Asset Design As Constructed (ADAC) Implementation at Bundaberg Regional Council

June 2015
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Today’s presentation

- As Con Issues within BRC
- What is ADAC?
- Why is ADAC the solution?
- CQ Working Group
- Bundaberg Implementation Process
- Future Directions
As Con Issues within BRC

• **Limited faith** in data provided to Assets Department
• Construction validation – **lack of internal quality control**
• **No comparison** between contractor As Con submission conditions and our internal work flows.
As Con Issues within BRC

The Internal Paper Trail – As Constructed Policies

For Construction Plans issued – Construction begins

Changes required during construction – Design Change Request signed by project RPEQ

Upon completion, Asset Checklist and marked up paper plans submitted to Assets via email
As Con Issues within BRC

Preconstruction Flood Extent Map
As Con Issues within BRC

Preconstruction vs Design Solution
As Con Issues within BRC

Post construction – What was received
As Con Issues within BRC

Preconstruction vs Postconstruction
As Con Issues within BRC

How can experiences like this be avoided (or limited)?

- Communication
- Culture Change
- **Structured As Constructed Process - ADAC**
What Is ADAC?

- Vendor independent **XML format** for as constructed data
- Now controlled by IPWEA
- Designed for specific **3D data sets**
- **Survey accurate** as built data
- **Single point of truth**
- Beginning to be implemented by some Qld Councils and Water authorities
- IPWEA is pushing ADAC nationally
What is ADAC?

Why was ADAC developed?

- Designs / as cons created in **multiple formats**
- **Difficult to exchange data** between systems or organisations
- Not all data captured
- Data collected in **different formats**
- Spatial data & asset component data are **not consistent**
What Is ADAC?

What is an XML?

- Extensible Markup Language (XML)
- A markup language that defines a set of rules that is both human-readable and machine-readable.
- Defined in the XML 1.0 Specification produced by the World Wide Web Consortium (W3C)
- All gratis open standards.
- ADAC XML is an XML the follows the ‘business rules’ set out by the ADAC XSD
What Is ADAC?

“Human”
readable
XML
What Is ADAC?

What is an XSD?

- XML Schema Definition
- Specifies how to formally describe an XML document.
- Used to compare and validate the data inside an XML file.
- ADAC XSD reflects the ‘business rules’ required for an XML to comply with ADAC standards.
- XSDs can contain nested XSDs

ADAC file tree

Waste Collection Point
Asset Design and As Constructed
Version: 4.1.0
Schema Help File

Abstract:
This schema provides for the description of objects representing as constructed public works. The schema is maintained and approved by the ADAC Strategic Reference Group, under the governance of IPWEAQ. The ADAC Version 4.1.0 Schema constrains all data within an ADAC Version 4.1.0 XML instance document. Release: 4 Jan 2013. Prepared by Ian Read, Redland City Council on behalf of IPWEAQ. Supersedes the 5 Aug 2012 release by the inclusion of edit feedback from ADAC Member organisations.
Why is ADAC the solution?

- **Catalyst** for our new as-constructed internal and external submission requirements.
- As-constructed survey of all capital works projects is required thus ensuring all data entered into the ADAC process is **survey accurate**.
- BRC Assets Dept would have worked off marked-up paper plans, now **heading towards machine automation**.
- Part of the **Digital Mobile Strategy** adopted by BRC
Why is ADAC the solution?

The organisation accepting the as-constructed information can customise the schema (to a point) to suit their:

- data requirements;
- technological capabilities
Why is ADAC the solution?

- Transitioning as-constructed data from survey to GIS databases can be performed by existing BRC design software.
- No upgrade or software purchase was required.
Why is ADAC the solution?

The ADAC process is being adopted throughout Australia, and more importantly in central Queensland, giving the process credibility. The schema is also under the auspice of the IPWEA, ensuring the consistency of the process.
Central Queensland ADAC Working Group

COLLABORATION

OUR CITY SPIRIT
BBQ/Table/Seat/WasteCollectionPoint/BicycleFitting/Fixture/BarrierPoint/Shelter/Artwork/Tree/Sign

Asset Capture: Simple point feature representing the centre of an asset. Please refer to the blue dots in the example shown below in figure 1.

Spatial Relationship: Must be within the Parent Open Space Area feature.
### Central Queensland ADAC Working Group

#### WasteCollectionPoint

<table>
<thead>
<tr>
<th>Element Name</th>
<th>ADAC Mandatory (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Y</td>
</tr>
<tr>
<td>Material</td>
<td>Y</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>N</td>
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How do we implement ADAC?

- Ensure the data being captured = what Assets required.
- BRC develop processes using existing software to create valid ADAC XMLs
Bundaberg Implementation Process

How do we get external agencies to **embrace** the process?

- BRC could offer the tools we used to create XML files and **training** to external agencies.

- Note: All external agencies in the Bundaberg region currently use the same design and survey software as BRC

- BRC had to prove that the process could be **integrated into existing workflows**. Groups having to provide ADAC data will be reluctant to do so if it **involves extra work for no extra “fee”**
Bundaberg Implementation Process

- ADAC is tied into the BRC Planning Scheme
- XML file is required as part of as-constructed plans for developments as specified in the development approval.
Internally
All as-constructed data for capital works projects is entered:
- Electronically, via survey pickup
- Manually, via the project designer during review
Future Directions

- BRC expects external agencies to be able to submit as-constructed XML files through a web portal located on the BRC website.
- The portal would verify and validate the XML by comparing it to relevant standards (QUDM, Austroads, WSAA etc) as well as the ADAC schema.
Thank You

The ADAC implementation process (and this presentation) would have been nearly impossible without these organisations: