MELBOURNE'S WESTERN RING ROAD — PLANNING FOR AN ACCEPTABLE PROJECT

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SUMMARY

The paper describes the processes and investigations involved in preparing an Environment Effects Statement for the Western Ring Road between Laverton North and Tullamarine and defining the land to be reserved in the planning scheme. Emphasis is placed on the processes involved in arriving at an acceptable project rather than on technical information. After summarising the background of the project, the range of potential impacts is described. These are then examined in the context of: (1) the strategic nature of the project, including its relevance to government economic, urban development and road development strategies and its impact on future traffic; (2) the parallel and linked investigation activities: (a) the development, design and refinement of concepts and options, (b) specialist investigations of options: future traffic noise, air quality, biology (flora and fauna), archaeology, landscape, economic development, land use, specialist design, community profile and social impact, and (c) community consultation, including initial and ongoing contact, two way information flow, public displays and local area meetings; (3) the selection of favoured options, taking into account design and performance criteria, the outcome of the specialist investigations and community inputs; and (4) lessons learnt, with emphasis on: (a) the need to be up-to-date on environmental and technical issues, (b) management issues and the future direction of statutory processes, and (c) the level of contact with the community.

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The author thanks Warwick Bull, David Ryan and other members of the WRR Study Team for their contributions to the EES upon which this paper is based.

Bob Evans has worked in transport and land use planning in Melbourne since 1962. His responsibilities included:

- Manager, Western Ring Road Study at VicRoads (current);
- Manager, Strategic Planning at Ministry of Transport (1984-88): development of the metropolitan road strategy, input into major government strategies and review of projects of State significance;
- Head, Physical Development Division, MMBW Planning Branch (1980-84): district centre policy, major projects review, environmental matters, road reservations and the Yarra and Maribyrnong River Valleys improvement plans;
- Leader, Joint (CBR-MMBW) Planning Group (1973-80): road network reviews and major corridor studies.

Earlier, Bob worked on construction, design and planning of a number of major road projects and was seconded to the Metropolitan Transport Study. He has published 8 papers, several on corridor studies and community participation.

INTRODUCTION

BACKGROUND

1. Melbourne's proposed Western Ring Road (WRR) will traverse the western and northern suburbs from Laverton North to Greensborough, linking a number of major radial routes. The inset to the locality plan, Figure 1, shows the extent. The Greensborough Bypass is already open to traffic and the Broadmeadows section is under construction and due for completion in 1992. The section subject of this paper is between Laverton North and Tullamarine as shown in the main part of Figure 1. The investigation upon which this paper was based was carried out by a study team within VIC ROADS (the Roads Corporation, Victoria).

2. The western leg of the WRR would be 20km long, and would

* link major radial routes including West Gate Freeway, Princes Freeway to Geelong, Western Highway to Ballarat and Adelaide, the Calder Freeway to Bendigo, Tullamarine Freeway to Melbourne Airport and the Broadmeadows Section of the WRR.

* provide a direct north-south route in the Western suburbs, including a much needed new crossing of the Maribyrnong River at East Keilor

* provide an attractive alternative route for through traffic, particularly trucks, currently travelling through residential areas

* improve the local road network by providing better connections between neighbouring areas

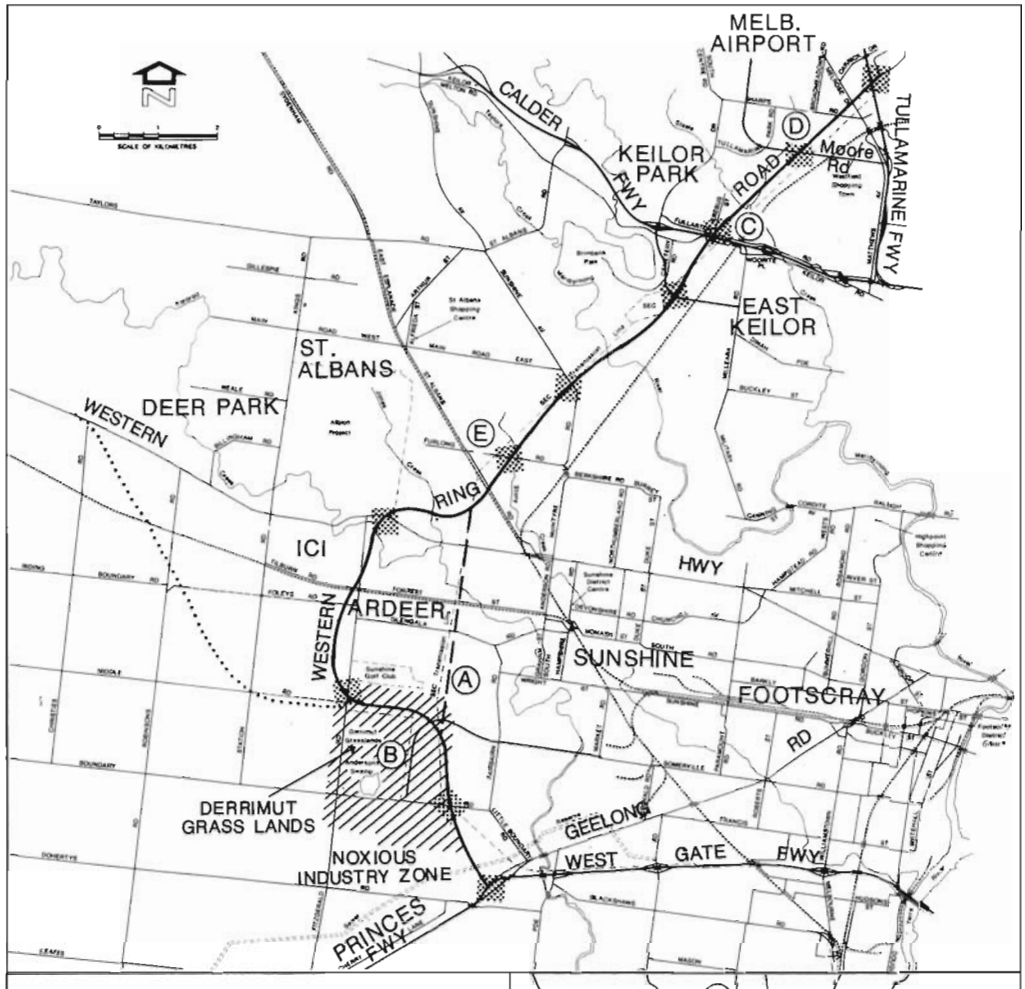
* help economic development in the Western suburbs by improving the flow of road traffic to and from key commercial and industrial areas and act as a catalyst for future development

3. Reservations for ring roads in the western suburbs were first included in the Melbourne Metropolitan Planning Scheme in 1954. These have been progressively updated and modified, leaving a single reservation known as R3/R5 running generally alongside the major circumferential SEC easement (see Figure 1).

4. As a result of METRAS (refer to paragraph 19), the WRR was identified as the key element in a road strategy for the Western Suburbs. This was reinforced by NATROV (refer to paragraph 20), which resulted in the acceptance of the WRR by the Federal Government for funding as a National Arterial road. The next steps were to prepare an Environment Effects Statement (EES) (VIC ROADS 1989a) and an Amendment to the municipal planning schemes. This current study was done to meet these statutory requirements before final acceptance of the proposal by the Government and detailed design and construction can commence.

5. The **Environment Effects Act (1978)** sets up a procedure whereby the potential environmental impacts of proposed developments are carefully assessed before any decision is made by government agencies. In response to these aims, the purpose of the EES is to:

* summarise the consultative process, the community input and the manner in which the study was conducted,



LEGEND

- INTERCHANGES (PROPOSED)
- PROPOSED WESTERN HIGHWAY CONNECTION
- PROPOSED ROAD (WRR)
- EXISTING PLANNING SCHEME
- (A) RESERVATION, ARDEER
- (B) ENVELOPE OF OPTIONS SOUTH OF ARDEER
- (C) CALDER FREEWAY INTERCHANGE
- (D) AIRPORT CONNECTION
- (E) FURLONG RD INTERCHANGE

INSERT PLAN

- ●●● WESTERN RING ROAD
- (X) GREENSBOROUGH BYPASS (BUILT)
- (Y) BROADMEADOWS SECTION (CURRENT)
- (Z) WESTERN (THIS INVESTIGATION)

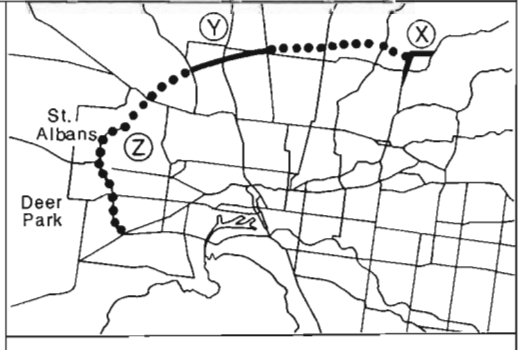


FIGURE 1

WESTERN RING ROAD SUNSHINE TO KEILOR SECTION LOCALITY PLAN

* describe the likely form and location of the WRR,

* describe the environmental, social and economic effects of the new road and measures proposed to ameliorate any adverse impacts,

* summarise the other options and alternatives considered, but not recommended, in the study,

* help interested persons and organisations understand the road proposal and make meaningful comment.

6. The **Planning and Environment Act (1987)** requires amendments to land use zones and public purpose reservations shown in planning schemes to be exhibited for at least one month. In this case changes to three municipal planning schemes (Werribee, Sunshine and Keilor) have been prepared. These include changes to the WRR reservation and consequential re-zonings of adjacent land.

7. Note that at the time of completing this paper (late February 1990), the public exhibition of the EES and planning scheme amendments had just concluded. About 35 submissions were received.

8. Following the exhibition period, all submissions received in relation to the EES and the proposed planning scheme amendments will be considered. An independent panel may be appointed by the Minister for Planning and Environment to hear submissions and report to him. The panel will be aided by any final comments or variations to the EES recommendations prepared by VIC ROADS in response to public submissions. The Minister will then provide an assessment of the environmental effects of the new road for consideration by the Minister for Transport and other approval agencies. This process is scheduled for completion by mid 1990.

9. All this information will be used by the Minister for Transport to formulate recommendations for adoption by the Government. After the Government's decision, the Minister for Planning and Environment will approve any necessary Planning Scheme Amendments.

WHAT IS AN ACCEPTABLE PROJECT?

10. The acceptability of a major project depends upon whether or not it:

- meets Government economic, social, urban and environmental objectives.
- will achieve significant net benefits for the potential users and the broader community
- minimises adverse impacts on the communities through which it passes
- has broad community support.

11. The main theme of the study was to identify potential positive and negative impacts of the WRR and to work with the community to establish the range of community viewpoints relating to the project. As is usually the case in a project of this type, most of the positive implications are regional in nature and as a result, the project attracted general support across the broad community. On the other hand, negative impacts are usually local in nature and it is those who are likely to be directly effected who become most involved in the study process.

12. Primary positive impacts in this case are increased accessibility at both a local and regional level (less travel time to desired destinations and more choice within a selected travel time) and removal of through traffic, especially truck traffic, from main and local roads in the area thereby increasing local amenity. The proposal is also supportive of the Government's urban development and economic goals - to promote further residential development in the west and to improve the viability of industries undergoing restructuring by making them more accessible to their markets and the workforce.

13. Some of the main negative impacts, or social impacts, are the direct impacts felt by people and communities displaced by or who live, work or attend school close by. Examples are loss or displacement of homes, jobs, friends and neighbours and parkland. After construction, those remaining may suffer loss of amenity through increased noise, air pollution, visual intrusion and severance which forces changes in movement patterns and access to friends and community facilities.

14. It is also important to take a wider view of the potential impacts. The distribution of positive and negative impacts are important. Which community groups are the winners? Which are potential losers? Some groups adjust readily to change (e.g. transport operators) while others find it most difficult (e.g. elderly residents who have lived in areas for long periods and those who belong to closely knit ethnic groups). Many impacts can be assessed objectively (e.g. numbers of houses required, noise levels before and after construction) but there is always a subjective element to be taken into account (e.g. fear of having to be relocated and changes in attitude resulting from physical changes to an area). A further dimension is that of immediate impact (eg. compulsory acquisition of property) against longer term ongoing impacts (eg. change to noise environment).

15. To respond to these challenges, a study process was set in place which identified the regional relevance and strategic nature of the project and proceeded with three parallel activities:

- location and design work
- specialist investigations to address key community issues and
- the community consultation program.

16. The consultation program included a commitment to keep the community fully aware of the viable options, and to modify or reject the less acceptable as the study progressed. The most difficult aspect of the consultation program was the identification of and contact with all likely interest groups in a very diversified community, characterised by isolated suburban pockets, large ethnic groups, a high turnover of people in rental accommodation and an aging population in some areas.

STRATEGIC NATURE OF THE PROJECT

RESPONDING TO BROAD GOVERNMENT STRATEGIES

State Economic Strategy

17. The Victorian state economic strategy (Victorian Government, April 1987) is the key government development strategy for the late 1980's. On

the subject of transport, the strategy emphasised the need to identify a number of roads within Melbourne for inclusion in the National Road Network to provide the opportunity for the Commonwealth and State to achieve common economic goals. Melbourne's arterial road network carries 99 percent of intra-urban freight and more than 75 percent of major freight movements to and from national and key rural corridors. It thus plays a major role in the State economy.

Support for Metropolitan Development

18. The metropolitan policy document, 'Shaping Melbourne's Future' (Victorian Government, August, 1987) presents a strategy for managing future metropolitan development. The basic framework plan emphasised the need for higher density residential development in the inner and middle suburban areas but recognised the need to allow for some further outward growth focussed in three corridors. The framework plan included the nomination of 15 district centres and the recognition of major activity areas. The WRR was seen as a high priority project linking many of these areas and overcoming access problems in the western suburbs caused by a disjointed road network. It would play a key role in the improvement and development of the western suburbs.

METRAS and NATROV

19. The Metropolitan Arterial Road Access Study (METRAS) recommended a 10 year development and management strategy for Melbourne's metropolitan road system to complement the State Government's evolving economic and metropolitan development strategies (Ministry of Transport, 1987). The strategy evolved after a community consultation process which examined a range of options for a road program which met budget constraints. The WRR concept was strongly supported by western suburban Councils and community groups and was included in the strategy adopted by the Government.

20. The National Roads Strategy - Victoria (NATROV) concentrated on urban freight movement corridors and was aimed specifically at assisting State and Commonwealth economic objectives (Road Construction Authority, 1987). Four key corridors were identified to link existing National Roads (the Hume and Western Highways), Melbourne Airport, the Port of Melbourne and the main manufacturing areas. One of the projects identified and accepted by the Federal Government as a National Arterial Road eligible for Federal funding was the circumferential WRR between Tullamarine and Laverton North.

EXISTING AND FUTURE TRAFFIC

Current Traffic

21. The road network in the study area is characterised by discontinuities arising from a limited number of crossings of the Maribyrnong River, existing railway lines and SEC transmission line easements. In addition, Melbourne Airport, the Port of Melbourne and freight transport centres are on the fringe of the study area and generate a large number of commercial traffic movements throughout the study area. (VIC ROADS 1989b).

22. Traffic growth is high on arterial roads serving new residential growth in developing fringe areas (15 percent per annum) and on West Gate

Freeway, where traffic has grown from 51,000 vpd in 1986 to 82,000 vpd in 1988 since removal of the toll on the West Gate Bridge and extension of the freeway into South Melbourne. In other areas, traffic growth has been modest, generally one or two percent per annum since 1984. Despite problems at particular locations, traffic congestion is not as great a problem as it is in other parts of Melbourne. Regional signal co-ordination has minimised increases in congestion. Many roads currently carry through traffic greater than 10,000 vpd with high proportions of trucks and have residential properties abutting mainly 20m road reserves. As a consequence, the amenity of residential and several local shopping centres is adversely affected.

Future Travel Demands

23. Estimates of travel demands at 2001 were prepared for two scenarios, without the WRR and with the WRR. These estimates were arrived at by using VIC ROADS suite of computer models which generate trip origins and destinations, link these and assign trips to a simulated road network. (VIC ROADS 1989c).

24. It is estimated that the WRR, if completed by 2001, would carry between 27,000 and 52,000 vehicles per day, depending on the location. About 10 percent of this traffic would be trucks. Total travel on the WRR would be about 830,000 vehicle kilometres per day, or one percent of total metropolitan travel. The benefit/cost ratio for the WRR is estimated as 4.0 and the net present value as $656 million.

25. Most arterial roads in the corridor would carry less future traffic if the WRR was built. The exceptions are a few roads which would interchange with the WRR, and the feeder roads at each end (West Gate Freeway, Princes Freeway and the Broadmeadows section of the WRR). Because the WRR would overcome many of the road network discontinuities in the western suburbs, travel times between major land uses within the region will improve (dramatically in some cases).

ROAD CORRIDOR INVESTIGATIONS

26. The current investigation commenced in September 1988 and was structured to proceed on three fronts (refer paragraph 15) within a timetable which required:

- a public display of initial options in April 1989
- the analysis of options and selection of the 'Favoured Route' by mid 1989
- preparation and public exhibition of an Environment Effects Statement (EES) (VIC ROADS 1989a) and relevant planning scheme amendments before the end of 1989
- completion of the statutory processes with a final report to the Government through the Minister for Transport by mid 1990.

THE DESIGN PROCESS

27. One of the immediate tasks, once the Study Team was established, was to develop and investigate a full range of alignment options. A cross-section was selected that would enable a six lane, freeway standard road to be built ultimately. Early stages would be to four lanes (leaving

the median lanes until later) with at-grade intersections instead of interchanges at several locations. Outer separators of sufficient width to include sound attenuation mounds and landscaping are provided, resulting in a total width of about 70m, depending upon requirements for earthworks etc. The horizontal and vertical geometry was designed to 110 kph, with 750m minimum radius for horizontal curves.

28. Options were examined at four locations along the WRR: (refer to Figure 1):

* at Ardeer, where alignment options along the planning scheme route were compared to an alignment option to the west of Ardeer,

* south of Ardeer, where a number of alignment options were examined to assess their impact on the Derrimut Grasslands Reserve and surrounding land uses,

* at the Calder Freeway, where a number of interchange options were examined,

* at Airport West, where options to connect to Melbourne Airport and to extend Moore Road were examined.

In addition, a variation to the planning scheme route at Furlong Road, North Sunshine, was examined to lessen the impact of the WRR on nearby housing. A number of local road network improvements were also examined to provide access between local areas and the WRR.

SPECIALIST STUDIES

29. To complement the design process, and in anticipation of issues likely to be raised by other agencies, councils and the community, a number of specialist studies were commenced in late 1988. Some of these were carried out by the Study Team with specialist assistance from within VIC ROADS while consultants were engaged for the others. A series of Supplementary Reports were prepared on these studies, and these are available to the community along with the EES (see References).

Traffic Noise

30. Traffic noise from new road developments is recognised as a major community concern and the WRR Study has placed particular emphasis on identifying areas where noise is likely to be intrusive. (VIC ROADS 1989d).

31. The operation of the WRR would result in an increase in noise levels at several houses along the route. At some locations, the WRR bisects relatively undeveloped open space where existing noise levels are in the order of 55 decibels (dB(A)) on the L10 (18 hour) index. A number of interchanges and overpasses are located near residential areas. Wherever possible, noise barriers would be constructed with the objective of preventing noise levels exceeding the L10 (18 hour) level of 63 dB(A), which is below the present objective of 68 dB(A). The type of noise barrier used at particular locations would depend on local conditions, predicted noise level and technical feasibility.

Air Quality

32. A study of current and predicted air quality indicates that the WRR would not have a significant effect on the level of air pollution and therefore any changes in air quality are expected to be negligible. (Consulting Environmental Engineers 1989). Despite an expected 30 per cent increase (by 2001) in traffic growth in the Western Region, whether or not the WRR is built, overall increases in air pollution would be minimal because of more effective vehicle emission controls and the diversion of traffic from other roads to the WRR.

Landscape

33. A preliminary landscape concept plan has been prepared for the WRR but it needs to be developed further in conjunction with local Councils, other Government agencies and the local community. Particular emphasis would be given to environmentally significant areas, such as the Maribyrnong River, and the provision of continuous pathways for pedestrians and cyclists generally alongside the WRR. (EBC 1989).

Flora and Fauna

34. The construction of a major road such as the WRR would, by its very nature, have an impact on flora and fauna. VIC ROADS will work closely with the Department of Conservation Forests and Lands to ensure that disturbance to local plant and animal communities is kept to a minimum. Particular attention has been given to the Derrimut Grasslands Reserve, which would not be directly affected by the WRR. This area is particularly important, and is classified as being of State significance because it supports a plant community of 20 rare species and is the largest known habitat for the legless lizard (Delmar impar) (BIOSIS Research P/L 1989).

Archaeology

35. The consultant archaeologist identified one large Aboriginal site which would be partly disturbed by the WRR but the majority of it can be retained. This site has been independently assessed as being of low significance. Several historically significant industrial buildings on a site owned by ICI Australia Pty Ltd at Deer Park would be affected. These buildings could be preserved and relocated if necessary. (Du Cros 1989).

Calder Freeway Interchange

36. Specialist engineering consultants were employed to review and develop options for a possible freeway to freeway interchange between the WRR and the Calder Freeway at East Keilor. (Scott and Furphy P/L 1989). The consultant selected four options for detailed investigation, taking into account a range of controls including existing adjacent residential and light industrial development, the level of the existing Calder Freeway (to be the upper level of an interchange) and existing structures on the Calder Freeway. The recommended solution was a two-level interchange with turning roadways in two quadrants. This became the basis for determining the land required to be reserved in the planning scheme. A staging strategy was also developed.

Economic Impact

37. As well as assessing the user benefits and costs relating to future

traffic (VIC ROADS 1989c), regional economic input-output tables for the western suburbs were developed to assess the level of economic activity (or "flow-on") that would be generated during construction of the WRR. From an annual expenditure of $40M, $21M of output would be generated by western suburban industries and $10M would be added to household incomes. More than 400 jobs would be created (Western Region Commission 1989).

Land Use

38. A report was prepared setting out the land use changes that would result (Ministry for Planning and Environment 1989). These included deletions and changes to old reservations for other purposes, minor land use changes to pockets of severed land, replacement of open space, modifications to the secondary road system in the corridor and modifications to a proposed industrial area. This report took into account the Government policy to replace any open space lost because of a major project. It also reported on work done to provide the opportunity for small industrial businesses, which would be effected by the Calder interchange, to relocate in the immediate area.

Contamination Testing

39. Some of the areas likely to be traversed by the WRR are old tip sites and industrial sites used by the chemical and explosives industries. The Minister for Planning and Environment recently issued a directive that land used previously for industrial use and now proposed for residential, open space or other public use must be tested for contamination and action taken, where necessary, to decontaminate the land before the proposed use commences. Part of the WRR passes through land currently used by ICI Australia at Deer Park and contamination testing has been carried out. Testing will also take place prior to construction on the old Sunshine Tip site and another tip on the Maribyrnong River escarpment.

COMMUNITY CONSULTATION

40. The third parallel task was to develop an understanding of the profile of the community in the corridor, and to work with them to identify their concerns and aspirations relating to the WRR. As part of this process, a Liaison Committee with representatives of each council in the study was established to assist in the consultation process and to act as a "sounding board" of community views.

41. Ms Bridget Cramphorn, Consultant Sociologist of Loder and Bayly Pty Ltd, was engaged to work with the Study Team to:

* advise on, and assist with, the development of consultative processes with the community during the course of the study,

* develop an understanding of community attitudes and values, document these and assist the WRR Study Team with the development of strategies to address them,

* evaluate proposals and help assess the social impacts.

42. The aims of the consultative process were to:

* establish a consultative mechanism, which involved identifying and

contacting existing community groups, individuals and other groups formed during the course of the study,

* provide input into the planning study via feedback from consultation with the community.

43. The consultative process has been pro-active. Information has been sought from the community, rather than waiting for groups or individuals to approach the Study Team. Involving the community early gave individuals and community groups the opportunity to have their views heard at an early stage and considered as the road proposals were being developed.

44. The initial task was to develop a profile of the community (Cramphorn and VIC ROADS 1989a). The key sources of data for this were the councils, the 1986 Census and detailed reports prepared for the Western Suburbs Regional Consultative Council (Westurb 1988) and the Western Region Commission (Maher et al 1989). The profile looks at population, housing, ethnicity, employment, mobility and income. Comparisons were made between parts of the study area and with local government areas, the Western Region as a whole and the Melbourne Statistical Division. The information compiled helped form a picture of the social and demographic make-up of the study area which assisted in developing an understanding of the implications of the WRR as a whole and of the options in various areas. It also assisted in identifying various groups (elderly, ethnic etc.) that must be contacted during the consultation phase.

Networking

45. The main method involved in initiating the consultative process was 'networking'. This was the key in the establishing contacts and understanding community views and concerns. Meetings were held with key people, including councillors, teachers at local schools, ex-teachers, a local parish priest, ethnic group spokespersons and civic minded individuals. A complete list of contacts made is included in Supplementary Report No.10 'Social Impact Assessment'. (Cramphorn and VIC ROADS 1989b).

Information Bulletins

46. Five bulletins were issued during the study. The first bulletin, released in October 1988, announced the start of the study. It also described the scope of, and timetable for, the study and the major issues to be investigated. Twenty-eight thousand copies of the bulletin were distributed along the broad study corridor. A reply paid card was included, inviting people to register their names on a mailing list. The response to this initial bulletin was high, with about 2500 people registering their interest.

47. Subsequent bulletins were mailed to those registered on the main list. It was expanded to include owners and occupiers of property directly affected by options for the WRR and those who would remain nearby. At November 1989, there were 4400 on the mailing list.

48. The second bulletin invited people to a public display of alternative road proposals held during April and May 1989. This bulletin was specifically aimed at those who had registered their interest, people

whose properties were directly affected by the existing road reservation, and people whose properties were adjacent to the road reservation or who may believe they could be indirectly affected by road traffic noise and possible air pollution.

49. The third bulletin announced the dropping of the planning scheme route through Ardeer (refer to paragraph 58). It highlighted the next steps in the study which were the investigation of other options for the road. The fourth bulletin discussed the favoured options for the WRR and commented on matters of community concern raised during consultation. The fifth bulletin announced the release of the EES, the amendments to the planning schemes and the dates of the public exhibition and the public display. It is likely that a sixth bulletin will be issued to report on issues raised at the public display and a seventh to announce the final decision in mid 1990.

First Public Display

50. The aim of the public display held in April and May 1989 was to allow residents, property owners and business operators the opportunity to view the preliminary proposals and discuss issues and concerns. The display was held at five locations in the study area, and total attendance was estimated at 2300. It included early working plans for a road along the existing planning scheme reservation from Laverton North to Tullamarine, alternative road proposals west and south of Ardeer and alternative concepts to link the WRR to the Calder Freeway.

51. At the display, comment sheets were available for people to express their views on the different road proposals and the issues being considered. A summary document was available for people who wanted more detailed information to take away with them. At each session of the display, at least two members of the study team were present to answer questions. Generally, a council officer also attended.

Local Residents Meetings

52. Fourteen meetings with local residents were held between July and September 1989 at locations along the route of the WRR. The purpose of these meetings was to inform residents of the study progress and to gain an indepth understanding of their specific interests and concerns. The meetings also provided an opportunity for small group face to face contact between residents and the study team to discuss key concerns such as future traffic, noise, air quality, property requirements etc. that cannot be achieved at larger public meetings. Written invitations were sent to residents in particular streets. The meetings were not advertised as public meetings.

Final Public Display

53. The statutory procedures for processing the EES and the planning scheme amendments require these to be exhibited for two months at municipal offices, Ministry for Planning and Environment and the proponent's office. In the case of the WRR, this statutory period was extended to three months to allow extra time over the summer holiday period. In addition, a more detailed public display was prepared by the Study Team and placed at three schools in the corridor for a week each during December. This was advertised through local newspapers and the

fifth bulletin, and was designed to give residents and business operators the opportunity to view more detailed plans and to discuss these and their concerns with study team members in attendance. Emphasis was placed on the importance of individuals and groups to make submissions to the Minister for Planning and Environment as provided for in the statutory procedures (see paragraph 8). Three more local residents meetings were held to assist people in critical areas to respond if they wished.

SELECTION OF FAVOURED OPTIONS

54. Options were considered at five locations (refer paragraph 28). In addition, staging strategies were also considered. These were resolved as part of the study process by taking into account design aspects, the results of specialist studies and consultation with the community in the study corridor. The following discussion focuses on the process for resolving options rather than the technical detail (although design input, costs etc. were obviously taken into account).

Options at Ardeer

55. The major issue was that the existing reservation, which was set aside in the late 1950's, is inadequate (only 35M wide in parts) to accommodate a new major road to today's standards. The existing reservation runs alongside a major SEC power-lines easement and the abutting areas are fully developed mainly for residential use. Three basic options were considered:

- widen the existing reservation (Option A1)
- relocate the SEC transmission lines and widen into the easement (Option A2)
- abandon the existing reservation in favour of a route to the west of Ardeer (Option B)

The general location of these is shown in Figure 1 (location A).

56. The main implications of these options were:

- A1 would require 90 houses and A2 16 houses. B requires none but would have a major impact on the operations of ICI at Deer Park.

- A1 and A2 would be elevated (because of the need to cross Kororoit Creek, the railway and existing local connector roads) forming a visible barrier in the residential area.

- Up to 200 houses would suffer major changes in noise environment for A1 and A2 whereas B would be 150 m from the nearest house.

- B offers better opportunities for landscaping, effective noise attenuation, replacement of open space and the inclusion of a bicycle-pedestrian path.

- B is 2.5 km longer than A1 or A2 but would cost about the same. The additional length reduces user benefits.

57. Opposition by the community to Options A1 and A2 and support for Option B was almost unanimous. About 93 percent of the people who visited

the public display at Ardeer in April 1989 supported Option B. Those opposed lived near Option B. ICI also opposed Option B because of its impact on the company's operations. A petition signed by over 2,500 people objected to Options A1 and A2 but supported Option B. This was also the view of most of the 300 people who attended a public meeting in May 1989. Several local Members of Parliament and the City of Sunshine strongly opposed Options A1 and A2 and supported Option B. The Liaison Committee also unanimously supported Option B.

58. As a result of the above concerns, on 10 May 1989, the Minister for Transport announced that the route along the planning scheme reservation between West Sunshine and Ardeer, Options A1 and A2, had been dropped in favour of a route to the west of Ardeer i.e. Option B.

Options South of Ardeer

59. This is area B shown on Figure 1. The key issues in this area were the need to:

- avoid the Derrimut Grasslands reserve, which is one of the last remaining remnants of indigenous grasslands in south-western Victoria, and supports a plant community of State significant and the largest known population of the legless lizard (Delman impar);

- minimise impact on land immediately north of the reserve, which is proposed as a garden industrial estate;

- minimise impact on the offensive industrial zone south of the reserve, which is the only location of this type available in Melbourne.

60. A range of options within the broad envelope shown in Figure 1 were examined. The alignment shown was adopted as the favoured option because it retains the grasslands intact and minimises impact on the Offensive Industrial Zone. It has some impact on the area north of the grasslands but leaves a large area intact north of the road and contiguous with residential development. The WRR would form a barrier to suburban development.

The Calder Freeway Interchange Options

61. The planning scheme reservation across the Calder Freeway is about 30 metres wide and is inadequate to accommodate the WRR. No allowance was made in previous planning for the additional land that would be required for an interchange between the WRR and the Calder Freeway. As a result, development has been allowed to proceed right up to the reservation boundary. South of the Calder Freeway is the East Keilor industrial area, consisting of small industrial premises, while to the north is the residential area of Keilor Park (location C on Figure 1).

62. Two basic options were examined:

- a 'no-interchange' option requiring turning traffic between the Calder and the WRR to use nearby local access interchanges and local roads. This would include grade separation of the two routes and acquisition of 15 business premises at a cost of $14m. It would cause significant increases in through traffic on local roads;

- build an interchange, with a range of alternatives examined including a diamond interchange (with signals on the WRR), a bridged rotary and a number of freeway to freeway variations. The cost would range from $27m for a diamond to $52 for freeway to freeway. Up to 75 business premises and 30 houses would be required.

63. Apart from those whose property would be required, there was good support for a freeway to freeway interchange, and as a result of this and the traffic implications of the 'no-interchange' option, one of the freeway to freeway alternatives was selected as the basis for reserving land. A diamond interchange could be built as a first stage.

Airport Connection

64. The two major issues were the need to provide for a second road connection into Melbourne Airport to supplement the Tullamarine Freeway, and whether or not to provide a connection for local traffic. Three basic options were examined, with a cost ranging from $8M for an option emphasising the local connection to $15M for a freeway standard connection to the airport. It was decided to adopt an option based on a high standard of access to the airport but which retained the opportunity to improve access to the local area if land use intensity increased.

WRR at Furlong Road

65. In this location, the existing reservation is close to a number of houses, and residents were concerned about traffic noise and the visual appearance of the WRR as it passed over Furlong Road. They were also concerned about staging proposals and were strongly opposed to an initial at-grade intersection. After discussion with the residents and the City of Sunshine (which owns other land adjacent to the WRR at Furlong Road) it was decided to move the alignment 20-25m further away from the residential properties to allow for additional landscaping and noise attenuation treatments.

Staging and Construction of the WRR

66. Because of the size of the overall project (20km at a cost of $290M) a staging strategy is necessary. Several options were examined using the traffic prediction models and by estimating the flow of capital expenditure and user benefits for each. The preferred staging is to first build the section incorporating the Maribyrnong River crossing as duplicate carriageways together with improvements to Sharps Road and Keilor Park Drive and the new connecting road in East Keilor to link back to the Broadmeadows Section. This would be followed immediately by extending to the Western Highway and Fitzgerald Road with improvements to parts of Fitzgerald Road and Boundary Road to link to West Gate Freeway. This would give an interim ring road over the whole length of the corridor, which could be completed within 5 years of commencement. This would be followed by building the sections between Fitzgerald Road and West Gate Freeway and from the Tullamarine Freeway to south of the Calder Freeway to relieve the interim arterial sections. Finally, the whole route would be upgraded to freeway standard.

67. Other aspects considered were:

- the staging of interchanges initially as at-grade intersections where

early traffic volumes do not warrant full interchanges;

- the implications of initially building one carriageway instead of two, taking into account disruption to the community, early congestion, increased accidents, cashflow and cost penalties;

- inclusion of a multi-purpose path to meet the needs of pedestrians and cyclists;

- construction techniques for the Maribyrnong River twin bridges to minimise impact on the river environs;

- sites previously used for industrial and refuse disposal by arranging contamination tests and reviewing foundation conditions.

LESSONS LEARNT

68. Whether or not the process described in this paper results in the acceptance of the WRR project depends upon the outcome of the statutory procedures which were just commencing at the time of writing this paper. It was the Study Team's task to base its recommendations on an objective assessment of all the relevant information available, and to ensure that this information is generally available to the community at large. Just as the Study Team utilised lessons learnt in previous investigations, so too can this experience assist others in preparing for future studies. The following comments are in three distinct categories - technical, process related and community consultation. They represent the views of the writer, which are not necessarily those of VIC ROADS.

TECHNICAL

69. It is essential that technical work carried out as part of the investigation is "state-of-the-art", and it is the responsibility of the Study Team to ensure that consultants or "in-house" assistance is of the highest calibre. Research is moving ahead quickly in many environmentally related areas and there is a high community awareness of many of these issues. The most controversial at present relate to noise and air emissions and control. The team must have direct access to those at the forefront of policy development in these areas.

Noise

70. The problems relating to traffic noise are three-fold: the need for an acceptable standard, methods for controlling noise to within these standards and the communication of these to the public in an understandable form. The investigation reported in this paper was carried out at a time when acceptable standards were under intense debate, so an "interim noise objective" was set. This may need to be adjusted at a later date. Work is proceeding in Victoria to arrive at an improved standard and a more meaningful dimension for the expression of noise levels. Consideration is also being given to ways of improving (lessening) noise levels received by people located near a road. Improved noise barriers, road surfaces which minimise tyre noise and stricter noise emission controls (and improved policing) are some of the measures being developed. Others that have been considered relate to control on nearby (future) development, improved house design etc. Measures raised by the

community living near arterial roads include building alterations (double glazing, air conditioning) and compensation as a cost against the project. It is important, as part of such an investigation, to understand likely changes in the noise environment as a result of a new road. To do this, existing noise levels must be measured in the field, and estimates need to be made of future noise levels with and without the proposed road.

Air Pollution

71. Air quality is a growing concern within the community and relates not only to new roads but to the overall use of motor vehicles. Again, this is an area where standards are under review, so it is most important for the Study Team to be abreast of the current situation. Vehicle design rules are changing emission levels as new cars replace old, providing some offset to emissions due to increasing numbers of motor vehicles. Also, related factors such as the "greenhouse effect" come into contention. It is therefore most important to consider the level of emissions as a result of a new road. This must be done by considering likely future traffic patterns with and without the project under consideration. Also of importance to local residents is the likely change in air quality due to the (possible) nearby road. It is usual that, from about 20-30m away from a road, the direct impact on local air quality is not quantifiable, but it is difficult to articulate this to local residents.

Traffic Predictions

72. The most basic information required for a future major road project is reliable traffic estimates. These are used for a number of purposes including justification of the project, determining the magnitude of the project, calculating the user costs and benefits and as input to estimating changes to the noise and air environments. VIC ROADS uses a suite of programs and data describing urban area travel which have been progressively updated and developed since the 1960's. It is most important to be able to relate predictions made through models such as these to spot checks on various parts of the network by extrapolating present day volumes by past trends, taking into account major changes which might occur to land uses. The credibility of such models relies not only in being able to demonstrate accuracy by actual examples, but by ensuring input data (such as likely future land use and demographic predictions) is as up-to-date as possible. Another important factor is the need to model the relationship between the road and public transport systems to understand how the provision of public transport infrastructure may affect traffic volumes in the future. VIC ROADS is reviewing the models currently in use and is preparing for a major survey to update its knowledge of trip making characteristics.

Other Environmental and Social Issues

73. Detailed information is also needed in response to growing community awareness of a broader range of environmental and social issues. Two of the most relevant are ecological systems and archaeology. Major investigations now need to address these issues upfront, as a study initiative, rather than responding later in the process to demands that this information be collected. It is important, at the present time, to use consultants from outside a sponsoring organisation to ensure that the work is seen by the community to be objective and unbiased. Results must be made public, although in some instances, the location of finds should

be kept confidential eg. to protect a rare plant, or to protect Aboriginal relics.

PROCESS

Management Responsibility

74. Investigations carried out in the public arena require a commitment to an 'open door' policy which cannot be compromised. A management structure which responds to this requires a short 'line of command' within the sponsoring organisation and a commitment across the organisation to provide technical support as required. Unlike internal work programs which can be adjusted to meet changing priorities, a commitment to a major consultative investigation must be met to maintain the credibility of the sponsoring organisation. This approach is now well received in organisations which have experience in such investigations and it is generally accepted that the responsible manager has freedom to act within clear guidelines.

75. The "team" cannot rely on others to act a their agent, but must have direct control over the work of consultants and consultation with the community. The team must have direct access to 'street-wise' environmental advisors (whether in-house or consultants) and should desirably have such a person as part of the team. Similarly, the person primarily responsible for community consultation should be a full-time member of the team.

76. Commitment within the team is also a very important element in the management of such an investigation. This can be achieved by having a clear brief and timetable, with a commitment by management, that the study will be resourced to meet these. The team members must take part in the decision making process to build their awareness and self-esteem, resulting in a commitment to achieve the program. Sufficient time must be allowed in the process for adequate consultation and for the final documentation to take place. This is important to ensure understandable information is provided to the community in all phases of The Study.

Statutory Processes

77. The relevance of the statutory review process should be carefully reviewed. There are recent examples in Victoria where the environmental assessment procedures have been completed, with panel hearings etc, but due to community challenges, additional reviews have been initiated (the Brunswick to Richmond Power Line and the Eastern Arterial Corridor Study). In these cases, the need for the project and the environmental impacts have been challenged.

78. Consideration needs to be given to reviewing the processes for assessing major projects to:

- fully integrate the requirements of both the planning and environment assessment processes;

- appoint an independent panel at the commencement of a major investigation to ensure adequate consultation by setting guidelines and to consider the implications of a project step by step;

- the first major step should be to set the broad terms of reference for the investigation and the consultation process;

- the second step should be to review the need for the project and agree on options to be investigated;

- the third step should be the resolution of options and selection of a favoured project.

79. The proponent organisation, through the study team, should be responsible for preparing information to be put to the panel in each step, with the panel responsible for ensuring the proponent consults adequately with the community and takes full account of issues raised. As well as assessing the proponent's EES at the end of the process, the panel should act as an arbitrator and a guide to ensure effective consultation.

CONSULTATION

80. Community involvement can take many forms. The community could be involved in planning to the point where they have direct control over the decision making process. At the next level, the community could be well informed and their views sought and taken into account by the decision makers. At the third general level 'consultation' would take place only to glean facts and information and decisions made with little regard to community views. The second level is the 'norm', where elected government (local and/or state) plays the major role in making decisions. By carrying out major investigations in an open manner, well informed community views can influence the decision maker and assist in reaching an acceptable solution.

81. The 'open door' approach to consultation with the community requires the study team to reach out to the community as early as possible. In the case of the WRR, this was done by distributing the first bulletin to every household and business in a broad corridor (28,000 copies letter boxed) and commencing the networking process from day one through contact with council officers to identify community opinion leaders. This was necessary in order to identify and make contact across the broad community spectrum with all those likely to be impacted or to have an interest in the WRR.

82. As pointed out earlier in the paper, the aim of the process was to develop a community awareness and to ensure community views were heard and understood as the study progressed. This allowed particular decisions to be made to respond to community concerns (the Minister for Transport announcing that option B was the favoured route at Ardeer) and for other adjustments to be made (moving the alignment at Furlong Road). The key was clear and timely communication to all involved segments of the community, with emphasis on what they want to know rather than on what do we (the study team) have to tell them.

83. In all investigations such as this, the most difficult aspect of communication is informing people that their home or business would be required by one alternative or another. Most people have located in the area with knowledge that a road reserve is nearby but they have been secure because their property was not required. Often, reservations have been in place for many years and adjustments have not been made to accommodate solutions that match more modern standards. The approach taken

in this investigation has been to let people know directly (face-to-face) rather than by letter to ensure they are aware of the reasons and consequences. Senior team members have been the initial contact point on all property matters, and a property officer has been seconded to the team as back-up. The emphasis has been on explaining to people how the acquisition and compensation system works, and how legislation provides for hardship situations.

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