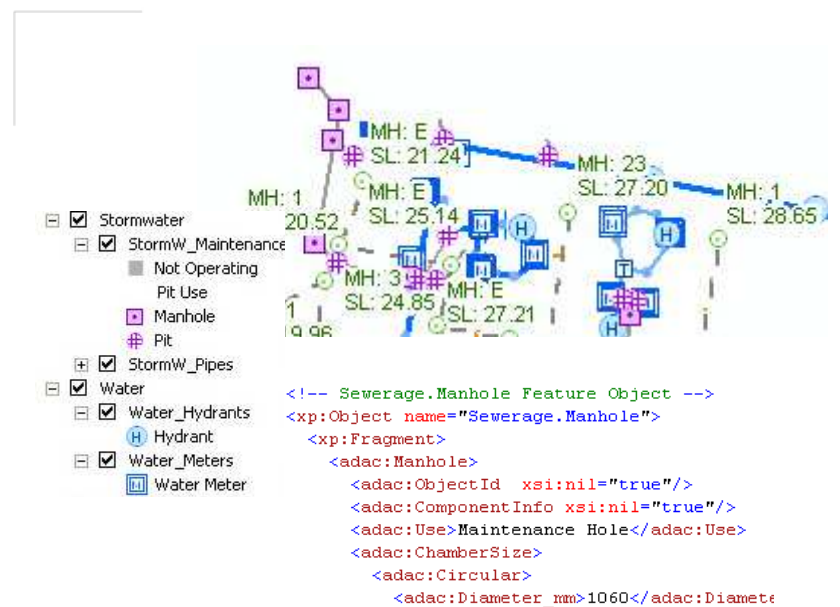


ADAC – Asset Design As Constructed



ADAC SUPPORT GUIDELINES

- Support Guidelines for Open Distribution
- Version 1.1 Open
- 4 February 2010



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Contents

1.	Background	1
1.1.	Overview	1
1.2.	Document Purpose	2
1.3.	Why Digital Lodgement?	3
1.4.	Why ADAC-XML?	3
1.5.	ADAC Schema Development	4
2.	Workflow	5
2.1.	Consultants	Error! Bookmark not defined.
2.2.	Development Assessment	Error! Bookmark not defined.
2.3.	Corporate Systems	Error! Bookmark not defined.
2.4.	Records Management	Error! Bookmark not defined.
3.	Benefits of ADAC	8
3.1.	Benefits from ADAC Design Lodgement	8
3.2.	Benefits from ADAC As-constructed Lodgement	8
4.	Business Case Development	10
4.1.	Introduction	10
4.2.	Business Case Introduction	10
4.2.1.	Purpose	10
4.2.2.	Scope and Boundary	10
4.2.3.	Objective	10
4.2.4.	Sponsor	10
4.2.5.	Background	10
4.2.6.	Project Approach	10
4.3.	Description of Need / Business Requirements	11
4.4.	Considerations	11
4.4.1.	Critical Success Factors	11
4.4.2.	Constraints	11
4.5.	Evaluation of Options	12
4.5.1.	Option Identification	12
4.5.2.	Evaluation	12
4.5.3.	Recommendation	12
4.6.	Funding Strategy	12
4.7.	Approval / Sign-off	12
4.8.	Implementation Plan	12
4.9.	Business Case Agenda	13
5.	Case Study	14

SINCLAIR KNIGHT MERZ

5.1.	Business Case	Error! Bookmark not defined.
5.2.	Policy Framework Changes and Process Re-engineering	Error! Bookmark not defined.
5.3.	System Enhancements	Error! Bookmark not defined.
5.3.1.	Asset Data Loading	Error! Bookmark not defined.
5.3.2.	Asset Data Access	Error! Bookmark not defined.
5.4.	Benefits	Error! Bookmark not defined.
5.5.	“Best Practice”	Error! Bookmark not defined.
6.	Development Roadmap	20
6.1.	Current status	20
6.2.	Future Plans	Error! Bookmark not defined.
6.3.	Development	Error! Bookmark not defined.
7.	ADAC XML Schema	21
7.1.	Data Model	21
7.2.	XML Schema	Error! Bookmark not defined.
7.2.1.	Schema Structure	Error! Bookmark not defined.
7.2.2.	Coordinate Geometries	Error! Bookmark not defined.
7.2.3.	Component Information	Error! Bookmark not defined.
8.	Software Products	28
8.1.	Commercial ADAC Authoring Tools	Error! Bookmark not defined.
8.2.	ADAC AutoCAD Plugin	Error! Bookmark not defined.
8.3.	Data Conversion Tools	Error! Bookmark not defined.
8.4.	Survey Tools	Error! Bookmark not defined.
8.5.	Other Vendors	Error! Bookmark not defined.
9.	Council Tools Catalogue	31
9.1.	Redlands Asset Import Tool	Error! Bookmark not defined.
9.2.	Redlands ADAC Explorer	Error! Bookmark not defined.
9.3.	Sunshine Coast Asset Import Tool	Error! Bookmark not defined.
9.4.	Load ADAC Tool	Error! Bookmark not defined.
9.5.	ADAC-XML Viewer	Error! Bookmark not defined.
9.6.	Moreton Bay Asset Import Tool	Error! Bookmark not defined.
9.7.	BCC ADAC Engineering Validation	Error! Bookmark not defined.
Appendix A	Business Case Presentation Agenda	47

1. Background

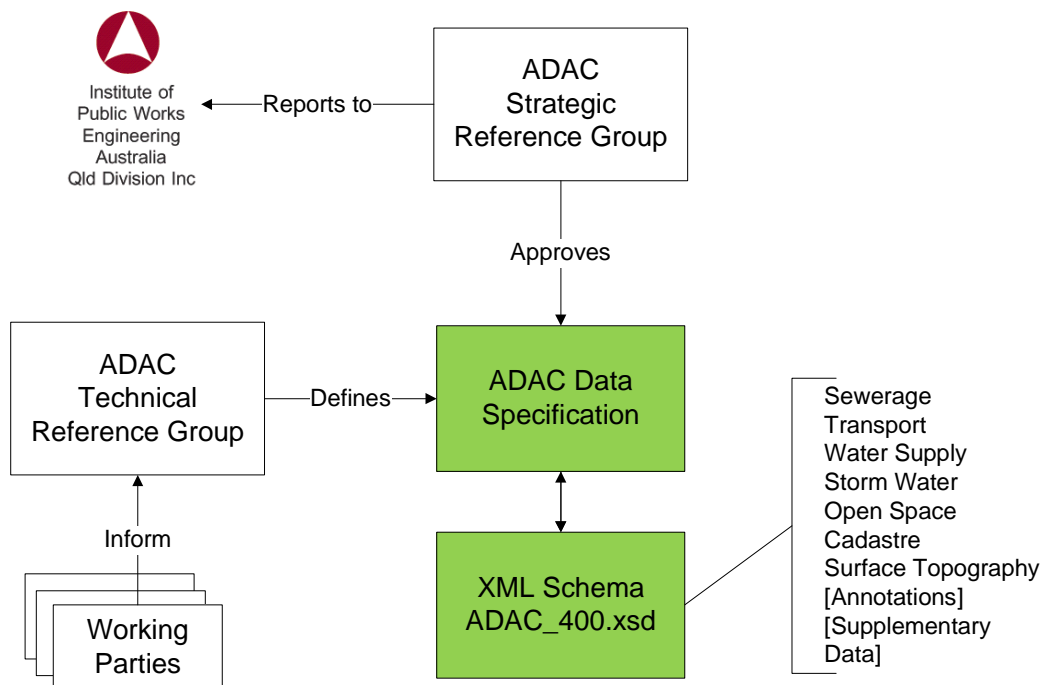
1.1. Overview

Councils in southeast Queensland have long recognised the benefits of developing a regional, common standard for digital lodgement of asset design and as-constructed information. Digital lodgement provides a streamlined process for accepting asset design and as-constructed information into Council asset databases.

A common model also provides savings to the private developer community by removing the need to maintain separate processes, standards and software tools for different Councils.

SEQ Councils have agreed on a common asset data definition called the Asset Design As-Constructed (ADAC) model. An extensible markup language (XML) schema representing the ADAC data model has been developed to provide stakeholders with an open standard for the transmission of design and as-constructed data between Consultants and Councils.

Governance of the ADAC standard is coordinated by the Institute of Public Works Engineers Australia (Qld Division) (IPWEAQ), in conjunction with a Strategic Reference Group (SRG) comprised of member Council representatives.



■ **Figure 1 - ADAC Standard Governance**

1.2. Document Purpose

These Support Guidelines are designed to assist participating Councils in implementing the ADAC Standard.

The document contains the following sections:

Section	Content
Business Guidelines Section	
Background	Overview of ADAC history, governance, rationale and development to date.
Workflow	Description of the generic workflow for: a) receiving existing asset data from Councils; and b) creating and submitting ADAC data to Councils for approval.
Benefits	Overview of broad benefits of ADAC for all parties (from Business Case Resource Pack).
Business Case	Brief guidelines for developing a Business Case for implementation. (This will include an agenda for presenting the Business Case within Council.)
Case Study	A Case Study where a Council has derived benefit from using the ADAC standard.
Development Roadmap	Overview of plans for further developing and expanding the ADAC standard.
Technical Section	
ADAC Data Model	Overview of the ADAC data model – themes and asset types.
ADAC XML	Description of ADAC XML Version 4 schema layout and structure.
Software Products	Brief description of software products currently available for authoring and validating ADAC XML data.
Council Tools catalogue	A comprehensive catalogue of ADAC-related tools used in participating Councils. These will be primarily “backend” tools including scripts, automated engineering checks and any other tools used to facilitate the acceptance of ADAC XML and the ingestion of ADAC data into Council GIS / Asset Management systems.

The inputs of members of the ADAC Strategic Reference Group, other Council participants and Vendors into this document are acknowledged.

1.3. Why Digital Lodgement?

The key business drivers for developing a standard for the digital lodgement of design and as-constructed standard data have been identified as¹:

- Elimination of duplication of effort;
- Improving process efficiency for the entire system from preliminary survey to asset management;
- Improving customer service;
- Improving asset information quality; and
- Managing infrastructure assets better.

The ADAC Standard data model delivers these benefits. The benefits are further amplified by the wide adoption that a common standard can provide.

1.4. Why ADAC-XML?

There is a diversity of software tools used by private consultants, and a variety of corporate GIS and Asset Management systems implemented in Councils. A key success factor for the long term success of a common regional standard is that the standard is accessible for as wide a variety of software products as possible.

When used as a standard, proprietary unpublished digital formats such as AutoCAD DWG tend to force participants into the particular vendor's product and even specific versions of that product. Standard defined in this way become tied to the vendor's future product release plans.

The ADAC-XML standard is defined in eXtensible Markup Language (XML). XML data is self describing, flexible, supported by a growing number of software tools and suitable for long term archiving.

Hence, the ADAC-XML standard describes the *assets* represented in the data transmission, rather than the *presentation* of the assets in a drawing. The standard deliberately does not convey the symbology of assets (e.g. colour, symbol, line thickness, style). It is designed to convey information about assets, not their appearance on a map or drawing.

In fact, many representations can be generated from the XML format, including tabular and graphical formats for specific purposes.

¹ SEQROC Business Case 2002
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The ADAC-XML Standard is published and controlled by the participating Councils through the Strategic and Technical Reference Groups, providing certainty regarding future changes to the standard.

1.5. ADAC Schema Development

Development of the ADAC Standard as a Data Model and AutoCAD drawing file definition commenced in 2001, by the then three Sunshine Coast Councils and Caboolture Shire Council. AutoCAD routines were developed to enable developers to create the compliant drawing file structure.

The ADAC digital asset data standard covers the following classes of contributed engineering assets including:

- Sewerage reticulation;
- Roads;
- Water supply;
- Stormwater drainage; and
- Cadastre.

The ADAC-XML Schema, reflecting the ADAC Version 1.1 Data Model, was first developed in 2006. This was subsequently updated to the currently released ADAC Version 3 Schema in 2008.

The ADAC Version 4.0.0 (4 Sept 2009) Data Model and XML Schema has been released. This version adds the following to the above asset classes:

- Open space (21 classes); and
- Surface Topography (2 classes).

2. Workflow

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PAGE 6

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PAGE 7

3. Benefits of ADAC

The use of the ADAC standard provides a number of significant benefits for Developers and Councils, especially when used for both *design* and *as-constructed* lodgement.

3.1. Benefits from ADAC Design Lodgement

The benefits gained through the widespread adoption of ADAC for as-constructed lodgement are further amplified by the adoption of the standard for submission of design documentation. This is particularly true for Council Development Assessment functions, whose gains from as-constructed lodgement alone are relatively modest.

These benefits include:

- Consistent data exchange format enables integration of existing asset information into the engineering design process;
- Improved existing asset information quality provides greater confidence in data provided by Council;
- Potential for automated engineering checks of design data, benefiting both developers and Council development assessment processes;
- Significant gains in the efficiency of as-constructed assessment by automated comparison with approved ADAC design data; and
- Ability for Councils to easily integrate proposed works into forward asset planning decisions.

3.2. Benefits from ADAC As-constructed Lodgement

The potential benefits to Land Developers in adopting the ADAC standard include:

- Consistent approach to preparing as-constructed information for expanding number of participating Councils;
- Potential for ADAC-XML data to be produced directly from the surveying process;
- Improved quality and timeliness of existing asset data provided by Councils;
- Lower costs if built into business processes;
- Validation of ADAC-XML data prior to lodgement;
- Faster acceptance of as-constructed data; and
- Earlier sealing of plans.

For Survey Consultants, the benefits include:

- Use of field equipment and/or survey software to directly output ADAC-XML;
- Incorporation of ADAC-XML design data to provide attribute information, and to immediately highlight deviations;

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- Recording of survey metadata into each surveyed point; and
- Eliminated need to draft as-constructed data into drawings for submission.

For participating Councils, the key benefit lies in the quality, accuracy and timeliness of asset data. These are achieved through:

- Improved quality and accuracy of asset data provided to Council;
- Ability to apply rule-based engineering and other quality checks to ensure conformance of as-constructed data with engineering criteria and rules, and check completeness of networks;
- Automated loading of asset data into GIS and asset management systems, eliminating key-in errors, and freeing resources for other tasks;
- Improved corporate governance through more robust asset registration and valuation processes;
- Greater accuracy of financial records;
- Faster turnaround of approval decisions;
- Greater consistency between Councils, enabling greater sharing of asset information and tools;
- Improved network modelling of water, wastewater and stormwater assets; and
- Use of a common standard and tools for registration of internal works.

All groups in Councils, including Development Assessment, Asset Management and Spatial Information services benefit to varying degrees from the adoption of the standard.

These benefits combine to improve the asset creation process for the community as a whole. Cost savings for the development industry and Councils will result in lower infrastructure costs and improved housing affordability.

To fully achieve these benefits, Councils will require tools for viewing, interrogating, validating and converting ADAC data into their respective asset and GIS databases.

The availability of software tools for authoring ADAC-XML is a critical requirement for achieving the full benefits for the industry and for Council internal works.

4. Business Case Development

4.1. Introduction

This section outlines the considerations to be given in developing a business case for the adoption of the ADAC standard in a typical Council.

The section is structured around a typical business case document structure, although Council organisations may have their own business case templates.

4.2. Business Case Introduction

4.2.1. Purpose

The purpose of the business case will include gaining senior management endorsement of an ADAC implementation strategy, to source funding, resources and a commitment to the change management required for successful implementation.

4.2.2. Scope and Boundary

Define the intended scope for the ADAC implementation. Considerations are:

- Is the implementation for internal works, or donated assets, or both?
- Are all asset types covered?
- Will there be parallel drawing/paper lodgement, or fully electronic lodgement?
- Will the implementation include provision of existing data to consultants via ADAC-XML?

4.2.3. Objective

Identify the project objective.

4.2.4. Sponsor

Identify the project sponsor.

4.2.5. Background

The background of ADAC is described in Section 1 of this document. Further information can be found in the ADAC Business Case Resource Pack (September 2009) available from IPWEAQ and the ADAC website (www.adac.com.au).

4.2.6. Project Approach

4.3. Description of Need / Business Requirements

Description of the current situation and the need for change. Considerations here may include:

- Data quality issues;
- Process inefficiency and excessive turnaround times for as-constructed approvals and loading data into corporate systems;
- Integration with existing systems; and
- Information support for Priority Infrastructure Plans (PIP).

4.4. Considerations

4.4.1. Critical Success Factors

What are the critical success factors for the ADAC implementation project? What will success look like? For example:

- Approval of X% of as-constructed lodgements within X days;
- As-constructed data available in GIS / Asset Management System within X days of lodgement / approval;
- Proportion / value of developments lodged electronically in ADAC-XML format;
- Data quality measures; and
- Customer satisfaction.

4.4.2. Constraints

What constraints will impact on the project? For example:

- Budget allocations and timing;
- Time constraints;
- Legislative and/or policy restrictions (e.g. how do record retention policies impact on the project);
- Barriers to adoption; and
- Dependencies.

4.5. Evaluation of Options

4.5.1. Option Identification

It is recommended to include two options, plus a “do nothing” option. For each option include:

- 1) Description of the option;
- 2) Benefits (refer to Section 3, and ADAC Business Case Resource Pack);
- 3) Costs;
- 4) Issues;
- 5) Risks; and
- 6) Resource Requirements.

4.5.2. Evaluation

Provide “like-for-like” evaluation of the selected options (may be in tabular form).

4.5.3. Recommendation

Which option is preferred and why?

Include risk of option – more detail if required, including risk management / mitigation techniques / strategies etc.

4.6. Funding Strategy

How will the implementation project be funded and by which Section(s). There may be a need to allocate the benefits across different areas (Development Assessment, GIS, and Asset Management) in order to justify a formula for shared funding.

4.7. Approval / Sign-off

4.8. Implementation Plan

The following to be addressed in the ADAC Implementation Plan:

- Project Governance may include:
 - Establish steering committee with representation from all stakeholder sections, and at a high enough level with authority to direct resources and make decisions

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- Coordination with other change projects
 - Risk management may include:
 - Establish the Context
 - Identify the Risks
 - Analyse the Risks
 - Evaluate the Risks
 - Select Treatment Options
 - Change Management may include:
 - Depending on the scope of the project, changes will impact a wide variety of stakeholders including external parties
 - For example, how will the Development Assessment approvals function be performed? Will as-constructed data be viewed online or printed for approval? How will the approval workflow be integrated?
 - Training requirements
 - Statutory and/or policy changes
 - Transition arrangements
 - Stakeholder Communications and Engagement
 - Identification and involvement of stakeholders in the implementation process
 - High-level schedule
 - Deliverables.
-

4.9. Business Case Agenda

An agenda template for presenting a Business Case is shown at Appendix A.

5. Case Study

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6. Development Roadmap

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7. ADAC XML Schema

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8. Software Products

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9. Council Tools Catalogue

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Appendix A Business Case Presentation Agenda