



Specialization
Building Architecture

Value Added Services
Authorized Developer
Authorized Training Center



Shane O'Rorke

— Presenter - IPWC 2024



Tuesday April 30
2.30pm Eureka Room 2



GIS Data: The More You Have, the More You Can Communicate

This session will look into the integration challenges of as-constructed data for new assets and the management of design projects. It will also explore council-led initiatives like Aspec and ADAC to standardise asset information and technology advancements that enhance community engagement with asset proposals.

GIS Data: The More you Have, the More You Can Communicate

ABOUT



Shane O'Rourke

2003–Today

Technical Services Manager
Civil Survey Solutions

1997–2004

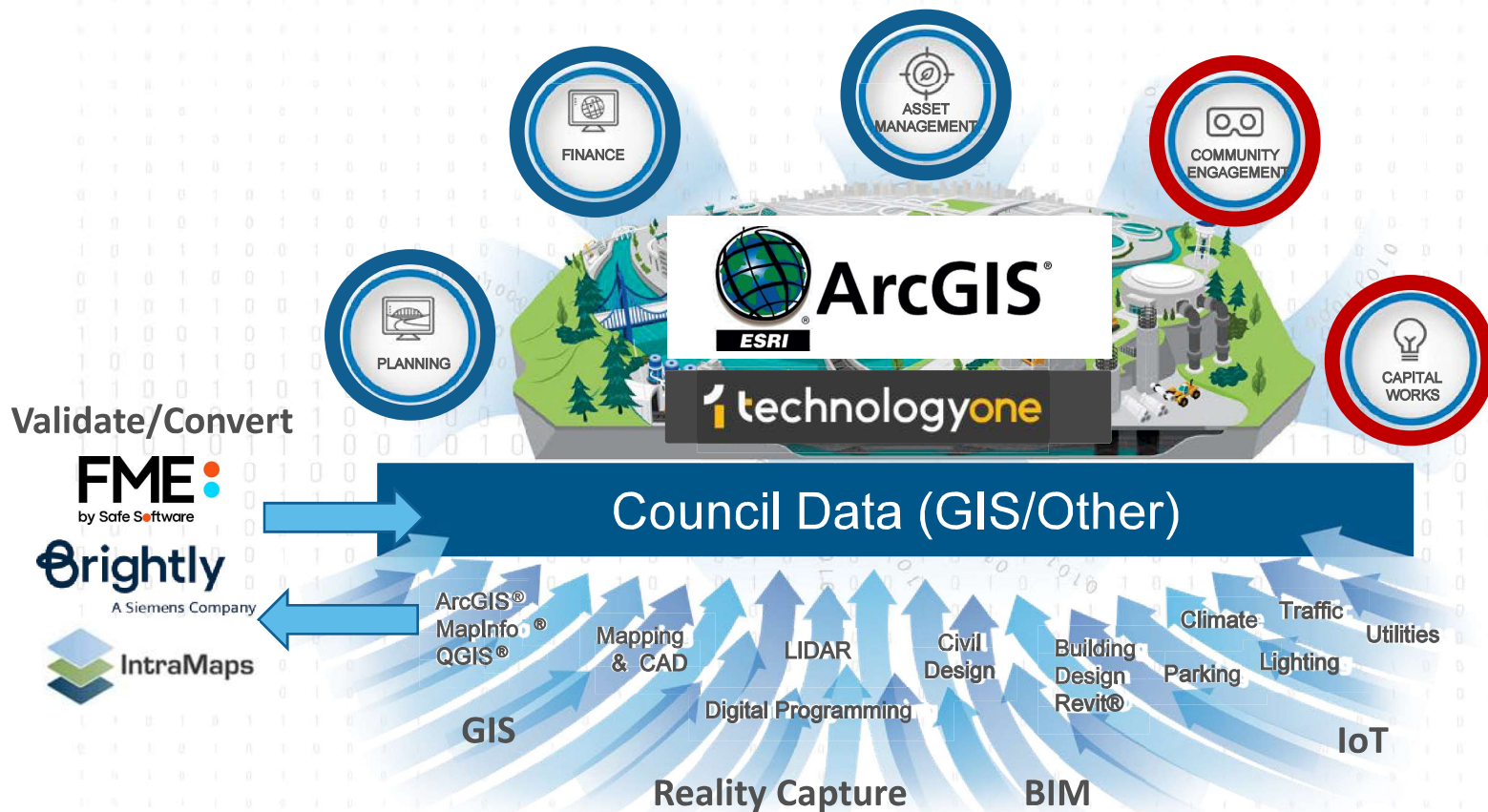
Senior Roads Engineer
Manningham City Council

Civil Survey

Solutions

 **AUTODESK**
Gold Partner

 Proudly Presented by IPWEA
IPWC 24
International Public
Works Conference
Melbourne | 30 April - 3 May



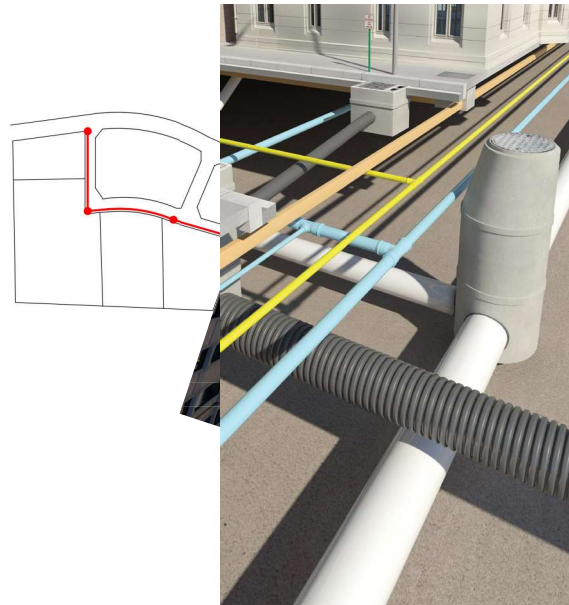
GIS—Adding Value to Your Data



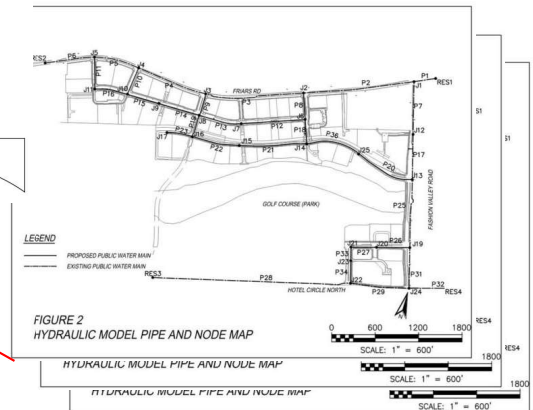
- General location
- Length of pipe
- Number of pits
- Pipe diameter
- Pit type and size
- Manhole cover
- Build date
- Connecting pies
- Inspection date
- Avoiding services
- Pipe materials
- Soil type
- Inspection frequency



- General \$ Cost
- Detailed \$ maintain
- \$ replace and replace
- Budget and rates



3D pipes and nodes. Service Lines and lines



- Plan location known
- Import for redesign/addition
- Obtain 3D elevations
- Avoid clashes
- Visualise for community engagement



The Current Way of Working



Put Data at the Centre

- ✓ **Deliver through your data**
 - Better Planning / Decision Making
 - Streamlining Design
 - Reducing build costs
 - Optimising operations and maintenance
- ✓ **Build Standards for Data Capture**
 - Work out what you need
 - Create a framework for contributors
 - External Designers
 - Internal Design Teams
- ✓ **Encourage and Enforce Standards**
 - Break down the silos between departments
 - Provide access (limited) to extract and contribute to GIS data
 - **Ensure two-way benefits**
 - Leverage GIS to kickstart design**
 - Include GIS data with as-constructed submissions**
 - Budget for As-Constructed data
- ✓ **Improve community access and engagement**



Integrating with External Designers

- **External Designers include**
 - Subdivision developers
 - Consultancies delivering council projects
- **As-Constructed Standards for receiving data – off the shelf**
 - Need to include all stakeholders and recommended to leverage assistance from supplier
 - A-SPEC: GIS (.shp) format catering for multiple industries
 - Adopted across Victoria, New South Wales and Western Australia
 - Administered by GISSA
 - ADAC: XML format catering for multiple industries
 - Adopted across Queensland and New South Wales
 - Open format provided through IPWEA
- **Council developed Standards**
 - Varied in the deliverables and data required
 - Many accept dxf, dwg or GIS (Esri .shp or Mapinfo mid/mif)





About A-SPEC



A-SPEC

- Managed by GISSA, vendor independent information management consultants
- A series of common specifications for supply of As-Constructed data in a digital format
- Standardises information management for Asset Managers and Owners

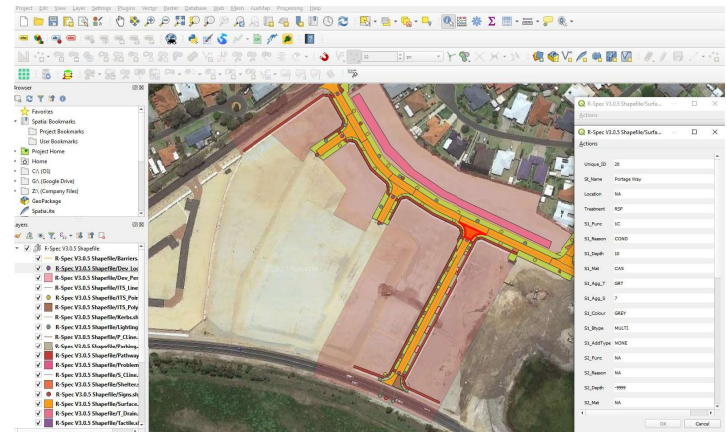
A-SPEC data formats includes ESRI .shp & MapInfo

A-Spec key focus

- Receive consistent information about Council's Assets
- Mitigate risks of data loss
- Provide an audit trail for handover
- Enhance Stakeholder experience for all asset contributors

More information:

<https://www.a-specstandards.com.au/>



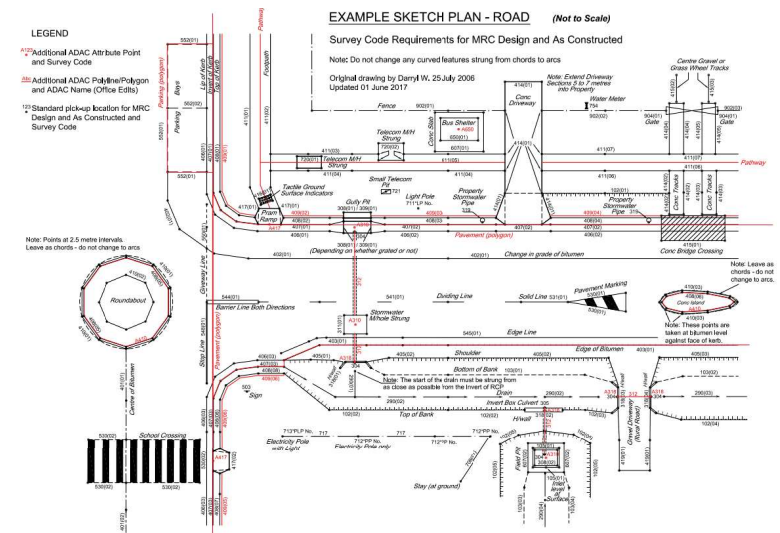
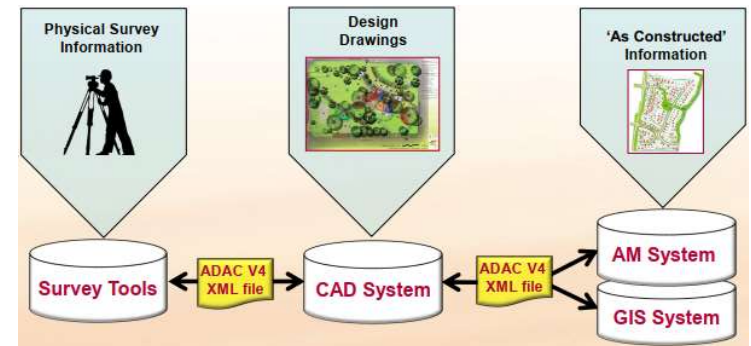
Civil Survey

Solutions



About ADAC

- **ADAC**
 - A set of tools that help you create & share high quality asset design & as constructed information
 - Delivers a Data Specification for: Roads/Drainage/Open Space/ Water/ Wastewater/ Cadastre
 - Provides a robust governance process for managing the quality, direction and extension of ADAC
- **ADAC uses an open standards format (ACAD XML) to support data transfer**
- **ADAC is updated via consultation with Consortium members**
 - >21 members and growing
- **Problems ADAC looks to address**
 - Inability to re-use design data or as con data
 - Rework because of incomplete/inconsistent asset data
 - Need to create designs/as cons in multiple formats
- **Supports improved asset management for Councils and Utilities**
- **More information:**
<https://www.ipwea-qnt.com/products-resources/adac>



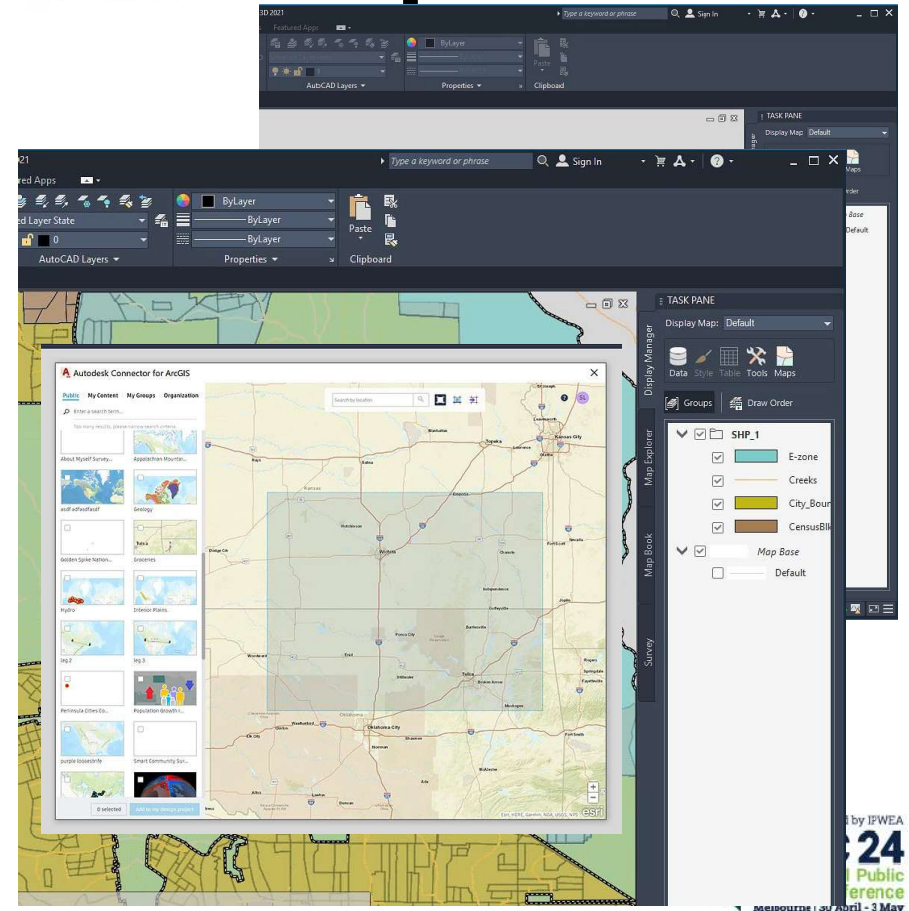
Civil Survey

Solutions



AutoCAD Map 3D

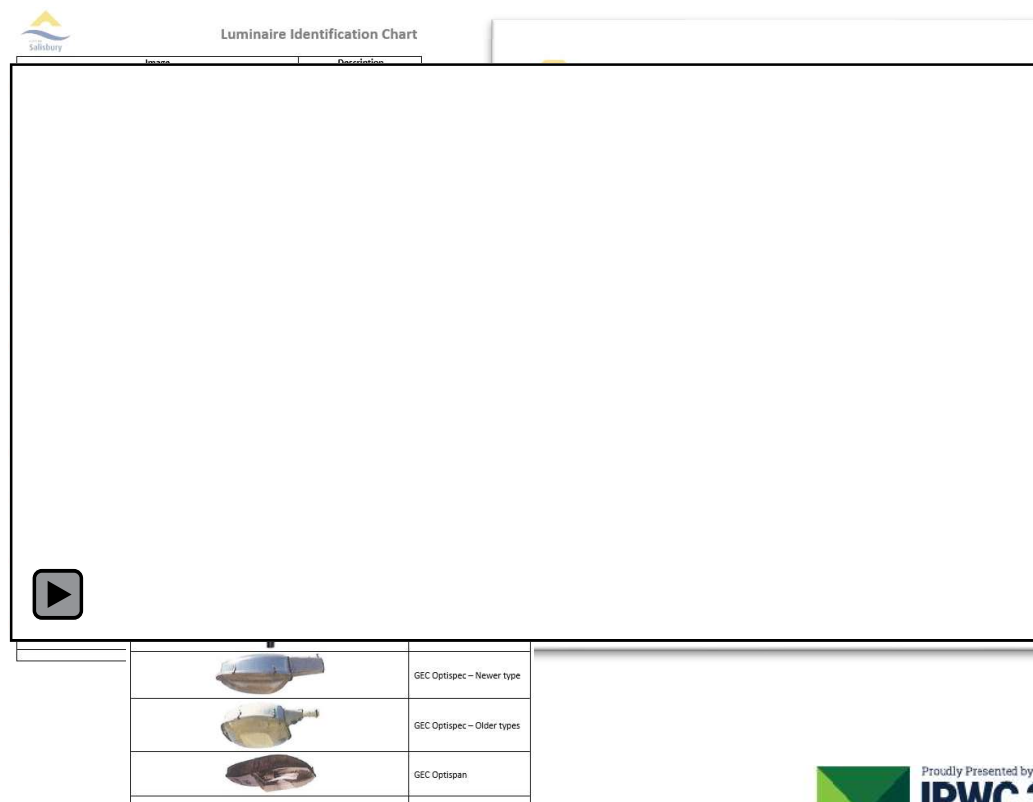
- **Manage Coordinate Systems**
 - Transform between coordinate systems
 - Support for MGA 2020
- **Link with GIS Data**
 - Import and export GIS files of various formats
 - Use Feature Data Object (FDO) Technology
 - Dynamically link with GIS data formats including ArcGIS, MySQL and more
 - Theme data using attribute information directly in CAD
 - Analyse data including buffers, overlay and spatial queries
- **Submit design data to GIS directly or via file**
- **Correct Drafting Errors**
- **Connect to ArcGIS**
 - Open the ArcGIS viewer and share data





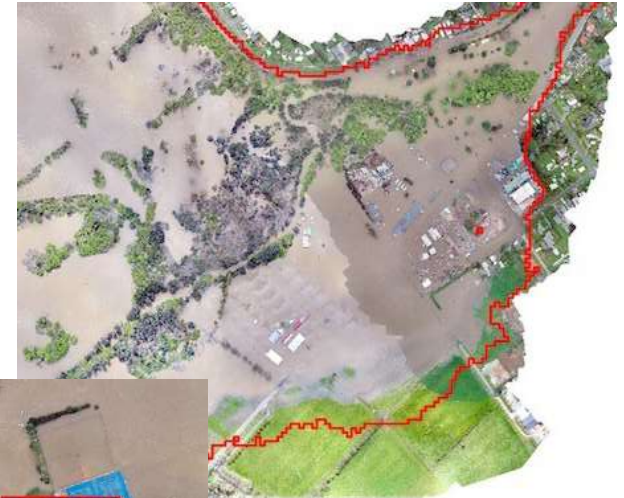
City of Salisbury – Lighting Audit

- **The Goal – Full lighting Audit (2016)**
 - Assess lighting requirements across LGA
 - Initiate an LED upgrade
 - Spearheaded by Michael Pavlovich, Energy and Lighting Specialist at City of Salisbury
- **The Process**
 - Two contractors picked up every light within the LGA.
 - Built standard specification – light type, outreach, rotation
 - Coupled GIS data (.shp) with lighting software (AGi32) to build models
- **Outcomes**
 - ✓ **Base line levels of light and compliance across entire LGA is now known**
 - ✓ **Modelled three LED lighting options**
 - ✓ **Optimised lighting based on particular infrastructure mix**



SES Tasmania Flood Modelling

- **Government Initiative**
 - Tasmanian Flood Mapping project
 - Support effective emergency response
- **Project**
 - Built an effective Digital Twin to model flood events and feedback to SES
 - Delivered using **Autodesk Infoworks ICM**
 - Model built around GIS data
 - Strategic Modelling environment established in first year
- **Outcomes**
 - ✓ Record flooding occurred in 2022
 - ✓ SES were able to forecast flooding and product impact maps to prioritise emergency response
 - ✓ Plan to continue rapid development of their flood prediction and analysis capabilities through automation of Weather Bureau forecast data

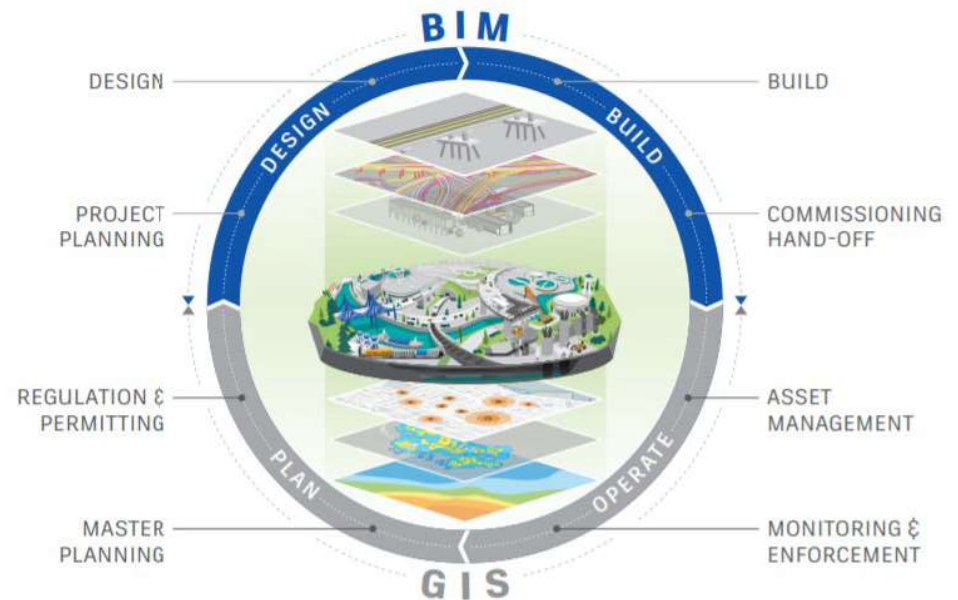


Civil Survey

Solutions

Design with Data Management in Mind

- ✓ **GIS Helps Designers Make Better Choices**
 - Visualise in context with existing infrastructure
 - Build thematic maps for analysis
 - Understand the impacts
- ✓ **GIS Improves Community Engagement**
 - Readily create design solutions the community can understand
 - Online and accessible
- ✓ **Use What's Available**
 - Build access between GIS and Design
 - Both internal design teams and external



Thank You



sproutt

