Ultra-Thin Asphalts: A Sustainable Approach to Constructing Safe Surfacings

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Highway surfacings are required to provide a safe and comfortable driving experience:

- Safety is a function of:
  - Megatexture and drainage
  - Macrotexture
  - Microtexture and skid resistance

- Driving comfort is derived from
  - Megatexture and ride
  - Macrotexture and noise abatement
The Perfect Surfacing Would Be

• Smooth: able to correct megatexture faults;
• Low Noise;
• Textured for skid resistance;
• Manufactured using polish-resistant, high friction materials;
• Quick and easy to place;
• Durable;
• Recyclable;
• Economic.

Ultra-Thin Asphalts: J Waters, G Bosma
And the answer is…..

- **Ultra-thin asphalts:**
  - Can be used for minor shape correction (or in conjunction with a prelevelling shape correcting layer);
  - Can be designed to provide macrotexture, with noise absorption and skid resistance;
  - Can be manufactured with polish resistant crushed rock aggregates or recycled materials;
  - Relatively quick to place;
  - Resistant to traffic stresses;

*Ultra-Thin Asphalts: J Waters, G Bosma*
Pavetex Ultra-Thin Asphalts

- Developed in the Waikato region in the late 1990s
- Used on many sites in the North and South Islands
- Provides a textured, low noise, durable and pleasing road surface
- High cost per tonne, but laid very thin (15 – 25 mm)
- Requires specialised manufacturing plant.
Pavetex Ultra-Thin Asphalts

- Uses non-traditional particle size distributions;
- Binder is a designed, multi-component material;
- Aggregates:
  - Crushed rock, or;
  - Glenbrook Melter Aggregate (GMA);
- Thin lifts minimise use of non-renewable resources, and;
- Can be milled off, replaced and millings recycled as RAP;
- Texture depths over 1 mm.
Hmmm... this is good stuff
Conclusions

• Ultra-thin asphalt surfacings can provide many pavement maintenance benefits:
  • Improved skid resistance;
  • Durable and quiet;
  • Relatively quick to place
  • Recyclable.

• Material cost is higher but reduced maintenance interventions provide economies

• Thin overlay can be milled off, recycled and replaced.