



Effectively managing local government infrastructure assets using national specifications

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AUS-SPEC Manager



Presentation Outline

- Overview of technical specifications
- Asset management and specifications
- Case studies
- Benefits of using the specification system



National State of Assets Report– Key findings



Roads

Poor condition:
\$17.8bn
Poor function:
\$16.0bn
Poor capacity:
\$14.3bn



Bridges

Poor condition:
\$1.6bn
Poor function:
\$1.8bn
Poor capacity:
\$1.9bn



Buildings &
Facilities

Poor condition:
\$9.2bn
Poor function:
\$8.5bn
Poor capacity:
\$9.6bn



Parks &
Recreation

Poor condition:
\$1.3bn
Poor function:
\$1.1bn
Poor capacity:
\$1.4bn



Stormwater

Poor condition:
\$5.3bn
Poor function:
\$11bn
Poor capacity:
\$12.1bn



Water &
Wastewater

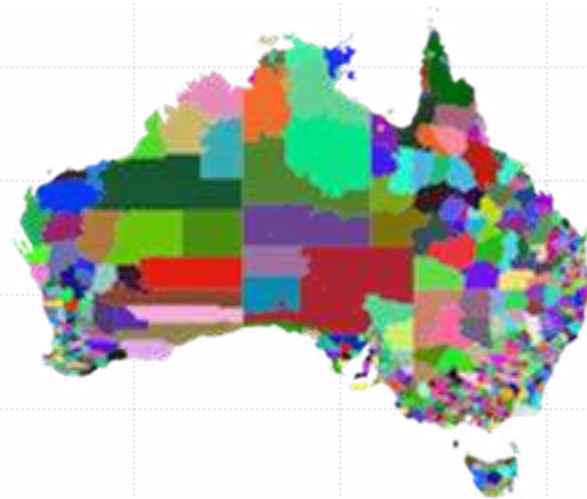
Poor condition:
\$15.5bn
Poor function:
\$7.8bn
Poor capacity:
\$8.3bn

Condition - Quality
Function - Fit for purpose
Capacity - Utilisation

Source: ALGA, 2021 National State of the Assets Report

Overview

- **NATSPEC** is a not-for-profit organisation, owned by government and industry, whose objective is to improve the construction and productivity of built environment through leadership of information.
- **AUS-SPEC** is for the life cycle management of assets



Asset life cycle - Stages involved in the management of an asset (ISO 55000)

Asset management and specifications

Asset management plan: The documented information that specifies the activities, resources and timescales required for an individual asset or a grouping of assets to achieve the organization's objectives. (ISO 55000)

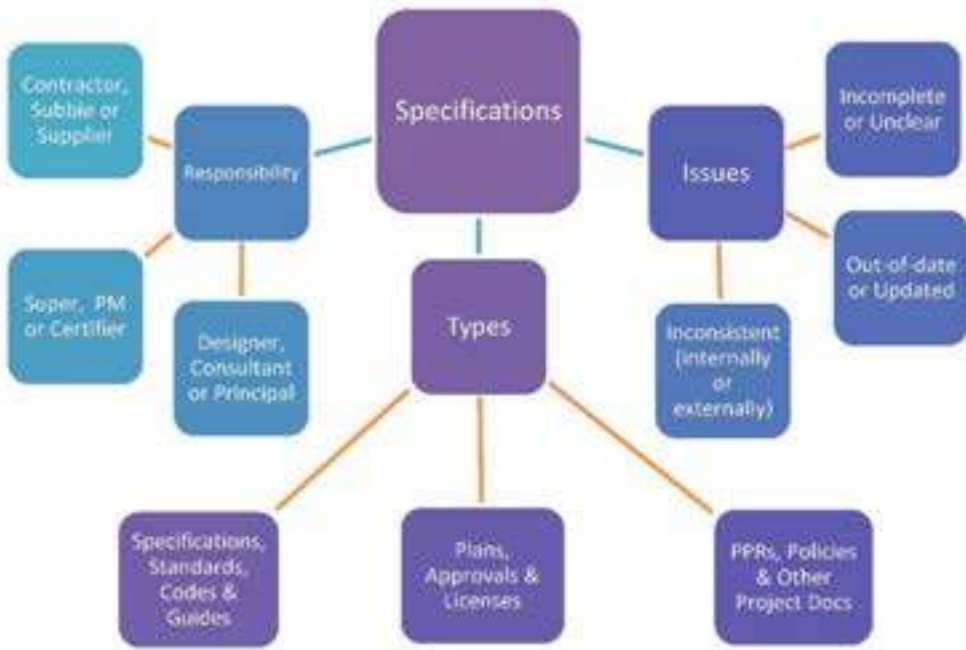
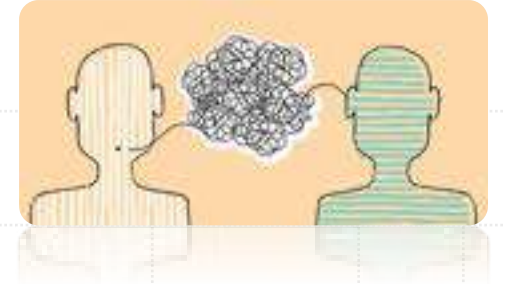
Information on asset management:

- Condition monitoring
- Risk management
- Quality management
- Environmental management
- Dependability (availability, reliability and maintainability)
- Sustainable development
- Inspection
- Facilities management
- Commissioning process
- Energy management

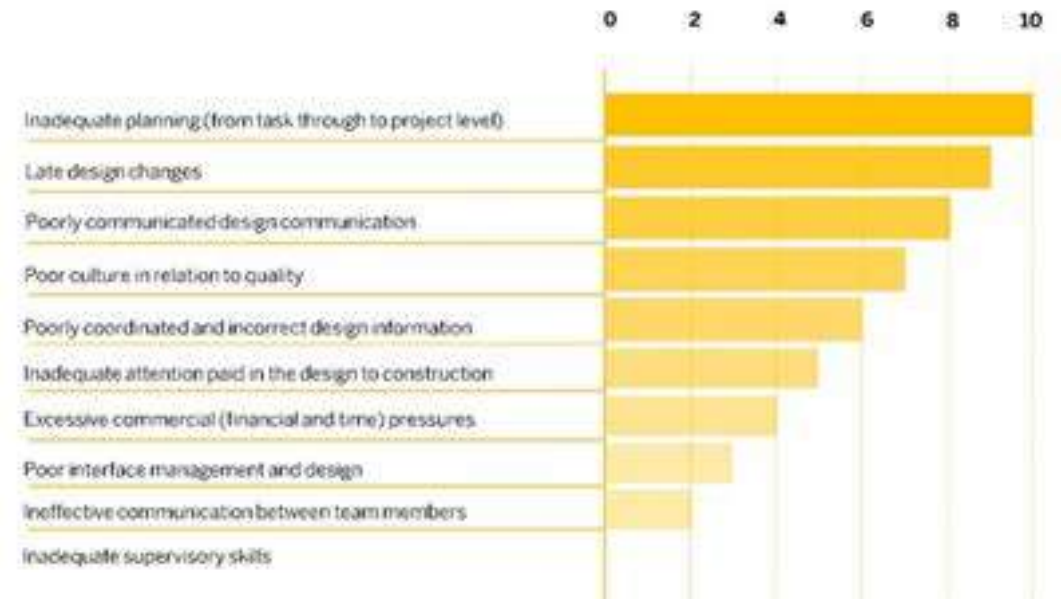


Why do we need specifications?

- **Specifications** are written descriptions of materials and construction processes for quality of works, performance, properties and installation required
- **Specifiers** must have the ability to make informed decisions and be able to **communicate** those decisions **effectively** and **efficiently**



Root Causes of Rework (by ranking)



Resources and industry collaborations

- Australian standards and legislative requirements
- **Additional sources**
- **Australian flexible Pavement Association (AfPA)**
- Australian Road Research Board (ARRB)
- Australian Rural Road Group (ARRG)
- **Australian Society of Concrete Pavements (ASCP)**
- Australasian Society for Trenchless Technology (ASTT)
- **Austrroads**
- **AustStab**
- Civil Contractors Federation (CCF)
- Cement Concrete & Aggregates Australia (CCAA)
- International Erosion Control Association (IECA)
- **Infrastructure Sustainability Council (ISC)**
- Plastic Industry Pipe Association (PIPA)
- **State Road Authorities**
- **Streets Opening Coordination Council (SOCC)**
- Water Services Association of Australia (WSAA)



IPWEA Resources

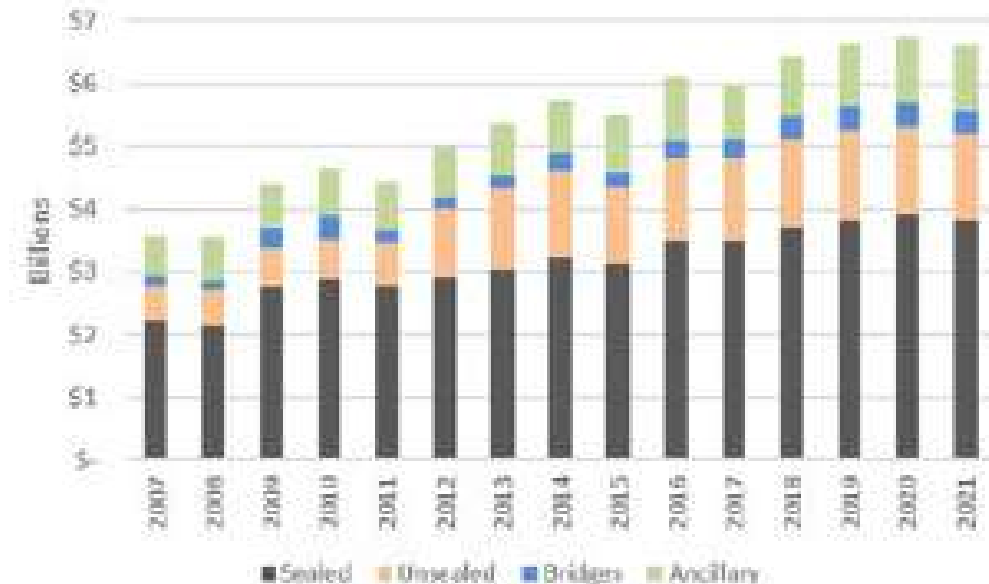
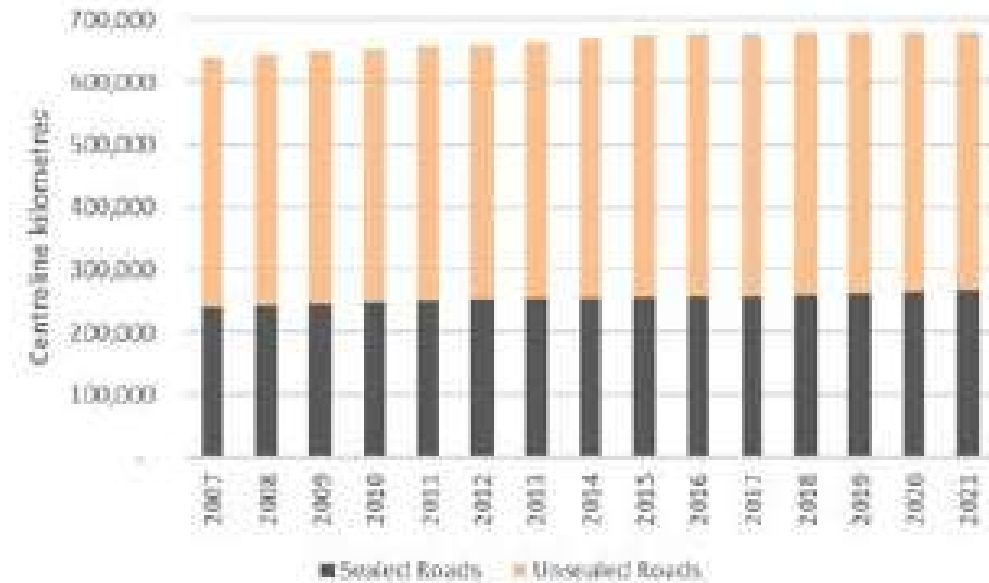
Institute of Public Works Engineering Australasia (IPWEA)

- NAMS+
- IPWEA State Divisions
- IPWEA Roads and Transport Directorate
- IPWEA Water Directorates (NSW and Qld)



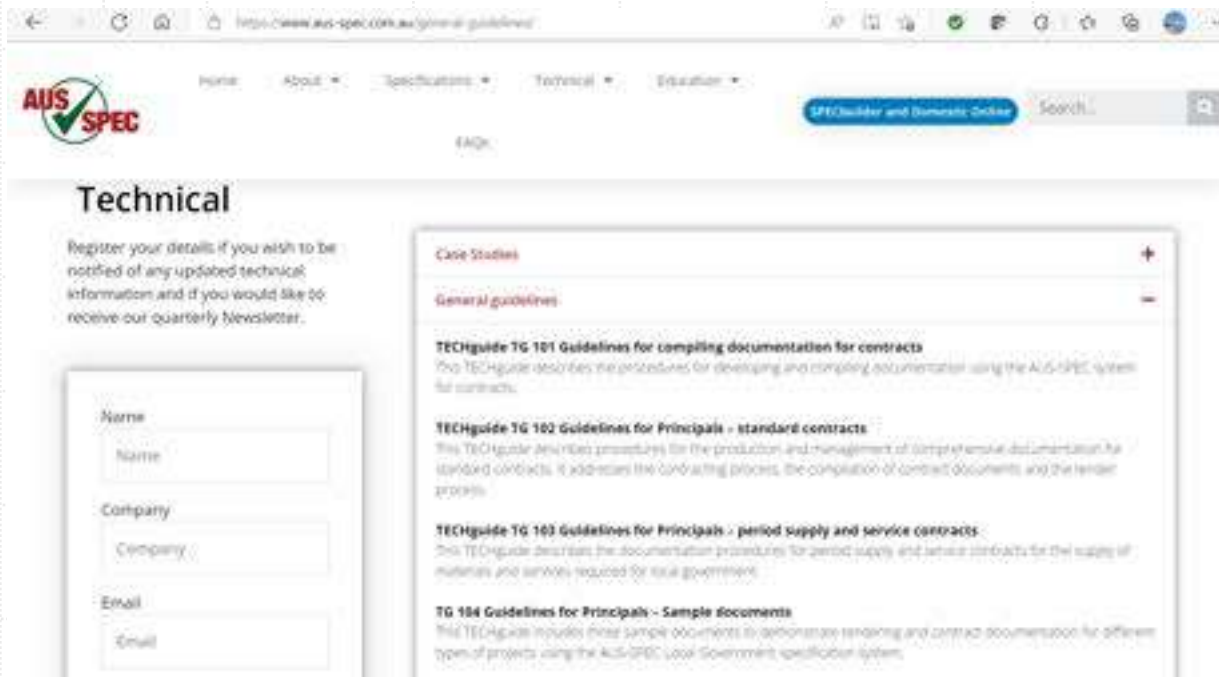
Local road length and expenditure

- 678,000 km, 39% are sealed and 61% are unsealed road
- Overall, growing at 0.4% per year (annual average)
- Sealed roads, growing at 0.8%
- Unsealed roads, growing at 0.2%
- Overall, spending 5.0% more per year (annual average, historic dollar values)
- We're spending more on sealed roads than any other road asset
- Unsealed road expenditure is increasing twice the rate of that spent on sealed roads



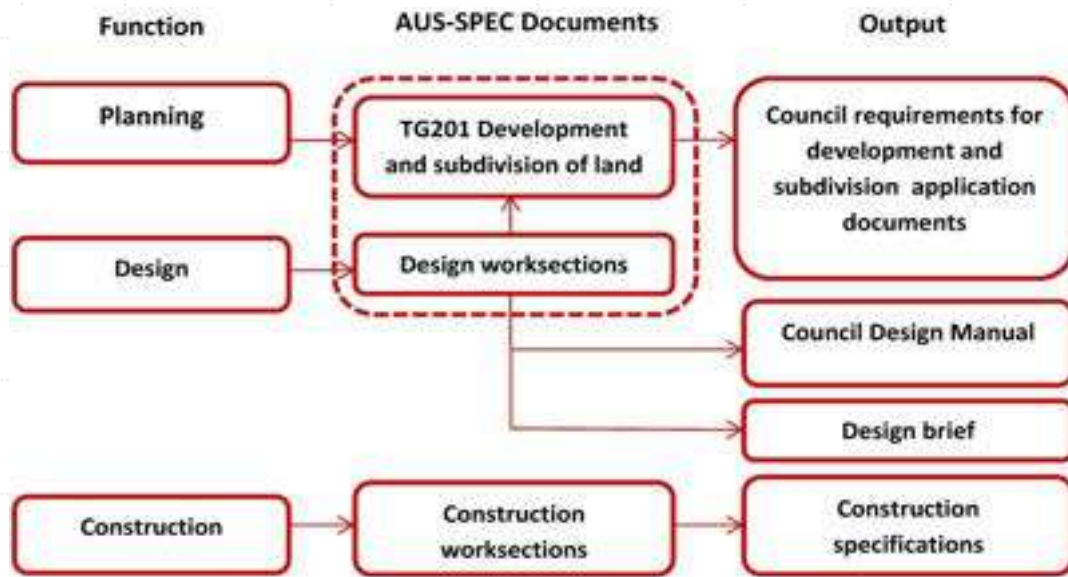
AUS-SPEC TECHguides

- TECHguides provide roadmaps and examples of compiling the documentations required for local government projects. They include information on contracts, technical specifications and tender submission requirements. All TECHguides and TECHnotes are available at: www.aus-spec.com.au/technical-resources.



- Planning framework
- Application process
- Application requirements
- Engineering requirements
- Completion

Asset planning and design



This Handbook is not meant to:

- Be applied to works being delivered by public authorities (such as Council or utilities), as the processes to be followed in those cases are covered by different legislation such as [Part 5 of the Environmental Planning & Assessment Act \(EP&A Act\)](#). That is unless the public authority needs a DA to perform the work, in which case this Handbook is to be applied in the same way as for private developments.
- Explain the technical requirements for specific types of infrastructure assets or works, such as pipelines, drains, earthworks, landscaping and the like. These are set out in Council's AUS-SPEC engineering specifications. AUS-SPEC forms a set of common specifications for all new assets to be built and maintained by Council or the community, so it applies to both private developers and Council projects.

New subdivisions or multi-dwelling housing (2 or more) DAs are also required to provide dedicated pedestrian and cyclist facilities along their full frontage to any public roads as follows (refer to Council's AUS-SPEC 0041 Geometric road layout for street classes):

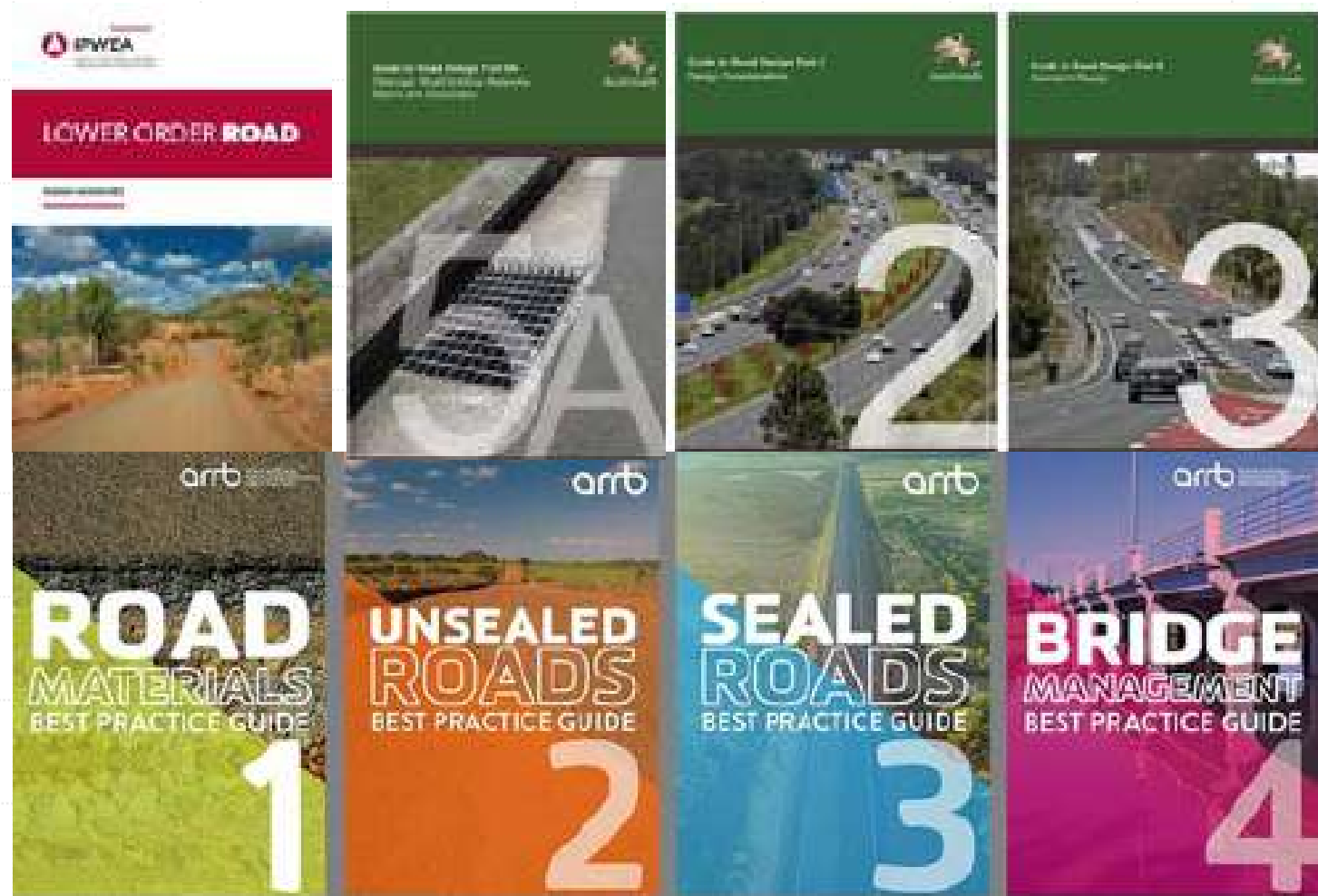
Pedestrian and cyclist paths



Asset creation – Design worksections

00 PLANNING AND DESIGN

- **Quality requirements**
- 0010 Quality requirements for design
- **Road reserve**
- 0041 Geometric road layout
- 0042 Pavement design
- 0043 Subsurface drainage
- 0044 Pathways and cycleways
- **Road reserve – rural roads**
- 0051 Geometric rural road design – sealed
- 0052 Geometric rural road design – unsealed
- 0053 Rural pavement design – sealed
- 0054 Rural pavement design – unsealed
- **Bridges**
- 0061 Bridges and other structures
- **Public utilities**
- 0074 Stormwater drainage



Asset creation – Construction worksections

Workgroups 01, 02, 03 – 09, 11 & 13

- General
- Urban and open spaces
- Buildings (NATSPEC)
- Road reserve and bridges
- Public utilities



Nancy Millis Building, Parkville, VIC



Gunditj Mirring Keeping Place and Business Centre, Lake Condah Mission, VIC



*Kiara College, Kiara WA
Six Seasons Courtyard*



Central Courtyard

General Worksections

01 Tendering

013 Generic preliminaries

- 0134 General requirements (Supply)
- 0135 General requirements (Services)
- 0136 General requirements (Construction)

014 Contract preliminaries

- 0147 Conditions of contract

015 Schedule of rates

- 0152 Schedule of rates (Construction)
- 0153 Schedules – period supply and service

016 Quality assurance

- 0161 Quality management (Construction)
- 0162 Quality (Supply)
- 0163 Quality (Delivery)
- 0167 Integrated management

017 General requirements

- 0173 Environmental management

SECTION 4 | ASSET MANAGEMENT ENABLERS

4.5 ASSET MANAGEMENT SERVICE DELIVERY MODELS

CASE STUDY

Case study 4.5.5a: Contract Scoping and Packaging

4.5.5a Case study from
Lansdown City Council

ADD a new photo

Project Overview

Lansdown City Council formed and awarded a project team to oversee the concept development, design, construction, engagement and completion of the recently completed Belmont Road Extension. The 1.2km to east extension, partly funded by the NSW State Government and Lansdown City Council to a total value of \$61 million, provides direct access into and around Belmont station along Sydney's new South West Rail Corridor, with the potential for extension to the Western Sydney International (Newly \$6.6 billion project).

The complete project involved the construction of a double two-lane road with median-separated strip and the adjustment of various site roads, including three significant intersections. In addition to the road works, it included construction of a major foot-cycle corridor and the extensive installation of extensive utilities, including stormwater, sewerage, telephone and permanent water supply, electrical street lighting circuits, fibre and 4G/LTE Co-communications, water and gas and other services. The finished roadway was accompanied with the addition of new bus bays, shelters and extensive pedestrian and bicycle paving along its entire length.

Scoping and packaging the contract

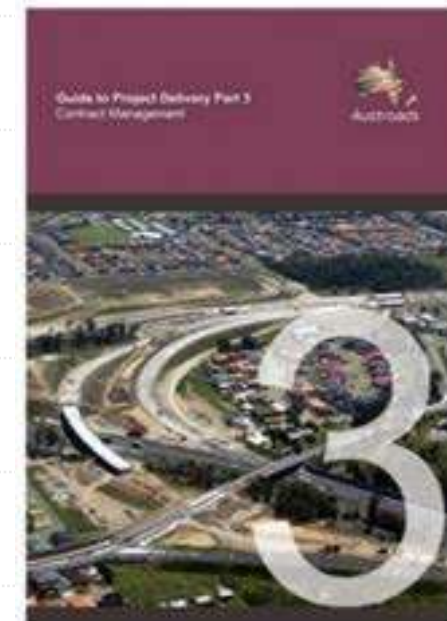
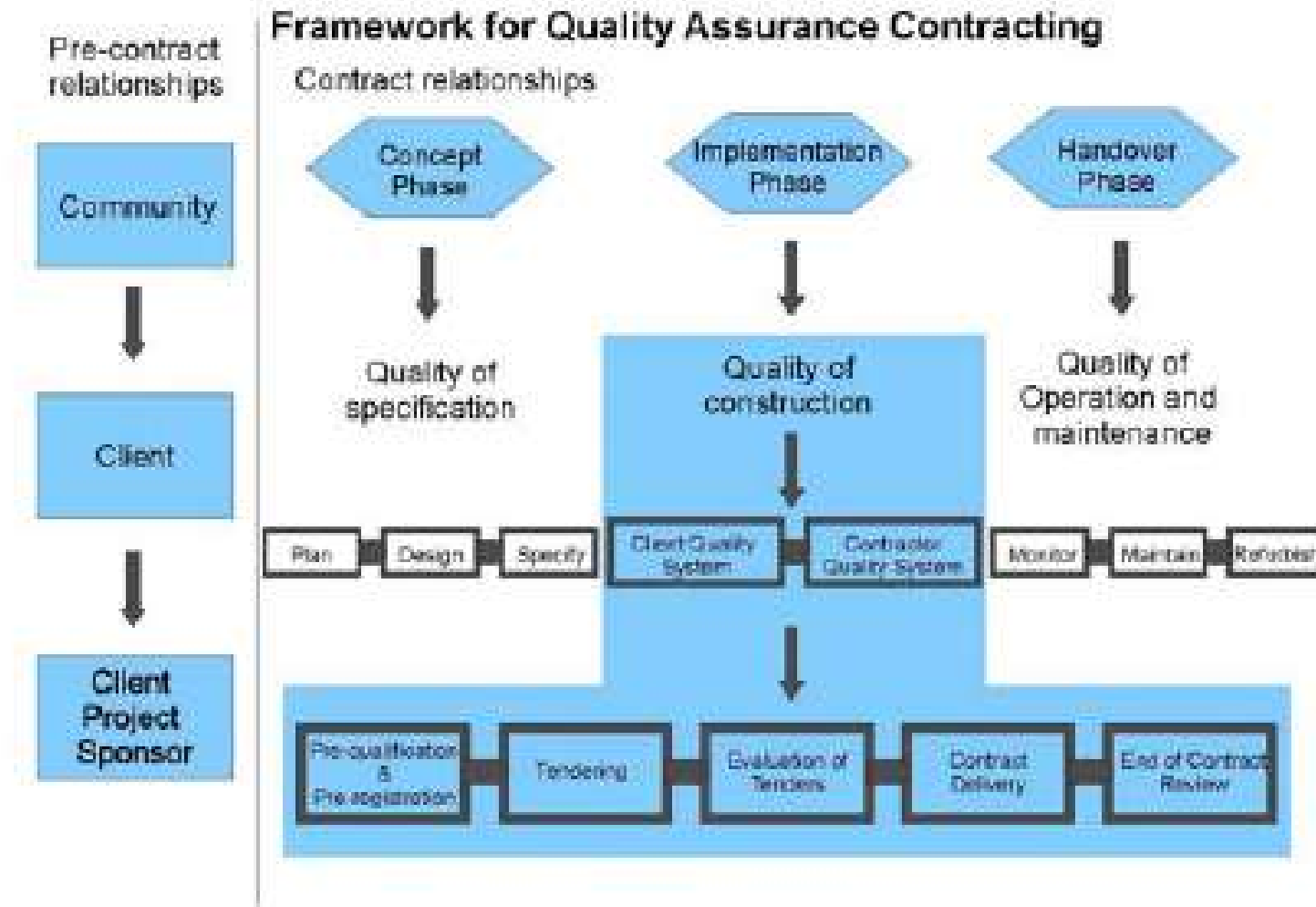
Due to the major utility components of the project and work uncertainty about the extent of other utility affecting proposed roadworks and packaging, the contract was



Top-down Belmont road station



Quality Management



Construction Worksections



Case Study: Keswick residential subdivision

- Keswick Stages 1 – 3 developed from 1995 – 2012, approx. 270 lots
- Keswick Stage 4 developed from 2013 – 2018, approx. 140 lots
- Keswick Stage 5 209 lots designed, 59 lots currently under construction.

“We definitely refer to AUS-SPEC specifications heavily throughout the design phase and use them to help formulate a practical design that is going to be workable, efficient and effective.”

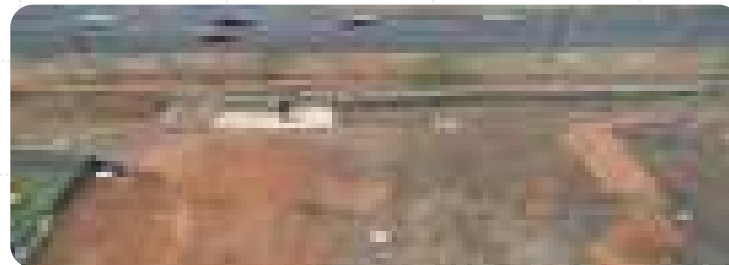
Mark Johnston, Senior Design Engineer, Dubbo Regional Council



Keswick residential subdivision

Challenges

- **Shallow basalt rock**
 - Box out of roads
 - Trenching of water, sewer, stormwater, power, telecom & gas
 - Little investigation of rock at design stage
 - Rock strength varied significantly across the site
 - Various methods were tried including 50t excavator with rock hammer, rock saws, drilling and hammering, ripping with dozers (resulted in busted water main).
 - Best method so far was using a 100t Track Trencher.
- **Poor level control on stormwater for contractors**, resulting in issues with road construction.
- **Poor control of stormwater pit set out**, resulting in misalignments with the K&G.



Lessons learnt and applied to Stage 5

- **Shallow basalt rock**
 - ✓ Investigation of rock with 50m grid using test holes to obtain 3d rock layer
 - ✓ Design the site for fill where possible (where fill is easy to access)
 - ✓ Cause all lots to drain to road corridor if possible (eliminates interallotment drainage)
 - ✓ Fill allows for services to be lifted up out of the rock
 - ✓ Design road boxing out of the rock where possible
 - ✓ Use Track Trencher where possible to excavate rock, about half the cost of conventional methods
- **Regular PCG meetings and hold points created for Stage 5 for level control.**
- **Better communication for set out requirements for stormwater pits and there alignments.**

Collaboration with AustStab



- Existing worksection in 2021 – 1113 Stabilisation

- New workgroup and worksections for 2022

Formation preparation

- 1113 Subgrade and formation stabilisation

Pavement stabilisation

- 1161 In situ pavement stabilisation using cementitious binders
- 1162 In situ pavement stabilisation using bituminous binders
- 1163 Ex situ pavement stabilisation
- 1164 In situ stabilisation of unsealed roads



Collaboration with AfPA



AUS-SPEC documents

2022 - 2023 Updates

1143 Sprayed bituminous surfacing

Citation of Flux oil removed

- 1. More citations of Austroads AGPT04K added as appropriate.*
- 2. Requirements of 14mm aggregate added.*
- 3. Requirements for standard bitumen binders updated.*
- 4. Citations of Austroads ATS 3110 Supply of polymer modified binders, ATS 3120 Supply of aggregate for sprayed seals, ATS 3460 Sprayed bituminous surfacing and ATS 3470 Bituminous pavement crack sealing added.*

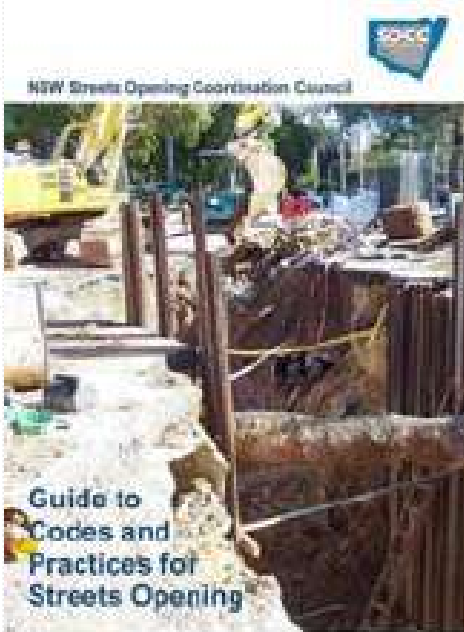
1144 Asphalt (Roadways)

- 1. Mixes incorporating RAP changed from 20% to 30%.*
- 2. LTA5 mix recommended for lightly trafficked roads.*
- 3. Mix design tables of DGA, OGA, SMA and FGGA updated.*
- 4. Austroads ATS 3110 Supply of PMBs and ATS 3050 Supply of recycled crushed glass sand added.*

Restoration works

115 Road openings and restorations

- 1151 Road opening and restoration
- 1152 Road opening and restorations (Utilities)



Case Study: Northern Beaches Council



Photograph by and permission granted by the Northern Beaches Council

NORTHERN BEACHES COUNCIL ADAPTING AN AUS-SPEC WORKSECTION



AUS-SPEC worksections provide minimum work requirements for local government and can be customised to include Council requirements. Each worksection acts as a template document for Councils to tailor according to their specific project requirements. Northern Beaches Council has customised the standard T 101. Road opening and restoration for their local requirements. The Council's approach allows maximum consistency for Council staff across their documentation, and provide notification for utility groups, contractors and subcontractors.

HOW AUS-SPEC DOCUMENTATION HELPED NORTHERN BEACHES COUNCIL

"The AUS-SPEC document is well laid out. The information goes from the top level down to the configuration of equipment, how do you have it when everything," says Matthew Holt, Senior Engineer at Northern Beaches Council.

When it comes to customising the specification, he adds, "The simplicity of it is such that you can do it yourself." AUS-SPEC saved Council time and costs as they were able to adapt the worksection in-house.

Northern Beaches Council has been using worksections managed by the local service organisations, including a street lighting and restoration, highway maintenance, agriculture and restoration group. Having the AUS-SPEC worksection T 101 Road opening and restoration gave Council the consistency to set out their requirements for utility groups.

"We're definitely happy with the result," Matthew says of the customised worksection. "We've clarified what the intent of the specification was from the T 101 and also set their own requirements."

CUSTOMISABLE WORKSECTION REQUIREMENTS

Custom requirements specific to the local government are also included in the worksection to tailor the specifications to the project needs. In particular, Council added a requirement to protect the Council's tree protection (TP) plan if any work affects the tree and also to set out the work on roads and kerbside before construction. Council also included additional information, the documentation, 'Footways and kerbside and street lighting', as well as a customised contractor flow and traffic restoration requirements.

"The simplicity of it is such that you can do it yourself," says Matthew Holt, Senior Engineer.

AUS-SPEC saved Council time and costs as they were able to adapt the worksection in-house.

Many of Northern Beaches Council's additions to the worksection include information from other AUS-SPEC worksections (also referenced in T 101), including T 117 Road pavements (sub and surface) and T 104 Asphalt flowlines. This makes the document more practical both for Council and for utility groups and contractors who may not be aware of their own changes to other worksections.

Council has added the contractor's agreement to add value to the document. In particular, Annexure D.3 provides submittal drawings for trench blocks and restoration works, including for shovels, bargains, benches in final pavement, and trench in final pavement. This helps to clarify precisely what Council expects from restoration work, whether this is carried out by Council themselves, utility groups, or subcontractors. A simplified summary of modifications that Northern Beaches Council made to the AUS-SPEC worksection has been included as an appendix to the worksection. This clarifies records by setting out Council's changes to the document.

As AUS-SPEC specifications are drafted against to other regulations, standards and industry practices, Council knows they are working with current documentation that helps them best serve the community. The feedback received provides useful outcomes going forward. With customised AUS-SPEC documentation, Northern Beaches Council can be confident that the worksection clearly sets it for purposes for technical input. The restoration works are carried out adequately and provide a safe environment for the community.

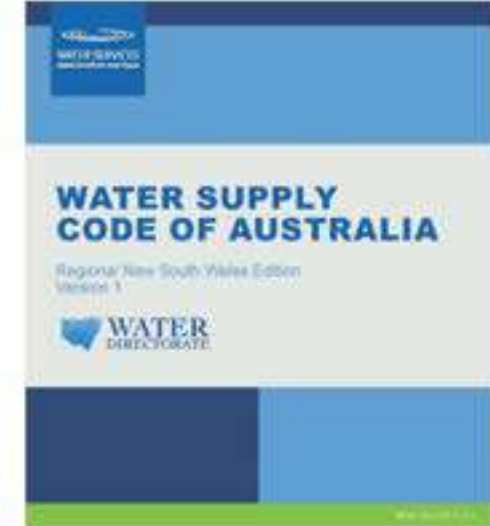
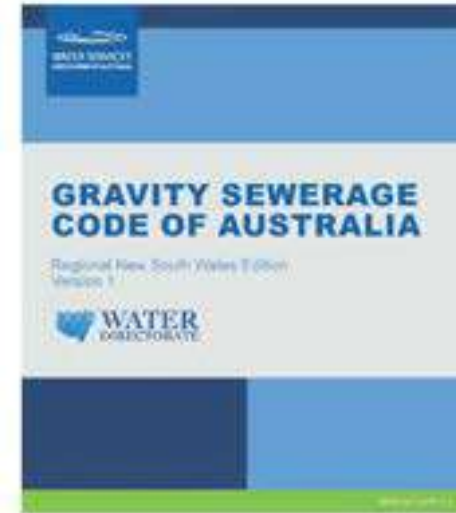


Photograph by and permission granted by Northern Beaches Council. Photo courtesy of Northern Beaches Council.



Construction: Public utilities

- *1341 Water supply – reticulation*
- *1342 Water supply – pump stations*
- *1351 Stormwater drainage*
- *1352 Pipe drainage*
- *1353 Precast box culverts*
- *1354 Drainage structures*
- *1361 Sewerage systems – reticulation*
- *1362 Water supply – pump stations*
- *1391 Service conduits*
- *1392 Trenchless conduit installation*



Regional Approach



AM's impression of Shell Cove, image courtesy Shellharbour City Council

SHOALHAVEN AND SHELLHARBOUR CITY COUNCILS A REGIONAL APPROACH TO DEVELOPMENT AND CAPITAL WORKS PROJECTS



AUS-SPEC Specifications for Development and Capital Works are a contemporary set of documents for local government that provide a uniform and precise approach to setting parameters for the creation of high-quality civil infrastructure.

Shoalhaven City Council and Shellharbour City Council offer the most current version of AUS-SPEC specifications (AUS-SPEC Complete) for the design and construction of their development and capital works program.

The Councils made the switch to the updated version to access up-to-date Australian standards, codes and terminology. The upgrade has led to many improvements including access to the latest Australian Planning and Road 2010 (APR 2010). It also provides access to Asset Design As Constructed (ADAC), a data specification platform that enables the efficient capture and storage of civil infrastructure asset data. This allows councils to update their asset management system and provide new works.

"The introduction of our updated AUS-SPEC-based specification has allowed for a streamlined and more efficient specification process. One of the big benefits is the standardised pay items, allowing rates for cost estimates to be quickly updated based on market rates."

Wesley Parks, Manager Design Services, Shoalhaven City Council

"AUS-SPEC promotes standardised and transparent design, construction and management of local government infrastructure works. Shellharbour City Council has found AUS-SPEC to be an excellent resource that aligns with our core values of integrity, accountability and sustainability. It has enhanced resource efficiency and increased productivity, as well as minimised risk through clear safety, quality and environmental compliance requirements."

Luca Pirozzi, Manager Subdivision Development, Shellharbour City Council



AUS-SPEC Manager Marko Herko presenting awards to Peter Sanki of Shoalhaven City Council (left) and Ben Sheel of Shellharbour City Council (right) at the IPWEA NSW & ACT Engineering Excellence Awards 2023. Image courtesy IPWEA.

All new works at Shoalhaven City Council and Shellharbour City Council now follow the amended AUS-SPEC specifications to meet their local requirements. Adjacent Councils may adopt this or a similar version to unify documents on a regional basis, with the potential to create a regional Systems version of the documents. Benefits include a reduction of risk for developers, contractors and Councils, as all parties work with the same set of requirements.

At the IPWEA NSW & ACT Engineering Excellence Awards 2023, Shellharbour City Council won the category award for their Services Depot Building Project. Shoalhaven City Council was Highly Commended for their project Boogeees Riding Hub in Pigg Point.



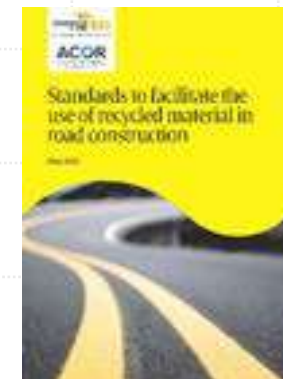
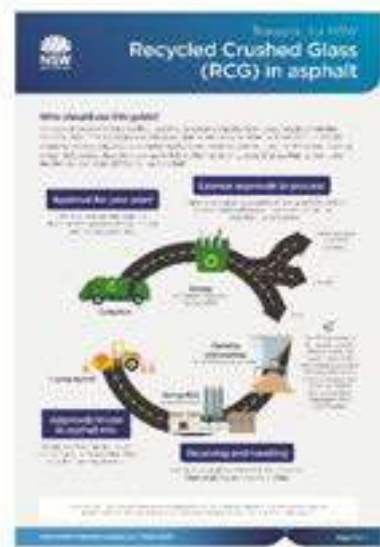
The North Colinton Road Project, courtesy of Shellharbour City Council. Image courtesy Shellharbour City Council. Shellharbour City Council award-winning Services Depot Building Project. Image courtesy Shellharbour City Council.

Claytona provided a partnership with Shoalhaven City Council, Shellharbour City Council and Coopers & Lybrand.



Use of recycled materials

The collaborative approach between SSROC and NATSPEC has encouraged a large number of Councils to join the procurement. They achieve up to 20% of cost savings.



Case Study: City of Sydney

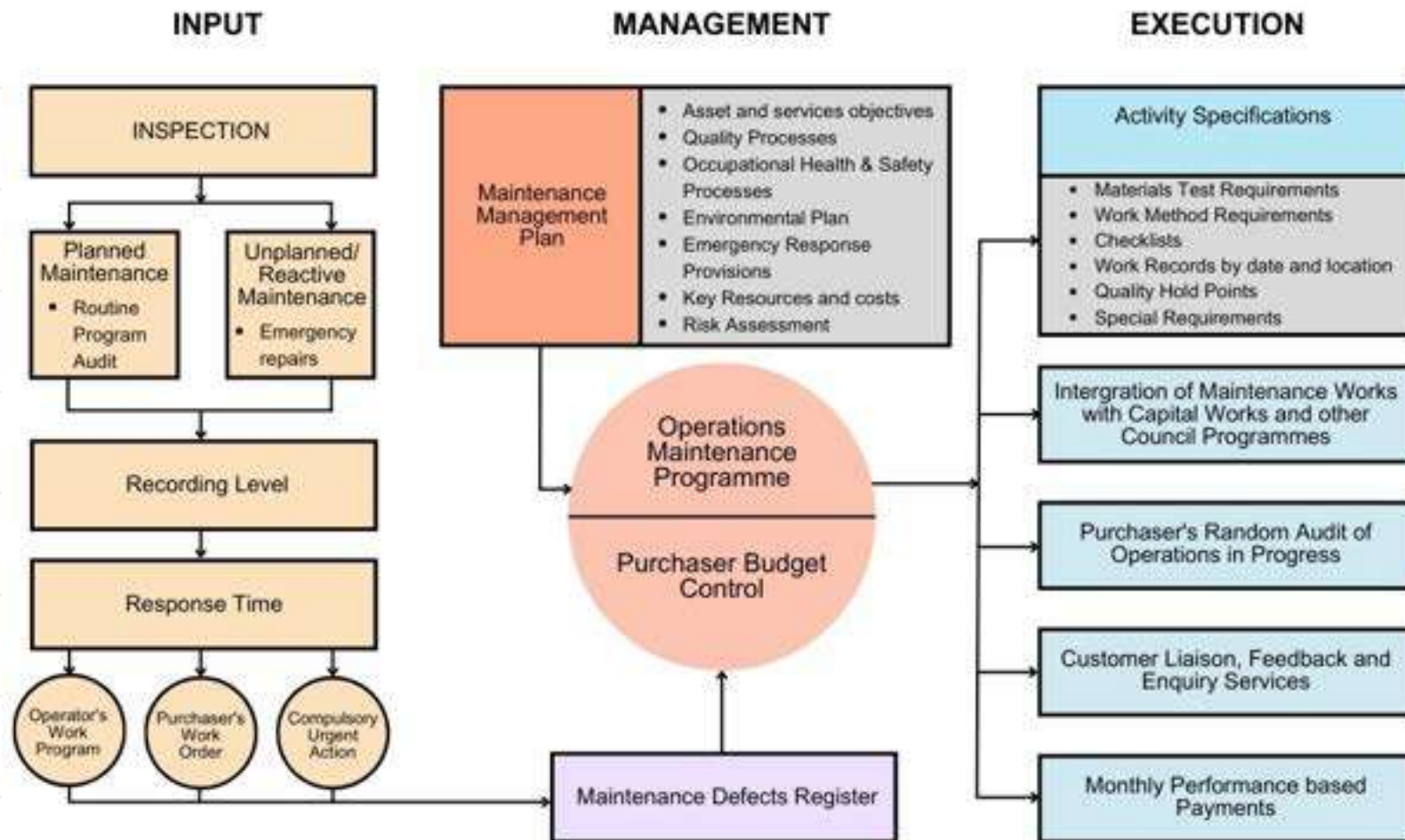


AUS-SPEC maintenance system

• Benefits

- Calibrate service level with maintenance and operations budgets.
- Prepare documentation for in-house and private maintenance contracts.
- Collect records of asset inspections, defects, programmed and prioritised works.
- Progressively improve the management of asset maintenance.
- Manage risks through a systematic approach to maintenance of council assets.

Flow Diagram for Typical AUS-SPEC Maintenance Worksection



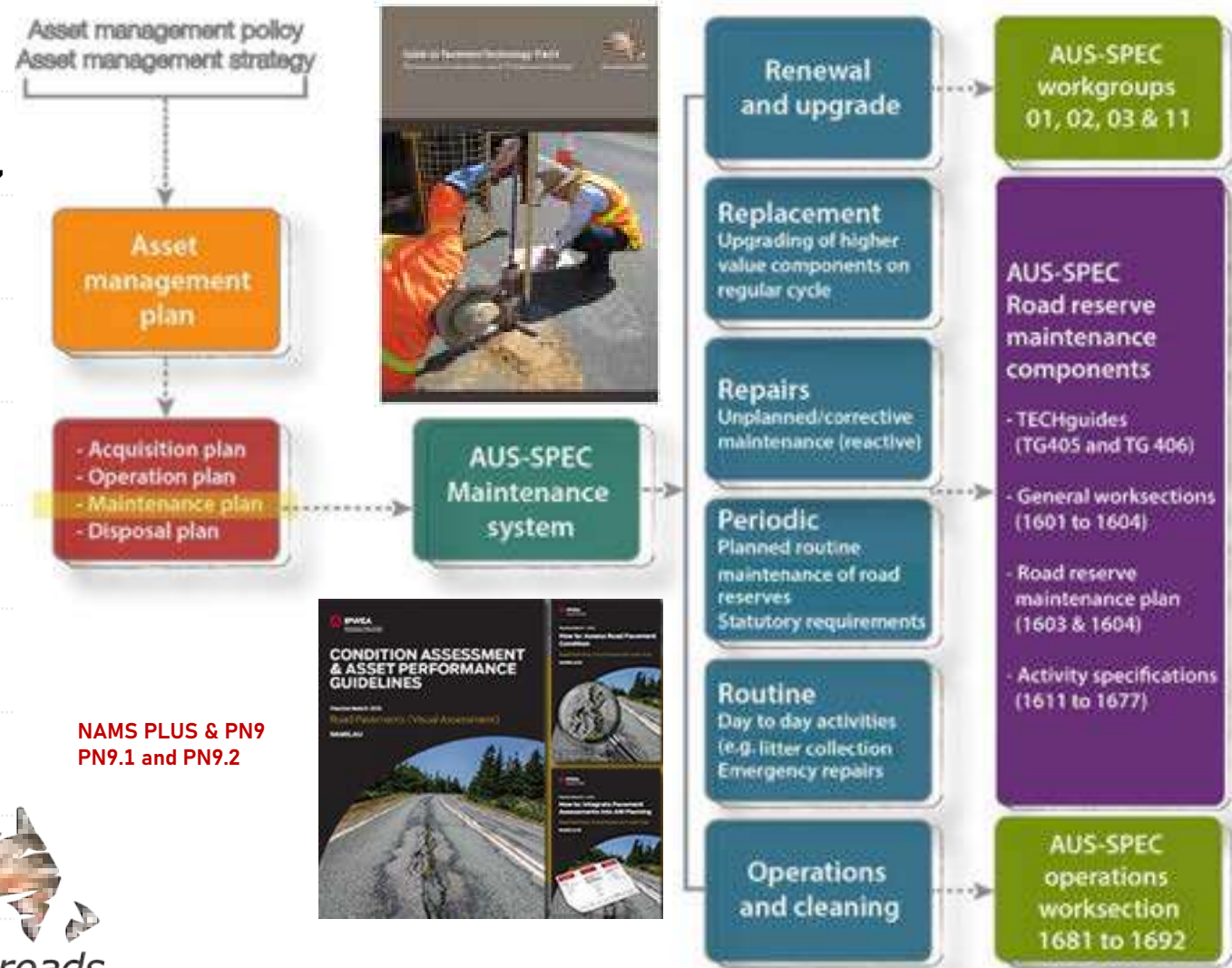
Road reserve maintenance system

- **Routine maintenance:**

- Surfacing repairs of minor localised areas of flushing, ravelling or stripping
- Crack sealing (Longitudinal, transverse, diagonal, meandering etc.)
- Repair of edge breaks
- Pothole repairs
- Shoulder grading
- Vegetation control
- Cleaning of table drains and culverts

- **Periodic maintenance:**

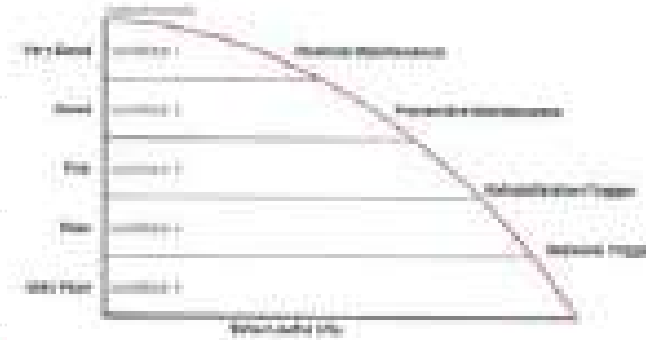
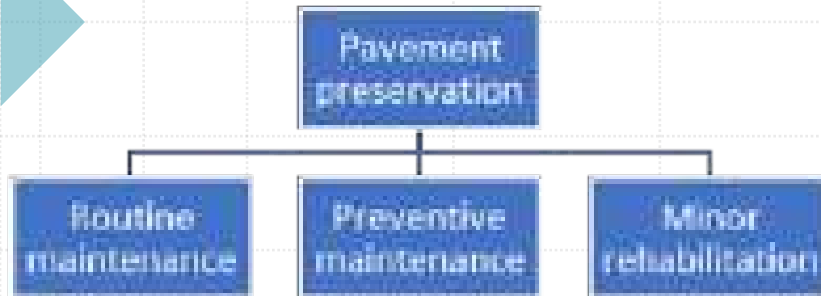
- Resurfacing of significant areas suffering from defects
- Pavement preservation treatments
- Special reseals using crumb rubber, PMB etc.
- Gravel resheeting of unsealed pavements
- Regravelling of shoulders or shoulder resealing



Collaboration with Austroads

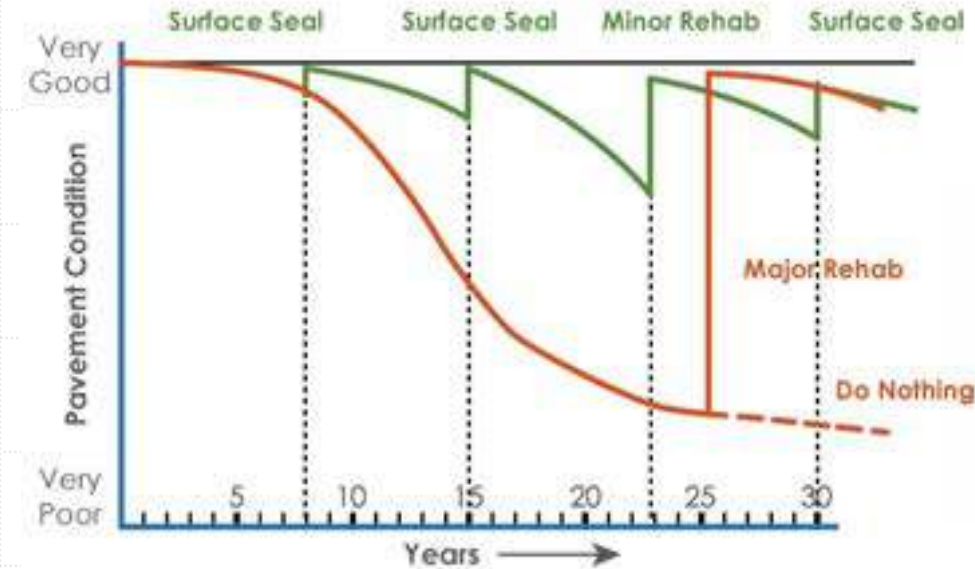


Pavement management strategies

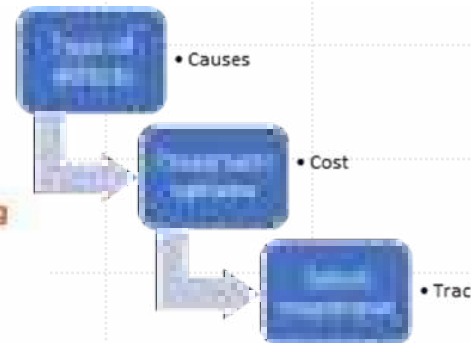


PME applied to stripping seal Permeability testing RTA T168

Pavement Management with "Good Roads Cost Less" Preservation Strategies



Selection of Treatments

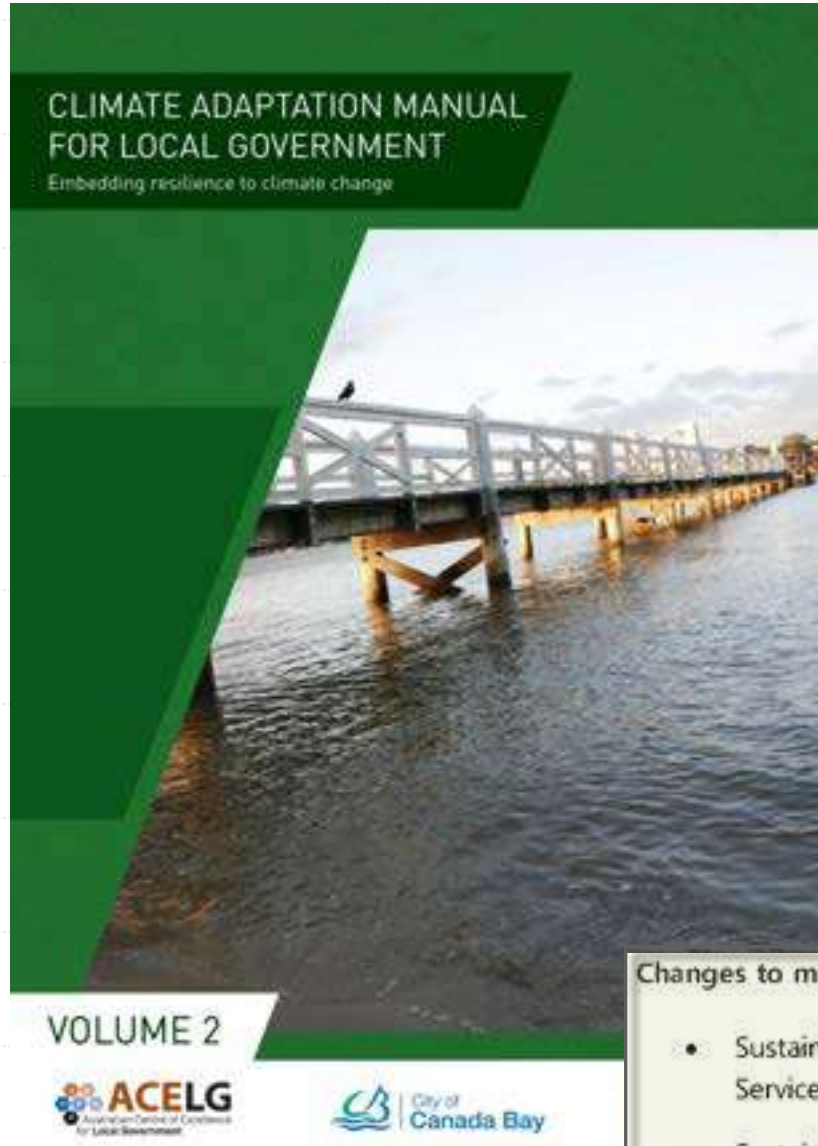


This report is for: LAC 3730000
 Job Location: Santa Rosa Preserve
 Job Location: Santa Rosa Preserve
 Job Address: 99 N 17th Street, Santa Rosa, CA 95402
 Client: Lake Mendocino Council

RTA Test Method - RTA T168 (permeability) in this introduction of Water into a Road Pavement

Item Name & Details	Unit of Measure	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Preventive Maintenance	1000 sq ft	1000	1.00	1000.00	1000	1.00	1000.00	1000	1.00	1000.00
Minor Rehabilitation	1000 sq ft	1000	2.00	2000.00	1000	2.00	2000.00	1000	2.00	2000.00
Major Rehabilitation	1000 sq ft	1000	10.00	10000.00	1000	10.00	10000.00	1000	10.00	10000.00
Do Nothing	1000 sq ft	1000	0.00	0.00	1000	0.00	0.00	1000	0.00	0.00
RTA T168 Test	1000 sq ft	1000	0.50	500.00	1000	0.50	500.00	1000	0.50	500.00
Total				13500.00			13500.00			13500.00

Climate change adaptation



FULL CASE STUDY

CS6.1 CHANGES TO MAINTENANCE CONTRACTS TO ACCOUNT FOR CLIMATE CHANGE – MORNINGTON PENINSULA SHIRE COUNCIL, VIC

Contact: Manager – Infrastructure Maintenance at custord@mornington.vic.gov.au

Background: Council identified that climate change would result in an increase in flood risk, specifically a 12% increase in rainfall intensity and a 0.3 metre increase in sea level. The projections are within the CSIRO range of increase by 2070, identified through a CSIRO study completed in conjunction with the regional Climate Change Alliance in 2008.

This information was used in the development of a Local Integrated Drainage Strategy (LIDS). The Strategy aims to ensure Council's drainage infrastructure is resilient to a change in climate and includes detailed flood mapping (accommodating the climate change parameters noted above) and infrastructure upgrades, to be implemented over a 30-year period, Council's four years into the program.

The flood mapping being developed under LIDS was used to inform the maintenance contracts as outlined below. Specifically, the flood maps were overlaid on the underground drainage and pits infrastructure to inform the development of the drainage system.

Changes to maintenance contracts: Two key maintenance contracts have changed:

- Sustainable Infrastructure Maintenance Services 2 (SIMS2) – Cleansing & Drainage Cleaning Services, and
- Sustainable Infrastructure Maintenance Services 2 (SIMS2) – Building Services

Both are 10-year contracts which commenced in April 2013.

Key changes are:

- SIMS2 – Cleansing & Drainage Cleaning Services:

The frequency for cleaning underground stormwater drainage and pits. Under the previous contract (10 years – 2003 to 2013) these assets were cleaned every four to five years. Under the new contract they the cleaning is dependent on their risk profile. The risk profile has regard to a range of factors such as topography, housing density, age of drainage assets, stormwater capacity of drainage assets, availability of outcharge, overland flow paths, vegetation types, made or unmade streets, open drains or kerbs and channel and risk of damage to Council and private property. Frequency of cleaning now varies between six months and five years.

The amount of damage assessed by CCTV annually has been increased to allow for 3 km of CCTV.

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- Sustainable Infrastructure Maintenance Services 2 (SIMS2) – Cleansing & Drainage Cleaning Services, and
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AUS-SPEC case studies in IIMM



SECTION 2 | UNDERSTANDING REQUIREMENTS

2.4 MONITORING ASSET CONDITION AND PERFORMANCE

CASE STUDY

Case study 2.4.7a: Monitoring Technical Levels of Service for Footpaths to Drive Performance Improvement

Using a proactive approach to road asset maintenance

In 2003, the City of Parramatta developed a proactive approach to road asset maintenance based on AUS-SPEC, the Australian national specification system for the design, construction, maintenance, and operation of local government assets. The change was implemented to drive the following objectives:

- To assist customer behaviour to use pavements to last and improve
- To quantify level of service to comparable levels with other networks
- To anticipate future future capital and operational expenses
- To improve road asset condition and efficient resource
- To maintain safe roads
- To improve the use of road asset maintenance

Technical service levels to provide road network maintenance

Proactive Council road network maintenance to improve road and footpath network performance and improve road network. As part of the trial system, service levels were developed to drive the frequency of maintenance and the maintenance level of the road network.

The road maintenance strategy, in a proactive approach, includes the following objectives:

- Identify road network to be proactive maintenance strategy, including footpath network to improve road network
- Develop road network to be proactive maintenance strategy, including footpath network to improve road network
- Develop road network to be proactive maintenance strategy, including footpath network to improve road network
- Develop road network to be proactive maintenance strategy, including footpath network to improve road network
- Develop road network to be proactive maintenance strategy, including footpath network to improve road network

SECTION 3 | LIFECYCLE MANAGEMENT

3.3 MANAGING OPERATIONAL PROGRAMMES

CASE STUDY

Case Study 3.3.3d: Developing Maintenance Plans and Procedures

In 2003, the City of Parramatta developed a detailed Road Maintenance Plan using AUS-SPEC, the Australian national specification system for the design, construction, maintenance and operation of local government assets. The Maintenance Plan was part of a new, asset-centric approach to road asset management. The previous reactive approach to the maintenance of complex, multi-million-dollar Council assets was neither efficient nor cost effective.

A proactive maintenance system

The City of Parramatta proactive maintenance system is based on the AUS-SPEC maintenance system suite of documents and conforms to a quality management model with the following characteristics:

- A systematic approach: Each project is broken into defined activities.
- Inspection and test plans: Provided for each activity to allow systematic and progressive verification of conformance with requirements.
- Simple, clear checklists: Fit in-the-field recording, as evidence of conformance with requirements.
- Hold points: Assigned to critical aspects of the work.
- Conformance: Designed to encourage the service provider to identify and correct process faults and thereby ensure the purchaser of good quality and productivity. If some aspect of the work does not conform and cannot be corrected, a non-conformance report is required.

Benefits of national specifications

- **Local government focus** for the **life cycle management of assets**
- **Ensures technical and contractual consistency**
- **Reduces risk and improves productivity and quality outcomes**
- **Flexibility to add specific requirements to create fit for purpose specifications**
- **Content peer reviewed** for accuracy, comprehensiveness, and appropriateness
- **Minimum best practice requirements**
- **Provides a proactive approach to maintenance management**
- **Embeds sustainability requirements**
- **Regularly updated with industry collaboration.**

IPWEA is renowned for its best practice, industry-leading publications and training. Our solutions management approach is highly valued by Councils, Government and the private sector. AUS-SPEC was developed by IPWEA Australasia to provide nationally consistent civil specifications for Councils. This prevents duplication of effort and reduces costs.

The AUS-SPEC library of civil engineering design, construction and maintenance templates brings a shared professional language and process to engineering projects. In the current environment of increasing pressure on resource allocation, these publications are a tool to streamline asset life cycle planning and maintenance, while maintaining the essential focus on community safety and risk prevention.



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