# Single Land Cadastre for NSW CO-DESIGN WORKSHOP | SUMMARY OF OUTCOMES



# A single land cadastre for NSW

The Single Land Cadastre Working Group (SLCWG) held a workshop on 1 July, 2015.

Convened by the Surveyor-General of NSW Des Mooney, the workshop brought together a diverse range of representatives from across government and industry.

The workshop had three main objectives:

- to develop a vision for a single land cadastre for NSW;
- to identify components of a strategic roadmap to achieve that vision;
- To establish a **consensus-based approach** between government and industry to collaborate on the initiative.

The brief for the day was to frame an approach to design, develop and implement a single land cadastre for NSW - to reach a broad consensus on the vision, purpose and key building blocks for what was termed a "minimum viable cadastre".

This involved discussions about:

Vision and goal: how do we articulate and visualise a clear, future vision for the initiative, including targets?

**Purpose:** what is the commonly understood purpose of a single land cadastre?

**Capability:** what are the future capabilities and environments needed in order to achieve the vision and fulfil the purpose?

**Building blocks:** what are the components of a strategic roadmap, including data, technology, workflow, governance and business models? What do we already have and what do we need to develop?

**Key barriers:** what are the issues that might inhibit forward movement and how do we address them?

**Priority actions:** what are the next steps that we need to make as a group?

A high level roadmap has been developed from the day's discussions. This has been encapsulated as a proposed **Cadastre NSW initiative**, with a view to modelling the successful Service NSW program.



#### A 'cadastre-as-a-service' as a

single source of truth that is:

- > Quality assured
- > Accurate
- > Dynamic
- > Flexible
- > Enhanced for purpose
- > Temporal

Underpinned by **agreed management rules and governance** that makes it clear who funds, controls, changes and contributes to the cadastre.

#### Technology "agnostic"

to enable users to access what they need, at any time, on any device.

Purpose	Engage	<ul> <li>COMMUNICATION and NARRATIVE</li> <li>Establish a clear, consistent narrative</li> <li>Engage leadership champions</li> <li>Communicate the value, benefits and impact to all stakeholders</li> </ul>
To provide a <b>digital baseline fabric</b> that is <b>reliable</b> and <b>usable</b> ; By adopting a <b>clear governance</b> <b>charter</b> that defines <b>legal roles</b> , <b>responsibilities</b> and <b>standards</b> :	Analyse stakeholder needs	<ul> <li>ANALYSIS</li> <li>Comprehensive analysis of "as-is" state for all stakeholders</li> <li>Map existing workflows</li> <li>Map existing commitments and roadmaps</li> </ul>
For access to a single authoritative cadastre of known currency, accuracy and completeness;	Develop business models	<ul> <li>MODELS</li> <li>Business analysis to identify possible models for start- up and ongoing</li> <li>Secure funding for piloting models</li> <li>Gather metrics for business case</li> </ul>
So that location-based decisions in NSW can be made with confidence, agility and are legally defensible.	Build the case	<ul> <li>ROADMAP</li> <li>Assemble project team and secure resourcing</li> <li>Define scope, roles and timeframes</li> <li>Gather evidence</li> <li>Develop a collaborative business case</li> </ul>

## OBSERVATIONS ON THE WORKSHOP OUTCOMES

The conversations held during the day-long workshop were productive and energetic. All participants demonstrated a willingness to fully engage in a design-based process to revisit what has in the past been a challenging discussion.

In reviewing the perspectives documented from each of the sessions, it is clear that there is **consensus across the broad underpinning principles of a common**, **minimum "cadastre as a service"** with a clearly understood governance and management framework and a sustainable business model for start-up as well as in the ongoing.

The draft Roadmap on the following page provides a path forward for the initiative.

What is also clear is that there is **still much work to do in engaging and securing the buy-in and confidence** of both leadership and practitioners if this endeavour is to be a success. As one participant put it, the "devil is in the detail".

While this workshop was not intended to focus on the operational or technical details of a particular solution, there was **universal acknowledgement that a focused program is needed immediately to comprehensively analyse stakeholder needs**, with a particular focus on the current state of usage and existing levels of committed resourcing.

There is also an **urgent need to clearly articulate the case for a single land cadastre**, including reaching agreement on the definition and scope of what exactly is meant by this term. The workshop has provided some clear signals as to the direction that this needs to go, and the **establishment of dedicated working groups in key focus areas** would be a productive and inclusive mechanism to use for this purpose. There is a clear opportunity for the **workshop participants to become advocates** for the program.

Finally, there are **enduring concerns about the political and cultural landscape** in which an ambitious project like this inevitably sits. There is a need for **proactive engagement and communication program** to protect the initiative from political and electoral influences, and a **dedicated change program** to educate and support the user community as the initiative evolves.

# Sharing perspectives

In his opening remarks, Surveyor-General Des Mooney established the context for the discussion, noting that – while LPI was playing a convening role for this phase of the initiative – a single cadastre needs to be a collective, collaborative enterprise.

Adrian White from LPI provided a background brief on the current state of play and the aims for the day:

- There are up to around 100 cadastral datasets undergoing day-to-day maintenance to support various business needs across NSW.
- The challenge is not a simple one. The stakeholder groups must work together to make the way cadastral information in NSW is sourced, managed and delivered much more efficient, transparent and cost-effective.

### Panel discussion

An opening panel session featured comments from:

- John Hudson, Dept. of Planning & Environment
- Peter Jeuken, Lismore City Council
- Takis Ellis, Sydney Water

The panellists provided a snapshot of their different experiences and described the various requirements that their organisations (or industries) may have of a single cadastre.

Key issues from the panel conversation included:

- The importance of establishing digital government as a central tenet underpinning the initiative
- A need to re-think how information is prepared and delivered online
- Consideration of legal trends, including the reliance on digital data
- Consideration for local government diversity in size, capability and resourcing.

## DEFINING A SINGLE LAND CADASTRE

A vital starting point, and challenge, for this initiative is to reach consensus on what is meant by a "single land cadastre" for NSW.

For the purposes of the workshop, the phrase "minimum viable cadastre" was used to frame the discussion. This communicates a core principle of the single cadastre being the common baseline on which additional features, functions and capability can be developed.

Workshop participants were asked to define a single cadastre from their perspective. A visualised summary of the definition elements is shown on the following page, with common elements highlighted.

This provides a foundation for developing a common definition as part of the business case process.

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A Singular point of legal trath and guarantee of tenure in NSW. under pinning the Latal activity of all aspects of endenvour in the state

A space that documents digitally larderse impacts and issues and identifies community natural ed built environments.



### GOAL

# What does a single land cadastre look like in 2025?

Participants were challenged to set a "Big, Hairy, Audacious Goal" (BHAG) for a single land cadastre for NSW looking 10 years into the future.

The idea of this goal-setting process is to be bold, to articulate a vision that is currently out of reach, but not out of sight, and to identify qualitative and quantitative targets to make sure the trajectory of the initiative stays on track.

Elements of each proposed BHAG was then ranked for its importance by participants, with the most popular elements aggregated into the proposed Roadmap.

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### **Summary of BHAG elements**

#### In order of priority, as ranked by participants:

- Governance: in 10 years, we will know who funds, controls, changes and contributes to the cadastre.
- **Temporal:** early capture, proposed, historical
- Access everything, everywhere on any device to be responsive to the rapidly changing technological environment as well as the evolving ways in which users access and use information and services
- "Cadastre as a service" as a key principle that the cadastre is a baseline service on which other products and services can be built, and that users can access and use the service in diverse ways according to their specific needs
- Incorporate a greater number of data sources while still adhering to the principle of the cadastre being the minimum foundation service or common purpose. Suggestions include proposed info, non-registered cadastral surveys and plans.
- Agreed management rules and governance to enforce compliance which may also include legislation
- Funded sustainably to provide certainty for users and custodians

- Single source of truth
- Not common, single central repository
- Agreed minimum information standards
- Governance that is digital by default
- Authoritative and trusted
- Survey accurate
- Freely available online
- Plain language
- Technology "agnostic"
- Maintained and managed by bi-direction digital workflows
- One common legal and operational workflow
- Minimum set attribution
- Common geo-referenced cadastre that's adopted for presentation and exchange of land information
- Cadastre of known accuracy that meets cm accuracy in urban areas and decimetre elsewhere
- Incorporates 3D strata, 4D past and proposed
- Single standard of data
- Collaboration of stakeholders
- Complete
- Baseline

### PURPOSE

# What is the purpose of a single land cadastre for NSW?

Participants were asked to articulate a simple, shared purpose for a single land cadastre for NSW, working in multi-disciplinary groups and using the following format:

THAT :

#### To..... by..... for..... so that.....

Each element of the proposed purpose statements were proactively challenged by members of other groups to ensure that the purpose was clearly understood and defensible. The statements are shown on the following page, and have been aggregated into the Roadmap.

### Summary of purpose statement elements



## CAPABILITY

# What is the future capability and environment that needs to be created?

With a clear vision and purpose established, a pivotal discussion is needed to map the future capabilities and enabling environment required to achieve the vision and purpose of a single land cadastre.

Capabilities must be considered widely in this context, including human organisational, technical and process, governance and financial, leadership. Participants developed an "ecosystem" perspective on future capability which is summarised here.

#### Summary of future capabilities needed:

- An ecosystem of people who are skilled and motivated, including producers, consumers, custodians, users, contributors, aggregators as well as change specialists and influencers
- Clear and consistent processes that are transparent and digital by design
- Technology that is modular, interactive, scalable, reliable and affordable with a focus on accessibility of service – whenever, wherever, however, and usability – fit for purpose and shared
- Governance mechanisms that are open, transparent, funded, supported by legislation and responsive to feedback and change management
- Political backing and practitioner commitment, together with legislation to enforce the commitment and certainty of resourcing
- Sustainable business model that has longevity over political timeframes, with predictable resourcing to deliver in an accelerated timeframe and supports a sustainable maintenance program



#### Capability mind-map courtesy of Table 3

# **BUILDING BLOCKS**

# What are the core building blocks to a "minimum viable cadastre" in 5 years?

The future capabilities were then used as the basis of identifying a series of core building blocks for the development of a single land cadastre. Building blocks were considered in the context of five key focus areas:

- Business models
- Technology
- Data
- Workflows and processes
- Governance

These building blocks are the foundation for mapping the operational and institutional requirements for the initiative over a 5-year timeframe.



### Summary of building blocks discussed

#### **Business models**

- Design and test business models for implementation and ongoing phases
- IMPLEMENTATION
  - Options to be considered include:
    - Centrally funded through the Location Leadership Group
    - Outsource through PPP (and inherited by Government later?)
    - Shared contribution
- ONGOING
  - Options to be considered include:
    - Baseline available to all
    - User pays (for additional nonbaseline information)
    - Data owners decide on access arrangements for their info
  - Consideration of potential cost/revenue gaps
     in the models
  - Dial Before You Dig as a model

#### Technology

- Bandwidth and coverage
  - Currently variable across the state
- High availability
  - Cloud
- Centralised "single" tech
  - Minimise disruption
- Visibility keeping up with trends in technology
- Common identity platform
  - Eg Government and Industry to authenticate
- Mobility-centric
  - Content creation and quality assurance from anywhere
- Standards open source (Open Geospatial Consortium - OGC)
  - Information delivery
  - Systems
  - Formats
  - Workflow (smartforms)

#### Data

- Data providers
  - Surveyors, developers, councils
  - Titles
  - VG property
  - Crown Land
- Users
  - Government (all levels)
  - Private sector
  - Citizens
- Data integrity, format and content
- Consolidation mechanisms
- Access to services

#### Workflows and processes

- Technology to support processes
- Skilled people
- Governance, leadership and political will
- Cooperation and support

#### Governance

- Legislation and policy
- Some elements already in place in:
  - Location Leadership Group
  - NSW ICT Board
  - LILAC
  - Agency strategic plans
  - Council delivery plans
- Best practice (ANZLIC)
- Business case
- Review model for single cadastre
- Liabilities and legalities (including QMS)
- SLAs and KPIs across roles and responsibilities
- Common vision, narrative, engagement to give a consistent approach

### "WE HAVE, WE NEED"

# What is the current capability and what's needed to reach the goal?

Considering the building blocks and the future capabilities for achieving a single land cadastre, groups were asked to map the "we have, we need" against the focus areas as a way of understanding where priority effort is needed.

The discussion about capabilities encompassed high level, strategic issues and current initiatives that can be leveraged, as well as granular, implementation requirements.

The outcomes from this discussion point to immediate areas of activity by focused working groups.

We Howe Ne Need have bandwith need more bandwidth Liremove "politicised" NBN Nestrictions - co-ordinated, governed, disparate spatial Selection of spatial supply chain delivering quality conki ata supply chains -mandated standards disparate standards -innovation outdated practices, processes configure not develop too much customisation duplication ware thost identified pts of source 4 no common road Common road map "Agrida Diven" Map - agile adoption well SOW, cumbersome in advance of need processes eg migration

### WE HAVE

### WE NEED

- Technology · Ban
  - Bandwidth
  - Disparate spatial data supply chains
  - Disparate standards
  - Outdated practices and processes
  - Too much customisation
  - Duplication of effort, cost and workflows
  - No common roadmap, currently agendadriven
  - Slow, cumbersome processes
- Governance Existing governance framework
  - The will and reason
  - Insights from stakeholders' perspective
  - Legacy systems
  - Data
  - Maturing ICT "offering" to inform policy
  - Leader/s: Surveyor-General ++
  - Some policy (although incomplete coverage and disjointed)
  - Skills
  - Overseas/national examples of "how"

- More bandwidth
- Coordinated, governed selection of spatial supply chains delivering quality content
- Mandated standards
- Innovation from industry clean slate, fresh look
- Configure, don't develop (tech agnostic)
- Identified points of source for process and data
- Common roadmap
- Agile adoption well in advance of need
- Agreed vision, narrative and collaborative approach
- Digital legislation
- A new model for implementation
- Responsibility with regard to legislation and role definition
- SLAs around standards, schemas, availability, security, privacy and business models
- Strategic plan and roadmap articulating actions and responsibilities
- Cabinet endorsement for a whole-ofgovernment effort – recognition of information asset
- Partnerships between government and industry
- Innovation reporting on the evolution of effort

	WEHAVE	WE NEED
Data	<ul> <li>Survey plans</li> <li>Titles</li> <li>Multiple versions of cadastre</li> <li>Address</li> <li>Multiple levels of accuracy</li> <li>Meets and bounds description</li> <li>Multiple users requiring differing access</li> </ul>	<ul> <li>Land XML/ePlan</li> <li>Single cadastre</li> <li>Authoritative address</li> <li>Known level of accuracy</li> <li>Legal graphical definition</li> <li>3D + 1</li> <li>Portal for data and services</li> </ul>
Processes and workflows	<ul> <li>Multiple processes</li> <li>Multiple data models</li> <li>Individual models</li> <li>Data is updated post development</li> <li>2D</li> </ul>	<ul> <li>One process</li> <li>One data model</li> <li>Overarching model and process</li> <li>Data is updated pre development</li> <li>4D</li> </ul>
Business models	<ul> <li>Current single land cadastre working group</li> <li>Emergency response centre</li> </ul>	<ul> <li>Metrics to support a business case – cost/benefit</li> <li>Strong, influential and motivated leaders from public and private sectors to promote the idea</li> <li>Tangible benefits which can be delivered in the short term: money saved, service to customers, faster response times, greater safety</li> <li>5-year roadmap of milestones and KPIs with staged funding for: <ol> <li>Business analysis to identify possible solutions/models</li> <li>Pilots for each solution/model</li> <li>Commit to final solution</li> </ol> </li> </ul>

## **BARRIERS & INHIBITORS**

## What are the key barriers & inhibitors of a single land cadastre?

A range of issues, including recognised barriers, potential inhibitors and timely opportunities were identified throughout the course of the session.

Participants were encouraged to be candid in sharing their perspectives, and to connect issues with priority actions to resolve impediments and address concerns.

Whilst a number of potential issues were identified, none were considered by the group to be insurmountable. Deeper exploration of these issues will form part of the next focused analysis phase.

headership understanding the benefit Existing investments + commitments + n · Alignment ( investment in renall) -. NSW only (nationed context) · Commitment + i mgt . There will be winners + losers ... . Language + communication ICT control · Resources - time, ppl, money >/Existing commercial arrangements · Gap between authors + publishers Private data providers · Stakeholder by-in . LG amalgamation process - uncertainty · Cutture

### Summary of barriers and issues to be addressed

- Leadership understanding the benefit of the initiative
- Existing investment and commitments from stakeholders: roadmaps, priorities, workloads
- Alignment with stakeholder priorities, including possible investment needed in re-work
- Need to consider national context and issues
- Levels of commitment and change management needed
- Balancing "winners" and "losers" with the new model
- Common language, definitions and clarity of communication
- ICT control within organisations
- Availability of resources time, people, money
- Existing commercial arrangements, including private data providers
- Gap between authors and publishers
- Securing and keeping stakeholder buy-in

- Local Government amalgamation process uncertainty is a potential opportunity
- Cultural shifts needed
- Building confidence and trust in the process
- Timeliness of the initiative
- Concept of "single" not necessarily equating solely with LPI
- Clarity about liabilities and legal mandates
- Robust business models for start-up phase and ongoing
- Processes and workflows for data and technology
- Accommodating the provision-to-consumption continuum
- Known and understood levels of accuracy
- Governance and legislation that anticipates
   digital delivery
- Scope and timeframe

## **PRIORITY ACTIONS**

## What are the key next steps, and who needs to be involved?

To provide input into an action plan to progress the initative and leverage current momentum, participants were asked to identify their top three priority actions across all focus areas.

Priority actions were also matched with the people and/or organisations needed to progress each action item.

These actions have been synthesised into the Roadmap action agenda in the introduction of this document.

« Compulsory epton from now which underpirs the move to a coordinate R based Cant Cadastre coupled with Introduction of 'Proposed' layer into the Cadastre. ex. Busines Analysis of + Current Situation the 3rd party I contractor + Issues. Isolutions. as defined by definitive a Key stakeholders Definitive team to role out program of Education to inclustry La Contractor to facilituite outside of LPI. Cinclependent

### Summary of priority actions

- Sell the initiative continue the engagement and outreach to other stakeholders:
  - LPI to coordinate
  - Identify champions in different sectors
  - Location Leadership Group to endorse and promote
  - Secure resourcing to begin the discussion
  - Survey to identify interest, commitments and contributions

#### Undertake comprehensive stakeholder analysis

- Mapping workflows and current state as well as existing resources to leverage
- Consultant funded through LLG if possible, coordinated by LPI
- Business analysis of current situation, issues and solutions, key stakeholders
- Need a cross-section of all stakeholder groups (at least 1 per group)

#### Define building blocks for business case

- Define scope, roles, timeframes
- Articulate the future state and gather evidence
- List advantages of a single land cadastre
- Define "as-is" across all stakeholders
- Scope priorities and identify impediments

- Clearly scope project elements and parameters
  - Define what a single land cadastre is in terms of an acceptable minimum standard
  - Identify and document roles and responsibilities
  - Establish change management rules
  - Develop a roadmap for moving forward
  - Compulsory ePlan from now which underpins the move to a coordinate-based cadastre, coupled with the introduction of "proposed" layer into the cadastre
  - Needs to involve SLC working groups, Utilities, LGA NSW, ITSC Steering Committee
- Secure sponsors for business case
  - Champions: Premier, Minister, Department Secretaries, Treasurer
  - Secure involvement right up to CEO level
- Develop and communicate vision and related narrative for common cadastre
  - Articulate a common plain-English definition
  - Communicate and engage with key influencers and decision-makers on value, benefits and best practice
  - Assemble definitive team to roll out program of education to industry

#### Workshop participants

- Zaffar Mohamed-Ghouse, CRCSI
- John Hudson, Dept Planning & Environment
- Peter Bowen, OEH
- Ken Rayner, API
- Francisco Urbina, LIIAC
- Wayne Patterson, LPI
- Justin Drew, UDIA
- Tony Hope, LPI
- Adam King, Trade & Investment
- Melissa Daley, Sutherland Council
- Takis Ellis, Sydney Water
- Geoff Thompson, LPI
- Trevor La Macchia, NSW Water
- Grant Kilpatrick, TfNSW
- Lucy Chen, Department of Education
- Alfonso Marino, Endeavour Energy
- Graham Samuel, Telstra
- John Moore, EICU LPI
- Peter Jeuken , Lismore City Council

- Sharon Langford, Shellharbour City Council
- Daniel Hansen, Ausgrid
- Bruce Douglas, BOSSI
- Bob Bailie, LPI
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- Martin Nunez, FACS
- Graham Chapman, Fire and Rescue
- Michael Nugent, Hunter Water
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- Gaby Van-Wyk, Open Spatial
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