2006 NZ Supplement

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• 2006 update of the NZ Supplement to the Austroads Pavement Design Guide
• Updated annually to improve the document & implement recent research
• 2006 update
  – Current draft form
  – Industry comments received
  – Finalised by end of June
Proposed Changes

- Main issues
  - Shift Factors for HMA
  - Pavement considerations for intersections
  - Pavement widenings
  - Water flowing within pavement layers
  - Structural contribution of OGPA
  - Modified aggregate parameters
  - Foamed bitumen stabilisation

Shift Factors for HMA

- Shift Factors for HMA
  - SFs reflect better HMA fatigue performance in the field compared with lab
  - SFs imbedded in Reliability Factors
    - considered to be overly conservative
  - Proposed RFs
    - 3.4 (cf 0.67) @ 97.5% reliability
    - 5.0 (cf 1.0 – 2.5) @ 80 – 95% reliability
Pavements for Intersections

- Pavement considerations for intersections
  - Rutting / heaving common in wheel tracks at intersections
    - slow moving / concentrated loads
    - high shear stresses
    - high temperatures – hot exhaust pipes
  - Guidance given regarding:
    - structural design considerations
    - surface deformation resistance considerations
    - construction considerations

Pavement Widenings

- Pavement widenings
  - Large number of failures at interface between widening & existing pavement
    - excavation removes lateral constraint
    - segregation at interface
    - difficult compaction conditions
  - Recommend modifying upper materials at least to centre line of carriageway
    - continuity across the interface
Water in Pavement Layers

• Water flowing within pavement layers
  – General notes provided regarding water in pavement layers
    • through surface
    • permeable shoulders / berms
      – high side of super-elevated curves
    • within aggregate layers
      – perched on stabilised subbase
    • dams created by patches

Structural Contribution of OGPA

• Structural contribution of OGPA
  – Relatively high elastic modulus values obtained for aged OGPA specimens
  – Design model
    • OGPA over unbound base
      – Consider OGPA layer to be additional base thickness
    • OGPA over structural asphalt base
      – Include OGPA @ 500 – 1,000 MPa depending on speed & temp environment
Modified Aggregate Parameters

- Modified aggregate parameters
  - Aggregates generally should achieve M/4 criteria post modification
  - Allow slightly higher E-values in design
    - establish by:
      - FWD back analysis
      - RLT testing

Foam Bitumen Stabilisation

- Foam bitumen stabilisation
  - Two-phase design analysis
    - Seating-in phase
      - no proven performance criteria for Aust / NZ
    - Steady state phase
      - Effective granular layer
        - \( E = 800 \) MPa as general rule
        - dependent on additives, density, layer composition