Why BCC was part of the demonstration project

Dr Greg Stephenson
Brisbane City Council

Dedicated to a better Brisbane
Brisbane City Council

- Formed in 1925 – 20 Local Authorities / Joint Boards
- 26 Electoral Wards
- Area = 1,367km²
- Population (2011) = 1,089,743
BCC ROAD NETWORK

<table>
<thead>
<tr>
<th>Sub-Network</th>
<th>Total Length (km)</th>
<th>Area (million m²)</th>
<th>% of Network (by area)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Asphalt</td>
<td>Bitumen Seal</td>
</tr>
<tr>
<td>A &amp; B – Local Street</td>
<td>3,980</td>
<td>30.1</td>
<td>3.00</td>
</tr>
<tr>
<td>C - Collector</td>
<td>596</td>
<td>6.0</td>
<td>0.10</td>
</tr>
<tr>
<td>D - Suburban</td>
<td>482</td>
<td>6.3</td>
<td>0.03</td>
</tr>
<tr>
<td>E- Industrial Access</td>
<td>285</td>
<td>3.4</td>
<td>0.03</td>
</tr>
<tr>
<td>F &amp; G – Arterial Roads</td>
<td>290</td>
<td>4.4</td>
<td>0.02</td>
</tr>
<tr>
<td>Total</td>
<td>5,633</td>
<td>50.3</td>
<td>3.2</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td>93.0</td>
<td>5.9</td>
</tr>
</tbody>
</table>

Replacement value of road pavements => $3.72B
74% => local roads providing direct property access
  • environmental deterioration
20% => sub-arterial & arterial roads
6% => industrial access
  • load induced deterioration
INCREASING TRAFFIC LOADS

"B – Doubles" & Higher Mass Limits (HML)

"Twice the Task"
INCREASING TRAFFIC LOADS


Pavements Require Strengthening as Part of Rehabilitation
REHABILITATION CHALLENGES

- Traffic Delays
  - Night work
  - Limits Options
  - Limit Repeat Visits
- Existing CKC
  - Limits Overlays
- Existing Services
  - Minimum Cover
- Bus Stops
ASPHALT INNOVATIONS COMMITTEE

Members
Asset Management
  – Convenor / Secretariat
Asphalt & Aggregates
  – 2 Quarries
  – 2 Asphalt Plants
  – 1 Recycling Facility
City Projects Office
  – Pavement Design
Asset Services
  – Community Interface

AAPA Study Tours
David Angell
• “EME” in South Africa
Greg Stephenson
• “EME” in France and UK

“Watching Brief” on EME Developments in Australia
CULLEN AVE WEST – EAGLE FARM

- Well Above Optimum Invention Standards for Rehabilitation
- Very Poor Condition.
- Inadequate sealed width for 2 trucks
- Review of line marking and signage following removal of railway level crossings.

Why BCC was part of the demonstration project - Stephenson
RISK CONSIDERATIONS

- Proven long term technology in France
- Mix designed in France by COLAS
- Boral and SAMI’s Commercial Reputation demands they get it right
- If it doesn’t work main inconvenience is to Boral
- If it performs no better than conventional AC – pavement will still have reasonable life
- Presented as a complete package of mix design, pavement design and construction
- Pavement design, supervision, on-going monitoring and reporting by ARRB
BENEFITS FOR COUNCIL

- Pavement Temperature Profile for Brisbane
- Validated Specification for “EME”
- Pavement Design Methodology for “EME”
- Due to contributions
  - Cost effective rehabilitation of Cullen Ave West
  - Boral is main beneficiary of finished road!
- Leverage the Value of Council R&D Budget
  - “Innovative Tests, Trials and Special Design” Allocation
ADDITIONAL RESEARCH

Known Pavement Construction that will be monitored into the future:

- FWD testing at different layers to validate a number of design assumptions
- Deflection reduction of 30mm MG AC surfacing
  - as a guide to overlay design
- Temperature and seasonal effects on deflection
- USQ/USC thesis projects on the surfacing layer
  - access to performance data as the on-going monitoring is undertaken
Why Was BCC Part of Project?

• Support Council Economic Development Goals
  – Build Brisbane's international reputation as a place to visit, study, work and do business.

• “This project demonstrates Council’s commitment to innovative solutions by being part of a project of national significance with direct local applications whilst achieving pavement rehabilitation on Cullen Avenue West within the constraints of existing budgets.”