

# Project 1.3

## The Future of Roads: Reducing Environmental Pressures, Managing Carbon, and Considering Future Scenarios

### RESEARCH PROGRAM 1: GREENING THE BUILT ENVIRONMENT

In the coming decades the design, construction and maintenance of roads will face a range of new challenges and as such will require a number of new approaches. Such challenges will result from a growing number of interconnected environmental, social, and economic factors, which are set to apply significant pressure on the future of roads. For instance, environmental pressures will include the impacts of climate change on rainfall patterns and temperature profiles; economic pressure will be affected by materials and resources shortages, along with predicted increases in energy and resource prices globally, and social pressures will include potential shifts to lighter vehicles, reduced use of cars due to higher fuel costs, and political pressure to respond to climate change.

To inform the response to such challenges this project is focusing on three key areas:

- Identifying ways to reduce environmental pressures from road building;
- Enhancing the management of carbon by road agencies; and
- Investigating future trends and scenarios that will affect roads.

The research team from Curtin University and QUT are focused on delivering: a report on current efforts to reduce the environmental pressures from roads; a carbon management guidance report for Australian road agencies; and a report on a series of future trends and potential scenarios (including the results of stakeholder workshops). Each of the outcomes will be focused on providing value to partners and will continue to be developed in close collaboration with stakeholders. Project partners include: Parsons Brinckerhoff, John Holland, Queensland Transport and Main Roads, Main Roads Western Australia, Australian Green Infrastructure Council,

## Project Outputs for 2011

### Stakeholder Engagement

A series of stakeholder meetings have been held along with the facilitation of two stakeholder workshops involving over 25 participants, in Perth and

Brisbane. Participants were asked to review selected outcomes from the literature review related to reducing the environmental pressures from road building, and then asked to identify critical indicators for roads in the future based on a discussion of potential future considerations, risks and pressures. The final session then focused on how scenarios might be developed to deliver tangible benefit to stakeholders.

### Carbon Management Guidance for Road Agencies

Based on the findings of the literature review and stakeholder engagement, the proposed sustainability assessment framework was reconfigured to provide an overarching platform to streamline the consideration of carbon management within road agencies, covering the core existing tools and processes in each of the main steps in road planning, funding, procurement, delivery, and maintenance.

### Future Trends and Scenarios

Based on the findings of the literature review and stakeholder engagement (which identified climate change and resource shortages as key trends), the team has developed a series of trend summaries that will be explored in a second round of stakeholder workshops in Perth and Brisbane, including:

- Increase in the cost of road maintenance,
- Increase in extreme weather events,
- Oil based road surfacing unfeasible,
- Trips by walking, cycling and public transport increase,
- Resource shortages: aggregate shortages, fresh water scarcity,
- Freight vehicles increase in size and frequency, and
- Funding constraints on new projects and on maintenance of existing infrastructure.



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