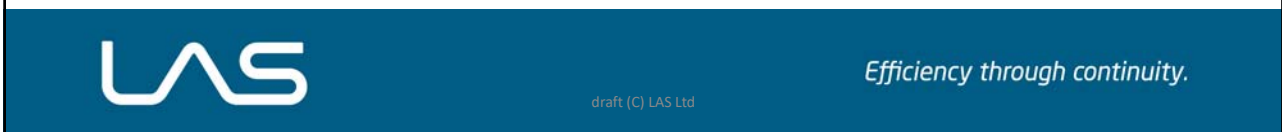


The Land Assembly Lifecycle

- An information management perspective



Seminar Objective

To provide an understanding of

- the land assembly process from an information management perspective
- how adoption of a data standard together with modern technology could reduce time and cost and improve outcomes



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Introduction

Content

- the land assembly environment
- a walk through the land assembly lifecycle
- key data requirements at each process stage
- how data is progressively transformed by the process
- implications for managing information
- the role of Data Standards
- impact of communications and information technology



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A changing environment

- Societal expectations and culture
- Legislation and procedures
- Information and communications technology
- Data availability and access
- Requirements for standards and interoperability between systems



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A two-tiered change process

Land Assembly – a process

- Which changes existing ownership of land and rights into those required to enable development
- Where requirements continue to evolve from concept to completion of development.



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The Key Stages

- Options appraisal
- Design development
- Preparation/revision of application for powers
- Acquisition
- Compensating landowners
- Registration
- Disposal



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Options Appraisal

Key inputs

- Development footprint
- Current land use
- Values

Key Outputs

- Property cost estimate
- Feedback from landowners



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Design Development

Key Inputs

- Scheme design
- Landownership
- Land use
- Values

Key outputs

- Proposed change of use
- Land requirements
- Property impacts
- Feedback and agreements with landowners
- Mitigation
- Revised property cost estimate
- Draft CPO documents



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Obtaining Powers

Key Inputs

- CPO documents
- Amendments to requirements
- Property cost estimate
- Petitions/Objections
- Supporting evidence

Key Outputs

- Scheme amendments
- Compulsory Purchase Powers
- Agreements with landowners



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Acquisition - inputs

Key Inputs

- Compulsory purchase powers obtained
- Detailed design of the proposed development
- Possibly as built drawings
- Ownership of existing land and rights
- Agreements with landowners
- Use and quality of land
- Current land values



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Acquisition - outputs

Key Outputs

- Definition of the proposed change of use of land
- Definition of the land and rights required
- Impact of the requirements on existing ownership
- Feedback from landowners
- Mitigation measures
- Agreements with landowners
- Revised property cost estimates
- Acquisition documents



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Compensation

- inputs

Key Inputs

- Compulsory purchase powers obtained
- Compensation policies
- Definition of the proposed change of use of land
- Definition of the land and rights required
- The impact of the requirements on existing ownership
- Feedback from landowners
- Mitigation measures
- Acquisition documents
- Agreements with landowners
- Compensation claims
- Use and quality of land
- Current land values



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Compensation

- outputs

Key outputs

- Revised cost estimates
- Actual and forecast expenditure
- Title transfer (under Notice to Treat procedure)



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Land Registration

Key Inputs

- Ownership and details of existing land and rights
- The impact of the requirements on existing ownership
- General Vesting Declarations/Transfers
- Grants of new rights
- Imposition of restrictions

Key Outputs

- Registered titles and rights
- Land Terrier – acquisitions, disposals, previous and adjoining land ownership, current ownership, reports



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Information Management Requirements

Data which is

- Accessible across project stages and roles
- Fit for purpose for the processes and roles which it supports
- Quality controlled and of known quality
- Versioned to enable traceability and audit



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Data Standard

- requirements

A data standard for land assembly could

- Provide a robust mechanism for sharing data between systems
- Ensure data is specified in a way which makes it fit for purpose across processes and roles
- Include metadata which allows the quality of data to be revealed to the user
- Support versioning of data to enable traceability and audit



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Data Standard

- usage

A data standard could be used in several ways

- By Client organisations as a benchmark
- By Suppliers to ensure their systems are able to meet Client requirements
- To encourage investment in better systems



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Technology

Communications

- Direct access to source data – reduces time, cost and error
- Interoperability reduces delay and duplication

Automation

- Reduces time, cost and opportunities for error

Transactions

- Fully electronic transactions – not far away



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Summary

- A two tiered change process
- Dynamic data used across process stages and roles
- Requires standards to enable cost effective use of technology to improve communication of data and automation of tasks



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The Land Assembly Lifecycle – an information management perspective

Introduction

The content of this document is based on our experience of assembling land for major development and infrastructure schemes dating back to the early 1970's. Since then, we have seen many changes, for example:

- increasing requirements for communication and consultation;
- the level of detail required to support an application for compulsory purchase powers;
- the level of public scrutiny.

We have also seen major changes in information technology. Throughout the 70's systems and processes were largely paper based. The 80's saw massive growth in desktop computing which subsequently enabled widespread use of database technology and digital mapping. This was followed by the growth of the internet and consequent transformation in communications and web-based information access and management.

There has also been a massive increase in data availability and accessibility with more and more data becoming accessible via webservices – from large scale digital mapping and registered titles to online investigation services. Fully electronic land transactions are not far away.

These technological advances have provided the foundations for more efficient methods of working and consequent expectations for improved capability and efficiency and related reductions in costs and timescales. In design and construction activities the potential benefits available through the application of information technology and resulting client expectations has led to the development of 'Building Information Management' (BIM) standards and systems. The aim of the BIM initiative is to create a digital twin of a proposed development to support design, construction and ongoing operation and maintenance. The BIM initiative however deals only with the physical aspects of a development – it could be extended with a supporting digital twin which deals with the legal interests and rights needed to enable the physical development.

Land Assembly – a two-tiered change process

Land assembly is the process which changes existing ownership of land and rights into those which are needed to enable and sustain development.

Definition of land and rights required evolves throughout design and construction and may not be fully defined until after works are completed.

This gives rise to a requirement to manage two levels of change:

- changing existing ownership and rights to those which are required;
- change to the definition of the ownership and rights that are required as the development evolves.

Land Assembly – Key Stages

The land assembly process progresses through several key stages:

- Options appraisal
- Design development
- Preparation/revision of application for powers
- Acquisition of land and rights
- Compensating landowners
- Registering land and rights
- Disposal of land and rights

Information requirements for each of these stages are discussed in the following sections.

Land Assembly – Options Appraisal

Typically, the first stage of the land assembly process is to identify property impacts and cost estimates, as inputs into appraisal of development options.

Key data inputs at this stage are:

- The likely footprint of the development in three dimensions. This enables identification of where land may need to be acquired as opposed to, say subsoil for a tunnel or airspace for a viaduct;
- Current use and quality of land within the development footprint;
- Current land values;
- Land cost for comparable developments, if available.

Key data outputs are:

- Estimates of acquisition costs for defined areas of land;
- Estimates of costs of ancillary land and rights needed to service the development;
- Feedback from potentially affected landowners.

It's not unusual for the development footprint within an option to be adjusted one or more times during the appraisal process with consequent change to the outputs.

From an information management perspective it is important to be able to identify different versions of estimates and the inputs and assumptions on which each is based. This allows analysis of variance of cost estimates and actual expenditure in future stages. It is also important to be able to identify feedback from landowners to specific versions of the scheme and interests in land

Land Assembly - Design Development

During the design development stage, at least one preferred option is designed to a more detailed level, enabling more granular definition of the land and rights needed to construct, operate and maintain the proposed development.

In parallel more granular information is obtained about the existing interests and rights in the land which will need to be transferred or extinguished or in which new rights will need to be created.

These two sets of information provide a better definition of the likely impact of the scheme on existing landownership and rights, and support:

- Detailed consultation with landowners
- Adjustments to the scheme where possible to reduce impacts;
- More refined estimation of costs;
- Production of draft documentation to support an application for Compulsory Purchase and Planning powers.

Key data inputs are:

- More detailed design of the proposed development;
- Ownership of existing land and rights;
- Use and quality of land;
- Current land values.

Key data outputs are:

- Definition of the proposed change of use of land;
- Definition of the land and rights required to construct, service and maintain the proposed development;
- The impact of the requirements on existing land ownership and rights;
- Feedback from landowners;
- Impact mitigation measures;
- Agreements with landowners;
- Revised property cost estimates;
- Draft compulsory purchase documents

As the scheme design develops the inputs will change and the outputs need to change in response. This has significant implications for process control to ensure all outputs are kept in step with the design as it develops and for communication to ensure all those involved are working from the same version of data.

Land Assembly – Obtaining Powers

Obtaining powers involves developing the scheme design to a point where the powers needed to construct the scheme can be sufficiently defined to apply for planning and compulsory purchase powers. From a land assembly perspective, the key inputs and outputs, at this stage, are pretty much the same as those produced throughout design development but reflect the design version used for the purposes of the application.

It is important that the versions of inputs and outputs used for the application are identifiable as such. In many cases the application documents, which are reports on the source data, are the only record of the state of the source data at the time of the application. This causes problems because:

- it is not possible to easily identify why the information contained in the application is the way it is;
- although the application documents meet the requirements of the procedure being followed they may not be suitable as inputs into subsequent processes;
- related documents, such as agreements, are not readily accessible via the application documents.

It is not uncommon for the scheme design to change during Inquiry or Committee proceeding or even after powers have been granted. As during design development, this has implications for process control and communication to ensure all those involved are working from the same version of data. Agreements may also be made with landowners at this stage with consequent requirements for process control and communication.

Land Assembly – Acquiring Land and Rights

The compulsory purchase powers obtained should provide the powers needed to acquire the land and rights needed for the development and are therefore a key input into the acquisition stage. However, all the powers obtained may not be exercised.

Further detailed design will normally enable the definition of the land and rights needed to be further refined – potentially reducing the actual amount of land to be acquired. Also, agreements with landowners may limit the amount of land which can be acquired, or the acquisition method used.

Key data inputs are:

- Compulsory purchase powers obtained;
- Detailed design of the proposed development;
- Possibly as built drawings;
- Ownership of existing land and rights;
- Agreements with landowners;
- Use and quality of land;
- Current land values.

Key data outputs are:

- Definition of the proposed change of use of land;
- Definition of the land and rights required to construct, service and maintain the proposed development;
- The impact of the requirements on existing land ownership and rights;
- Feedback from landowners;
- Impact mitigation measures;
- Agreements with landowners;
- Revised property cost estimates;
- Acquisition documents, e.g. General Vesting Declaration, Notices.

Land Assembly – Compensating Landowners

The compensation stage is normally triggered by a Claim in response to an acquisition notice. Access to previous communications and agreements with the claimant will facilitate negotiation and settlement of the Claim. Access to the Scheme history as it relates to the Claim can also be required.

Key data inputs are:

- Compulsory purchase powers obtained;
- Compensation policies;
- Definition of the proposed change of use of land;
- Definition of the land and rights required to construct, service and maintain the proposed development;
- The impact of the requirements on existing land ownership and rights;
- Feedback from landowners;
- Impact mitigation measures;
- Acquisition documents;
- Agreements with landowners;
- Compensation claims;
- Use and quality of land;
- Current land values.

Key data outputs are:

- Revised cost estimates;
- Actual and forecast expenditure;
- Title transfer (under Notice to Treat procedure).

Land Assembly – Registering Land and Rights

Land Registration is triggered by vesting or transfer of land (both acquisition and disposals). Disposals include the disposal of surplus land but can also involve major transactions such as an operating lease for a piece of infrastructure. Access to information relating to previous and adjoining land ownership needs to be considered

Key data inputs are:

- Ownership of existing land and rights;
- The impact of the requirements on existing land ownership and rights;
- General Vesting Declaration and certificates, or Transfers;
- Grants of new rights;
- Restrictions imposed/removed.

Key data outputs are:

- Registered titles and rights;
- Land Terrier – acquisitions, disposals, previous and adjoining land ownership, current ownership, reports

Information Management Requirements

Land Assembly is the process whereby the current ownership of land is transitioned to that which is required to enable development. The process consists of several defined stages and involves multiple roles.

Land assembly data is, therefore, highly dynamic and needs to support multiple processes and roles.

As a result, land assembly data needs to be:

- Accessible across project stages and roles;
- Fit for purpose for the processes and roles which it supports;
- Quality controlled and of known quality;
- Versioned to enable traceability and audit.

Standards

Land assembly activities are carried out daily by many organisations and their supply chains. Not surprisingly there are as many ways of carrying out these activities as there are organisations and suppliers. As a result, there are a multiplicity of different systems in use, each addressing bits of the overall process in a different way.

This leads to several problems and difficulties:

- Data cannot be readily shared across process stages and between roles;
- Data is frequently suitable only for use by a single role or sub-process;
- Where data can be accessed, the user cannot always be sure that it is accurate, complete and up to date;
- Data tends to be fragmented making it difficult find out why things have ended up the way they are.

There is no silver bullet to resolve these issues however the adoption of a data standard for land assembly could provide a platform for rapid improvement. To achieve this the standard would need to:

- Provide a robust mechanism for transferring or sharing data between systems;
- Ensure data is specified in a way which will make it fit for purpose across processes and roles;
- Include metadata which allows the quality of data to be revealed to the user;
- Support versioning of data to enable traceability and audit.

A data standard could be used in several ways, including:

- By Client organisations as a benchmark against which to test the specification of their internal systems and to specify the data outputs required from their supply chains;
- By Suppliers to ensure their internal systems can meet Client requirements. A data standard would also encourage investment in better systems due to increased confidence in the requirements the systems will need to satisfy.

It is worth noting that the requirements and potential benefits are similar to those envisaged for the BIM initiative.

Communications and Information Technology

There are three main areas where technology can have a major impact on land assembly costs, timescales and quality of outcomes:

- Communications;
- Automation;
- Transactions.

Standards, together with modern technology, can provide improved communications capabilities which enable wider access to current source data without the time consuming, laborious and error prone activities associated with converting paper or electronic documents or data files into the formats required by internal systems – for example most land registry data can be accessed, validated and processed in this way. Standards can also enable improved communication between the systems in use across the supply chain, either directly or through a central hub.

In addition to improved communication standards and technology can enable the automation of many tasks, ranging from research and validation of data to producing technical and management products. Automating these tasks not only reduces time and costs but also reduces opportunities for error.

A combination of standards and technology are also essential to reducing costs, time and potential for error in land transactions. Whilst direct transacting between vendor and purchaser is still some way off, there are current opportunities for incremental improvement to the process which can reduce time, cost and opportunity for errors.

Summary

Land assembly is a change process which is carried out through several stages, involving many different roles. The detailed changes required to land ownership and rights, to enable development, evolve both within and across process stages.

The information needed to support the process is dynamic and is used across roles and project stages.

There is significant scope to reduce cost, timescales and risk by adopting standards which will enable more cost-effective use of information and communications technology to improve communication and increase automation.

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