Appendix A
M80 Urban Design Strategy

LUD 001
Version 01

Purpose:	The purpose of this Appendix is to support LUD 001 - Guideline for the development of an Urban Design Strategy.
Document context:	To be read in conjunction with LUD 001 - Guideline for the development of an Urban Design Strategy.

M80 Ring Road Upgrade

Urban Design Strategy

Australian Government
Nation Building
ECONOMIC STIMULUS PLAN

vicroads

Victoria
The Place To Be

Disclaimer

‘This urban design strategy was written in February 2010 by VicRoads. This document has been published in November 2023 by Department of Transport and Planning, with no edits made to the original version, this document therefore needs to be read in conjunction with current legislation, policies and standards. The vision, design aspirations, principles and objectives are still relevant and will guide decision makers with the future design and management of the corridor to achieve best practice urban design outcomes.’

VICTORIA State Government | Department of Transport and Planning

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Acknowledgements

The M80 Ring Road Urban Design Strategy was developed by VicRoads' Landscape & Urban Design Unit and Peter Elliott, Architecture and Urban Design.

Buro North Multidiscuplinary Design provided input to the wayfinding component of the Strategy.

1.0
EXECUTIVE SUMMARY

M80 Ring Road Upgrade

The M80 Ring Road Upgrade (M80 Upgrade) is a $2.25 billion project, jointly funded by the Australian and Victorian Governments, to widen and improve the Western and Metropolitan Ring Roads.
The M80 extends 38 kilometres from the Princes Freeway at Laverton North to the Greensborough Highway at Greensborough.
The project objectives are to improve safety, ease congestion, reduce travel times and improve reliability for all road users especially during peak periods.
The M80 Upgrade will improve the linkage between west and east, within the Melbourne metropolitan section of the transportation network, and will contribute to the provision of more effective connections between the western and northern transport and development corridors.

Federal, State and Local Government Policy Context

Melbourne 2030 and Melbourne @ 5 million provide a policy framework for our future urban centres facing unprecedented challenges:

- Population growth and the impacts on major transport networks, particularly from freight
- Climate change and depletion of resources
- Community expectations for Melbourne to be a connected city with high liveability values and a quality public realm

State and Federal Government support for the M80 Upgrade is part of its response to these challenges

The M80 Upgrade is a key project identified in the Victorian Transport Plan and the Australian Government's Nation Building - Economic Stimulus Plan and is aligned with State Government policy for integrated transport and landuse planning

The Purpose of the M80 Upgrade Urban Design Strategy

The M80 Upgrade Urban Design Strategy (M80 UDS) provides urban design principles and objectives for those responsible for developing and delivering the M80 Upgrade and provides guidance to other projects along the corridor into the future.

The urban design process aims to ensure that the M80 becomes a:

- better journey
- better neighbour
- better environment

The M80 UDS has been developed in consultation with the Office of the Victorian Government Architect (OVGA) and other key stakeholders.

Community Expectations

There is a growing recognition that the quality of urban and landscape design in the west and north of Melbourne has not met community expectations. This is partly due to climatic and topographical factors, though past a practices have contributed to the poor standard of public and private spaces.

Good Urban Design Outcomes for the M80

Recent freeway projects such as the Deer Park Bypass, EastLink, Craigieburn Bypass and the Tullamarine Calder Interchange Project provide examples of quality design and vegetation outcomes which the community expect to see on a project of the scale of the M80 Upgrade.

Accordingly, the M80 UDS emphasises the importance of good integrated urban design in guiding the development of works along the corridor.

The guiding urban design Principles and Objectives for the M80 UDS have been developed based on extensive analysis of the M80 reservation and surrounding areas and the professional understanding and experiences of the project and design teams

Figure 2.1
Local Government Boundaries across M80 region

PRINCIPLE ONE
DESIGN HIERARCHY

Establish a design hierarchy of elements ranging from Primary Markers to Secondary Moments to Tertiary Threads

Objective 1.1
Provide a design hierarchy of freeway elements consisting of primary markers, secondary moments and tertiary threads.

Objective 1.2
Design freeway elements in a complementary arrangement that includes opportunities for expression of local character.

Figure E 1 Overall Design Opportunities

Figure E 2 Primary Markers, Secondary Moments & Tertiary Threads

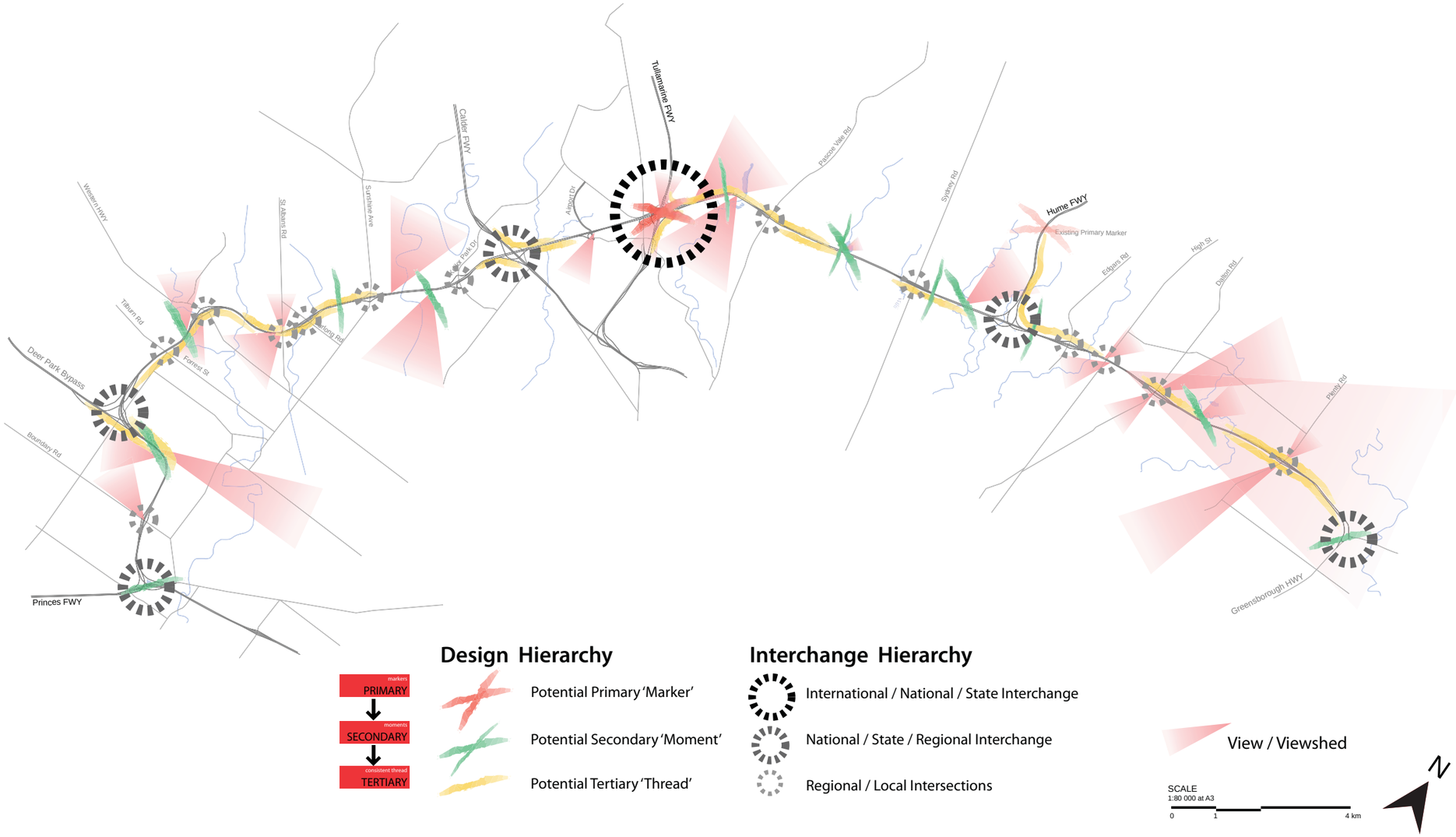


Figure No E1 M80 Design Opportunities

Figure No E2 M80 Urban Design Hierarchy

PRINCIPLE TWO
URBAN INTEGRATION

Integration with the surrounding urban fabric can be achieved by better balancing freeway infrastructure, local amenity and land use.

Objective 2.1
Provide a freeway corridor environment that is engaging for road users and enhances the liveability of adjoining communities.

Objective 2.2
Integrate with local initiatives and programs, within the context of the overall design.

PRINCIPLE THREE
MULTI-FUNCTIONAL

Provide road infrastructure that delivers additional community and environmental benefits by greater use of the road corridor

Objective 3.1
Increase and enhance a multilayered use of the road corridor.

Objective 3.2
Trial innovative and sustainable technologies to ensure greater use of the road corridor.

PRINCIPLE FOUR
WAYFINDING

Provide an easy to understand way around our city

Objective 4.1
Improve freeway legibility using a combination of identifiable elements and signage.

Objective 4.2
Increase clarity of information cues and reduce driver distraction

PRINCIPLE FIVE
CONNECTIVITY

Integrate with local networks across all modes

Objective 5.1
Work with stakeholders to improve connectivity across and around the freeway for all transport modes.

Objective 5.2
Consider future growth areas when planning for improved connectivity

2.0
INTRODUCTION

M80 Ring Road Upgrade

The M80 Ring Road Upgrade (M80 Upgrade) is a $2.25 billion project, jointly funded by the Australian and Victorian Governments, to widen and improve the Western and Metropolitan Ring Roads. The M80 extends for 38 kilometres from the Princes Freeway at Laverton North to the Greensborough Highway at Greensborough. The project objectives are to improve safety, ease congestion, reduce travel times and improve reliability for all road users especially during peak periods.

The M80 Upgrade is a key project identified in the Victorian Transport Plan, the Australian Government's Nation Building - Economic Stimulus Plan and is aligned with state government policy for integrated transport and landuse planning.

The M80 Upgrade will improve the linkage between west and east, within the Melbourne metropolitan section of the transportation network and will contribute to the provision of more effective connections between the western and northern transport corridors. The project is likely to take 7 to 10 years to complete.

Whilst the prime purpose of the upgrade is to improve safety, freight movement and reduce congestion, urban design outcomes are integral to the success of the project.

Background

The M80 Upgrade project was first identified as an important project for both the State and the Commonwealth in accordance with the strategic directions in the AusLink White Paper (2004). Subsequently in 2007, the M80 Upgrade was prioritised in the State Government's submission, for Federal Government funding under the Nation Building - Economic Stimulus Plan.

Process

The M80 Upgrade Urban Design Strategy (M80 UDS) was developed through a rigorous process of analysis of the local context, policy directions, transport and landuse patterns, ecological and rainfall data and landscape, visual assesment conditions and stakeholder feedback.

This Urban Design Strategy should guide all stages of the M80 Upgrade from concept design to construction and maintenance considerations.

This strategy will continue to provide an urban design framework for the M80 corridor working in with other government processes.

Context

State and Federal Government support for the M80 Upgrade is in response to:

- Population growth and the impacts on major transport networks, particularly from freight
- Climate change and depletion of resources
- Community expectations for Melbourne to be a connected city with high liveability values and a quality public realm.

There is a growing recognition by the community that the quality of urban design in the west and north of Melbourne has not met community expectations. This is partly due to climatic and topographical factors and past practices which have contributed to the poor standard of public and private spaces.

There is general consensus that this approach needs to be reviewed in light of the changing role of the M80 in Melbourne's city structure and current urban design and environmental best practice.

The current road user experience of the M80 for both short and long journeys is viewed as a difficult and unsightly experience for many due to a number of factors:

- Poor edge conditions including uncontrolled commercial signage, graffiti, and poor quality built form which often turns its back on the freeway
- Poor vegetation establishment
- Demanding driver decision-making with frequent short freeway trips and periods of high congestion
- High freight usage
- Poor landscape conditions with flat landscapes, few natural features and low effective rainfall.

Community expectations for the M80 Upgrade are high with the recent opening of EastLink which has increased the publics expectations about freeway design. Recent freeway projects such as the Tullamarine Calder Interchange Project provide examples of improved design and vegetation outcomes which the community expect to see on a project of the scale of the M80 Upgrade.
The Victorian Government's Urban Design Charter and the OVGA Good Design + Transport guide are recent publications that reflect growing community expectations. Accordingly, the M80 Upgrade Urban Design Strategy emphasises the importance of good urban design in guiding the development of all works along the M80 corridor.

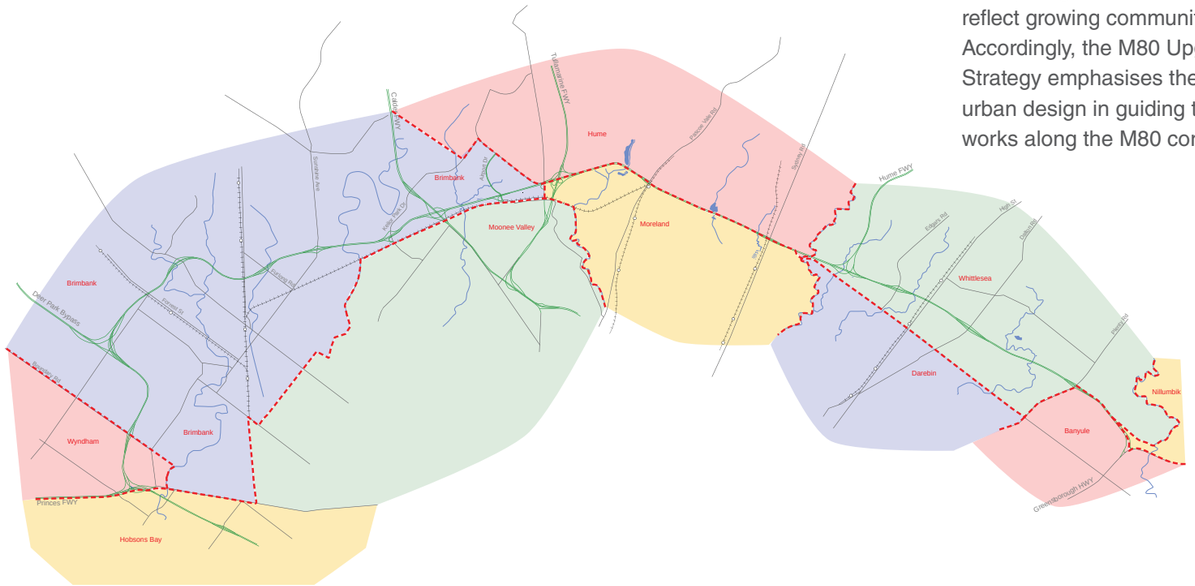


Figure 2.1
Local Government Boundaries along the M80 corridor

3.0
PURPOSE

History of Original M80 Landscape Design
The following landscape design objectives were established in the 1990's when the Western and Metropolitan Ring Roads were first designed: The intent was to:

- create an identity unique to the Western and Metropolitan Ring Roads
- provide an interesting dynamic and exciting landscape adjacent to the road pavement which reflect and enhance the surrounding natural landscape and acknowledges the variety of urban features, whilst creating a sense of place.
- recognise and highlight major interchanges
- provide continuity of design throughout the entire length.

The Purpose of the M80 Upgrade Urban Design Strategy - 10 Year Plan

The purpose of this strategy is to provide urban design guidance for the proposed works on the M80 Upgrade and to be a resource for regional delivery and maintenance programs into the future.

The M80 Upgrade Urban Design Strategy (M80 UDS) will guide all designers, contractors and decision-makers on how urban design values and processes will integrate with the M80 Upgrade objectives and ensure a consistent approach along the corridor in delivering outcomes across the various construction delivery methods.

The Urban Design Strategy for the M80 is aimed at ensuring that the upgrade works are designed in accordance with all policy and project objectives.

What is Urban Design?

Urban design is a unique, three dimensional, integrated 'big picture' approach to shaping the urban environment.

Critical to good urban design outcomes is early involvement of urban designers in the project and a process that engages across disciplines throughout the life of the project. In other words, good design outcomes are as much about good process as they are about adequate budgets, talented design professionals and engaging with communities.

Urban design is also a collaborative effort within teams and draws on the skills across a range of disciplines such as design professionals, design engineers, architects, landscape architects, economists, traffic engineers and planners within and outside of VicRoads. The VicRoads Landscape & Urban Design Section and Peter Elliot Architecture & Urban Design will be working closely with the M80 Upgrade team and other stakeholders on this project.

Metropolitan Freeway Urban Design Strategy

The M80 Upgrade Urban Design Strategy shall work within a broader Urban Design Strategy currently being developed by VicRoads for Melbourne's freeway network. This initiative aims to ensure broad urban design consistency across the metropolitan freeway system.

This strategy will be developed in consultation with the Office of the Victorian State Government Architect (OVGA) and other key stakeholders including Local Governments. The strategy will identify opportunities to respond to the needs of stakeholders and address the integration of road-related infrastructure elements within the changing urban context.

M80 Upgrade Drivers

The M80 Upgrade will improve the linkage between west and east within the Melbourne metropolitan section of the transportation network. It will contribute to a more effective connection between the western and northern transport corridors and will

- improve road safety
- reduce congestion
- improve freight access to major transport hubs.

Project Objectives	Project Deliverables
Enhance Health, Safety & Security	• Reduction in the number and severity of casualty crashes on the Ring Road.
Improve National, Inter-regional & International Trade & Logistics	• Reduced average travel times in peak periods • Improved reliability by providing more consistent travel times • Improved capacity from increased traffic flows • Improved access to Port of Melbourne, other ports, and freight hubs • Improved access to industries and regional Victoria
Improve Passenger Vehicle Transportation & Reliability	• Reduced average travel times in peak periods • Improved reliability by providing more consistent travel times • Improved capacity from increased traffic flows
Improve Connectivity for People, Communities, Regions & Industry	• Reduced average travel times in peak periods • Improved interchanges with the arterial road network
Support Economic Growth	• Maximised freight efficiency • Reduced commuter travel times in peak periods • Improved connectivity between work places & industrial hubs • Integrated with network operating objectives on the surrounding network
Improve Access, Mobility and Urban Design	• Improved driveability, urban design outcomes and amenity for all road users and the surrounding community • Support for links to and between abutting growth areas, employment areas and Principal Activity Centres/Transit Cities (Greensborough, Epping, Broadmeadows and Sunshine) • Support for the Principle Public Transport Network (PPTN) and Principal Bicycle Network (PBN)
Improve Environmental Sustainability & Minimise Environmental Impacts	• Support of sustainable construction initiatives • Minimised impacts on flora, fauna and cultural heritage areas • Minimised global environmental factors
Improve Integration with the Broader Transport Network	• Improved links with the Melbourne urban AusLink Corridor • Improve connectivity and distribution between Melbourne, the Port of Melbourne and Geelong, Melbourne Airport, intermodal terminals, regional Victoria and other States
Optimise Management of Assets	• Minimise Whole of Life costs • Minimise maintenance requirements & enhance safety in maintenance activities

Table 3.1
M80 Upgrade Project Objectives & Project Deliverables (Business Case)

4.0
STRATEGIC POLICY FRAMEWORK

Policy Context

Victoria and Australia are currently experiencing record population growth. The growth in Victoria is being driven by:

- high levels of natural increase (births)
- comparatively low losses of population
- Interstate & overseas migration.

Victoria in Future 2008 projections indicate that over the 30 years from 2006 to 2036, Victoria will grow by 2.3 million people, with 1.8 million additional people located in metropolitan Melbourne and about 477,000 in regional Victoria.

Melbourne is expected to reach a figure in excess of 5 million well before the previously anticipated date of 2030. *Melbourne 2030* & *Melbourne @ 5 million* provide the policy framework for Melbourne's future growth.

This population growth, coupled with the livability and environment pressures, present unique challenges to Melbourne's infrastructure, urban centres, industry and transportation networks. Providing for freight is also essential to meeting the needs of future Melbourne.

Another aspect to the changing nature of our cities is the changing nature of the way we work which is transforming our cities in significant ways.

The shape of Melbourne's metropolitan development, with a strong central city and a widespread network of activity centres and suburban industrial areas, will not operate as effectively for a population of five million people or more.

The current separation of work location and where people live creates increasing pressure on the transport network with commuters often experiencing long and increasingly congested travel .

Melbourne' s future planning is focused on developing a poly-centric city form as articulated in Melbourne @ 5 Million:

"…We need a 'multi-centre' city structure that build on the principles and directions of Melbourne 2030 but acknowledges the need for a better distribution of jobs and activity so that Melbournians can work closer to where they live..

Moving from one CBD to a number of CBD-like centres will reduce congestion and enable people to spend less time commuting to and from work and more time with families…

..Delivering this new structure will require planning for the connectivity, capacity and functionality of the transport system, particularly in the west of Melbourne…

...This settlement structure will continue to be supported by the wider network of activity centres as designated in Melbourne 2030 …
Melbourne @ 5 million

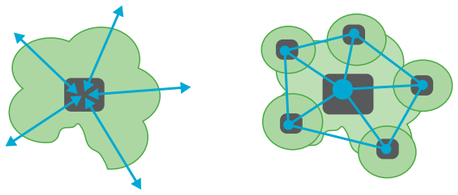


Figure 4.1
Mono-centric vs Poly-centric structure

State Planning Policies

A number of Victorian State Government policies respond to the transport planning implications of these trends with various policies applying more specifically to urban design and liveability.

Figure 4.2
State Planning & Transport Policy Documents

Melbourne 2030

Key Directions that the M80 Upgrade directly supports include:

- Direction 4
  A More Prosperous City in which Policy 4.3 aims to further develop the key transport gateways and freight links; and

- Direction 5
  A Great Place To Be in which Policy 5.1 aims to promote good urban design to make the environment more livable and attractive

Victorian Transport Plan

The M80 Upgrade aligns with key priorities for action under the VTP integrating transport and land development to link jobs, services and homes:
- linking communities by closing gaps
- reducing congestion, and
- improving safety on the road network.

Towards an integrated and sustainable transport future: A new legislative framework for transport in Victoria

The framework aspire to:

"….have an integrated and sustainable transport system that contributes to an inclusive, prosperous and environmentally responsible state."

Victorian Cycling Strategy aims to:

".. promote growth in cycling because cycling leads to: reduced congestion; low energy and environmental impact; health and fitness; affordability; social inclusion; extended access (in conjunction with mass transit) and community safety.

Principal Bicycle Network (currently under review)

Provides a destination-based bicycle route network for the metropolitan area. The key design principle is to increase separation between bicycles and motor traffic, whilst maintaining priority on major cycling routes.

Linking People & Spaces

This Parks Victoria strategy (currently under review) aims to complete the gaps in and extend shared-use trails to support recreation and commuter use.

Walk this Way

This is a policy document currently being developed by Department of Transport for release in mid 2010. The document aims to assert walking as a legitimate transport mode.

Arrive Alive - Victoria's Road Safety Strategy

The project supports the strategy's critical element of providing:

- Safer roads and roadsides.

Our Environment Our Future – Victoria's Environmental Sustainability Framework

The project aligns with the framework directions:

- Using our resources more efficiently; and
- Reducing our everyday environmental impacts.

VicRoads Sustainability and Climate Change Strategy 2009 (draft)

This document responds to the challenges of meeting increasing demands on infrastructure and transport in light of VicRoads' climate change and sustainability objectives.

Victoria's Native Vegetation Management: A Framework for Action

This framework aims to protect, enhance and revegetate Victoria's native vegetation. The main goal is to achieve a reversal in the long term decline in the extent and quality of native vegetation leading to a net gain.

Economic Growth	Network Connectivity	Road Safety	Sustainability	Other Related Policies
Growing Victoria Together	National Transport Links - Growing Victoria's Economy 2007 (2nd edition)	Arrive Alive – 2008-2017	Melbourne 2030	Victoria Cycling Strategy 2009
Melbourne Urban Corridor Strategy (MUCS) 2007	Freight Futures 2008	National Road Safety Strategy 2001 – 2010	Melbourne @ 5 million	Linking People & Spaces Parks Victoria 2002 (currently under review)
Victoria: Leading the Way	Victorian Transport Plan 2008		Our Environment Our Future Victoria's Environmental Sustainability Framework	Principal Bike Network (PBN)
	Integrated Transport Act 2009		Victoria's Native Vegetation Management: A Framework for Action	Keeping Melbourne Moving 2008
	Towards an Integrated Sustainable Transport Future: A new legislative framework for transport in Victoria 2009		VicRoads Environment Strategy 2005-2015	Municipal Strategic Statement (MSS): Brimbank Wyndham Moonee Ponds Moreland Hume Whittlesea Banyule Hobsons Bay
	AustLink White Paper 2004		VicRoads Sustainability and Climate Change Strategy 2010 (draft)	OVGA Good Design and Transport – Issue 05 Publication
	Network Operating Plans			Victorian Government Urban Design CHARTER 2009

Policy Framework and Context for M80 Upgrade Project

TABLE 4.3
Policy Framework and context for M80 Upgrade Project

Local Government Authority (LGA's) Policy Framework Context

The M80 Upgrade intersects with a number of municipalities. Each municipality has its own Municipal Strategic Statement (MSS) and policy framework.

A challenge for freeway projects is to reconcile the policy objectives of the affected municipalities with the Project and State Government's umbrella policy objectives.

LGA's, as the Responsible Planning Authorities, have planning control of the area that abuts freeways. This freeway edge zone is a highly desirable location for some; remnant and degraded space to others; often highly contested and the subject of drawn out planning processes for others.

What is clear is that both the reservation and the edge zone have significant impact on the driver experience with motorists a captive audience. It is desirable that freeways are both efficient and pleasant for drivers as well as positive urban elements within the municipalities they cross.

M80 Urban Design Directions

The urban design directions in this document have been developed in response to the policy context and a detailed analysis of the M80 corridor. The M80 UDS Principles and Objectives have been developed with reference to the project context and an understanding of VicRoads requirements and stakeholder needs.

This Urban Design Strategy has also been developed in line with the urban design guidance provided by the *Victorian Urban Design Charter* and *the Good Design + Transport ISSUE 5* Publication.

Good Urban Design – Victorian Urban Design Charter 2009

The urban design principles for government projects are encapsulated in the Victorian Government's Urban Design Charter which states that:

"The Urban Design Charter is a commitment by the Victorian Government to make cities and towns in Victoria more liveable through good urban design…."

Victoria's legacy of well-planned cities and towns and our infrastructure has been achieved by design, not by accident. As our urban areas continue to grow and evolve in response to our changing needs, good urban design builds on this legacy and creates more efficient, sustainable and inspiring places, supporting our quality of life.

As over 91 per cent of Victorians live in urban areas, it is important that our urban fabric is of a high quality.

The Charter provides direction to embed good urban design in development processes across metropolitan and regional Victoria. The Urban Design Charter provides the basis for the M80 Upgrade Urban Design Strategy.

The GOOD DESIGN – TRANSPORT ISSUE -05 Publication, Office of Victorian Government Architect, 2009

This recently released publication provides direction and guidance on what is good design process in structuring projects to achieve good design outcomes in the transport sector.

This publication provides examples of exemplar projects across a range of transport projects from active travel, public transport, freight and freeway projects.

Victorian Government Urban Design Charter

Principle	Outcome
Structure:	organise places so their parts relate well to each other
Accessibility:	provide ease, safety and choice of access for all people
Legibility:	help people to understand how places work and to find their way around
Animation:	stimulate activity and a sense of vitality in public places
Fit and function:	support the intended uses of spaces while also allowing for their adaptability
Complementary mixed uses:	Integrate complementary activities to promote synergies between them
Sense of place:	recognise and enhance the qualities that give places a valued identity
Consistency and variety:	balance order and diversity in the interests of appreciating both
Continuity and change:	maintain a sense of place and time by embracing change yet respecting heritage values
Safety:	design spaces that minimise risks of personal harm and support safe behaviour
Sensory pleasure:	create spaces that engage the senses and delight the mind
Inclusiveness and interaction:	create places where all people are free to encounter each other as equals

Table 4.4 Victorian Governments Urban Design Charter 2009

5.0
DESIGN ASPIRATIONS

Victorian Government Aspirations For The Transport Network

Victorian Government aspirations for design and integration of the transport network are identified in: *Towards an Integrated and Sustainable Transport Future: A New Legislative Framework for Transport in Victoria 2009.*

The transport integration framework states '*Victoria aspires to have an integrated and sustainable transport system that contributes to an inclusive, prosperous and environmentally responsible state. ……Regard must be given to…..social and economic inclusion,… environmental sustainability,….integration of transport and land use… efficiency, co ordination and reliability … Safety, health and wellbeing*'.

Decision-making principles under the framework include:

- The principle of integrated decision-making
- The principle of triple bottom line assessment
- The principle of the transport system user perspective
- The precautionary principle
- The principle of stakeholder engagement and community participation
- The principle of transparency.

VicRoads is also committed to better usage and integration of the road network noting that:

"*The future of roads in Melbourne is more about redesigning the existing road network than the design of new roads. The challenge is to design these spaces to better integrate all modes of transport - buses, trams, bikes, pedestrians as well as cars . .*"

Gary Liddle, Chief Executive, VicRoads
OVGA Good Design + Transport Guide

The M80 Urban Design Aspirations

Drawing on best practice, a comprehensive analysis process, Victorian Government policy ambitions and community aspirations, quality urban design outcomes across a range of areas. can be achieved for the M80 Upgrade.

In delivering on community expectations, the M80 Upgrade will be a:

- better journey
- better neighbour
- better environment

In addition, the M80 Upgrade aims to be:

- connected to the city fabric both in the drivers mind map, as well as through visual cues that allow drivers to understand how to use the freeway even if they are new to Melbourne
- visually interesting
- connected and respectful of the local urban scale
- a responsible and good neighbour to the local context
- an enduring high quality urban element in our city – one that we are proud of
- multi-functional - performing a range of functions and delivering more for less
- integrated with other transport modes and travel networks
- respectful of the environmental challenges we face
- a good communicator with real time information.

Figure 5.1 Eastlink Operations Centre

Figure 5.2 Freeway edge building - car showroom

6.0
M80 Corridor Analysis and Urban Design Principles

This strategy was developed through the interrogation of this context analysis incorporating policy imperatives, learnings from previous projects and the aspirations of stakeholders.

VicRoads Landscape and Urban Design team, in conjunction with Peter Elliott Architecture and Urban Design, undertook an extensive analysis of landscape character, ecology, connectivity, transport and land use growth patterns and open space in developing the M80 UDS. Buro North provided input to the wayfinding component of the strategy.

A series of Urban Design Principles and Objectives for the M80 Upgrade have been developed which provides urban design guidance to the contracts set up by the M80 team to deliver the design and construction of the M80 Upgrade.

As well as provide ongoing urban design guidance to the design and delivery process for the M80 Upgrade, the UDS also lives as a document that provides urban design direction for the M80 corridor and its environs.

Design excellence, integration and sustainability underpin the M80 urban design principles and objectives.

Through climate and site responsive planting, exploiting views, enhancing watercourses and revealing cultural memory; an expression of local character can be achieved within the context of the overall design intent.

PRINCIPLE ONE
DESIGN HIERARCHY
Establish a design hierarchy of elements ranging from Primary Markers to Secondary Moments to Tertiary Threads

Establishing a design hierarchy for freeway elements ensures a strategic approach for design interventions along the freeway and the selection of freeway elements including forms, materials, and finishes.

The overarching intent along this corridor is to create a series of primary ‘markers’ and secondary ‘moments’ along a consistent tertiary ‘thread’ of soft and hard landscape elements. An understanding of the interchange hierarchy reinforces this intent.

Primary Markers are distinctive high quality artful infrastructure elements that assist in identifying key interchanges and act as wayfinding devices. Secondary Moments provide visual interest within and beyond the road corridor - a view along a river corridor, a distinctive building visible from the road or suitable road scale feature. Tertiary Threads become a consistent element in the freeway environment and include soft and hard landscape elements and themes and select roadside furniture. The forms, materials, and finishes of road furniture such as gantries, lighting, road signage will contribute to the continuous nature of the tertiary thread and tie the corridor together. Figure No E 2 provides examples of these.

The design intent will be further developed with an overall urban design concept that identifies opportunities for primary markers, secondary moments and tertiary threads and what these elements could look like, based on the indicative design hierarchy illustrated in Figure #.

Climate responsive planting, better vegetation establishment, exploiting views, enhancing watercourses and adjoining landscapes, and revealing cultural memory, will also help to create a positive community experience.

Context

The M80 is Melbourne’s only circumnavigating ring road. Unlike parts of the M1 and CityLink which largely align along creek corridors in inner metropolitan Melbourne, the M80 transects twelve rivers and creeks. These include the Kororoit Creek, Maribyrnong River, Moonee Ponds Creek, Merri Creek and Darebin Creek.

The freeway also transects the hills and rises between these waterway corridors, necessitating cut, fill and support structures along its length. The western part of the freeway is sited on a flat volcanic plain.

The M80 has intermittent views to the surrounding landscape broken up by lengths of road with views enclosed by cut batters primarily to the north.

Another important and changing characteristic of the M80 is that, with considerable growth pressure to the north and west of Melbourne, the ring road that used to form the outer edge of the city is now firmly located in the middle of the city’s urban fabric.

This means that connections and intersections become an important aspect of the M80 Upgrade considerations including the many transecting freeways and arterials.

It is also worth recognising M80’s role as an important connector linking the airport to the north of the city; the port to the south west; and a strong link between the east and west of the city.

Urban Landscape Character Analysis

An extensive site analysis which documents a range of urban design, landscape, land use and other physical attributes of the existing freeway corridor and adjoining sites was undertaken, resulting in the identification of a number of landscape character zones as described below.

Two Distinct Urban Landscape Character Zones

The M80 Ring Road is an orbital freeway circling west and northern Melbourne, passing from the basalt plains landscape of Laverton in the west through to the rolling foothills of Greensborough in the east. The road journey traverses several distinctive landscapes and these can be directly attributed to a range of planning, geological, rainfall, vegetative, built form and topographic conditions.

Overlaid on each other, the analysis of these conditions forces a notional separation of the M80 Ring Road into two distinct zones:

Zone 1 Princes Freeway Interchange – Tullamarine Freeway Interchange characterised by road on fill, poor landscape growth, flat topography, industrial buildings in the freeway edge and proliferation of graffiti.

Zone 2 Tullamarine Freeway Interchange – Greensborough Highway characterised by land formation and cutings,, evidence of healthy vegetation, more open landscape views and fewer buildings.

Landscape Character and Visual Assessment Sub-Zones

Based on a visual assessment of the driver experience of the M80 corridor, a further four Urban Landscape Character Sub-Zones have been determined.

These are summarised in the Driver Visual Experience Plan Figure No

The synthesis of the analysis work and the visual assessment of the driver experience indicate that:

a) The freeway landscape and broader contextual landscape is markedly different between the two primary zones. Poor landscape and visual quality is primarily experienced in Zone 1.

b) Good quality landscape areas exist primarily along creek valleys and open space corridors outside the freeway reservation.

c) Approximately 70 per cent of the length constitutes an unremarkable driver experience.

In Summary

The overall design for the M80 should be shaped using the design heirarchy, identifying appropriate locations for primary markers, secondary moments and tertiary threads.

The analysis has identified that Zone 1 has particularly poor visual amenity and therefore the design should create opportunities to improve the urban landscape visual quality in this area in order to achieve a consistent standard across both zones.

Zone 1 cannot rely solely on planting to achieve adequate visual outcomes, particularly in the short term, and may be dependent on more architectural or built elements and improved edge conditions.

Opportunities exist to work with stakeholders to improve landscape and built form both within and outside the road reservation, and in private and public open space to enhance the experience of the freeway from both a motorist and community perspective.

Principle 1: Design Hierarchy

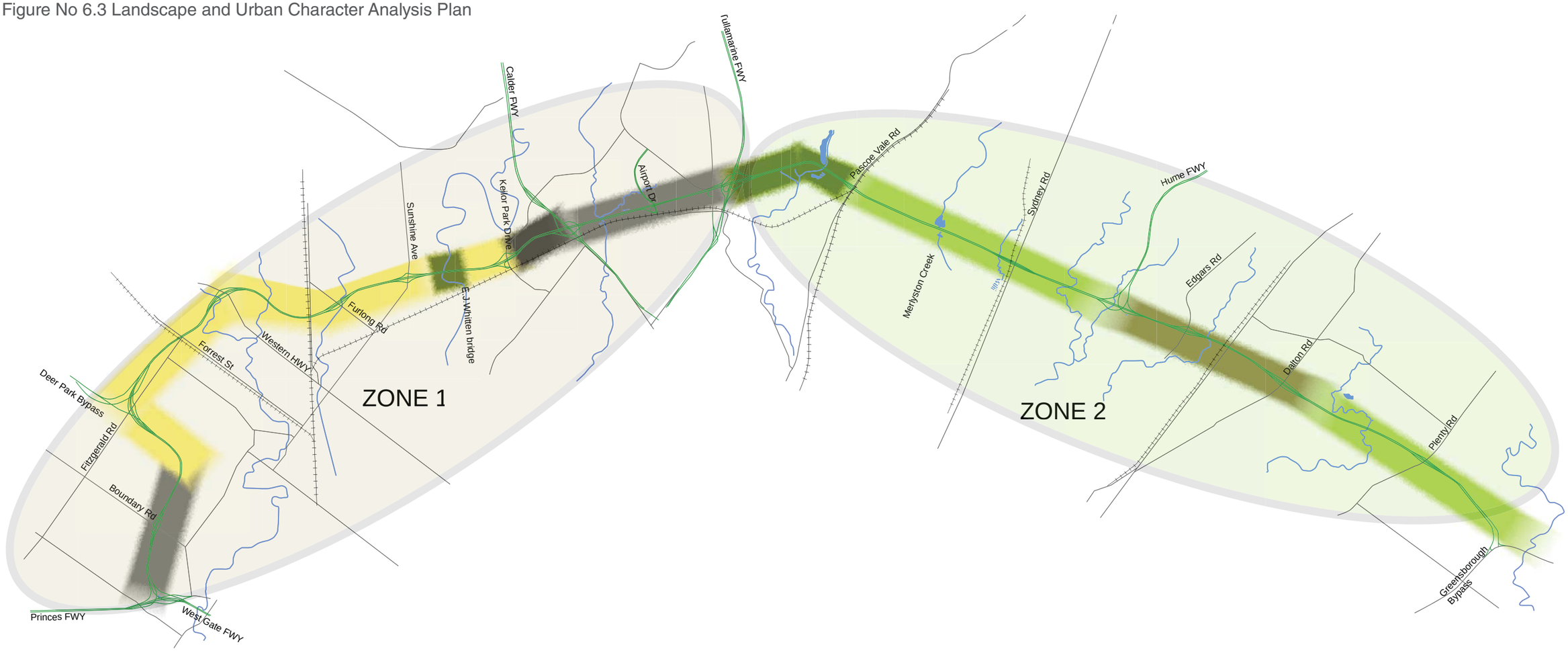
Objective 1.1
Provide a designed hierarchy of freeway elements consisting of primary markers, secondary moments and tertiary threads.

Objective 1.2
Design freeway elements in a complementary arrangement that includes opportunities for expression of local character.

Figure No 6.1 Typical Zone 1 view

Figure No 6.2 Typical Zone 2 view

Figure No 6.3 Landscape and Urban Character Analysis Plan



Comparative assessment of Zone 1 and Zone 2

Elements	Zone 1 Condition	Zone 2 Condition	Impact
Rainfall	450-500mm - lower rainfall	550-600mm - higher rainfall	Better plant establishment and growth rate in Zone 2
Effective Rainfall	4-5months	5-8months	Better plant establishment and growth rate in Zone 2
Soil Characteristics	Highly modified, compacted and variable	Less compacted, less variable	Better plant establishment and growth rate in Zone 2
Vertical Geometry	Predominantly on fill or at grade	Predominantly in cut or at grade	Landscape less visible in Zone 2
Noise Walls	Variable mixture of materials,colours and lengths aligned closer to the road	Consistent, uniform and recessive, aligned further from the freeway	Less visually prominent in Zone 2
Quantity of Vegetation	Sparse vegetation cover	Moderate to good vegetation cover	More established landscape in Zone 2
Adjacent Land Use	Predominantly industrial	Predominantly residential or light industrial	Less visible in Zone 2
Built Form	Built form of lower quality, closer to freeway reservation	Built form of higher quality, generally set back further from freeway reservation	Less visible in Zone 2
Signage and Advertising	Extensive signage and advertising	Minimal signage and advertising	Less visual clutter in Zone 2
Services Infrastructure	Transmission Powerlines prominent - close to freeway 70% of the alignment	Transmission Powerlines less prominent - aligned further from freeway 50% of the alignment	Visually less promintent in Zone 2.Significant constraint for the planting
Shared Path	More exposed	More sheltered and greater separation from freeway	Better safety and amenity in Zone 2
Interchanges	5 freeway to freeway connections	2 freeway to freeway connections	Less merging and weaving in Zone 2

LEGEND

LANDSCAPE CHARACTER ZONES

- ZONE 1
- ZONE 2

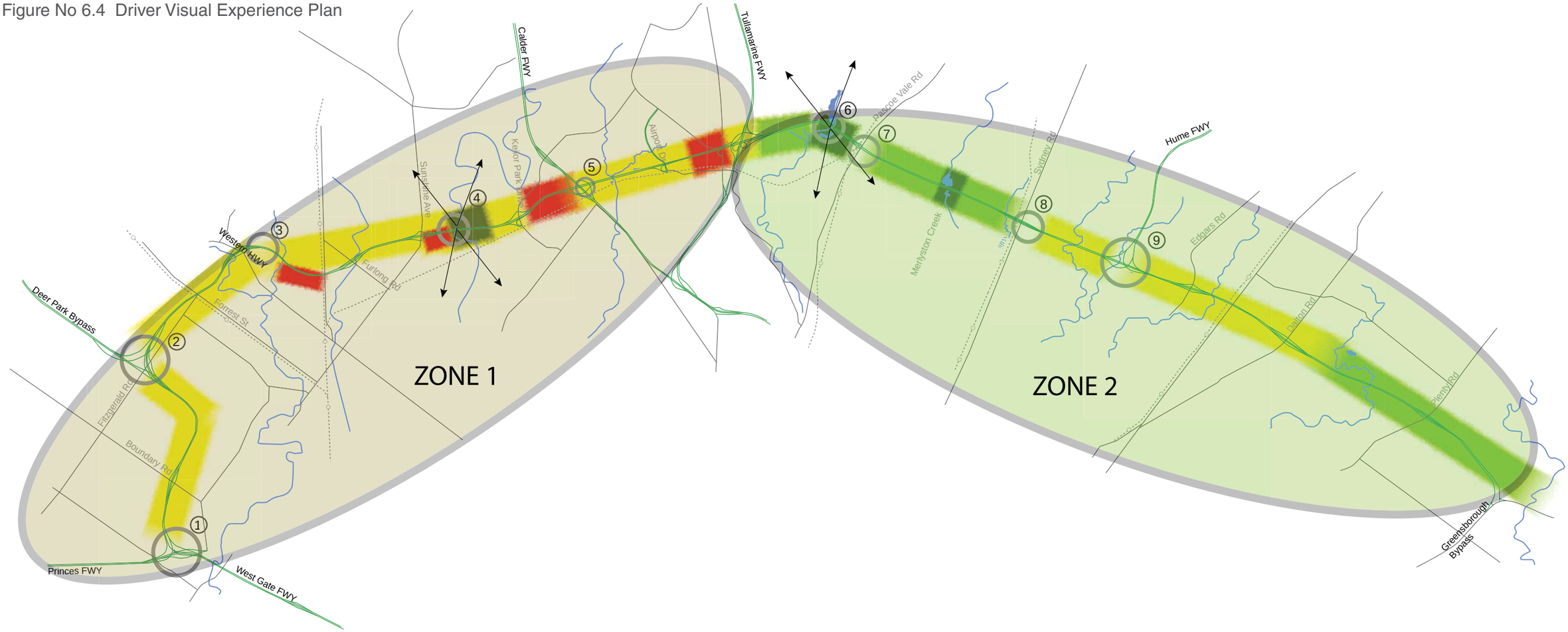
LANDSCAPE CHARACTER SUB- ZONES

- INDUSTRIAL - CLUTTERED
- INDUSTRIAL - LARGE SHED
- INDUSTRIAL - PARKLAND
- OPEN PLAINS - SCATTERED INDUSTRIAL
- WOODLAND FREEWAY PLANTING
- VALLEY

N

SCALE
1:80 000 at A3
0 1 4 km

Figure No 6.4 Driver Visual Experience Plan



DEGRADED

- Buildings close to road
- Poor quality of industrial buildings
- Freeway Signage and Advertising infrastructure dominates the visual field at all scales - foreground, mid and background
- Visual disorder
- Degraded landscape, no tree canopy
- Industrial rubbish outside road corridor
- Highly visible Graffiti
- Overhead visual clutter: power poles / powerlines/towers

UNREMARKABLE

- Industrial sheds set back from the road partially screened by planting
- Large simple built forms of industrial buildings
- Limited signage and advertising
- Minimal visual clutter
- Minimal vegetation/trees
- Gentle to flat topography
- Bland

AVERAGE

- No or minimal advertising
- Average vegetation cover, trees dominate
- Changing topography adds visual interest
- Road furniture not visibly prominent
- Vegetated edge condition frames views along corridor

GOOD

- Long dramatic views into valley or distant landscape
- Dramatic topographical changes add visual interest
- No advertising

Landscape Character Zone 1

Landscape Character Zone 2

Significant views

Urban design elements along the freeway that provide visual interest

1. Images of the West (House in the sky)
2. Deer Park Bypass
3. Images of the West (Wind socks)
4. View from E.J. Whitten Bridge
5. Images of the West (Fields of Gold) & well articulated retaining walls / bridges.
6. View to Moonee Ponds Creek
7. Jacana tunnel terraced walls
8. Sydney Rd retaining walls
9. Craigieburn Bypass

PRINCIPLE TWO
URBAN INTEGRATION

Integration with the surrounding urban fabric can be achieved by better balancing freeway infrastructure, local amenity and land use.

Urban integration can be improved by ensuring that public places and built form which abut the M80 are enhanced and that the impact of the freeway environment on the amenity of adjoining and nearby residents is minimised. Opportunities to express local identity through art, planting or other initiatives within the context of the overall design intent could also be explored.

Designing a successful landscape that will thrive in the local conditions and can be properly maintained will contribute to a high quality freeway environment. Pivotal to this goal, designers and stakeholders must recognise that growing conditions are difficult and will become increasingly more so due to the effects of climate change.

Guidelines relating to land use, built form, signage control and landscape maintenance are desirable to better control the interface between the M80 and local stakeholders.

Opportunities exist to work with Local Government Authorities and other responsible Government Departments to identify complementary and compatible land use outcomes along the M80 corridor to improve the edge conditions.

Examples could include removing fences between open space and the shared user path and adopting complementary planting schemes for land within and adjacent to the road reserve.

A Changing City

The M80 Upgrade is responding to a transformation that is occurring in Melbourne due to increasing population growth.

Whilst originally planned on Melbourne's periphery, the M80 now has a role as a middle ring road making it firmly embedded in the city form and a critical transport conduit in the overall city transport network. Growth and development pressures have also changed the way the M80 interacts with surrounding communities and landuse. The ring road will increasingly become the 'front door' to the development front of the north and west.

Community Expectations

It is important in delivering a quality design outcome to engage with stakeholders and partners at early stages of the project to gain a full understanding of the issues, constraints and opportunities. The community is diverse and with a project of this nature there is a complex range of partners in the process. The project traverses nine Local Government Areas, affects a range of utilities that currently run services along the freeway and intersect with a number of key centres, radial roads, future growth areas and open space and creek corridors.

A key task for urban designers, the M80 Upgrade team and VicRoads North West Metropolitan Region is to develop an integrated approach for engaging with stakeholders throughout the life of the project.

Actively involving stakeholders in the Upgrade creates the potential to achieve urban design synergies across government at the level of the local interface and the network (across all modes of transport).

Opportunities for working with other stakeholders will arise from:

- analysis of the expectations and aspirations of stakeholders
- developing a concept for the M80 Upgrade as a 'whole' rather than as sections
- viewing the project beyond the road reservation.

Perceptions of the West

The West Connect CEO Forum, comprising Brimbank, Hobsons Bay, Maribyrnong, Melton, Moonee Valley & Wyndham City Council's, aims to improve the perceptions of the west as a vital part of Melbourne. This group has produced the Images & Perceptions of the West short film. Initiatives of this nature are opportunities to celebrate the West and North and their unique qualities as well as its future as a key development corridor for Melbourne. This forum demonstrates the importance of urban design to local government stakeholders.

A key focus for them is to improve the appearance of transport corridors which they see as untidy, uncared for and poorly maintained.

Freeway Edges

Based on the landscape character analysis of the M80 environs, it is clear that the poor perceptions of the environment and amenity are not solely a result of the condition of the road reservation. Limited planning controls, unkempt properties, poorly designed industrial and commercial buildings and uncontrolled advertising all contribute to how we view the freeway environment. Given that these edges beyond the freeway reservation are often in private ownership and under the jurisdiction of a number of Local Governments and Government Departments, a different approach is needed to address these concerns.

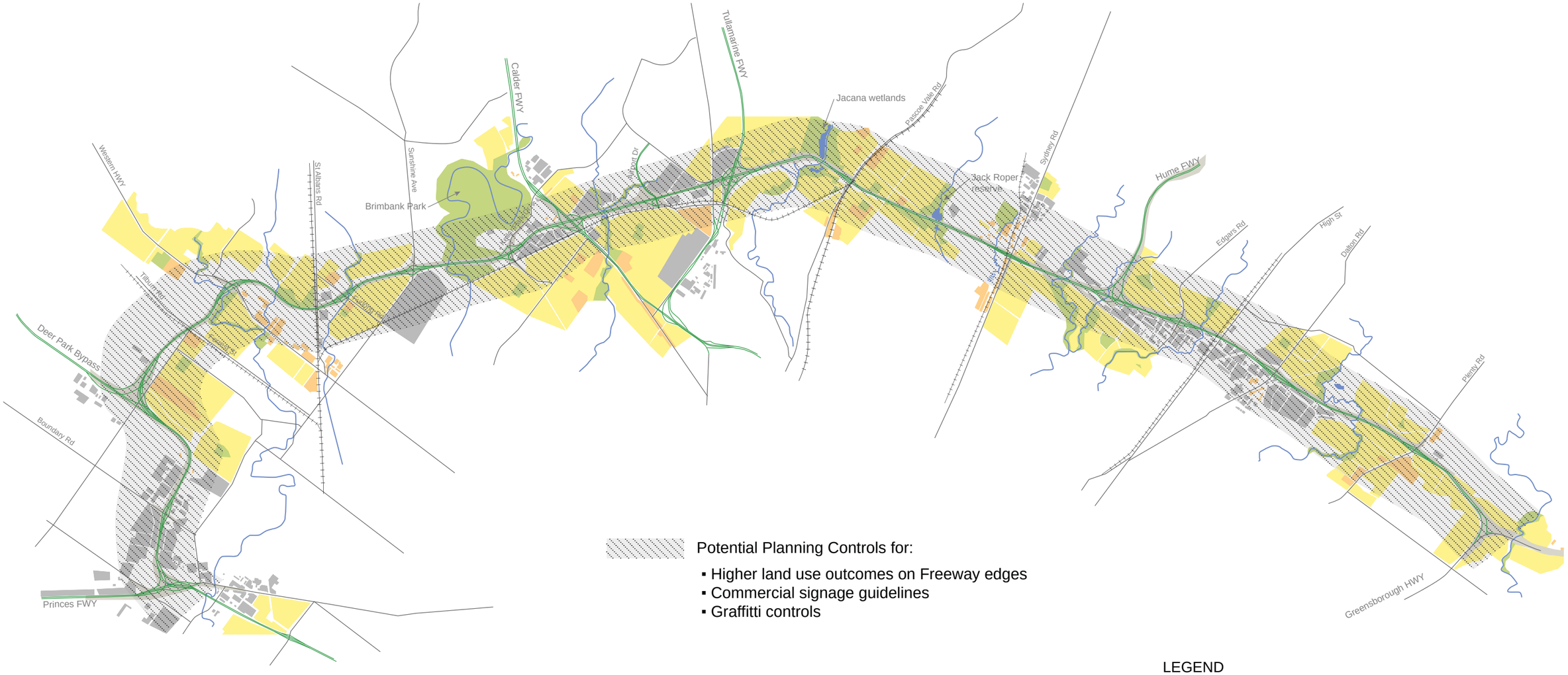
The Advisory Committee reviewing Advertising Sign Provisions in Planning Schemes Final Report 2007 made a number of recommendations that require government departments to further develop transport corridor guidelines and controls

This comprehensive process and its findings provide the basis for a more focused process for the M80 Ring Road corridor.

A partnership approach, with VicRoads working with Local Government Authorities (LGAs) and other stakeholders to achieve a better overall outcome for the visual catchment of the broader freeway corridor,, would ultimately lead to improved public perceptions of the appearance of the M80 environs and address stakeholder concerns.

The establishment of planning controls over the extent of the freeway including the provision of guidelines for appropriate built form, commercial signage, graffiti control and the like would facilitate this goal. While these are beyond the scope of the M80 Upgrade, they should be considered in future.

Figure No 6.5 M80 Urban Context & Potential Planning Controls Corridor



Potential Planning Controls for:

- Higher land use outcomes on Freeway edges
- Commercial signage guidelines
- Graffitti controls

LEGEND

- Residential
- Commercial / public use
- Industrial
- Public open space

Note: Areas shown as blank are privately owned spaces with varying uses

- VicRoads Right Of Way (ROW)

SCALE
1:80 000 at A3
0 1 4 km

Open Space Context

Open space along the M80 exists as public, semi-public and private space. For the purpose of this Open Space Analysis, open space exists as a visual condition where landscape is primarily devoid of built form elements and/ or protected from development by legislation. Open space along the M80 exists at regional, district and local scales and is an important component of Melbourne's collective identity and culture;

"*Areas of open space… .help shape Melbourne's landscape character and contribute to a sense of cultural identity …Open space also provides a place for residents of an urban city to connect with the environment…*"
Parks Victoria, 'Linking People and Spaces'

The major open spaces along the M80 can be summarised in the following categories:

- linear parks (such as Maribyrnong Valley Parklands and Moonee Ponds Creek Valley Parklands)
- utility corridors (including transmission line easements and the M80 freeway reservation)
- vacant private land
- semi-public spaces and conservation reserves (such as Derrimut Grasslands).

The Open Space Plan Figure No 6.6 clearly shows the 'fingers' of open space that intersect the M80 alignment at regular intervals. These fingers often exist as regional linear parks and both contain, and connect to, the Principal Bike Network.

Large regional parks and other large expanses of open space – existing and proposed - are generally located north of the alignment e.g. Brimbank Park, Woodlands Historic Park, Plenty Gorge Parklands and Broadmeadows Valley Park. The linear parks contain key links in the Metropolitan Trail Network such as Maribyrnong Trail and Moonee Ponds Creek Trail.

The open space along the M80 provides visual respite from the often closed industrial and embankment condition experienced along much of the alignment. The M80 reservation exists as a component of the 'borrowed' open space landscape character. Both the M80 and its intersecting freeways and interchanges provide opportunities for open space and landscape interventions. Adjacent private and semi-public open areas also offer opportunities to expand the sense of visual 'open space', along and adjacent to the M80.

In summary
The analysis work indicates that:

Works carried out within the freeway reservation should acknowledge and complement the adjacent open space landscape and its urban character.

Opportunities to integrate these spaces with designs that appreciate the urban context and local initiatives should be explored where possible.

The integrity and connectivity of existing open space corridors need to be maintained and enhanced. Existing landscape character elements such as vegetation cover, landform, cultural elements, valued views and amenity should be recognised.

Open space views should be revealed, maintained and strengthened.

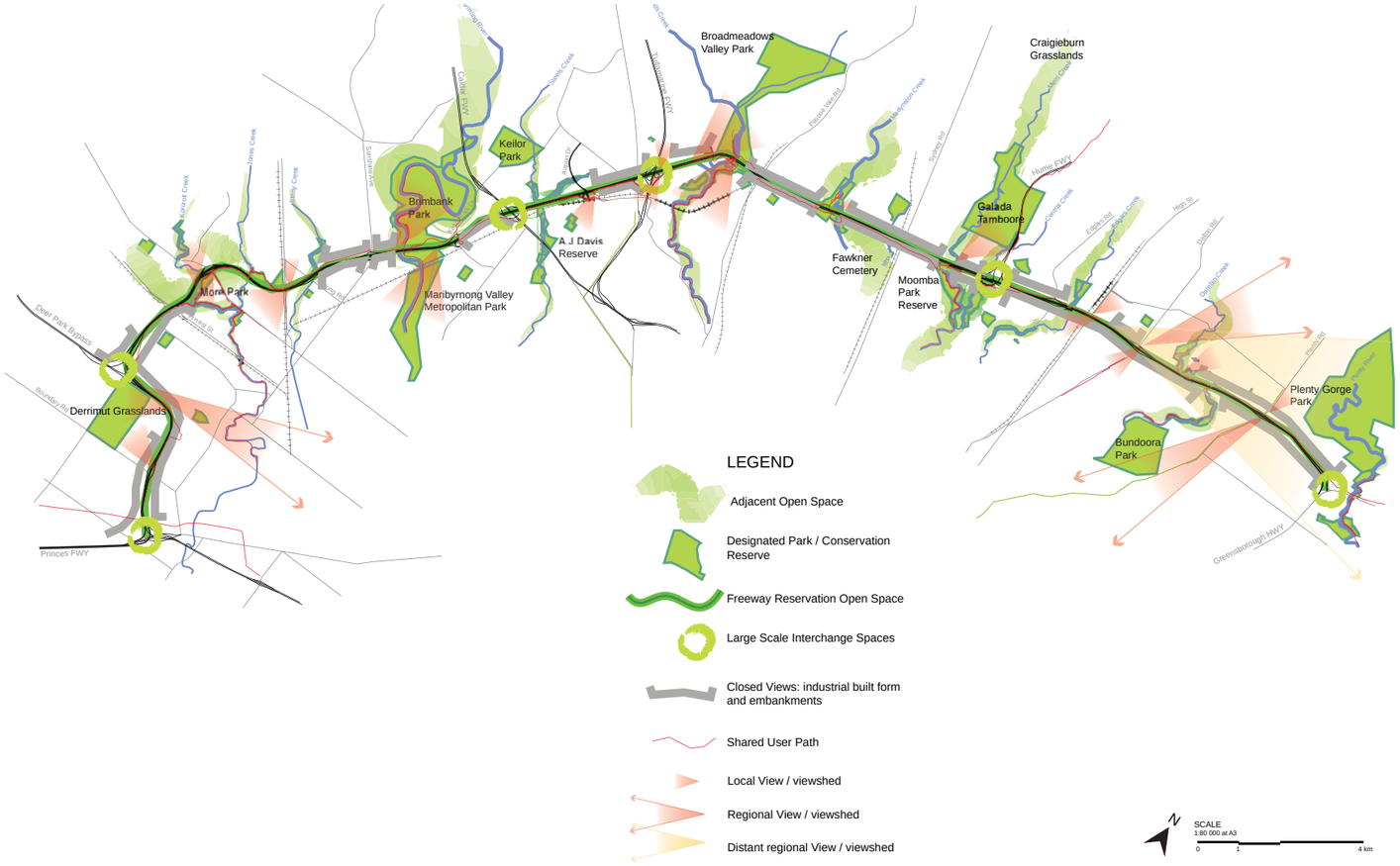


Figure No 6.6 Open Space and view sheds

Vegetation & Urban Ecology Analysis

The landscape conditions along most of the M80 have proved hostile to plant growth, particularly towards the western end. Several reviews by horticulturists and landscape architects since construction have identified common factors that explain poor plant performance.

Soil Factors Affecting Plant Performance

For most of the Western Ring Road, soils are basaltic in origin and 'heavy'. These soils have several characteristics that can make plant establishment problematic. The soils are:

- vulnerable to compaction and are generally heavily compacted, reducing water infiltration rates, soil oxygen and mechanical penetration by roots
- highly plastic, often cracking during dry weather causing damage to roots that do grow
- dispersive, leading to poor soil structure
- poorly draining, leading to low infiltration rates, water logging and low soil oxygen during winter
- often difficult to rip and cultivate due to soil strength and the presence of basalt rock.
- occasionally interspersed with concrete rubble and road spoil, leading to elevated pH levels limiting plant growth.

In addition, the soils along the M80 are also highly disturbed (particularly on extensive fills and in extensive cuts) with topsoils often thin to absent and very slowly forming from what were often subsoil surfaces laid 20 years ago.

The combination of these conditions and soil compaction in particular, has been a significant factor in poor performance.

Although tough, basaltic soils also possess some redeeming qualities. They are:

- often considered fertile as they are geologically young
- able to retain large amounts of moisture for long periods in the soil profile, particularly when soil structure and drainage is improved.

Climatic Factors Affecting Plant Performance

From east to west, annual rainfall decreases while wind intensity and temperature increase. The net effect is that landscapes in the west of Melbourne only receive 4-5 months of effective rainfall (where precipitation exceeds evaporation) in an average year compared with 8-9 months in the eastern suburbs.

The net effect of 4-5 months of effective rainfall can be thought of as shortened growing seasons, typically confined to late autumn to early spring. During the summer, droughts are harsher than the eastern and southern suburbs of Melbourne.

Plants that perform well in the tougher climatic conditions of the west are often stress tolerators (of heat and drought) using various physiological mechanisms to deal with these conditions.

	Dry Bulk Density (g/cm3)
Optimum density of clay soils for plant growth (May and Smith, 2000).	1.0 – 1.3
Root limiting density of heavy clay soil (Daddow and Warrington, 1983).t	1.4
Typical range of densities along the Western Ring Road where soils are mostly modified by construction equipment (May and Smith, 2000).	Mostly above 1.6, with instances as high as 2.2
Concrete (May and Smith, 2000)	2.3

Table No 6.7
The Effects of soil compaction on 10 year Plantings

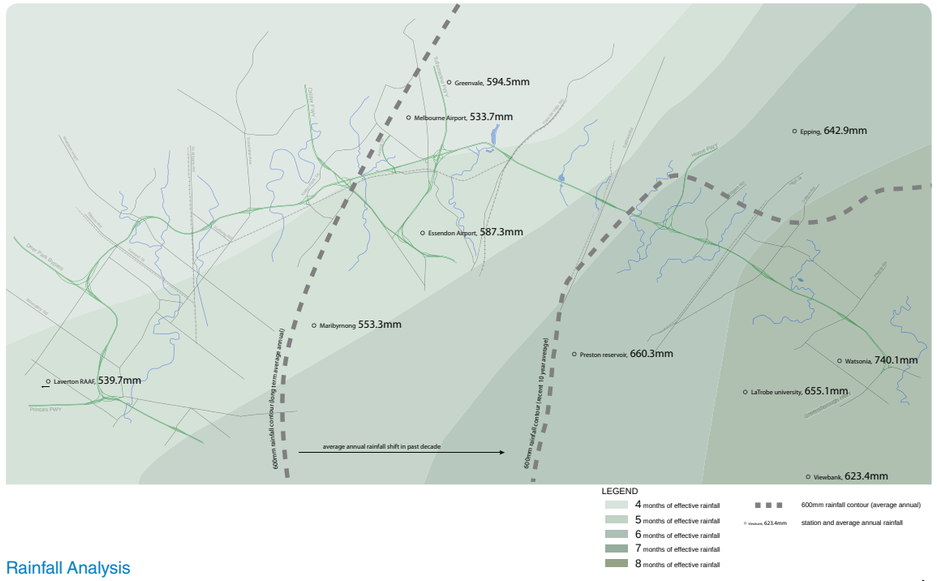
A critical consideration for future plantings is that recent decades have had below average rainfall and this is likely to worsen with anticipated climate change. Modelling shows increasing heat and declining rainfall is very likely in decades to come (refer figure No 6.8). This is an important factor in species selection, particularly for long lived species (30 years +). It is possible that some existing species may not survive the temperature increases and rainfall declines in the future.

Plants should be selected on the ability to perform under site conditions. The highly modified soils, natural conditions and forecast climate change will mean a limited range of indigenous and non-indigenous species will be suitable for the M80.

Other Factors Affecting Plant Performance

Plant selection, planting design and maintenance have also affected landscape performance.

Some species have proven short lived or intolerant of the difficult soil and climate conditions. In particular, planted low growing species have been mostly short-lived and vulnerable to weed invasion and herbicide overspray. The original design intent to recreate the feel of the former grasslands was never achieved through planting for this reason, though native grasses have volunteered in many mown grass areas. Trees, when arranged in large mulched beds have been successful. Shrub mass has been reasonably effective, though drought and shallow soils have contributed to gradual mass failure in many places after 15 years.



Rainfall Analysis

Data sourced from Bureau of Meteorology (2009) Climate data online, www.bom.gov.au. Accessed 01.06.09

A rainfall gradient from West to East exists in the region with a difference of approximately 200.4mm between Laverton in the West and Watsonia in the East. Average annual rainfall shift in the past decade reveals that the 600mm contour is shifting eastward.

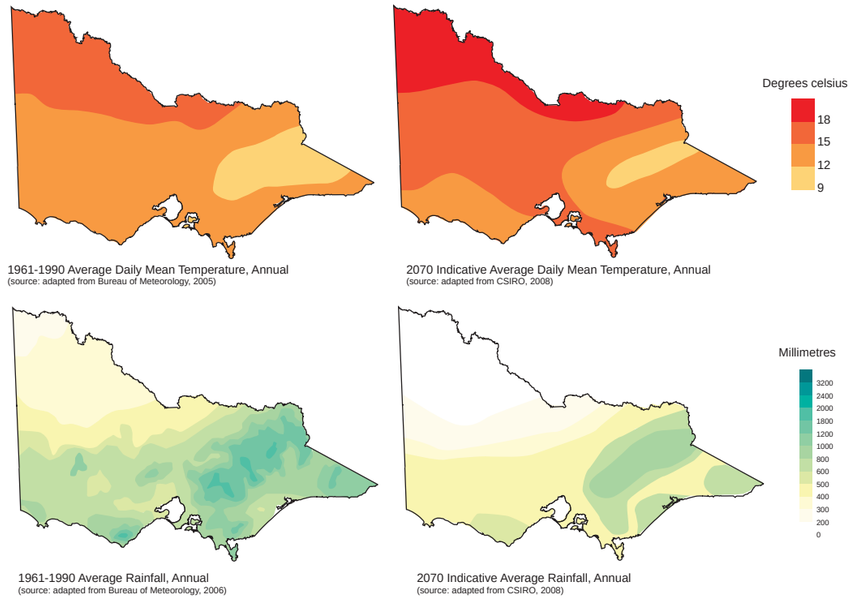


Figure No 6.8
Indicative effects of climate change on average daily mean temperature and average annual rainfall

Little active maintenance of vegetation has occurred on the M80 over the past 20 years, other than roadside mowing, some weed control and in recent years, rehabilitation of some landscapes via coppicing, replanting and re-mulching. Recurrent and incidental weed control has spawned the establishment of a range of winter-growing weeds that flower and re-seed between herbicide applications. Rehabilitation of landscapes in recent years has varied in success. Coppicing has been useful, but only where the timing of coppicing suits the species biology. In many cases, coppicing would have been more successful if conducted earlier, when plants were 6-10 years old.

Replanting in cleared areas has been successful, particularly in continuously mulched beds with ripping. Inter planting among established beds has varying success with competition from retained plants a significant cause of poor performance or death. The addition of organic matter (compost) may have assisted to improve soils, particularly where organic matter is absent in existing soils.

Mowing practices have led to very poor grass performance. Grass cutting has typically been infrequent and irregular. Low cuts (to the point of scalping) result in extreme stress on individual plants; particularly those in VicRoads specified grass mixes. Cutting is timed to prevent reseeding of those species. The net effect has been the gradual elimination of sown grasses, an increase in weed species, topsoil loss and a decrease in soil organic matter. Bare ground is common, particularly in summer.

It is important to recognise that most of the preceding factors explaining poor performance have now been dealt with in landscape designs and specifications.

Planning for Success with Future Plantings
Successful planting is possible, and there are examples along the M80 and other projects such as Tulla – Calder Interchange that illustrate this potential. The types of planting that will succeed in these conditions are very limited however, and this must be understood by stakeholders.

Critical factors for planting success will include:

- Site preparation and soil amendment, most importantly to 'undo' soil compaction
- Species selection to tolerate the unique soils and changing climate conditions
- Retention and reuse of water runoff for plant growth to partly mitigate the hot, dry and exposed conditions encountered along the M80
- Better planting design, using proven treatments such as mass tree planting in ripped, mulched planting beds
- Improved maintenance to extend the life of new plantings, which may require a redistribution of some resources to extend the period of establishment maintenance
- Opportunities to better match ongoing maintenance interventions to plant biology could also assist in achieving a better outcome for the same expenditure
- Greater attention to the quality of landscape installation compared with past projects
- Greater emphasis on providing structure planting for maximum long-term visual impact.

Planting success is also contingent on setting clear and realistic goals for roadside vegetation, and ensuring the planting design is matched to those goals. The goals should be driven by the aspirations of the M80 UDS.

In summary

Vegetation performance along the M80 has often been poor, largely due to soil compaction and low effective rainfall. Addressing these factors through better design, implementation and management will ensure better vegetation performance in the future.

It is important to recognise that the climate, including the increasingly dry and warm conditions associated with climate change, will limit the range and quality of vegetation treatments that can be successfully established.

Figure No 6.9
Rapid growth over 2 years – Tullamarine Calder Interchange

Principle 2: Urban Integration

Objective 2.1
Provide a freeway corridor environment that is engaging for road users and enhances the liveability of adjoining communities.

Objective 2.2
Integrate with local initiatives and programs, within the context of the overall design.

PRINCIPLE THREE
MULTI-FUNCTIONAL

Provide road infrastructure that delivers additional community and environmental benefits by greater use of the road corridor

Road corridors have often provided for multiple functions in the past. For example, they are often the sites of power distribution and shared paths. Road corridors and road infrastructure can be further transformed to deliver additional community and environmental benefits.

Opportunities exist to develop and trial new sustainable materials and technologies and achieve better outcomes for the road corridor edges as part of the M80 Upgrade.

Examples could include energy generation using solar, wind or other technologies to offset energy requirements and using materials during construction that produce lower emissions. Higher value land uses and built form along the road reserve edges (as has been achieved at Glen Gala and Eastlink) should also be encouraged.

In the area of water sensitive road design, a number of options could be investigated to capture rain runoff to irrigate landscape plantings, potentially mitigating the urban heat island effect.

Water Sensitive Road Design (WSRD)

VicRoads commitment to protecting the water environment of Victoria from the impacts of the road network is reflected in its commitment to the implementation of Water Sensitive Road Design (WSRD).

WSRD is the integration of the water cycle into urban planning and the utilisation of best practice techniques to achieve sustainable water and ecological resource management. However WSRD has been limited in road projects to the construction of one or more treatment elements (e.g. swales and biofiltration systems) designed to remove pollutants from road runoff before it reaches a receiving environment. There is scope for the evolution of WSRD to include minimising stormwater discharge, stormwater harvesting and groundwater recharge.

Some M80 WSRD issues include:

- Capture of pollutants from road runoff within limited treatment space
- Existing ground conditions may limit treatment opportunities
- Proximity of treatment areas, e.g. swales aligned in close proximity to road edges
- Competing uses for space within the reservation

In exploring opportunities to better deliver WSRD and runoff management, the M80 could:

- Integrate WSRD into the overall design utilising best practice techniques to achieve sustainable water and resource management
- Utilise road runoff for passive irrigation of the roadside landscape, for example through ‘leaky’ kerbs and contoured soil berms (ridges on batter slopes)
- Explore how road runoff and planting can be better used to reduce the urban heat island effect
- Investigate effects of climate change on the sizing and design of the existing drainage system, innovations in permeable pavements and opportunities for groundwater recharge.

In summary

To achieve WSRD goals, the M80 Upgrade should aim to:

- Investigate retaining stormwater discharge rates at current pre-upgrade levels (no net increase in stormwater discharge connections for added traffic lanes) through on-site detention: leading to no increase in the size of existing discharge pipes
- Expand the WSRD strategy to include consideration of opportunities for stormwater minimisation (permeable pavements), stormwater harvesting for roadside landscape application (irrigation) and groundwater recharge
- Increase effective rainfall to roadside landscape plantings through the recapture and passive redistribution of road runoff
- Reduce the urban heat-island effect with reductions in impervious surfaces and changes to evapo-transpiration rates
- Revise drainage infrastructure upgrades in light of future climate change projections

Other Environmental Innovation Opportunities in the Road Corridor

There are a range of innovations that can be explored for the design of the road environment.

The draft VicRoads' Climate Change and Sustainability Strategy 2010 and the State Government's Transport Integration Legislation: a policy framework and the Transport Integration Act signal environmental sustainability as a core value in the design of transport infrastructure.

A key objective for the M80 Upgrade is to *'Improve environmental sustainability and minimise environmental impacts'.*

A process should be established to ensure that beneficial future technologies and innovations are identified and considered early on the M80 Upgrade.

A desktop review of the literature has identified a range of design, construction and maintenance opportunities for environmental sustainability including:

Reducing impact through road construction materials and techniques
Many new road surface materials are being developed consistent with the notion of 'green infrastructure' and sustainable road design.

Some of these technologies include:

- Renewable plant based binders to replace bitumen
- Recycled materials in road construction including recycled aggregate, recycled rubber and quarry by-products
- Emerging high efficiency / lower emission construction vehicles
- Low or lower energy techniques such cold pour asphalt

Pollution treating noise walls

Technologies currently undergoing testing and development include pollution-reducing acoustic barriers, which mix traditional acoustic barrier construction techniques with filters to capture, treat or breakdown pollution generated from vehicle traffic. While this technology is still undergoing development it indicates a shift in the role of acoustic barriers to mitigate traffic noise, provide visual screening and improve air quality through on-site treatment of pollution.

Sign technology

High performance sign sheets that utilise highly reflective microprismatic technology may one day replace traditional overhead signs. This new signage system is currently being trialled overseas and does not need to be lit at night time significantly reducing ongoing maintenance and operating costs and lowering carbon emissions. Investigations suggest this technology can directly replace existing signs with no negative impact on motorists

Lighting technology

There have been significant advancements made in energy efficient light fittings, particularly LED technology. These fittings emit bright light, consume much less energy and have much longer life spans providing a good alternative to traditional fittings. While VicRoads has embraced this technology for traffic signs and signals, it has not yet been extended for use as road lighting.

Opportunities exist to utilise this technology to lower ongoing maintenance and reduce running costs associated with freeway lighting and reduce light pollution.

Energy Production

As well as techniques and opportunities to reduce the overall environmental impact of a freeway, opportunities also exist to position a freeway as a source of energy production. Some of the emerging technologies include piezoelectricity, thermal energy asphalt and solar noise walls amongst others.

Educational benefits

Freeways, used by hundreds of thousands of Victorians every day, also provide (general) educational opportunities. VicRoads is in a position to trial these emerging technologies and thereby increase public awareness and acceptance of initiatives designed to increase environmental sustainability as in the example of the solar noise wall panels at the Tullamarine Calder Interchange.

In summary

Opportunities for environmental sustainability initiatives could be considered and trialled in the areas of:

- Water Sensitive Road Design
- energy generation
- urban heat island effect mitigation
- innovation in construction materials and techniques
- noise and pollution reduction
- lighting and signage technologies
- education benefits to the community.

Figure No 6.10
Potential Alternate Road Corridor Uses

Solar Panels - Tulla Calder Interchange

Glen Gala Housing Development

Connect East Operations Centre - EastLink

Principle 3: Multi-functional

Objective 3.1
Increase and enhance a multi layered use of the road corridor.

Objective 3.2
Adopt innovative and sustainable technologies to ensure greater use of the road corridor.

PRINCIPLE FOUR
WAYFINDING
Provide an easy to understand way around our city

The strategic treatment and differentiation of interchanges, creation of markers and emphasis of specific features, landscapes and views will help to orientate drivers.

Clearly indicating key driver decision points by providing visual cues and reducing driver distraction will reduce driver workload and assist with wayfinding. Potential exists for elective screening of cluttered edge conditions with vegetation or other freeway elements to support safer driving.

Clear unobstructed signage and numbered exits will enhance driver ability to understand and anticipate exits and entries. Combining signage and freeway management system gantries where possible will also help to reduce visual clutter.

M80 Ring Road Interchanges

The M80 Ring Road is characterised by its interchanges as opposed to destination locations. The freeway currently originates at the intersection with the Princes Highway in the west and terminates at the intersection with the Greensborough Highway in the east.

There are a range of interchanges which lead to important destinations, however they are not the destinations in themselves. This has implications for 'knowing where you are' on the freeway. A common experience of the M80 is that it can be disorientating and difficult to understand or know where you are and when to turn off for infrequent visitors. The fact that it is a ring road as opposed to a CBD to destination corridor, as is the case with many other Melbourne freeways, may contribute to disorientation.

A series of radial freeways and arterials punctuate the M80 driver experience and form major interchanges and connections with the surrounding suburbs, broader city and the state.

Key interchanges identified include:

- Princes Freeway Interchange - M80 Ring Road western intersection with the Princes Freeway and interface with Geelong, Western Victoria and interstate.
- Deer Park Bypass Interchange – new freeway connection with Western Highway and interface with the outer northern and western suburbs and future growth areas.
- Calder Freeway Interchange – Freeway connection and interface to north-western suburbs and regional Victoria
- Tullamarine Freeway Interchange - Freeway connection and interface with inner city, northern and western suburbs. First major interchange city-bound from Airport.
- Hume Freeway Interchange - Major National Highway route inbound and outbound from Melbourne. Freeway connection to northern suburbs, future growth corridors and interstate.
- Greensborough Highway Interchange – most easterly node of the M80. This is potentially an important interchange if a linkage to the Eastern Freeway is developed (note this does not form part of M80 Upgrade works).

Wayfinding

Wayfinding can be described as being similar to the process of navigation. Navigation is commonly associated with sailing and the process of controlling the movement of a ship or other vehicles from one place to another.

Wayfinding, however also encompasses cognitive mapping which are the mental maps created through experience, memory and map reading. Mental maps can be a graphic representation or drawing, a list of instructions or a combination of both.

Wayfinding on freeways or highways has been described as being made up of three different types of tasks or processes.

These are;
- Planning tasks
- Information tasks
- Driving tasks

Planning tasks include using a map or street directory, an estimation of the approximate distance from point A to point B, the approximate time to complete the journey, planning which highway or freeway to use, identification of the appropriate exit or entry points and any identifiable features which may help the driver locate themselves on the journey.

Information tasks involve the transfer of information about the journey to the driver while in the process of making the journey. This is most commonly facilitated through the use of signage, signals and road markings. Information about the journey and its surrounds can also be communicated through views to surrounding landmarks, distinctive built form or other identifiable features. For example knowing you are close to the airport when you pass The Age building on the Tullamarine Freeway.

Driving tasks encompass all of the tasks involved in driving, such as choosing the right lane, changing lanes as appropriate, monitoring the behaviour of other road users, receiving information or instructions and referring to the drivers own mental map. The process of recognition of identifiable features and markers, and entries and exits forms an important part of the interpretation of a mental map and the driving process.

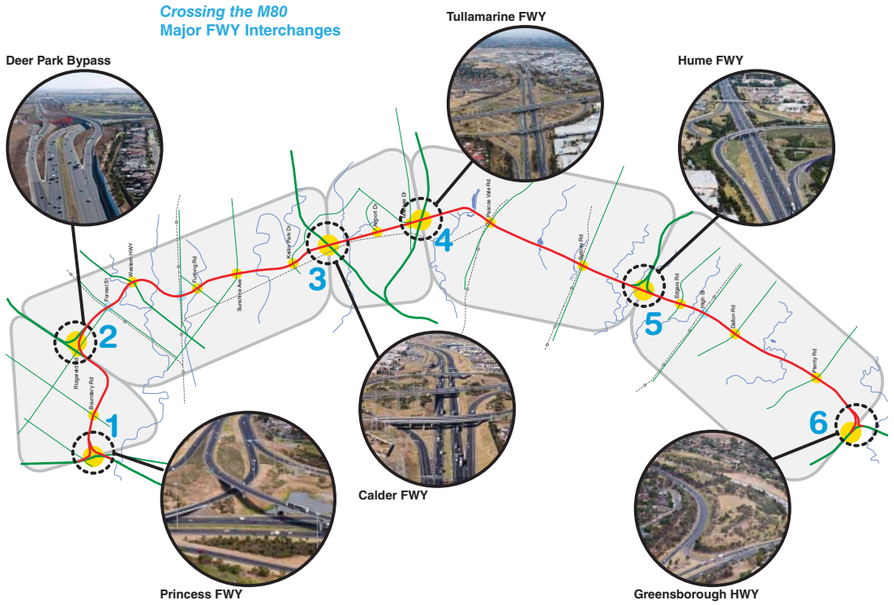


Figure 6.11
Key Freeway Interchanges

Figure No 6.12
Exit Numbering

Figure No 6.13
Identifiable landmarks assist in wayfinding

The M80 Ring Road Driver Experience

The M80 Ring Road faces similar challenges to other ring roads internationally and nationally such as extreme daily fluctuations in traffic volume, a high frequency of major junctions as well as complex traffic behaviours. Added to this, ring roads often pass through densely populated residential, industrial, and commercial areas which create additional challenges for road users and define the areas they pass through.

The high volumes of traffic (up to 142,000 vehicles per day) experienced on the M80, combined with the inherent demands of a ring road means that the wayfinding strategy should rely on more than signage alone. It should coordinate with other design measures in order to deliver a safe and effective transport network for Melbourne.

Analysis of main traffic movements indicates that M80 users do not commonly use the full 38 kilometre length. People typically use a section of the M80 as a connector from one arterial or freeway to another. The M80 has 18 intersections which are typically located less than 2.5 kilometres apart.

In wayfinding, the planning tasks predominately involve an estimation of travel time and identification and use of the appropriate exit/entry. The environment and frequency of interchanges along the M80 means that the information tasks (or information transfer) are typically high and constant with frequent directional signage and little opportunity for respite. In turn this means that the driver tasks may be more demanding when using all or part of the M80. The high task load of the M80 is compounded by the lack of distinction between close similar looking interchanges, visual disconnection from the urban fabric and/or a broad flat open landscape.

It has been shown that long straight stretches of driving with little stimulation or very low driver workload can cause driver fatigue and increase road safety risks. At the other extreme, a high driver work load can equally cause driver fatigue and increase road safety risks. An optimum workload is in between these two extremes with sufficient information and infrastructure to maintain alertness and concentration and enough respite to manage and control driving tasks.

A design approach designating a hierarchy of urban design elements to coordinate and support wayfinding is proposed for the M80 as well as a number of measures to manage and lessen the existing high driver workload.

The overarching design intent is to create a composition made up of primary ‘markers’ and secondary ‘moments’ based along a consistent tertiary ‘thread’ of soft and hard landscape elements.

Primary ‘markers’ should be considered at interchanges carrying high traffic volumes with international or national significance, whilst Secondary ‘moments’ are suggested near top traffic routes and at intervals along the length of the M80.

Driver task loads vary according to traffic volumes, speed and information inputs as well as time of day. Just under half of all road fatalities and over half of serious injuries occur at night despite significantly lower traffic volumes. Alcohol and fatigue are considered the primary factors in this increase in injury and death.

Complimentary to the day time wayfinding strategy, a consistent thread of high quality street lighting supplemented by marker or feature lighting at key moments such as bridges or distinctive built forms should be considered to facilitate night time wayfinding.

Options for wayfinding best practice can effectively be described in relation to each of the following task types.

Planning tasks:
- The establishment of markers along the M80
- The differentiation of interchanges
- The provision of travel time information
- Facilitation of views to surrounding landscape fabric
- Identifiable markers and indicators of travel conditions leading to behavioral change.
- Identifiable landmarks within surrounding urban/rural fabric

Information tasks
- The introduction of numbered interchanges
- The introduction of north, south, east, west reference signage
- Signs which provide the appropriate amount of information at the appropriate time distance (or drip feed)
- Advanced warning/variable signage
- Clear unobstructed instructional signage

Driver Tasks
- Reduction of driver workload
- Reduction of driver distraction and glance behaviour
- Effective merging behavior
- Introduction of advertising exclusion zones
- Increase driver ability to recognise their location through the introduction of identifiable markers.
- Decrease driver confusion and disorientation when using the M80.

In summary

The following wayfinding initiatives could be considered and trialled as part of the M80 Upgrade:

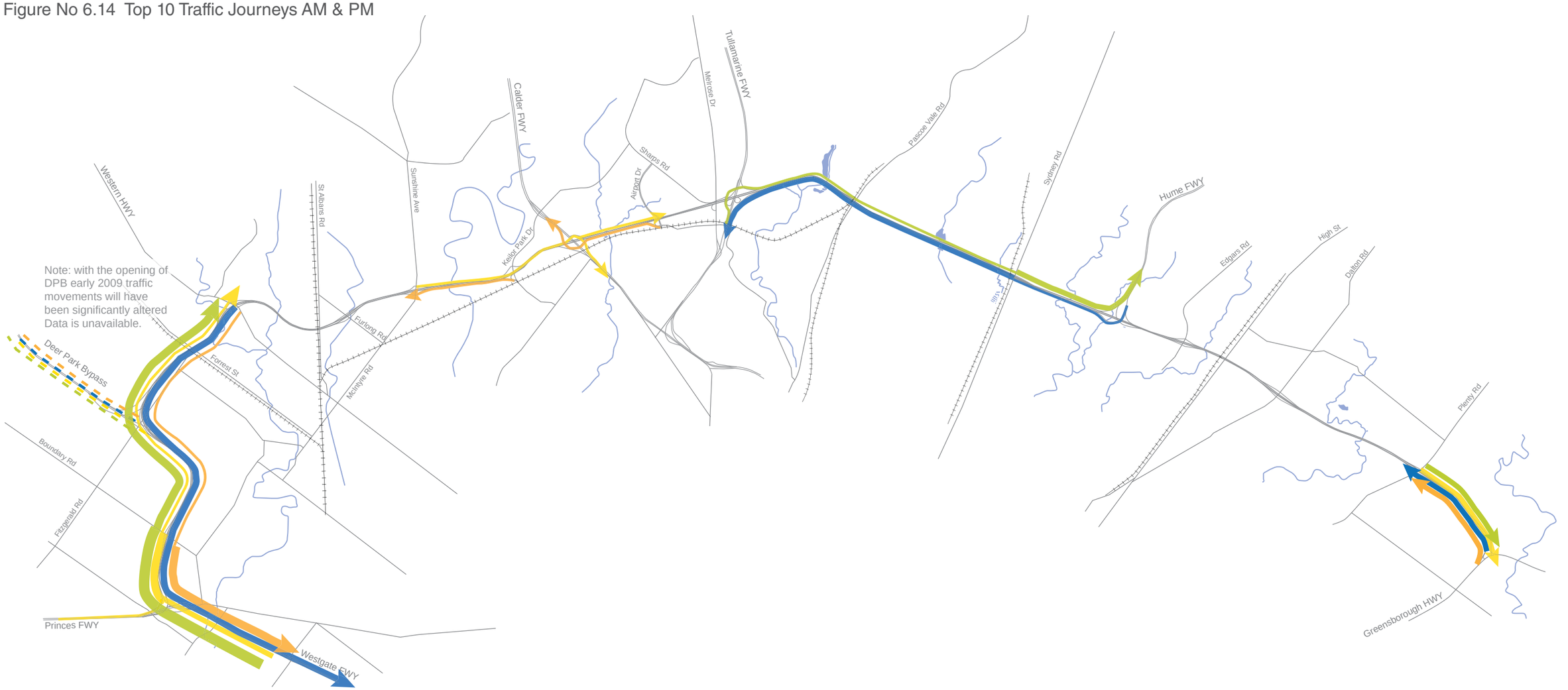
a) Establish a hierarchy of identifiable elements which people can use to recognise their location on the M80
b) Provide a consistent thread that regularly\ provides respite in the form of soft and hard landscape elements reducing the overall driver workload
c) Limit commercial signage locations to areas where the driver workload is minimal
d) Establish controls of commercial signage outside the reservation to support a reduction in driver workload
e) Establish a numbering system for the interchanges along the M80

Principle 4: Wayfinding

Objective 4.1
Improved freeway legibility using a combination of identifiable elements and signage.

Objective 4.2
Establish a new standard for best practice in road safety by increasing clarity of information cues and reducing driver distraction.

Figure No 6.14 Top 10 Traffic Journeys AM & PM



Data presented is the top 10 vehicle (commercial and private) movements along the ring road, within the evening peak (over 3 hours). Survey was conducted prior to opening of Deer Park Bypass.

Data sourced from VicRoads Origin Destination Survey M80 Ring Road, October 2008.

Approximate location of CBD

LEGEND

Traffic volume / journey
(number of vehicles per journey with 3hr peak periods)

	1000 > 2000	2000 > 3000	3000 > 4000	4000 > 5000
Eastbound traffic AM				
Westbound traffic AM				
Eastbound traffic PM				
Westbound traffic PM				

SCALE
1:80 000 at A3
0 1 4 km

N

PRINCIPLE FIVE
CONNECTIVITY
Integrate with local networks across all modes

Connectivity and accessibility across and around a freeway for all transport modes should be maximised.

Facilitating active travel and public transport use for local connections is important and fits within a range of broader government objectives. This can be encouraged by providing safer environments, better links and improving the desirability of alternative transport modes.

Opportunity exists to better integrate the M80 shared user path with other path networks and public transport facilities and to work with stakeholders to achieve this.

The priority is to undertake an investigation of all transport modes, pathways/routes consistent with local Network Operating Plans and pedestrian and bicycle facilities adjacent to and around the M80 Ring Road corridor to identify potential improvements.

Connectivity

In the context of the M80 Upgrade Urban Design Strategy, 'connectivity' can be described as providing better, more efficient, equitable access to goods and services, jobs and schools.

This requires investment in walking and cycling infrastructure as transport modes in themselves, but also as a necessary component of mass transit – train, tram and bus use. Together, walking, cycling, driving and mass transit makes up 'connectivity'.

Walking and cycling (collectively known as 'active travel') are essentially the 'glue' for an integrated, efficient transport system, enabling people to switch between the transport modes that each journey requires. To be efficient, the transport system and walking and cycling networks need to be:

- direct (and therefore as quick as possible);
- pleasant (nice enough to undertake the journey repeated times)
- safe (no threat, perceived or otherwise to personal security)

Desktop analysis of Connectivity

Since construction, the urban fabric around the M80 has changed dramatically with increasing density of population along and around the freeway corridor. More journeys are being undertaken in proximity to the freeway requiring cross-freeway mobility to carry out daily journeys.

Some cross-freeway footbridges and other walking/cycling facilities were built as part of the original freeway, however the connectivity needs of the surrounding populations are now far greater given the changing role of M80 in the city structure and transport network .

The Western Ring Road Trail (WRR), incorporating the Metropolitan Ring Road Trail (MRR) follows the alignment of the M80 and was constructed as a 40km recreational path.

The WRR Trail now acts more as a utility shared path for daily journeys, as its often poor condition and unpleasant environment is not conducive for use as a recreational trail.

There is significant public transport (bus routes, trams and trains) around the M80 corridor. The walking and cycling catchments of these services often straddle the freeway. Connectivity improvements are required to make these services achieve full patronage particularly as the M80 abuts key future growth areas such as Broadmeadows Central Activities District (CAD).

Public Transport Network around the M80

The communities surrounding the M80 are moderately well served by public transport, with the Government investing considerable funds into further increasing the capacity and efficiency of public transport in the area. Notable examples of this investment are the development of the Green Orbital Smartbus route and the proposed Rail Link project through Sunshine. The success of these public transport investments can be monitored in a number of ways, with patronage numbers being a key indicator. The efficiency and ease of access with which new patronage can reach public transport will therefore be crucial to the success of the investment and the 'best value' accrued from it.

In summary

As a priority, it is important to gain a comprehensive understanding of the connectivity issues within and around the M80 corridor. This requires further investigation into current population changes, growth area development and public transport patronage catchments.

Understanding the condition of the WRR Trail and links to public transport is a logical step to identify opportunities and potential synergies.

Upgrading existing connectivity facilities to current standards for utility journeys requires auditing and refurbishment of the WRR Trail and developing an understanding of cross-freeway connections, network connectivity and other links.

These investigations will enable the development of a process for undertaking prioritised connectivity improvements in partnership with local and state government, Parks Victoria, other agencies and stakeholders.

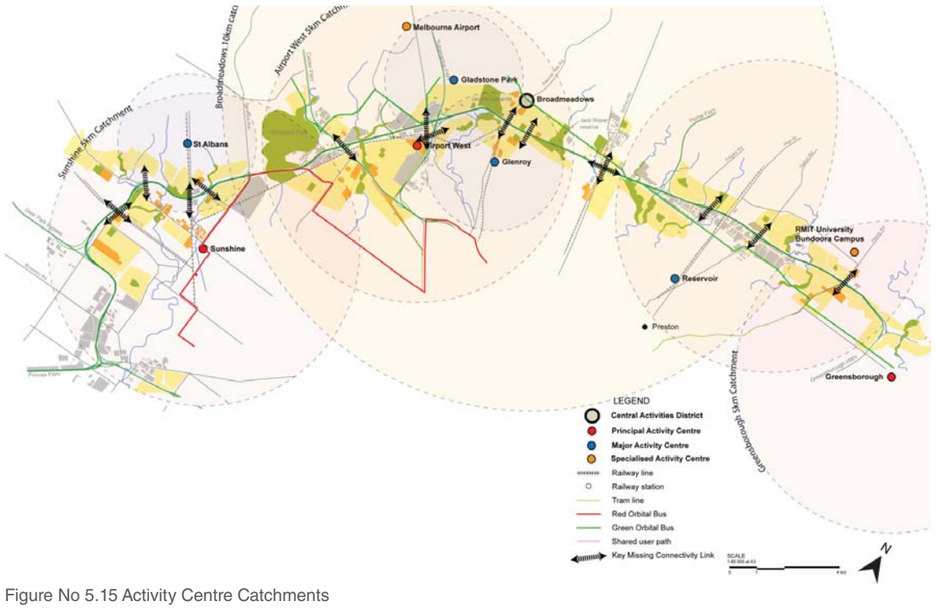


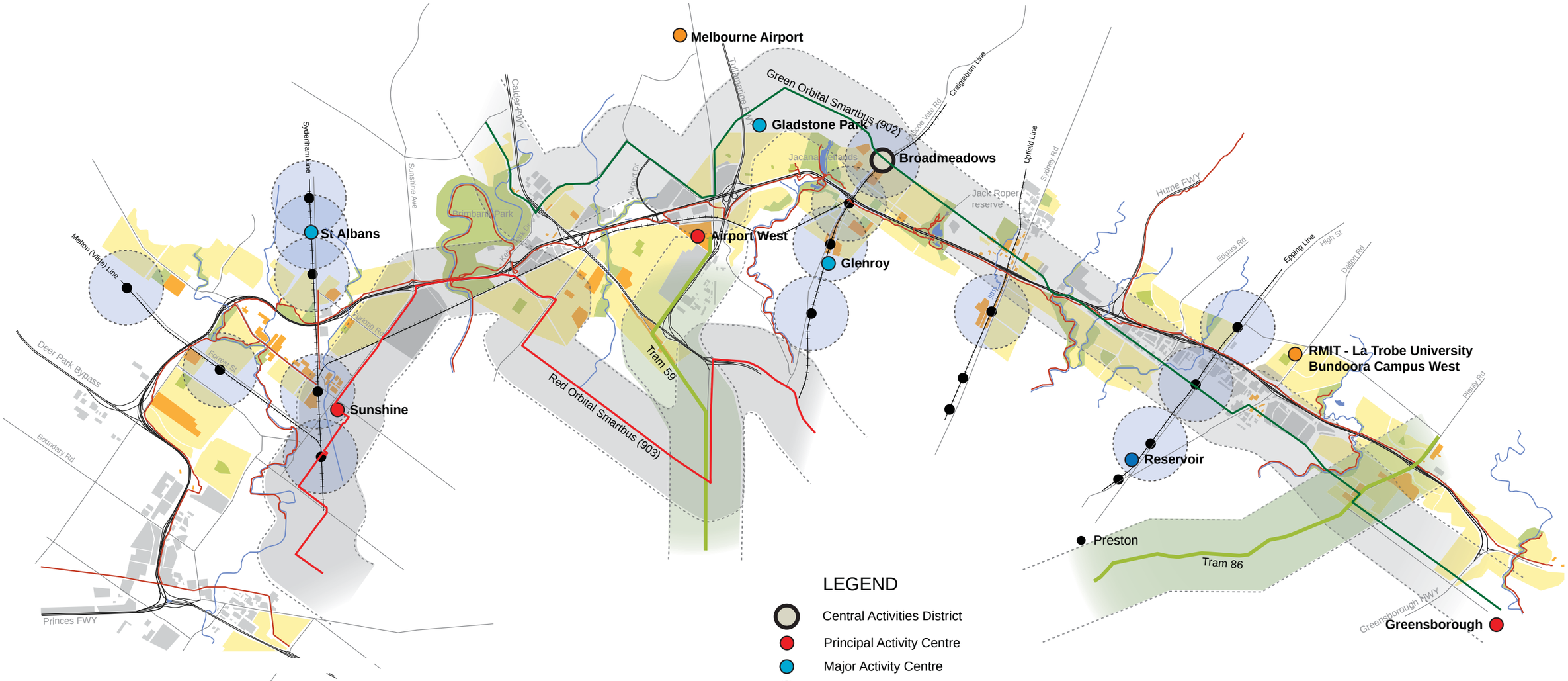
Figure No 5.15 Activity Centre Catchments

Principle 5: Connectivity

Objective 5.1
Improve connectivity across and around the freeway for all transport modes.

Objective 5.2
Consider future growth areas when planning for improved connectivity.

Figure No 6.16 Activity Centre Catchments & Public Transport Catchments



LEGEND

- Central Activities District
- Principal Activity Centre
- Major Activity Centre
- Specialised Activity Centre
- Railway line
- Railway station
- Tram line
- Red Orbital Bus
- Green Orbital Bus
- Shared user path
- 800m train station catchment
- 800m orbital bus catchment
- 800m tram catchment
- Landuse

SCALE
1:80 000 at A3
0 1 4 km

6.0
URBAN FREE WAY ELEMENTS

The scope of M80 Upgrade is a retrofit project to provide additional lanes between the existing carriageways, auxilary lanes between some interchanges and other road traffic measures.

Typically there are not many new structures proposed, like bridges, noise walls and other visually evident elements. Thus the nature of the urban design elements is relatively modest and limited to specific locations rather than transforming the whole road corridor.

In line with the framework provided by the urban design principles and objectives, the urban design elements concentrate on a series of scenario conditions which anticipate the possible future road design as it unfolds.

UFE 1 NOISE WALLS

Issues / Constraints

- the M80 Ring Road has a number of different types of existing noise walls
- existing noise walls will be generally retained - timber, concrete or metal
- some existing noise walls will be refurbished or replaced to match the existing depending on their siting and condition
- some noise walls are located at the top of embankments with screen planting in variable condition
- noise walls are usually highly visible to both the road user, adjoining residences and open space users and therefore need to be carefully considered to mitigate their impact
- noise walls west of Tullamarine Freeway are typically highly visible and located immediately on or behind barriers whereas noise walls east of Tullamarine Freeway are more likely to be masked by vegetation

Design Opportunities

- new noise walls if required will be designed to best fit the site and context
- where timber noise walls are being replaced the adjoining landscape needs to be concurrently improved
- rehabilitate landscape to improve visual amenity of noise walls
- in select locations, some noise walls could be replaced with transparent walls to open up views to local features – creeks and other natural landscape features
- whilst there is a desire to minimise the number of noise wall types for consistency, the varying site conditions that occur along the 38 kilometres of freeway need to be acknowledged.

existing concrete noise walls

Transmission lines restrict planting near noise walls

existing timber noise walls

galvanised metal noise walls - deer park bypass

transparent screens - albury wodonga bypass

glen gala housing development

UFE 2 MASKING DEVICES

Only for sections identified as requiring critical attention to improve visual amenity and, where necessary, to be managed through a designed solution.

Issues / Constraints

- there are sections of the M80 Ring Road that have unsightly adjoining land uses that contribute to a low quality driver experience and perception.
- often visual masking or screening on freeways is provided by dense plantings, but this is generally not possible on the M80 due to road geometry, poor soil and rainfall conditions, particularly west of the Tullamarine Freeway.

Design Opportunities

- provide visual masking in select locations to enhance the road experience
- devices could typically be a repeating vertical element aligned behind barrier to filter unsightly views.

indicative coloured concrete walls

UFE 3 ROAD BRIDGE BARRIERS & RAILINGS

Issues / Constraints
- new barriers are likely to impede significant views to and from the freeway eg high level barriers required over railway lines
- numerous barrier and railing types occur along the M80 contributing to an inconsistent identity

Design Opportunities
- design integrated barriers with railings to achieve maximum visual permeability and to retain views
- barrier ends and junctions should be carefully considered with tapering transitions and other forms of integration with landform, road alignment and other road furniture


existing M80 road bridge


existing M80 road bridge barrier

UFE 4 BRIDGE WIDENING

Issues / Constraints
- widening of existing bridges create construction challenges which may compromise bridge forms and aesthetics
- majority of M80 bridges will need to be widened to the middle with some to the outside. This will impact the bridge form as viewed from local roads and waterways that pass under the freeway
- widened bridges will reduce natural light below structures
- pier forms, bridge abutments will be affected depending on the method of construction and amount of space available to infill.

Design Opportunities
- where bridges are widened they should seamlessly integrate with the form of the existing structures and materials and follow identical or similar span depths
- abutments should be designed to match the same finished alignment and material of the existing profile or, alternatively, be distinctly different but well considered and integrated
- improve visual quality of bridges by concealing pier crossheads and aligning pier locations
- provide good quality artificial lighting to meet standards for pedestrian lighting codes.


eastlink bridge treatment


geelong bypass shared road & pedestrian bridge

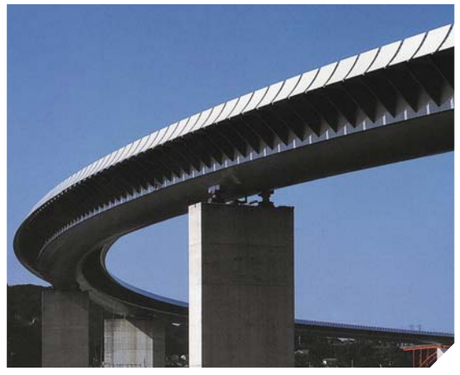

deer park bypass bridge barrier and railing

UFE 5 NEW ROAD BRIDGE(S)

Issues / Constraints
- some interchanges and creek crossing will require new road bridges

Design Opportunities
- apply good bridge design principles
- new bridges in highly visible locations provide a significant opportunity to add new landmark structures as part of the improved legibility and marking of interchanges
- design of bridges should be well proportioned and complement and enhance the existing interchange or environment they traverse
- ensure the form of new bridge structures is visually compatible with the site context e.g.: bridges over rivers and creeks should retain the natural profile of the valley landscape
- minimise the extent of fill material in creek valley landscapes
- minimise the number of bridge piers and structural depth to maintain open views beneath the bridge structure
- new bridges in parkland and creek environments should make a positive visual contribution to the surrounding environment for all users and residents.


deer park bypass


ushibuka bridge japan

existing bridge at furlong road

UFE 6 PEDESTRIAN BRIDGE(S) - EXISTING AND NEW

Issues / Constraints

- opportunity exists for new pedestrian bridge structures to improve connectivity and reduce the extent of access severance caused by major road infrastructure
- existing pedestrian bridge(s) may need to be replaced or realigned to cater for the road widening
- bridge ramps and approach pathways need to be well designed to provide safe and legible access and to minimise vandalism and graffiti
- piers / towers should be aligned outside clear-zones to avoid requirement of protection barriers.

Design Opportunities

- design innovative pedestrian bridge(s) as sculptural landmarks to provide visual cues and interest along the freeway and to the surrounding environment
- minimise signage and other applied advertising
- integrate bridge railings and feature lighting with the bridge design
- provide safe and legible access to and on the bridge
- upgrade existing compliant and feature lighting on pedestrian bridges with sustainable systems
- opportunity to paint various existing bridge structure elements, towers and railings to revitalise the structure.

eastlink pedestrian bridge

existing pedestrian bridge

UFE 7 RETAINING WALLS AND BARRIERS

Issues / Constraints

- numerous retaining wall material types along the M80 Ring Road given the changing conditions of the freeway
- steep batter slopes above retaining walls result in poor plant establishment and erosion problems
- existing 2:1 batters adjacent to the roadside prove difficult to maintain creating OH&S issues.

Design Opportunities

- opportunity to achieve more consistency and improve quality of design i.e. utilise precast concrete retaining walls to increase longevity and minimise ongoing maintenance
- careful design consideration required when matching proposed walls in the vicinity of existing e.g.: concrete walls occurring near basalt rock retaining walls
- walls should have continuous vertical, inclining and horizontal alignments and avoid unnecessary stepping
- walls should carefully integrate with the land form and other structures
- walls should be designed to avoid steep batters behind (no steeper than 3:1)
- introduce concrete barriers and / or retaining walls along cuttings to improve road edge conditions and to create flatter batter slopes for better plant establishment and safer maintenance.

existing retaining walls along the M80

UFE 8 EXISTING AND NEW PLANTING TREATMENTS

Issues / Constraints

- landscape conditions are extremely hostile to plant growth
- soils are highly modified and heavily compacted, particularly on road cut and fill areas
- topsoils are often thin to absent
- from east to west, annual rainfall decreases while wind intensity and temperature increase evaporation
- during summer, droughts are more harsh in the west than eastern parts of Melbourne
- soils are basaltic and 'heavy', reducing infiltration rates, soil oxygen and penetration by roots
- soils are difficult to rip and cultivate due to soil strength and the presence of basalt rock
- infill planting will compete with existing planting
- infill planting may take considerable time (between 5 to 10 years) to have a positive visual impact
- high risk of plant failure if implementation is poor.

Existing failing planting

Failing planting on north facing 2:1 cut batter

Design Opportunities

- develop sustainable planting themes along the alignment
- significantly improve the visual amenity over a long period of time through greater use of tree planting where possible
- integrate learnings from recent successful freeway planting in the west demonstrating good growth
- consider continuous mass tree planting in mulched beds
- ensure high quality site preparation techniques are implemented
- consider large blocks of planting to improve visual amenity and link existing green corridors
- maximise the community benefits of roadside planting particularly along freeway edges, open spaces and creek corridors
- consider removal of existing dead and dying vegetation
- explore potential for extending investment in planting during the establishment phase

UFE 9 ROAD EDGE IMPROVEMENTS

Issues / Constraints

- sections of the freeway have poor visual road edge conditions which can be significantly improved
- typical issues are the lower section of earth berms (ridges along batter slopes) which are bare and untidy
- industrial areas and external storage yards along sections of the freeway are often unsightly and present poorly
- sections of the freeway have obscured view lines to natural features like creek valleys and other open space corridors.

Design Opportunities

- consider concrete barriers and retaining walls to create flatter batter slopes (3:1 or flatter) for planting
- consider barriers (wire rope, concrete) for existing and proposed tree planting close to the road edge to allow planting within clear zones
- encourage visual masking and other devices to improve unsightly sections of the road corridor
- remove visual blockages to improve view lines to natural and other features. This may include replacing solid noise walls and other screening elements with transparent ones
- consider removal of planting in specific locations to open up views to natural and other features
- consider integrated landforming opportunities from excess fill to create better planting conditions.

existing road edge

rejuvinated planting - tullamarine interchange

rejuvinated planting - M80/Princess FWY

Typical industrial site - M80/Jones Creek

sculptural FWY edge treatment - netherlands

FWY edge treatment - craigieburn bypass

UFE 10 ADVERTISING TREATMENT

Issues / Constraints

- sections of the M80 Ring Road are dominated by various forms of advertising from large billboards to long stretches of uncontrolled signs on the walls of buildings facing the freeway
- the current extent and location of advertising contributes to visual clutter and potential driver distraction.

Design Opportunities

- introduce stricter controls to reduce the impact of advertising and signage on building walls adjoining the freeway
- review other advertising controls in line with international research and the recommendations of the Advisory Committee reviewing Advertising Sign Provisions in Planning Schemes Final Report 2007
- liaise with external stakeholders to encourage the affected LGAs to establish a process to develop controls for the extent of new advertising along the M80 corridor through planning controls i.e. Design and Development Overlays (DDO)
- utilise roadside vegetation as a means to reduce the impact of advertising
- consider potential for advertising exclusion zones in areas of high demand for driver decision making.

UFE 11 GANTRIES, SIGNAGE & FREEWAY MANAGEMENT SYSTEM

Issues / Constraints

- way-finding is considered difficult on the M80 given the frequent number of on and off ramps and major interchanges
- there are a number of locations where there are multiple road signs which contributes to visual clutter and lack of legibility along the freeway and intersecting roads
- the introduction of a Freeway Management System (FMS) will require additional structural elements along the whole alignment
- new ramp metering will be introduced.

Design Opportunities

- develop a consistent and coherent signage system and associated structures with the aim of keeping signage to a minimum
- develop simple and consistent gantry structures with consideration to form, shape and colour
- rationalise the number and location of gantries, poles and other signage hardware
- integrate the FMS and associated structures with existing signage along the full length of the M80

UFE 12 FUTURE BUILT FORM

Issues / Constraints

- the M80 is part of a major growth area and as such it is expected that there will be increased building densities in close proximity to the road corridor over time
- many recent developments along the road corridor have turned their backs to the freeway creating a poor interface with little or no consideration of built form or amenity.

Design Opportunities

- local planning schemes encourage a higher standard of built form and landscape treatments along the road edge through Design and Development Overlays (DDO's)
- encourage the combination of high quality noise walls with built form as seen in the recent example of the Glen Gala housing development near Fitzgerald Road
- liaise with land owners to improve and integrate existing interface treatments
- Encourage visually complementary landuses adjacent to the road corridor, particularly in as Zone 1

UFE 13 COLOUR THEME/S

Issues / Constraints

- the M80 has two distinct landscape character zones with the eastern half set in a green and undulating landscape whereas the western half is more of an urban / industrial driving experience
- distinct sections of the road corridor are visually cluttered and dominated by industrial buildings, advertising, high voltage towers and other structures.

Design Opportunities

- the strategic use of colour on the road corridor can contribute to improved legibility and identity both for road users and the adjoining local communities
- colour could be used thematically to define distinct sections of the M80 particularly at major interchanges
- establish a colour palette to reinforce sections of the road corridor
- existing colour themes should be built upon e.g. ; the blue of Craigieburn Bypass and the orange and yellow wall elements of the Deer Park Bypass
- colour can also be used on various structures such as pedestrian bridges, bridges railings, FMS gantries and other road hardware where appropriate.

UFE 14 INTERCHANGE TREATMENTS

Issues / Constraints
- the M80 is characterised by a large number of on and off ramps and freeway interchanges, many of which lack identity and legibility
- improved interchange identity will assist with way-finding and legibility

Design Opportunities
- opportunity to integrate high quality architectural elements at interchanges
- opportunities exist to improve the visual identity of major interchanges with new urban elements to contribute to wayfinding
- should new bridges be built they should be considered concurrently for their contribution to an improved interchange identity.

UFE 15 SHARED PATH CONDITIONS

Issues / Constraints:
- surface condition of the shared paths is very poor in places with large sections being below standard
- enclosed fencing, overgrown vegetation and other poor edge conditions create an uncomfortable and uninviting environment for users
- deteriorated signage, circuitous routes and poor sightlines generate confusion and disorientation, thus limiting repeated path usage and new patronage.

Design Opportunites
- Consider upgrade / replacement of path surface material to provide smooth, wide transport conduit
- Rationalise fencing and upgrade edge conditions to improve passive surveillance and ease of path access
- Upgrade path facilities including signage, seating, drinking water, lighting and open up sightlines to key features to improve path legibility and induce confidence in new users.

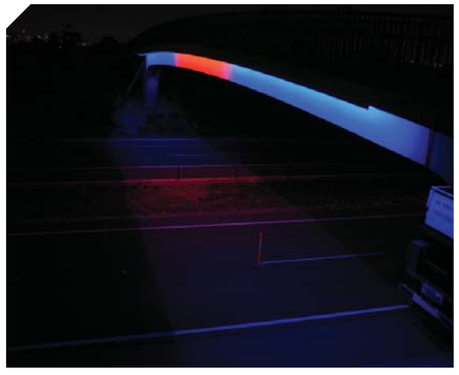
Existing section of the WRR path network

Good existing shared path facility

UFE 16 ROAD & FEATURE LIGHTING

Issues / Constraints
- disparate lighting pole forms and fixtures along the M80 with differing technologies and design standards
- opportunities exist along the road corridor to heighten the driving experience with selected feature lighting to mark various structures and other features
- new central median and outer median road lighting maybe required along the whole alignment
- reuse of existing lighting infrastructure will create visual inconsistencies

Design Opportunities
- integrate new road lighting schemes with existing to achieve a consistent visual effect, legibility and improved environmental sustainability
- provide feature lighting to select urban elements to assist wayfinding



UFE 17 WATER SENSITIVE ROAD DESIGN

Issues / Constraints
- Treatments of pollutants from road run-off in with limited space
- Existing ground conditions may impact treatment opportunities
- Proximity of treatment areas to the roadside needs to consider maintenance and safety
- Effective natural rainfall will be limited with hotter and dryer conditions in the future.

Design Opportunities
- Integrate WSRD into urban design utilising best practice techniques to achieve sustainable water and ecological resource management
- Ensure best practice treatment of water through swales and biofiltration systems
- Expand the WSRD strategy to include stormwater harvesting for roadside landscape application (irrigation), ground-water recharge and to minimise urban heat island effect
- Increase effective rainfall to roadside landscape plantings through the re-distribution of road run-off
- Consider removal of sections of kerb and channel to re-distribute road run-off passively into roadside swales and planting zones
- Create zones for stormwater soaks and passive recharge of ground water
- Include landforming with new landscape plantings to collect, slow and re-distribute stormwater as a source of passive irrigation
- consider retrofitting existing retarding and sedimentation basins with mechanical irrigation systems to provide a water resource for roadside plantings
- Trial the use of impervious surfaces for service roads, emergency lanes, and select shared pathways.

UFE 18 INTEGRATED ARTFUL INFRASTRUCUTRE AND PUBLIC ART

Issues / Constraints

- there are limited opportunities to integrate sculptural forms with the existing infrastructure along the project
- any artful infrastructure or public art initiatives need to be of a sufficiently large scale to read as primary markers or secondary moments in a high speed environment
- working with Local Government Area's (LGA's) and other public art programs may enhance outcomes
- there is a limited number of high quality public art works along the road corridor like the house-in-the-sky at Princes Freeway and the wind socks at Ballarat Road.
- public art on freeways is best achieved through a collaborative and integrated approach taking into account the local context.

Design Opportunities

- Consider distinctive high quality artful infrastructure elements when opportunities for primary markers arise at key interchanges
- opportunities exist in selected locations working with LGA's to integrate freeway scale public art along the M80 Ring Road
- integrated artful infrastructure and public art can contribute to a sense of local pride and identity and function as a wayfinding device.

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