF are being pursued aggressively by different government agencies and the private sector. Some of these are being justified by the internal business requirements of specific agencies such as: limitations imposed by privacy legislation at Department of Human Services; operational imperatives for infrastructure connectivity at NBN Co; and opportunities for potential revenue generation at Australia Post.
9. Supply chain dynamics are largely passive and rely on progressive movement of address data along the supply chains from local government level to state and national levels of aggregation, before becoming available in G-NAF. This limits the optimisation opportunities, since creation and aggregation processes are invariably linked to the somewhat lengthy land administration processes in many jurisdictions.
10. Sharing of geocoded addresses (sourced from G-NAF) between government agencies is impeded by the current licensing model designed to support the existing funding model and protect the existing PSMA distribution channels. While guaranteeing product sustainability, this licensing regime limits business improvement initiatives for government agencies needing to collaborate in providing more cost effective and efficient community services.
11. Addresses have no authorised owner. PSMA develops a comprehensive, national geocoded address dataset, yet has no control over the addresses themselves, which could be changed or misinterpreted by a new property owner without notice. The G-NAF address set that it creates could be seen as “optimal”, but is not “authoritative” as there is no authority that is ultimately accountable.
12. The reverse information flows, or back-channels, from Users to VARs to PSMA to Jurisdictions to Councils, are too frequently ad-hoc, informal, undocumented or non-existent. This weakens the whole geocoded address supply chain.