

Queensland Spatial Information Infrastructure
for the
Queensland Spatial Information Infrastructure Council

Property Interests Product

REPORT 3

PRODUCT IMPLEMENTATION PLAN

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DISCLAIMER

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Property Interests Product Specification Reports

(Queensland Spatial Information Infrastructure Development)

Executive Summary

This report presents results and conclusions arising from the Property Interests Product Specification project. It includes recommendations to progress to the next stage of development of the Queensland Spatial Information Infrastructure (QSII).

Report 1 Product Specifications - This report comprises three sections: **1)** Institutional Environment for Development of Products and Services; - Outlines the scope of the Queensland Spatial Information Infrastructure and the role of information products in this environment; **2)** Product Specifications - Information Management; - Contains the 6 information product specifications, that when developed, will facilitate access to property related information maintained across state and local government; and the private sector; **3)** Technological Environment for Development of Spatial Products and Services; - Provides an overview of the technological environment required to provide access to property related information.

Report 2 Business Case - Presents an assessment of the Property Interests Information Product in terms of its market potential, potential benefits to the state; and its financial viability. Estimates are included on the number of transactions within a typical local government agency; and projections developed for implementation of an on - line property information service for the 19 priority councils.

Report 3 Implementation Plan - Provides background and context to how the proposed products could be developed by the Spatial Information Industry in Queensland. Outlines a 3 year and 6 year plan for statewide implementation of the products, subject to the results of a prototyping exercise with the City of Caloundra.

Report 4 Request for Expressions of Interest - An EOI document has been prepared addressing the need to prototype both the delivery infrastructure and information content (proposed information products) of an on - line property information service.

Structure of This Report . . . Product Implementation Plan (Report 3)

This report includes:

- a general introduction to the Property Interests Product, (noting that at the conclusion of the proposed prototyping project with the City of Caloundra, the Plan will need to be revised to reflect new information gained from that initiative).

- a brief overview of the spatial information industry in Queensland to provide context to product development.
- an overview of institutional options to manage product development and delivery.
- a 6 year schedule and milestones for identified tasks. (A framework for development of future information products is also included (Appendix 3).

The Appendices contain a number of detailed analyses including how the priority development councils were chosen for implementation of the Property Interests Product; four options relating to how the product could be developed, operated and maintained; and the roles and responsibilities of stakeholders to assist in various stages of product development.

Property Interests Product Specification

For further information about these reports, contact:

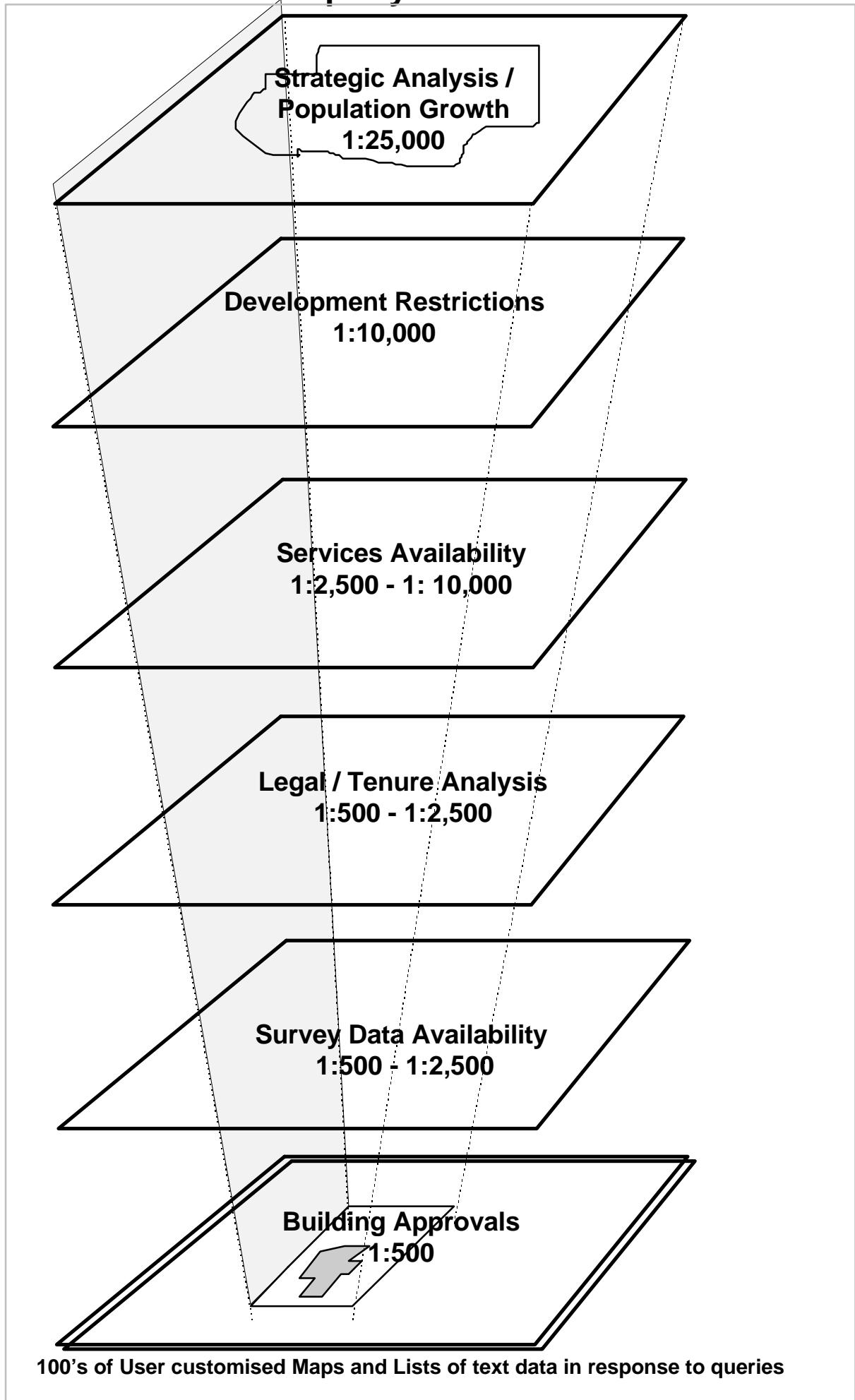
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Property Interests Products



**Property Interests Product
REPORT 3 - PRODUCT IMPLEMENTATION PLAN**

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Property Interests Product Implementation Plan

1 Introduction

1.1 Scope of the Implementation Plan

The Property Interests Product Implementation Plan addresses the need to initially implement 6 proposed information products over 19 of the 126 Councils, representing over 75 percent of the State's land parcels. The products are:

PI-01	Strategic Development
PI-02	Restricted Development Areas
PI-03	Services Availability
PI-04	Legal / Tenure
PI-05	Survey Data Availability
PI-06	Building Development

The proposed schedule suggests staged implementation of the products across the 19 Councils (6 per year), over the next 3 years.

The products are intended to improve access to property related information, an integral part of the statutory land administration process; and also to contribute to responsible state development.

Nearly all sectors of business and the community are influenced to some extent by legal and regulatory procedures relating to the acquisition and use of land; or by the services and improvements provided by a range of public and private sector utilities.

The purpose of the Property Interests product is to:

- provide the established land information marketplace with streamlined (transparent) access to property related information, held by State and Local Government.
- modernise access to current disparate land administration systems to ensure that Queensland remains competitive with other States undertaking similar initiatives.
- use the Property Interests Product to commence development of the Queensland Spatial Information Infrastructure, as a platform for future integrated spatial information development.

In the context of this Implementation Plan, the term *Information Product* is defined as the output generated by processing two or more data sets, where the newly generated product has greater information value than that of the individual data sets. (It is accepted that simply providing access to a single data set also has a certain value, but that simple data retrieval under-values the power of available spatial analysis technologies to add information value).

1.2 Interim Implementation Plan

The Property Interests Product Implementation Plan recommends conducting a prototyping exercise with a suitable Local Government Authority to clarify a number of issues related to statewide product implementation. Issues to be addressed by the prototype include:

- the potential for industry to deliver an 'open' infrastructure solution (major implications for cost and functionality).
- the level of user acceptance of new technology (major implications for cost and functionality).
- the condition of local government databases and the extent of work required to achieve the required benchmark level (major cost and time implications).
- the level of institutional support to make data bases available in a shared environment. (major implications for security, and industrial relations).
- the financial feasibility of statewide implementation of QSII, based on more accurate costs associated with all aspects of the prototype (major implications for accepting or rejecting proposals for full statewide implementation).
- the role of the private sector and their willingness to accept a level of risk associated with investment in new technology (implications relating to future private sector involvement in QSII).

Following the prototype, the Implementation Plan will need to be reviewed to take into account new information from that exercise.

1.3 Potential Users of the Property Interests Product

The proposed electronic ('on - line') Property Interests Product will support core business activities of the following organisations:

- Financial institutions
- Legal practices
- Valuers
- Insurance agents
- Real Estate agents
- Property Developers and Land Assessors
- Surveyors
- Consultants / Advisory Services
- Community
- Town Planners
- Engineers
- Architects
- Local Government
- State departments
- Utilities companies
- Mining companies
- Transport planning and service agencies
- Market research / data brokers

1.4 Current Stage of Product Development

The project has now reached the stage where a hardcopy specification has been prepared (version 1.0) of the property information products required by end users in state, local government and the private sector. Many different versions of the proposed products are expected over the coming years; (Refer to 1.5 Future Product Development).

The specification as it currently stands identifies:

- **input data sets** (required from a range of sources).

to create

- computer generated **information outputs** (information products - maps and / or lists).
- standards required to facilitate data exchange.

1.5 Future Product Development

The six sub products listed in (1.1) above, are representative of the outputs required by business and industry.

Future Development Considerations:

- product specifications must be regarded as part of an evolutionary process comprising definition, design, build, operate and review; with each new version introducing additional functionality.
- current product specifications are expected to change rapidly over the next three years as user understanding and sophistication with new technology grows.
- hundreds of variations to the current information product are expected to be created to meet specific user requirements.
- access to single data sets may be as important as access to value - added information for many users.
- some products may eventually become industry standards.

Clearly, the current product specifications have a limited shelf life before re-specification is required.

2 The Spatial Information Industry

Growth of a vibrant spatial information industry in Queensland is one of the major objectives of the Queensland Spatial Information Infrastructure Strategy. Development of information products and services 'on - line' provides exciting new opportunities and challenges for the current spatial information industry. The following sections outline the environment in which the proposed information products will be developed.

2.1 Main characteristics

The current spatial information industry in Queensland:

- involves 15 to 20 small to medium private sector enterprises (SME's) principally focused on software sales, data brokering and value added products and services.
- is predominantly centred in Brisbane and the Gold Coast.
- is dominated by activity in state and large local governments; and several key utilities, where it is well established.
- comprises predominantly stand - alone proprietary systems and database architectures of the 1980's to early 90's.
- lacks standards and policy coordination which restricts opportunities to exchange and integrate a very large investment in spatial data; (total investment in spatial databases and infrastructure by the Queensland Government will reach an estimated \$0.5 billion by the turn of the century [QLIS Benefit Study, 1997]).

2.2 The Participants

The current spatial information industry in Queensland comprises:

- data producers (mainly state and local governments).
- a limited number of system integrators, data brokers and value - adding entrepreneurs.
- hardware and software vendors.
- academic and research institutions.
- professional associations.
- a range of end users (state and local government, utilities, private sector businesses and the community).

Agency Sponsoring Product Development

- Department of Natural Resources

Contributing Agencies (Data Input):State Government

- Mines & Energy
- Environment
- Emergency Services
- Local Government and Planning

Local Government

Following an analysis of data availability across local government areas, and a review of land development activity across the state (Appendix 1), a prioritised list of 19 councils is proposed for early implementation of the Property Interests product.

Brisbane	Cairns
Gold Coast	Thuringowa
Caboolture	Hervey Bay
Maroochy	Redland
Pine Rivers	Redcliffe
Logan	Bundaberg
Caloundra	Mackay
Noosa	Cooloola
Ipswich	Kilcoy
Beaudesert	

These councils cover 966,268 land parcels (74 per cent of the State's 1.3 million parcels) and 2,554,757 people (75 per cent of the State's 3.39 million population).

It is recommended that the Property Interests product should be developed in conjunction with local government over the next 3 years (requiring sufficient resources to complete 6 councils per year). The principal task in local government is to complete and upgrade data required to implement the product. This task will include reconciliation of land information records for 74 per cent of the State's land parcels. It will require six staff to be appointed within DNR as project managers / coordinators with an equivalent skilled technical position to be funded in each Council.

The specification of the product as 6 sub-products supports a staged development approach and staged deliverable's.

It is also recommended that before undertaking the full implementation program for the 19 Councils, the Property Interests product should be prototyped with a medium sized Council well advanced in the development of its spatial information systems. Caloundra City Council is one of several that would be suitable for this exercise.

The resources of the private sector should be drawn upon to carry out the proposed prototyping exercise in local government, preferably a consortium with expertise in serving spatial data over the Internet, and capabilities in

communication networking and transactional billing systems to act as the Service Provider; and data brokers / applications specialists to develop the proposed information products.

The balance of the Councils in the State are to be assessed for implementation following the completion of a prototyping exercise with a typical local government agency.

Utilities

Major utilities include:

- Telecommunications
- Electricity
- Gas

Private Sector

Major private sector users are expected to be:

- Data value-adding suppliers; mining companies; property development companies etc.

Distribution & Marketing Agencies

It is proposed that product creation, distribution and delivery of a range of information services to end users is to be the responsibility of the private sector (system integrators, data brokers and value adding entrepreneurs).

2.3 Analysis of the Spatial Information Industry

In the five years 1989/90 to 1993/94, the aggregate cost of land and geographic data supply in Australia was estimated to be \$1.1 billion (Price Waterhouse, 1995).

Within the Queensland government, approximately \$25 million per annum is invested in spatial information systems and related data collection activities. Investment by local government, utilities and the private sector in Queensland is estimated to be of a similar magnitude (Alexander - Tomlinson, 1997).

A survey of benefits and costs of government investment in spatial information [Alexander - Tomlinson, 1997], provided the following information:

- the present value of investment in spatial information technology in government between 1980/81 and 1995/96 is estimated to be \$387 million (p. 15, Vol I Report).
- government agencies propose a further \$145 million investment in spatial information technology over the next 6 years, or a total of \$0.53 billion over the 20 year period to 2002 (p. 16, Vol I Report).

- equivalent Local Government estimates are \$66 million investment since 1990, with a further \$84 million estimated over the next 6 years (p. 14, Vol I Report).
- based on a preliminary assessment, potential benefits of proposed information products over the next 6 years are very conservatively estimated to be \$364 million (present value). (Appendix Table C1, Vol I Report).

While lack of formal recording of benefits to date makes it impossible to accurately quantify the benefits of past investment, clearly there have been a number of major spatial information technology achievements over the last 18 years with substantial tangible and intangible benefits (Table 7.2, page 35, Vol I Report), particularly for the land administration systems.

The past record of achievement in the land administration area indicates that expertise is available within the State to contemplate the next major step towards an 'on - line' property information service.

2.4 Trends

(Positive)

1. The global spatial information industry is predicted to be a major growth industry of the twenty- first century. Current statistics show that it:

- is growing at a rate of 20 per cent per annum.
- has an estimated turnover is in excess of \$4 billion per annum.
- is predicted to reach \$350 million per annum in Australia by 1999 (costs of land and geographic data supply, Price Waterhouse, 1995).

2. National importance

The importance of streamlined access to integrated property information for effective government, is recognised throughout Australia. All states are actively implementing property information systems to support local legislative and regulatory requirements.

The development of an Australian Spatial Data Infrastructure is proposed by the national coordinating body, the Australia and New Zealand Land Information Council (ANZLIC) to ensure coordination takes place across a range of nationally significant data sets. Queensland has an opportunity to make a major contribution to this initiative based on its experience gained in developing the Property Interests Product.

The future of the spatial information industry in Australia is expected to depend heavily on advances in Internet technology. Provision of integrated 'on - line' information services is predicted to dramatically change the way that all states provide access to spatial information within the next 5 years.

3 Increased role of the private sector

Trends to outsource non - core functions of government will lead to an increased role of the private sector in providing digital data, its maintenance and distribution.

4 Technology trends

Rapid acceptance of the Internet as the new way of conducting business in the global economy of the twenty-first century is reflected in:

- a 40 per cent per annum growth rate (worldwide) in the number of Internet users.
- an estimated 300,000 private users connected to the Internet in Australia, with an unknown number of business users (potentially twice this figure).

Progress towards open systems (hardware and software system independent solutions) and component system architectures (currently three tier) will provide greater flexibility in upgrading to new technology as it becomes available.

(Negative)

1 Brokering of sub - standard data leading to duplicated data maintenance

The distribution of digital data prior to validation and reconciliation with related records causes each user to undertake data maintenance. The cost of upgrading poor quality data can be as much as double the purchase price, imposing unnecessary costs and introducing high inefficiencies into the industry.

2 Lack of an industry perspective

Many decisions related to the potential restructuring of the spatial information industry are potentially clouded by existing arrangements and statutory obligations for revenue generation, or short term commercial gain within an individual agency.

There is a real danger that fragmented outsourcing of data distribution functions to the private sector may lead to market monopolies; and data access and pricing barriers, restricting the growth of an integrated spatial information industry. It should be recognised that the potential exists to deliver benefits to the state several magnitudes higher than current return on investment; from coordinated development of a State spatial information industry.

3 Product Implementation Arrangements - Management and Ownership

3.1 Institutional Arrangements

Under preferred development and implementation arrangements for provision of an infrastructure to deliver products and services (Appendix 2), an infrastructure service provider would be required to:

- provide user support services through a 'help desk' arrangement complying with agreed service levels, and meet customer expectations;
- organise new user connections, setting up user accounts and monitor customer satisfaction, (similar to the services provided by current Internet service providers);
- organise field staff to resolve service difficulties, particularly networking and security issues.

3.2 Management Infrastructure

Under the preferred infrastructure service provider arrangement, Government assumes the role of contract manager. As the contract manager, Government will:

- specify agreed performance levels and other standards required to protect the rights of the user;
- organise periodic audits and preparation of status reports to Government on the performance of the infrastructure service provider; and the spatial information industry in general.

The service provider would be required to establish a Board Of Management to legally negotiate with the Contract Manager.

It may also be necessary for government to appoint several consortia over a period of time to avoid potential monopolies forming, or to facilitate sub contractors introducing expanded or specialised new services to niche markets. In the event that several consortia are operating in the marketplace, more sophisticated arrangements will need to be introduced to ensure that the industry is managed in the best interests of the users.

Legislation may need to be introduced to establish the statutory requirements associated with licensing consortia and data brokers to operate in the industry. (Refer to the events leading up to the introduction of the Telecommunications Act 1997, related to Inter Carrier Services).

Special arrangements will also need to be considered to meet Government Service Obligations, providing subsidised information products and services to the public.

A spatial information industry consumer group (potentially arising from the Spatial Information Industry Group) will be required to address industry policy and regulatory issues likely to arise from time to time.

3.3 Ownership Issues

Infrastructure - The proposed infrastructure (hardware; software and communications networks) required to deliver products and services could be established under a joint venture relationship between the State Government and a large private sector company.

Data - State and local government data custodians retain ownership, copyright and intellectual property right in their data. These issues are extremely important, and require detailed analysis as part of the prototyping project.

While it is too early to determine pricing models at this stage of the product development process, it is envisaged that data owners would receive a share of revenue from bulk data sales to data brokers.

4 Milestones, Schedule and Strategic Planning

The Property Interests Product represents one of twenty - two information products identified in the QLIS Benefit Study. While it is designated as the highest priority information product, it is essential that specifications are prepared for the balance of the representative information products identified in the QLIS Benefit Study.

The proposed Queensland Spatial Information Infrastructure must be developed systematically over the next 6 years to avoid duplication of effort in data maintenance (or lack of), variable data standards and incomplete coverage in priority areas across the state. A sustained level of commitment is required to substantially complete the QSII initiative within this time.

4.1 Major Milestones

The following summary of tasks indicates what needs to be done as part of the overall Product Implementation Plan, and why it is necessary.

[1] LGA Prototyping Exercise	Evaluate Infrastructure requirements Product development Costs and benefits of full implementation
[2] Infrastructure & Product Re-assessment	Modify based on prototype experience
[3] Completion of 21 Product Specifications	Develop state data model Consortium viability (critical mass of data)
[4] Queensland Spatial Information Infrastructure Development	Progressive implementation - 19 LGA's

Details

[1] LGA Prototyping Exercise

The importance of prototyping the proposed product; and infrastructure necessary to deliver the product, to resolve a number of outstanding issues is discussed in Section 1 of this Report. In summary, key issues that must be addressed before proceeding to the next stage include:

- establishing the feasibility of the specified property interests products being developed to meet user requirements;
- gaining a better understanding of the required infrastructure, and its financial viability;
- assessing whether an open database / on - line access environment is achievable using current technology, and;

- gaining a better understanding of the costs and benefits of the product to justify further investment in its development across the 19 priority councils.

[2] Infrastructure & Product Reassessment

Following the Local Government prototype, current products and infrastructure need to be carefully re-assessed. It is expected that version 2.0 product specifications will emerge; and that it will be possible to develop detailed specifications for both infrastructure service provider(s) and product developers at this stage, to proceed to a Request for Tender (RFT) to complete the balance of the 19 priority Councils.

[3] Completion of 21 Product Specifications

The 22 products identified in the QLIS Benefit Study were selected because of their potential to draw on most of the key data sets expected to comprise the Queensland Spatial Data Infrastructure (QSDI) - or State Data Model [7]. A framework for completion of Product Specifications is included in Appendix 3.

It is also expected that significant funding will be required from Treasury to enhance State and Local government databases. Treasury requires a full assessment of the potential costs and benefits of the project, to be included in a Cabinet submission at the end of the prototyping exercise.

Critical mass of product development is also required to attract private sector investment in both delivery infrastructure and product development. The Property Interests product alone is unlikely to be financially viable or sustainable over the longer term.

[4] Queensland Spatial Information Infrastructure (QSII) Development

On-going development of QSII must occur with a degree of stability and a resourcing commitment from state and local government, if it is to endure over the next 6 years, by which time it should be self sustaining. The prototype will provide a much better indication of the level of commitment required to achieve this goal.

Other Activities (Table 4.2.1)

[5] Data Assessment - 18 LGA's

A more detailed assessment of the current condition of Local Government data bases required to develop the Property Interests Products is required for the 18 priority councils. This should be completed to coincide with the conclusion of the prototype, to be available for inclusion in the Cabinet submission.

- policy will be developed to maximise the benefits of the State's investment in the technology.

4.4 Six Year Product Development Objectives:

The most important 6 year development objectives are considered to be:

1. **Proof of Concept** - Undertake a product prototyping exercise in conjunction with a supportive local government agency, to demonstrate the feasibility of the proposed product.
2. **Obtain State and Local Government Endorsement** - Local government is the key to successful physical implementation of the product. State Government commitment to contribute a sustained level of funding is also essential to complete statewide implementation within 6 years. Cooperation between both parties is required to avoid piecemeal, inconsistent service provision.
3. **Allocate Resources** - In conjunction with local government, implement a program to provide the 19 local government agencies listed in Section 1.2, with access to the product. (This will require allocation of resources at the state and local government level to tightly manage the project; and supervise an upgrade program to standardise databases for operation in an Internet environment.
4. **Establish an Infrastructure Consortium** - A consortium is preferred to establish and manage the physical infrastructure needed to deliver this and other products over the Internet. The consortium would be required to address wide area networking requirements (statewide), data warehousing, network oriented GIS, transactional billing systems and maintaining customer accounts.
5. **Facilitate Development of Private Sector Industry** - The product provides a framework for systematically engaging the private sector to assist in product implementation. This includes data acquisition, maintenance, distribution and value - adding. Other activities will include software engineering, network engineering, user education and support services.
6. **Develop an Administrative Framework** - The administration framework must be developed to maximise the benefits of the State's investment in the spatial information industry. The main objective is to avoid private sector monopolies. Joint private sector - government development of policies and regulations will be carried out with a view to the industry taking increasingly greater responsibility for operation and administration of the entire process. By 2003, the government's role should be limited to regulation and audit (recognising that government service providers may continue to provide data input to network brokering services).

The roles and responsibilities of stakeholders in the property interests product are listed in Appendix 4.

4.5 Performance Indicators

Typical performance indicators proposed to monitor the progress and effectiveness of the Property Interests product are listed in Table 4.5.1.

Table 4.5.1 Property Interests Product - Performance Indicators

Performance Measure	Unit
1 User Profile (enquiries / transactions)	
<ul style="list-style-type: none"> Number of registered users 	Statewide
<ul style="list-style-type: none"> Daily searches (on distributed servers) 	Geographic unit Statewide by user type Local Government Area by user type Server site
<ul style="list-style-type: none"> Number of searches / enquiry 	Database; Product; Application
2 Revenue (against forecast)	
<ul style="list-style-type: none"> Revenue by search screen category 	\$
<ul style="list-style-type: none"> Total revenue 	\$ by category
3 Costs (against budget)	
<ul style="list-style-type: none"> Unit data maintenance costs 	\$ / parcel etc
<ul style="list-style-type: none"> Unit production cost (per dataset / product) 	\$ / parcel
<ul style="list-style-type: none"> Unit distribution costs (per 	\$ / parcel
4 Industry Growth	
<ul style="list-style-type: none"> Number of registered brokers 	Number
<ul style="list-style-type: none"> Product sales by brokerage 	\$ / category
<ul style="list-style-type: none"> Range of products 	Product catalogue
<ul style="list-style-type: none"> Number of new businesses registered as spatial information related 	Number
<ul style="list-style-type: none"> Number of overseas contracts won by Qld spatial information companies 	Number
5 User Satisfaction	
<ul style="list-style-type: none"> Help desk enquiries 	
<ul style="list-style-type: none"> Number of complaints by category eg. quality / standards / cost etc 	Statewide by user type Local Government Area by user type Server site
<ul style="list-style-type: none"> Education and awareness; Publicity 	Numbers seeking skills training
<ul style="list-style-type: none"> Support groups / user forums 	Number
6 Standards Certification (best practice rating)	
<ul style="list-style-type: none"> Data model 	QSDI compliance
<ul style="list-style-type: none"> Meta data 	ANZLIC Standard
<ul style="list-style-type: none"> SDTS Compliance (inc. use of standard entities and attributes) 	SDTS
<ul style="list-style-type: none"> Network standards 	Best practice
7 Change Management	
<ul style="list-style-type: none"> Social impacts 	Privacy etc.
<ul style="list-style-type: none"> Environmental impacts 	Unforeseen consequences
<ul style="list-style-type: none"> Work practices impacts 	Unforeseen consequences
<ul style="list-style-type: none"> Workplace Health and Safety impacts 	Health and wellbeing / stress

APPENDICES

Appendix 1

Priority Development Areas - Property Interests Product

The Residential Land Activity Monitor provides a synoptic overview of residential land development in Queensland, covering approximately 90 per cent of development across 40 local governments. Regional coverage is shown in Table A1.1.

Table A1.1 Residential Land Monitor - Regional Coverage

Region	Number of Local Governments Covered by the Monitor	% of Lot Approvals (19,467 for 1996/97)*	% of Lot Registrations (for 1996/97)	% of Residential Dwellings Approvals (for 1996/97)
South East Queensland	18	79.2	78.3	80
North Queensland	10	10.5	9.8	
Central Queensland	8	6.0	7.2	
Wide - Bay Burnett	4	4.2	4.8	
Total	40			

Table A1.2 Local Government Parcels / Population / GIS Type

	Local Government	Parcel Count	Population	GIS/ Type
1	Brisbane	322,926	900,000	Intergraph
2	Gold Coast	173,589	356,571	Mapinfo
3	Caboolture	40,615	104,000	Arcinfo
4	Maroochy	51,872	110,000	ArcView
6	Pine Rivers	38,241	108,000	Genamap
7	Logan	59,276	180,000	Genamap
8	Caloundra	32,956	67,000	Arcinfo
9	Noosa	22,365	38,700	Mapinfo
10	Ipswich	50,200	137,000	Mapinfo
11	Beaudesert	21,259	46,000	Aussoft Latitude
12	Cairns	20,427	125,000	Multi
13	Thuringowa		45,449	
15	Hervey Bay	21,042	38,758	
16	Redland	54,906	100,000	Arcinfo
17	Redcliffe	21,606	48,026	A/InfoView
18	Bundaberg	16,950	43,538	
19	Mackay		71,394	
20	Cooloola	16,348	32,073	
21	Kilcoy	1,690	3,248	Mapinfo
		966,268	2,554,757	

* Note: 1. Only lots with a Real Property (RP) description are included in the Monitor (ie. Lots intended for detached dwellings).

2. Only lots with a freehold tenure of 300 m² to 5 ha in size are included.

Lot approvals by region in the above table refer to uncompleted lots where either survey plans have been approved by Council, where survey plans have been sealed following construction (lot production); as well as lapsed approvals where the statutory time limit (2 years) has been exceeded before engineering drawings have been approved. Uncompleted lots do not legally exist.

Lot registrations indicate the number of lots where the title has been registered by the Department of Natural Resources.

The Digital Cadastral Database is updated to reflect lot registration. Most utilities are interested in lot approvals at the plan of subdivision stage, which is currently not available in the DCDB.

Table A1.3 and A1.4 show the number of lot approvals / registrations and residential dwelling approvals by local government area in south east Queensland. Table A1.4 includes figures for the other 3 regions covered by the Monitor. Based on residential property development activity, priority for developing the Property Interests Product should be assigned to the following councils:

South East Queensland

- 1 Brisbane City
- 2 Gold Coast City
- 3 Caboolture Shire
- 4 Maroochy Shire
- 5 Redland Shire
- 6 Pine Rivers Shire
- 7 Logan City
- 8 Caloundra City
- 9 Noosa Shire
- 10 Ipswich City
- 11 Beaudesert Shire

North Queensland

- 12 Cairns
- 13 Thuringowa

Central Queensland

- 14 Mackay

Wide Bay - Burnett

- 15 Hervey Bay

Local governments in South East Queensland.

Table A1.3 Lot Approvals - Lot Registrations S.E. Queensland

Local Government (1996/97 figures)	Lot Approvals (Total Residential)	Lot Registration (Total Residential)
Brisbane City	5,280	4,750
Gold Coast City	2,947	3,566
Caboolture Shire	2,015	1,011
Pine Rivers Shire	1,192	1,080
Maroochy Shire	938	806
Noosa Shire	833	721
Caloundra City	637	
Beaudesert Shire	628	
Boonah Shire		
Esk Shire		
Gatton Shire		
Ipswich City		
Kilcoy Shire		
Laidley Shire		
Logan City		713
Redcliffe City		
Redland Shire		781
Toowoomba City		
Total	15,908*	78.3 % of Qld Total

*Lot Approvals (15,908), exceeded Lot Production (12,858)

* Lots lapsed (6,831)

* Registrations: 50 % 500 - 1,000 m²; 31 % > 1,000m²; 19 % < 500 m²

Table A1.4 Residential Dwelling Approvals

Local Government (1996/97 figures)	Residential Dwelling Approvals
Brisbane City	8,606
Gold Coast City	5,461
Caboolture Shire	1,955
Maroochy Shire	1,955
Redland Shire	1,329
Pine Rivers Shire	1,211
Logan City	868
Caloundra City	857
Noosa Shire	805
Ipswich City	719
Beaudesert Shire	519
Boonah Shire	
Esk Shire	
Gatton Shire	
Kilcoy Shire	
Laidley Shire	
Redcliffe City	
Toowoomba City	
Total	24,440

Other local governments in Queensland from the regions listed in Table A1.4, in the top ten of lot approvals, are shown in Table A1.5 and A1.6 below.

Table A1.5 LGA's in the top 10 of Lot Approvals

Local Government	Lot Approvals (Total Residential)	Lot Registration (Total Residential)
North Queensland		
Cairns	1,496	854
Central Queensland		
Mackay	516	679

Table A1.6 Dwelling approvals in top 10 Residential Dwelling Approvals

Local Government	Residential Dwelling Approvals
North Queensland	
Cairns	1,542
Thuringowa	464
Central Queensland	
Mackay	602
Wide Bay - Burnett	
Hervey Bay	544

South east Queensland, comprising 18 local governments is fully covered under the monitoring program. The monitor also covers North Queensland, Wide Bay - Burnett and Central Queensland.

Residential Dwelling Approvals

Tables A1.7 and A1.8 show the number of dwelling approvals and commencements, and includes separate houses, units and townhouses. (Dwelling alterations, additions and conversions are not included).

A1.7 Residential Dwelling Approvals (5 year average)

1992/93	47,785
1993/94	59,427
1994/95	45,008
1995/96	30,269
1996/97	33,086
Average	43,115

A1.8 Res. Dwelling Commencements (5 year average)

1991/92	38,541
1992/93	46,985
1993/94	53,387
1994/95	46,369
1995/96	31,332
Average	43,322

Broadhectare Study

Coverage of 18 local governments.

The study indicates that 134,272 ha, or approximately 6 % of south east Queensland has been identified for urban residential (45,845 ha), or lower density (88,418 ha) development. Three local governments provide 57 % of the total future urban residential stock; Ipswich (22%), Gold Coast (20%) and Brisbane (15 %) from 13 % of the area of south east Queensland.

Residential broadhectare stock is equivalent to a population yield of 1,420,870, compared to the projected population growth for south east Queensland of approximately 600,000 by 2006, and 900,000 by 2011 (Residential Land Activity Monitor, March 1997).

Appendix 2

B1 Options for the Development, Operation and Maintenance of the Property Interests Product

The Property Interests product requires state and local government and the private sector to cooperatively establish the infrastructure and skills required to deliver an Internet based information service. Achieving the necessary level of cooperation between parties is likely to be the most significant hurdle to be overcome. Taking this into consideration, the following options have been identified:

B 1.1 Development of the Infrastructure and Product within State Government

Under this option, local government and the private sector would provide input as required, with State Government assuming overall responsibility for development. The development of BLIN within government proves that the capability exists in government to develop spatial technology. However, the proposed Internet based Property Interests product represents a major commitment to meet agreed customer service levels for on - line assistance (user support), operating in a commercial environment. Commercial performance and customer service standards would need to be assured in the public service environment (ie. through eg. a State Owned Enterprise).

Significant advances in spatial information technology occur every 12 - 18 months. Major vendors in the spatial information industry commit over 90 man years per year in maintaining leading edge products and services. It is neither an efficient use of government resources nor cost - effective to develop custom built 'in - house' systems when 'off the shelf' products are available.

Political instability and government restructuring are added complications likely to alter priorities and resourcing levels, should the product be developed within government.

There are numerous examples of sound GIS development in local government that would need to be accommodated if this option were to proceed. Based on previous experience, it is unlikely that Local Government would unanimously commit to such an arrangement.

B 1.2 Development of the Infrastructure and Product by a Private Sector Consortium

The spatial technology skills and resources of the private sector have been grossly underutilised in Queensland to date. The industry needs time to build capacity to undertake in its own right, a major initiative such as the development and implementation of the Property Interests product. The concept of teaming

for major projects is relatively undeveloped in the spatial information industry as vendor competition has been intense.

The development of the Property Interests product requires a range of skills unlikely to be found in one company. This includes demonstrated best practice capabilities in wide area networking, data warehousing, network oriented GIS development, transactional billing and customer accounting systems.

B 1.3 Joint Partnership Development - State Government - Private Sector Consortium

As indicated in Option 1, government and local government have developed sound skills in spatial information management that would be invaluable in a joint private sector - government partnership initiative.

There are two major tasks to be addressed: establishment of network oriented GIS infrastructure; and completion, upgrading (to uniform standards) and maintenance of key datasets required to deliver the product. Commitment of government and local government skills and resources is essential for the latter task.

Joint development arrangements would ensure a smooth transition of knowledge and skills from both state and local government to the consortium. While this may initially result in some adjustment to staffing levels, strong job growth in spatial analyst positions is expected to occur as the industry expands rapidly to address the increased information needs of local government and the private sector.

Ongoing data maintenance requirements would be contracted by the consortium to the most suitable agency (irrespective of government or private sector status). This cost would be reflected in pricing structures for data set by the consortium. It may also be necessary for government to subsidise data maintenance costs to accommodate community service commitments.

Potential candidates to form a consortium include network communications carriers, existing Internet service providers, GIS vendors, database specialists and major national / multinational IT companies.

The consortium would also become an investment partner with government to demonstrate both its level of commitment; and acceptance of risk associated with the project.

This appears to be the most desirable option.

B 1.4 No Product Development

It is estimated that duplication of effort in maintaining cadastral, road network and street address databases is costing state and local government, utilities and

the community in the order of \$2 million per annum. The figure is likely to be much higher if all of the estimated 80 plus key data sets comprising the Queensland Spatial Data Infrastructure are taken into account.

Business inefficiencies, increased risks of poor decision making; and missed opportunities related to new business and infrastructure development in the state, will continue to occur while information in disparate systems throughout state and local government remains inaccessible to the majority of users.

Because the land administration process involved with the transfer of property can involve up to 30 different searches and approvals, the progressive movement of this information from lodgement - to approval - to updating master records can be very slow.

Many of the larger utilities (Telstra, Energex etc.) and local governments (Brisbane City Council, Ipswich, Gold Coast etc) are forced to maintain their own large land records spatial databases to meet their business requirements.

It is estimated that duplication of recording changes to the State's 1.2 million land parcels, road networks and street address registers adds overheads to business and the community of at least \$2 million per annum and growing, as more businesses begin to develop spatial data management systems. The Department of Natural Resources (DNR) alone spends \$1.2 million maintaining the Digital Cadastral Database (DCDB), although the delay in delivering an updated quality product (up to 3 months after the transaction eg. subdivision), results in many lost customers (utilities and larger councils).

The duplication involved in maintaining Street Address Registers linked to the DCDB is a major concern. Currently, there are at least 3 proposals to develop up - to - date registers. (Staff have been allocated to this task in Telstra (60 staff on a nationwide project), Energex and Brisbane City Council. DNR also has an initiative in place to create a master street address / lot - plan index.

Based on the already high costs of duplication, expected to increase further until an alternative such as the Property Interests product is provided, the option of not proceeding cannot be supported.

Appendix 3

C.1 Framework for Development of Future Information Products

Development of the Property Interests product specification demonstrates the concerted planning effort that should take place prior to the commencement of system development. The investment in spatial information planning is equivalent to engaging an architect. The plans and specifications produced provide the opportunity for ongoing interaction with users to ensure that staged product development meets their requirements. The specification process has also highlighted the need to:

- involve industry and local government (as sub-architects) at an early stage of the business information requirements assessment process.
- attract senior decision - makers from industry and local government to attend workshops at a quality venue remote from the central business district (supported by a professional and enthusiastic presentation of government commitment to develop partnerships with external stakeholders).
- continue to communicate with stakeholders at frequent intervals; and specifically to re-convene workshop participants to discuss the outcome of each product specification.
- develop policy and standards to maximise the effectiveness of the product or service. (ie. having identified what is required, how is it best implemented?).
- consider planning as an integral part of the product life cycle. Rapid advances in technology and changing focus of government and industry suggest that spatial information planning should be repeated with stakeholder involvement every three years.

The recommended methodology for future spatial information planning is shown in Appendix Table C1.1.

• Table C1.1 Recommended Standard Spatial Information Planning Methodology for QSIS

Task	Activity	Parameters
Task 1 -	Business Information Requirements Workshops	<ol style="list-style-type: none"> 1 Logical themes 2 Approximately 3 - 4 hours 3 Approximately 8 - 10 people 4 Prepare report within 2 days 5 Total allocated time - 2 days per workshop
Task 2	Develop Product Specification	<ol style="list-style-type: none"> 1 Gather info on existing systems / data 2 Review requirements - identify decisions / processes 3 Develop output maps / lists 4 Investigate data / required functionality 5 Examine costs / benefits 6 Confirm benefits with senior managers 7 Assess impact of error 8 Assess data linkages 9 Write product specification
Task 3	Assess Data Availability	<ol style="list-style-type: none"> 1 Compile List of Data Required 2 Assess status of the data 3 Develop data strategy
Task 4	Develop Cost Model	<ol style="list-style-type: none"> 1 List costs and benefits over a 6 year period 2 Carry out NPV analysis 3 Assess and describe intangible benefits
Task 6	Develop Data Dictionary	<ol style="list-style-type: none"> 1 Prepare definitions for output list attributes 2 Validate definitions against available standards (SDTS etc)
Task 7	Carry out Market Survey	<ol style="list-style-type: none"> 1 Analyse market segments 2 Obtain data for top 5 segments 3 Analyse trends / projections
Task 8	Develop Business Case	<ol style="list-style-type: none"> 1 Develop succinct summary of business potential 2 Develop performance indicators 3 Develop Treasury project evaluation submission
Task 9	Develop Final Report	<ol style="list-style-type: none"> 1 Tie together Tasks 1 - 8 to facilitate review in 2 years
Task 10	Undertake Product Promotional Program	<ol style="list-style-type: none"> 1 Develop communications package to sell the benefits of the product
Task 11	Load Applications and Data to Web Server.	<ol style="list-style-type: none"> 1 Develop applications software 2 Integrate with Property Interests (core) Product

Appendix 4

D2 Roles and Responsibilities of Property Interests Product Stakeholders

Key stakeholders in the development and implementation of the Property Interests product are:

- Consortium responsible for Project development and Implementation
- State Government Agencies
- Local Government (126 agencies)
- Data Brokers / Value-adding agents
- Customers for the product (industry / business, governments, utilities, the community)

A short list of their roles and responsibilities is included in Table D1.1.

Table D1.1 Roles and Responsibilities of Stakeholders

Stakeholder	Roles	Responsibilities
Infrastructure Service Provider	<ul style="list-style-type: none"> • Project managers, developers and implementers • Major funding partner 	<ul style="list-style-type: none"> • Project Management • Project Planning • Infrastructure development • Service Delivery • Quality Control • Performance Monitoring • Administration & Reporting
State Government	<ul style="list-style-type: none"> • Co - project managers • Major funding partner 	<ul style="list-style-type: none"> • Contract Manager • Infrastructure planning • State Govt. content definition • Regulation and Policy • Data Upgrading and Transfer • Performance Monitoring & QA. • Administration & Reporting
Local Government	<ul style="list-style-type: none"> • Co - project managers 	<ul style="list-style-type: none"> • Infrastructure planning • LG content definition • Regulation and Policy • Data Upgrading and Transfer • Performance Monitoring & QA.
Data Brokers / Value-adding agents / GIS Vendors	<ul style="list-style-type: none"> • Product marketing / on - selling • Value adding • Applications development for niche markets • Market Awareness 	<ul style="list-style-type: none"> • Product resale & development • Quality and standards • Consistent / equitable pricing • Marketing
Customers	<ul style="list-style-type: none"> • Product Purchase 	<ul style="list-style-type: none"> • Providing feedback • Demand for new products and services • Price sensitivity / market levels

References

Alexander - Tomlinson, 1997. QLIS Benefit Study - for the Queensland Department of Natural Resources on behalf of the Queensland Land Information Council.

Price Waterhouse, 1995 Australian Land and Geographic Data Infrastructure Benefits Study - for the Australian and New Zealand Land Information Council.

Telecommunications Act, 1997 Inter - Carrier Service Agreements.