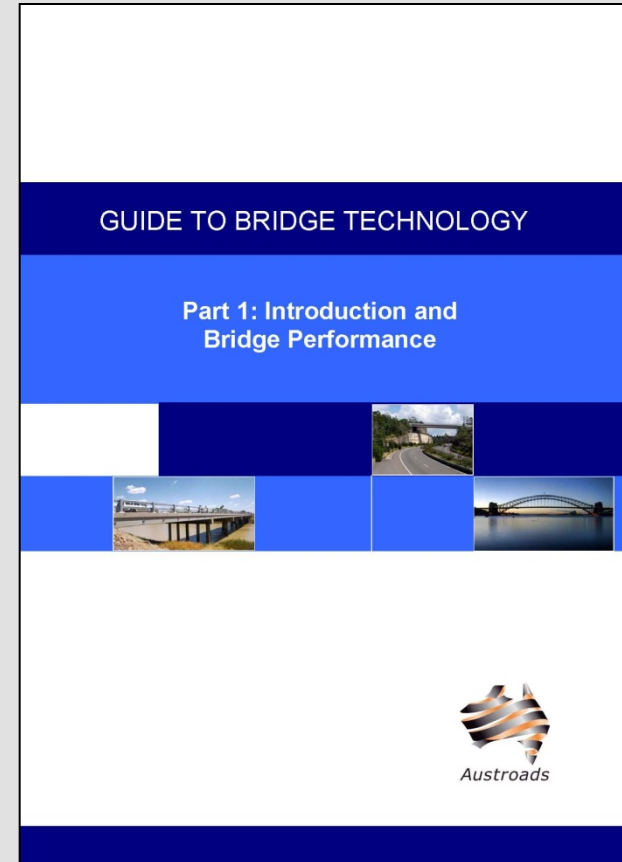


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Guide to Bridge Technology



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Guide to Bridge Technology – structure

The Guide to Bridge Technology comprises 7 Parts – titled and authored as follows:

Part 1 Introduction and Bridge Performance

Authors: Geoff Taplin, John Fenwick

Part 2 Materials

Authors: Don Carter, Ray Wedgwood

Part 3 Typical Superstructures, Substructures and Components

Author: Don Carter

Part 4 Design Procurement and Concept Design

Authors: Ray Wedgwood, Don Carter

Part 5 Structural Drafting

Author: Matthew Thompson and subcommittee

Part 6 Bridge Construction

Authors: Bob Hinchcliffe, Don Carter

Part 7 Maintenance and Management of Existing Bridges

Author: Frank McGuire

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Overview

Scope of the Guide

- The purpose of the *Guide to Bridge Technology* is to provide guidance to bridge owners and authorities on technology related issues relevant to bridge ownership, design procurement and bridge construction, maintenance and management practices.
- This Guide is intended to complement AS 5100 – Bridge Design and the NZ Transport Agency Bridge Manual.
- It is also intended to complement Agency Bridge Inspection Manuals.
- The Guide is intended to be an accessible and comprehensive resource for practitioners, particularly the newer engineer.
- It compiles existing available material from Austroads members and elsewhere into a seven part Guide which provides an Australasian approach to Bridge Technology.

Development of the Guide

- The *Guide to Bridge Technology* has been developed by bringing together many aspects of bridge planning, design, construction and maintenance.
- The Bridge Technology Review Panel, which comprised bridge experts from each jurisdiction road agency in Australia and New Zealand met regularly over several years to structure the Guide and determine the content of each of the seven Parts.
- This Panel called upon the expertise of several highly respected and experienced Australian and New Zealand road authority engineers, who had recently retired from full time employment with these agencies, to articulate their knowledge in the different areas listed above. The intention of this approach was to capture knowledge about bridge engineering fundamentals and the reasons behind current and emerging procedures and practices. Valuable contributions were also made by other authors and committees referred to above.

Parts of the Guide

Part 1: Introduction and Bridge Performance

- Discusses factors affecting bridge performance, the evolution of bridges and bridge loadings, durability of structures and specifications and quality assurance.

Part 2: Materials

- Covers the range of materials used to construct bridges including concrete, timber, steel and aluminium, their characteristics including design and construction considerations and stress mechanisms.

Part 3: Typical Bridge Superstructures, Substructures and Components

- Provides an appreciation of the bridge types, and components that have been developed over time including wrought iron, prestressed concrete, cable stayed, suspension, arched and pedestrian bridges. Bridge foundations are also covered in some detail.

Parts of the Guide (continued)

Part 4: Design Procurement and Concept Design

- Outlines bridge design process procurement models, the design and delivery management process, design checking and review concepts, aesthetics and architectural requirements, designing for constructability and maintenance, service life of structure and components, geotechnical and environmental considerations. This Part also lists the Agency web-sites where current Bridge Technical Notes and Specifications may be accessed.

Part 5: Structural Drafting

- Discusses principles used within bridge structural drafting practice including line work, text and dimensions, scales, definitions, drawing order and numbering, abbreviations and symbols, and concrete and reinforcement detailing.

Parts of the Guide (continued)

Part 6: Bridge Construction

- Discusses construction of small to medium road and pedestrian bridges including bridge geometry, management of road traffic, foundations and piling, substructure elements, walls, ground anchors and rock bolts, concrete and steel construction, bearings, deck joints and drainage, barriers, railings, culverts and arches, demolition and removal.

Part 7: Maintenance and Management of Existing Bridges

- Provides guidance on the structural management of bridges including bridge inspection, deterioration of materials and damage to structures, repair and strengthening treatments, control of heavy loads and bridge preservation.

Users of the Guide

- It is intended that the Guide be used as a reference document for all practicing bridge engineers.
- A strong emphasis has been placed on developing a source of information for newer engineers, on all aspects of Bridge Technology relevant to Australia and New Zealand, that is not readily available in a text book or Standard.

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Other Austroads Guides

- The Guide to bridge Technology is one of a series of Austroads guides that cover a range of Road Related Design, Construction and Management Issues
- Other Guides include:
 - Road Design Guidelines
 - Pavement Guidelines
 - Traffic Management Guidelines
 - Road Safety Guidelines
 - Asset Management Guidelines – Part 6 Bridges

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 - The authors, named above
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