



## Development of Victoria's rural highway strategies

Ken Russell

VicRoads

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### Abstract:

Victoria's rural arterial road network strategy: *Linking Victoria*, released in 1996, provides a framework for VicRoads to develop effectively targeted programs for improving the rural arterial road system in ways that meet the needs and expectations of the community. It is designed to provide a rural road system which is relevant to user needs and is affordable

The focus of *Linking Victoria* is the broad management of the 19,000 km of rural arterial roads by VicRoads for the Victorian and Federal Governments. The objectives are to balance the economic, social and environmental expectations of the stakeholders who rely on the road network for access, and to the community in general.

A program of studies has commenced to prepare highway corridor strategies for all major highway routes. *Linking Victoria* sets, through its seven strategy elements, the function of each route and the appropriate performance standards. These highway corridor strategies are a greater level of detail than *Linking Victoria*. Their purpose is to establish, for the 10 to 15 year study period, the future travel demand, the needs and priorities for significant improvements and the planning activities required to protect future transport options and achieve required access controls. They indicate the role of the route, the current and projected demand for travel, the particular user needs along the route, the current condition and identify the works necessary to bring each corridor up to the *Linking Victoria* performance standards. Priorities are established for actions in each corridor that provide a plan for the management of the route.

The paper provides an overview of the development of *Linking Victoria* and discusses the methodology, consultation, project identification and priority setting behind the development of the highway corridor strategies. VicRoads has produced several of these strategies and has about twenty in various stages of production.

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### Contact author:

Mr Ken Russell  
Manager Highway & Network Strategies  
VicRoads  
60 Denmark St  
KEW VIC 3101

Telephone: (03) 9854 2908

Fax: (03) 9853 0341

Email: Ken.Russell@urnotes.roads.vic.gov.au

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### **Introduction**

Victoria's rural arterial road network strategy: *Linking Victoria*, released in 1996, provides a framework to develop effectively targeted programs for improving the rural arterial road system in ways that meet the needs and expectations of the community. It is designed to provide a rural road system which is relevant to user needs and is affordable.

The focus of *Linking Victoria* is the broad management of the 19,000 km of rural arterial roads by VicRoads, as the state road authority, for the Victorian and Federal Governments. The objectives are to balance the economic, social and environmental expectations of the stakeholders who rely on the road network for access, and to the community in general.

An integrated transport strategy for regional Victoria, *Transporting Victoria*, is being produced by the Department of Infrastructure. This strategy draws from *Linking Victoria* for the road component and expands to include the other transport modes. *Transporting Victoria* forms the transport element in a "whole of government" strategy for rural and regional Victoria.

A program of studies has commenced to prepare highway corridor strategies for all major highway routes. *Linking Victoria* sets, through its seven strategy elements, the function of each corridor and the appropriate performance standards. These highway corridor strategies are at a greater level of detail than *Linking Victoria*. Their purpose is to establish, for the 10 to 15 year study period, the role of the route, the future travel demand, the needs and priorities for significant improvements and the planning activities required to protect future transport options and achieve required access controls.

State wide priority for funding of works on rural declared roads is broadly set by *Linking Victoria*. The scope of individual projects is checked for compliance with *Linking Victoria* and other corporate strategies. Priority is set by these strategies and the economic benefits of the project. The highway corridor strategies provide the priority for projects along the corridor.

### **Linking Victoria**

*Linking Victoria* is a strategy for the management and development of Victoria's rural arterial roads over the next decade. The strategy assists in targeting of funds to areas that will improve the safety and efficiency of the transport system in ways which meet a range of community objectives. The strategy is designed to provide Victoria with a rural road system which is relevant to user needs and is affordable.

## Objectives

The objectives are to balance the economic, social, safety and environmental expectations of the stakeholders who rely on the road network for access, and to meet the road transport needs of the community in general.

- The economic objective is to allow people and goods to move easily around Victoria, in order to support state and regional economic development.
- The social objective is to allow all users equity of access to a range of community services, activities and economic opportunities.
- The safety objective is to reduce the incidence of road crashes, their severity and cost to the community.
- The environmental objective is to enhance the road environment and minimise any adverse environmental impacts of road management and road travel.

## Consultation

The first step in the development of *Linking Victoria* was to determine the transport issues and needs of rural road users. Initially this involved three levels of consultation involving stakeholder interviews, user surveys and input from a steering committee established to oversee the study.

Two major surveys were undertaken. The Royal Automobile Club of Victoria, the motorists association in Victoria, conducted a survey of members through the club's magazine. Members were asked to rank the importance of 19 rural arterial road features and 1,800 responded. A survey of 57 rural manufacturers was also conducted. The results of these surveys provided major input into the development of performance standards.

A series of eight discussion papers based on the consultation and in-house investigations were produced. The papers summarised major issues and the role transport could play in improving the quality of each activity and were used to generate further comment and debate. These papers were widely distributed around Victoria via a mailing list of interest groups and individuals, through local government and their availability was advertised in metropolitan and regional press.

## Key Issues

From the consultation phase and the comments received on the discussion papers, many issues were identified. Most of the issues could be grouped into six main themes:

- Victoria - a competitive rural economy with increased support needed for freight transport and tourism;

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- Links between regions improved, in particular improved connections to the ports at Geelong and Portland, from north-eastern Victoria across the ranges to Gippsland and from central to western Victoria;
- Road safety, reduced crashes in rural Victoria;
- Road standards and maintenance - consistent standards along routes, better direction signing, more overtaking opportunities, roads and bridges maintained in a condition that allows for safe travel;
- Protecting rural environments both roadsides and amenity of towns;
- A comprehensive transport service that is integrated and flexible for both freight and private travel.

### Analysis

The issues identified were used as a guide in the development of the strategy elements. Ideas for ways to address the transport related issues were tested for their feasibility, effectiveness and affordability. Broad level traffic and economic analysis was undertaken to provide a quantitative basis for the justification of development proposals.

The methods of analysis employed included:

- Geographical Information Systems to determine levels of service on the total rural arterial road network and to assist in the identification of section of road with capacity constraints;
- production of a set of generic graphs of travel time savings against overtaking lane spacings for different road conditions to assist in the assessment of the need for additional overtaking lanes on a network wide basis;
- costing of all improvement projects and an economic evaluation, using an in-house project evaluation model, and to enable all projects to be prioritised in terms of their economic benefits, accident records, consistency with strategic objectives and cost

### Strategy Elements

*Linking Victoria* provides a straightforward and practical framework for the management and development of the rural arterial road network through seven strategy elements that are user focused and outcomes orientated. Table 1 provides details of the strategy elements

### Implementation

*Linking Victoria* provides a strategic framework within which detailed planning and resource allocation for VicRoads will be prioritised and undertaken. Its elements and presentation style are designed to reinforce the message to staff, local government and the

**Table 1** *Linking Victoria strategy elements*

Strategy element	Description
Develop a road network that is easy for the motorist to use	A simple route marking and numbering scheme will be established for rural arterial roads. Route marking will reflect the quality and function of each road, with emphasis on aligning driving condition standards with road function.
Improve access between regions	Access will be improved between regions by continuous sealed two-lane roads suitable for freight traffic and tourist traffic.
Provide additional capacity on major roads	Highways with heavy traffic volumes that link Melbourne to major provincial centres will be duplicated and progressively upgraded to freeway standard. Other major roads will be upgraded to reflect the amount and type of traffic they carry.
Make rural travel safer	The incidence, severity and cost of road crashes in rural areas will be cut by measures to improve road conditions and to promote safer driving.
Reduce freight costs	Weak links in the arterial road network will be upgraded to improve access for freight vehicles. High-capacity vehicles will have easier access to key terminal in order to improve intermodal efficiency.
Improve road facilities for tourists	Tourist travel will be made easier and more enjoyable through improved route information, predictable road conditions and better signs.
Protect and enhance the road environment	Environmental management will be integral to all VicRoads work. Sensitive areas will be protected.

community that VicRoads' role is to wisely use the resources available to it in ways which help achieve community defined outcomes.

A program of studies has commenced to prepare highway corridor strategies for all the major highway corridors. Linking Victoria sets the priorities for these studies, the function of each corridor and the appropriate performance standards.

#### **A Road Network that is Easy for the Motorist to Use**

One of the key elements of *Linking Victoria* focuses on improving features of the road system which influence the degree of ease and comfort experienced by motorists when travelling on rural roads. Key actions within this element include the adoption of a functional classification system, simpler signing, improved road markings and the adoption of user defined performance standards for factors such as pavement width, road roughness and shoulder sealing.

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Linking performance standards to the role of the route provides significant benefits to both the State and the motorist. By better matching minimum performance standards to the role, resources can be invested in the areas of greatest need and benefit which overcomes the problems of over-design or over-investment in relatively minor roads. By linking the road's function, signing and performance standards, motorists unfamiliar with an area are able to have greater confidence in the minimum standards experienced on each road. This is of particular assistance to tourists.

Table 2 illustrates the link between the function of the route and the performance standards.

### The Highway Corridor Strategies

Highway corridor strategies are being developed for each 'M', 'A' and 'B' route and for nominated 'C' routes. These strategies are at a greater level of detail than *Linking Victoria*.

**Table 2: Function and Performance Standards for Rural Arterial Roads (Source: VicRoads (1996))**

	Function	Performance Standard
'M' roads	(duplicated motorway) Provide the primary road links that sustain economic and regional development. They connect Melbourne and major provincial, and they link major centres of production and manufacturing with Victoria's export terminals.	Provide consistent high standard of driving conditions with divided carriageways, four traffic lanes, sealed shoulders and with delineation and linemarking that is easily visible in all weather conditions.
'A' roads	Serve the same role as 'M' roads but carry less traffic. These roads will be built with single carriageways.	Provide a similar consistently high standard of driving conditions on a single carriageway. A program of shoulder sealing and overtaking lane construction will be carried out, initially on sections with daily traffic volumes of more than 2,000 vehicles and strategic freight routes.
'B' roads	Provide the primary link between major regions not served by 'A' roads, and highly significant tourism regions. They have strategic significance for Victoria.	Have sealed pavements wide enough for two traffic lanes, with good centreline and edge linemarking, shoulders and a high standard of guidepost delineation. Additional overtaking lanes are provided on higher volume 'B' roads to improve road safety and capacity.
'C' roads	Provide the more important links between other centres of population, and between other centres and the primary transport network.	Generally are two lane sealed roads with shoulders. Standards are determined on the basis of cost-effectiveness, depending on traffic and terrain, accident records, load restrictions and flooding frequency.

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and identify the role of the route and the works necessary to bring each highway corridor up to the performance standards established in *Linking Victoria*, and establish priorities for actions in each corridor.

The two key stages in the development of the highway corridor strategies are the identification of the planning issues and the preparation of the strategy. The planning issues stage involves the collection and analysis of all road data, consultation with key stakeholders and identification and analysis of issues that may impact on the long-term function and performance of the route. Following a review, the strategy is prepared in a clear, easy-to-read format. This strategy establishes, for the next 10 to 15 year period, the future travel demand requirements, the needs and priorities for significant improvements required to achieve specified operational performance standards and the planning activities required to protect future transport options and achieve required access controls.

### Consultation

During preparation of the strategy discussions are held with the key stakeholders along the route to assist in identifying issues and development proposals that may impact on the function of the route. The key stakeholders include local government, user groups, key industries, tourism bodies, utility providers, and other government agencies.

### Data Analysis

During the study there is extensive collection and analysis of data relating to the route. This analysis assists in providing an improved understanding of the route and the issues to be considered in preparing the management plan. The key types include:

- relevant demographic, employment, land use and industry data to identify trends and needs to the level necessary to influence the strategy;
- road inventory and pavement condition data;
- traffic counts;
- road accident records;
- bridge and major culvert condition and load capacity information;
- significant roadside constraints, including flora, heritage and archaeological;
- information from other strategic studies or related work.

### The Role of the Route

A key function of the highway corridor strategy is to identify the role played by the route in the state rural arterial road network and to confirm the *Linking Victoria* classification of the route. A route whose prime role is related to tourism, for example the Great Ocean Road, is managed in a different manner to a route whose prime function is associated with grain cartage or access to a port.

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Where the role of a route is mixed, for example where the route serves both freight and tourism purposes, then specific measures may be required to enable both roles to co-exist.

#### Project Identification and Evaluation

*Linking Victoria* identifies priority actions for road improvements across Victoria. These are shown in Figure 1 and are the investment priorities in the appropriate highway corridor strategy.

In identifying potential projects the appropriate performance standards listed in *Linking Victoria* are used. In addition the following criteria are also considered:

- possible road duplication where, for a two-lane, two-way road, drivers are severely restricted both in speed and manoeuvrability and the duplication can be justified on economic criteria;
- overtaking opportunities, assessed on the economic criteria established in ARRB (1995), for specific safety and/or capacity purposes;
- potential town or truck bypass routes are considered on their economic viability;
- safety improvements taking into account accident rates;
- bridges are assessed for B-double access, clearances, load capacity and susceptibility to flooding

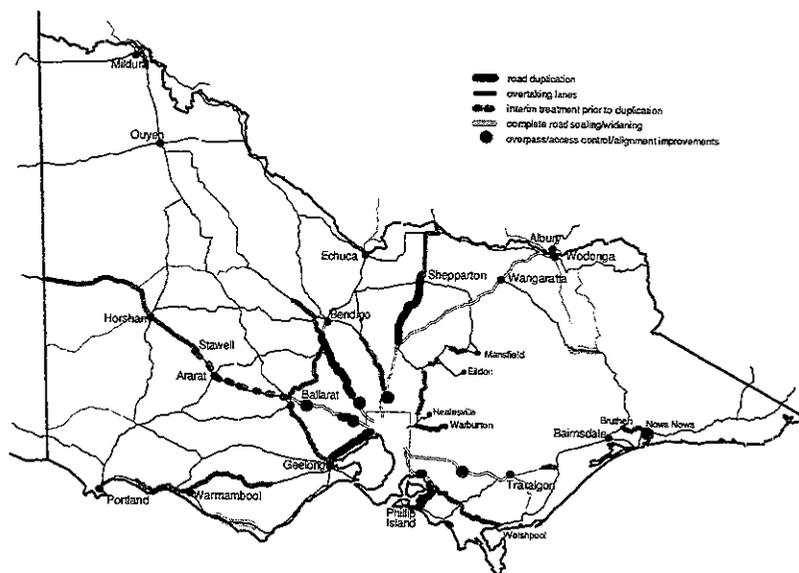


Figure 1: Priority actions for road improvements (VicRoads (1996))

### The Management Plan

Each highway corridor strategy summarises:

- the broad function of the route;
- the current and projected demand for travel on the route, in relation to regional and economic development forecasts and strategies;
- particular user needs in the corridor, e.g., intermodal links, B-double use, public transport, damage sensitive commodities, tourism, rest facilities, etc.;
- quantified performance objectives;
- roadside management objectives;
- constraints that must be recognised in the future development and use of the route;
- the land requirements and access controls required for the intended development;
- quantified (costs and benefits) management plans to achieve the intended performance standards, including access controls, traffic management, safety improvement, capacity improvement, overtaking opportunities, tourism and destination signing, road and roadside management;
- investment priorities for the corridor covering both construction and planning issues

The highway strategies are published in a clear, easy-to-read format and distributed to key stakeholders. They provide guidance and direction for the development of the detailed programs and in the allocation of funding for projects along the route.

### Setting Priorities

The highway corridor strategy provides a statement of the management actions and development plans required to achieve the intended long-term function and performance of the route considering all the various issues identified during the study. An indicative program for planning and improvement works over a 10 to 15 year period is provided. The program assumes a realistic funding profile based on historic trends and future needs. The overall timing of the program is ultimately determined by funding levels and on statewide priorities.

Priorities for implementation of the various improvement projects along the route are determined from the role of the route, the location and significance of the project and its economic assessment

### Conclusion

*Linking Victoria* is important not only in establishing programs of road improvements for the rural road network, but also in the development of strategies for each of Victoria's rural

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highways. The performance standards and road improvements defined in *Linking Victoria* assist in development of these strategies. *Linking Victoria* provides a clear direction for the management and development of the state's highway network over the coming decade.

The strategic approach being applied to the management of the rural arterial road network through the development of highway corridor strategies offers substantial benefits to the community in terms of:

- easier travel;
- safer travel;
- improved knowledge of road conditions;
- uniformity of conditions on roads with the same designation;
- better targeting of road improvements;
- improved access to road/ship and road/rail interchanges;
- growth in tourism resulting from improved access;
- the signing likely to be adopted nationally; and
- the opportunity to further debate and refine the strategy.

#### **Acknowledgements**

This paper is presented with the permission of VicRoads. The views expressed in this paper are those of the author and do not represent the views of VicRoads.

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