Vehicle mass data for asset planning and strategic insight

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Austroads
Assets Program

Extending the life and performance of infrastructure to ensure the effective and sustainable maintenance of the road network

Work streams:
- Emerging technology – materials development
- Strategic management of road infrastructure
- Managing loading impacts
- Pavement management
- Bridge management
- Managing for climate change
- Sustainable roads and roadsides
- Managing rural and remote roads
Asset planning and strategic insight

International Infrastructure Management Manual (IIMM 2015)

- Define level of service and monitor performance
- Managing the impact of demand changes
- Cost effective life cycle management strategies
- Risk management
- Long term financial plan
1a. Level of service

Austroads projects:

• Level of service (LOS) requirements for freight on rural roads:
  — ride comfort (road roughness)
  — road shoulder width and condition
  — road and bridge geometry
  — general access

• Heavy Vehicle Roughness Band Index (HVRBI)
1a. Level of service
1b. Performance monitoring – Data harmonisation

Austroads asset Data Standard

Consistent harmonised data on:

- Network | Classification | Inventory | Condition
- **Demand** | Utilisation | Criticality | Risk | Resilience
- **Performance** | Access | Work and Costs

Demand = detailed traffic distribution with vehicle loading:

- **Gross Vehicle Mass** kilometres GVM_km
- **Equivalent Standard Axles** kilometres ESA_km
1b. Performance monitoring – road condition
2. Impact of demand

Western Ring Road Melbourne

- Greenfields freeway 28 km in length
- Constructed 1989 – 1997
- Cost $631m

Source:
By Stephen Edmonds - originally posted to Flickr as E.J. Whitten Bridge from the side, CC BY-SA 2.0, https://commons.wikimedia.org/w/index.php?curid=4508916
2. Impact of demand

Western Ring Road Melbourne

- Greenfields freeway 28 km in length
- Constructed 1989 – 1997
- Cost $631m

- Freeway upgrade now underway
- Construction 2009 – 2021
- Cost $2,250m

Source:

2. Impact of demand

.. the justification for taxpayers spending billions of dollars of public money on the proposed road was "based on flawed traffic modelling and cost-benefit analysis"..

Source:
2. Impact of demand
Big data - heavy vehicle road use

Opportunities from digital disruption and big data

- Telematics
- Connected vehicles
- Automated vehicles
3. Life cycle management
3. Life cycle management

Austroads projects:

• Data to support heavy vehicle road reform
  —Heavy vehicle infrastructure rating (HVIR)
• Long term performance monitoring to develop consistent performance models
• Network trend analysis to identify the effectiveness of maintenance activities on pavement condition
• Implementation of a nationally consistent framework for the assessment of bridges in Australasia
• AS5100-7 NHVR Tier 3 bridge assessment
• Guide to asset management
3. Life cycle management – data analytics
4. Risk management

- financial risks
- operational risks
- natural hazards or disaster events
- physical asset failure risks
- reputational risks
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4. Risk management

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NSW gives cotton transporters a boost

The New South Wales Government has provided additional access across the Carrathool Bridge to help the local cotton industry increase productivity and reduce truck trips during harvest.

According to NSW Minister for Roads and Freight, Duncan Gay, the announcement comes in response to a request by local NSW farmers and Cotton Australia. The NSW Government had worked closely with both the Murrumbidgee and Carrathool Shire Councils to come up with a solution for cotton farmers.

"I am delighted to announce more good news for the local cotton industry, providing improved benefits to local business and farmers," Minister Gay said.

"Now double road trains capable of transporting up to 75 tonnes of cotton for processing can apply for a special permit to use the Carrathool Bridge allowing up to 18 cotton modules to be moved per trip – six more modules than a B-double."

"The NSW Government understands agriculture is the lifeblood our regional communities and is working hard to help the local industry."

…To enable access NSW RMS has installed stain gauges along the bridge to monitor the activity and safely sustain the higher mass …

Source:
5. Long term financial plan

Overview of Expenditure and Investment

<table>
<thead>
<tr>
<th>Year</th>
<th>Expenditure ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016–17 approved</td>
<td>3,215.08</td>
</tr>
<tr>
<td>2017–18 indicative</td>
<td>3,255.92</td>
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<tr>
<td>2016–19 indicative</td>
<td>2,693.49</td>
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<tr>
<td>2019–20 indicative</td>
<td>1,024.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10,188.48</strong></td>
</tr>
</tbody>
</table>

Source:

5. Long term financial plan

Heavy vehicle road reform…

Asset planning and strategic insight

Vehicle mass data is critical for asset planning and strategic insight

- Define level of service and monitor performance
- Managing the impact of demand changes
- Cost effective life cycle management strategies
- Risk management
- Long term financial plan
Thank you

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