



Transport for NSW

Princes Highway Urban Design Framework

An urban design strategy guidance and design considerations for the upgrade and maintenance of the Princes Highway from Sydney to Eden

Draft for implementation and feedback
Centre for Urban Design 2021



Acknowledgements

Transport for New South Wales acknowledges the Traditional Custodians of the land and pays respect to Elders past, present and future. We honour Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to place and their rich contribution to our society. To that end, all our work seeks to uphold the idea that if we care for Country, Country will care for us.

This document was produced by the Centre for Urban Design and Realm Studios in collaboration with the Princes Highway upgrade team.

This document draws upon many south coast projects implemented in recent years—their achievements and lessons learnt—and recognises the dedication and skills of the many project teams and technical advisors.

The information contained in this publication is based on knowledge and understanding at the time of writing. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up-to-date and to check the currency of the information with the author or independent advisers.



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View of the Great Dividing Range topography from Beecroft Peninsula



1 Introduction

1.1 Purpose of this Framework

Transport for NSW is committed to providing 'Successful Places' where the 'liveability, amenity and economic success of communities and places are enhanced by transport'. The Princes Highway, while primarily a travel route, is both shaped by and integral to the character, culture and physical landscape of the South Coast. In many ways this significant corridor frames how customers perceive and experience the places of the South Coast, defining how they leave and arrive at places and pass through and between them. The intended outcome and vision for the corridor is to protect these distinctive attributes by conserving, protecting and enhancing the character of the South Coast. This Framework guides teams to realize this through the delivery of the corridor in alignment with the objectives of Beyond the Pavement to create vibrant, resilient and thriving communities.

Beyond the Pavement, 2020 is the Government's approach to the design of state highway projects. This approach has been evolving and learning lessons since the documents first publication in 1999. It has the following urban design objectives that apply to all projects and help create a consistent urban design approach:

- › Projects should fit sensitively into the built, natural, and cultural environment in both urban and rural locations.
- › Projects should contribute to the accessibility and connectivity of communities and a general permeability of movement through areas by all modes of movement.
- › The design and management of projects should contribute to the overall design quality of the public domain for the community, including transport users.
- › Projects should help revitalise areas and contribute to the local and broader economy

This Framework assists teams to realise the design intent for the Princes Highway. Its purpose is to provide direction and guidance on the delivery of a high quality transport corridor that is of its place within the NSW South Coast. It applies across all project scales and types associated with the corridor through business case development, planning, design, construction and ongoing management.

1.2 The Princes Highway and the South Coast

The South Coast landscape referred to in this document is the corridor of land between the Great Dividing Range and the Pacific Ocean approximately 400km long between Sydney and Eden and the NSW border with Victoria. It is an outstanding area of natural beauty to Australia, and the world. It is an invaluable natural and cultural asset both to the communities who live there and to the people who travel through and within it.

It is also a network of integrated landscapes and seascapes at a close knit scale that are home to many natural and cultural systems and activities: settlements, ecosystems and communities, intertwined with rivers and harbours, beaches and headlands, farmlands and bushland and the ever present Great Dividing range hugging the coast.

This combination of natural, built and cultural elements combines to create a unique character with a finer scale to its spatial and landscape qualities that is able to be greatly appreciated by people—residents and visitors. Through this landscape winds the Princes Highway connecting a series of towns and communities that nestle into the landscape and coast line.

The Princes Highway (named after the Prince of Wales in the 1920s) is primarily a connection to the South Coast including coastal regions in Victoria and South Australia. An inter-capital service is provided by the shorter Hume Highway which connects Sydney and

Melbourne. Between Sydney and Nowra the Highway is complemented by a country Rail Service but for the majority of the South Coast the Highway is the primary transport option. As a consequence of its regional role, the highway traffic requirements change along its length. Nearer Sydney, and the higher outer metropolitan population areas, the highway has to cater for high traffic volumes and a large component of trucks. As the highway approaches the border volumes and traffic decreases, however the need for connectivity, efficient travel times and a high quality resilient road remains constant.

While the Princes Highway is a route and an entity in itself, it is also part of a larger transport network operating alongside roads such as Lawrence Hargrave Drive, Gerroa Road, Kangaroo Valley Road, the eastern part of the Kings Highway and the Tathra Bermagui Road for example, connecting the smaller towns and settlements along the coastline as well as the rail corridor north of Nowra.

Walking and cycling has a role to play in this region. There is not a great distance between each of the towns and there are some comparable walking and cycling routes in the

world that are similar to the whole NSW South Coast. For example the iconic Pennine Way in England is 430km long, the newly emerging Irish Wild Atlantic Way and the established Appalachian Trail in the US are 1000s of km long. The NSW South Coast has equally valuable scenic qualities, history and attractions to these.

In summary the highway is a lifeline for the communities providing access to goods and services, a connection to hospitals and health care, an escape route in natural disasters and a means of connecting communities, businesses and achieving economies of scale. Looking after this highway and improving it sensitively where necessary, is essential for the well-being and success of the South Coast. It is more than just a highway though, where bypasses have been created, it alleviates traffic from the small towns and communities. Thus, the former highway routes become quieter enabling tourist routes and cycle connections. Furthermore the bridges and alignments themselves can become iconic in the manner of Sea Cliff Bridge, while the upgrade work can provide rest areas, viewing points and public spaces of all varieties.



View of Gerrigong from the top of the Kiama bends



Diverse landscape character of the south coast



1.3 Landscape and Country-led design practices

Within this document the coastal landscape is understood in two ways: as a whole corridor, and as a series of individual systems and conditions which influence and shape a specific place.

These two aspects are influenced by 'layers' of natural, built and cultural qualities covering geology, topography, hydrology, soils, vegetation, ecology, human settlements, built form, infrastructure and the spiritual and cultural stories of our heritage and culture of both Aboriginal and non-Aboriginal people.

This approach was informed by noted landscape architects in the 20th Century such as Ian McHarg in the US and Bruce Mackenzie in Australia and captured in terms such as 'Design with Nature' and 'Design with Landscape'.

It is also evolving around a Country-led approach to design which acknowledges the depth and breadth of Aboriginal knowledge of the natural, built and operational environments over eons.

This knowledge, which belongs to Aboriginal people, is best described and authored by Aboriginal practitioners in their own voice. But while Country-led design practices continue to emerge, advisory documents such as this serve to highlight the importance of Aboriginal cultural practices and their sophisticated understanding of place.

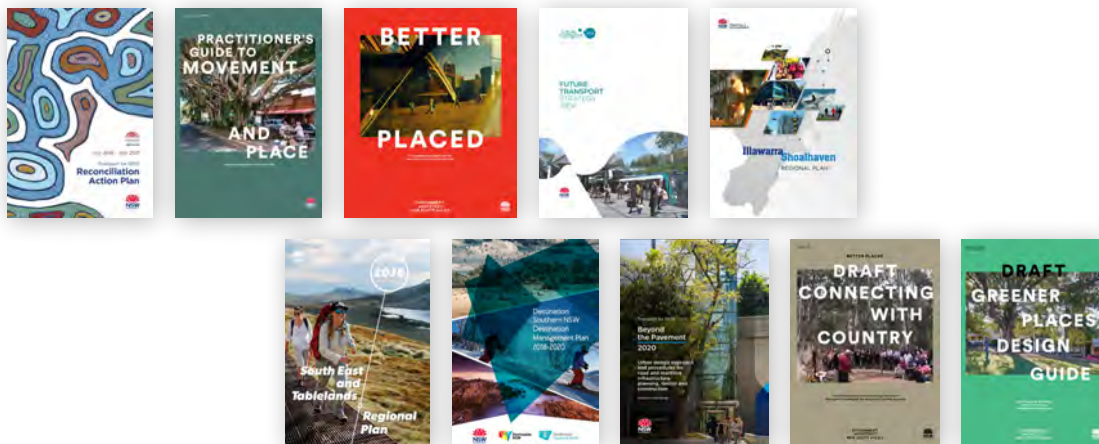
1.4 Strategic Context of the Framework

1.4.1 Alignment with Transport for NSW and State Government Objectives

The following documents outline the broader objectives of TfNSW and State Government initiatives for the Princes Highway. These initiatives, strategies and policies govern the delivery of infrastructure and the built environment in NSW. Infrastructure upgrades align with these strategic objectives to provide a cohesive vision for the region and ensure projects deliver benefits across multiple aspects of the community and the environment. Infrastructure projects on the scale of the Princes Highway play a unique and significant role in shaping the regions they move through and represent in some cases a significant opportunity to invest resources in the area.

Maximising the potential of these projects to provide positive and lasting impacts on the community is critical to cultivating a resilient and thriving area, now and into the future.

- › Transport Reconciliation Action Plan
- › Practitioners Guide to Movement and Place
- › Better Placed and Connecting With Country (Government Architect NSW)
- › Future Transport Strategy 2056
- › Illawarra Shoalhaven Regional Plan 2036
- › The South East and Tablelands Regional Plan 2036
- › Destination Southern NSW Destination Management Plan 2018-2020
- › Beyond the Pavement 2020



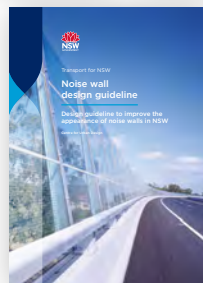
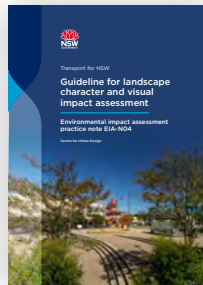
1.4.2 Relationship to other Guidelines

In conjunction with this Framework, the following guidelines and manuals apply to the Princes highway corridor. They are a suite of guidance documents (in addition to strategic documents listed in section 1) which guide teams on Transport for NSW objectives and principles. While they do not represent an exhaustive list of reference documents for the corridor, they are a starting point of key considerations and requirements for projects teams.

In addition to this, the TfNSW Centre for Urban Design also produces evidence-based discussion papers which provide best practices solutions around particular issues of urban design and infrastructure improvement.

These are listed below, the integration of this guidance is a central driver in the delivery of projects throughout the corridor.

- › Beyond the Pavement 2020
- › Guideline for landscape character and visual impact assessment
- › Tunnel Urban Design Guidelines
- › Water Sensitive Urban Design Guidelines
- › Landscape Design Guidelines
- › Noise Wall Design Guideline
- › Shotcrete Design Guideline
- › Bridge Aesthetics Design Guidelines
- › Walking and Cycling Program Guidelines 2018



2 Approach to using the Framework

2.1 Application of the Framework

2.1.1 How to use this Framework

The primary use of this guidance document informs the desired outcomes and design solutions for the Princes Highway in relation to the South Coast. It assists in understanding where a proposed site sits within the broader corridor both physically and conceptually, sets down objectives and design principles and details what type of conditions and responses are appropriate in response to this.

The Framework's secondary application is as a tool to prompt collaborative discussion and an emphasis on experiential roadway design. The concepts and approaches to corridor design described in this Framework and the case studies, are intended to assist designers and practitioners to explain and implement this in collaboration with broader team members and stakeholders.

Collectively the team should seek to ground the roadway experience in the character of the South Coast, intimately connecting road users to the surrounding natural, built and cultural landscape.

2.1.2 When to use this Framework

Implementation of this Framework will yield optimal outcomes when implemented comprehensively, from project inception through to detailed design, construction and throughout its lifecycle. It is designed to apply across all aspects of the transport corridor and project types. The breadth of guidance spans from the construction of new bridges and town bypasses, to multi-agency delivery of public amenity, tourism and cultural infrastructure and/or managing the governance of assets transfers. In the words of Beyond the Pavement 2020, it encourages teams to consider broader opportunities and possibilities to benefit the community of NSW and beyond.

Table 1—Title

	Stage	Task (by team and Registered Urban Design company)	Guidance Document
1	Business Case	Preparation of Strategic Business case	PHUDF/BTP2020
2	Preliminary Environmental Assessment (PEI)	Prepare landscape character assessment of project study area.	PHUDF/GLCVIA
3	Options assessment	Use landscape character assessment and PHUDF vision & objectives to guide selection of options.	PHUDF/GLCVIA/ BTP2020
4	EA/ concept	Follow the PHUD vision objectives and principles in development of the agreed concept. Build upon available landscape character assessment and develop visual impact assessment iteratively.	PHUDF/BTP2020/ GLCVIA
5	Delivery	Incorporate PHUDF in SWTC for project. Assess project design development against delivery of SWTC urban design	PHUDF/BTP2020
6	Operation and maintenance	Follow PHUDF vision objectives & principles in work to enhance and manage the corridor	PHUDF/Landscape Guideline

2.2 Structure of Guidance

Upgrades to the Princes Highway will be undertaken as a series of projects to improve the corridor over a long timeframe. Upgrades vary in scale and scope from safety improvements and road realignments to major infrastructure, bypasses and roadway duplications.

This Framework directs teams on the design approach, desired character and intended road experience to be achieved by each section of the Highway as it is delivered. It is intended to facilitate consistency, enhance the character of the South Coast, support the towns and their industry and curate the driven experience of users who travel along it. This also serves

to ensure the corridor remains engaging, minimising boredom and orienting drivers along their journey.

Understanding and designing the corridor on a number of different scales is central to achieving cohesion throughout the corridor. As such the analysis and design of transport corridors in this Framework is understood at three different scales;

- › the corridor as a whole
- › the immediate local conditions of the road, and
- › individual (but common) elements of the roadway.



The site understood on varying scales; Within the whole Princes Highway corridor; Within the local region; Within the immediate surrounding conditions of the landscape and the roadway

Whole of corridor guidance is provided to ensure that the roadway has cohesion from start to finish and does not create a fragmented experience for drivers. It serves to prompt and give direction on the design intent for a given section of the corridor within the broader context of the South Coast, which is in many ways shaped and influenced by the Princes Highway corridor. This focuses on the character of the corridor and a whole of corridor approach.

A number of projects and upgrades have been implemented according to 'Beyond the Pavement' principles over the years and this

document draws upon their achievements and lessons learnt and the dedications and skills of the project teams. These include the Sea Cliff Bridge, Kiama Bypass, Berry and Gerringong Bypass and many more.

Local condition guidance breaks the corridor down into four major conditions which are characteristics of the South Coast and details the conditions which typify each. It is intended to assist teams in identifying these conditions and design the highway to reinforce its characteristics.

Highway element guidance presents teams with an approach to the design and siting for the 'kit of parts' which make up elements of the road. It details a South Coast specific approach to their design, siting and aesthetics.

In some instances, the traveller experience and road sequence may dictate design of a new road alignment, bypass or new major infrastructure (active responses).

This document nominates instances where this is an appropriate and recommended response for design teams to propose throughout the corridor. These are select 'heroic' points in the landscape described as 'high drama' conditions which celebrate the South Coast and the roadway.

More commonly however the alignment, grading and geometry of the road offer challenges for the design team in integrating standard geometry with unique landform. In this instance the advice provided is intended to engender understanding and consideration of the corridor through a particular frame of reference. The focus for designers then shifts onto secondary roadway elements which can also curate the driver experience and reinforce the corridor wide design objectives. In other areas, existing conditions of the roadway may already provide the desired driver experience in which case, these conditions are to be retained (conservation response). The following sections address each of these responses to roadway design and prompt teams to critically assess which response is appropriate across a range of conditions. This addresses a hierarchy of consideration as follows;

1. Identifying what locations are appropriate to emphasise different types of sequential driver experiences along the corridor
2. Understanding how to design for various sequential experiences
3. Creating a dynamic and engaging relationship to the landscape through the corridor
4. Delivering engaging and intuitive road design which cues drivers on changing conditions and orientates them along their journey

2.3 Mapping the Corridor

2.3.1 Two ways of understanding site context

Within this document the corridor is understood in two ways: as a whole corridor, and as a series of individual conditions which constitute a specific site. These two methods of describing and understanding place draw on Country-led and landscape-based approaches to understanding context. While this follows an aboriginal and Country based understanding of place it also reflects the objectives of Beyond the Pavement and reinforces a key initiative of this Framework; to assist teams in understanding how their immediate site fits within the whole of corridor strategy. While different, each method of understanding maps relationships, rather than cataloguing static elements. This is fundamental to the delivery of infrastructure which, due to its vast scale and impact, has significant potential to beneficially influence the landscape and communities of the South Coast.

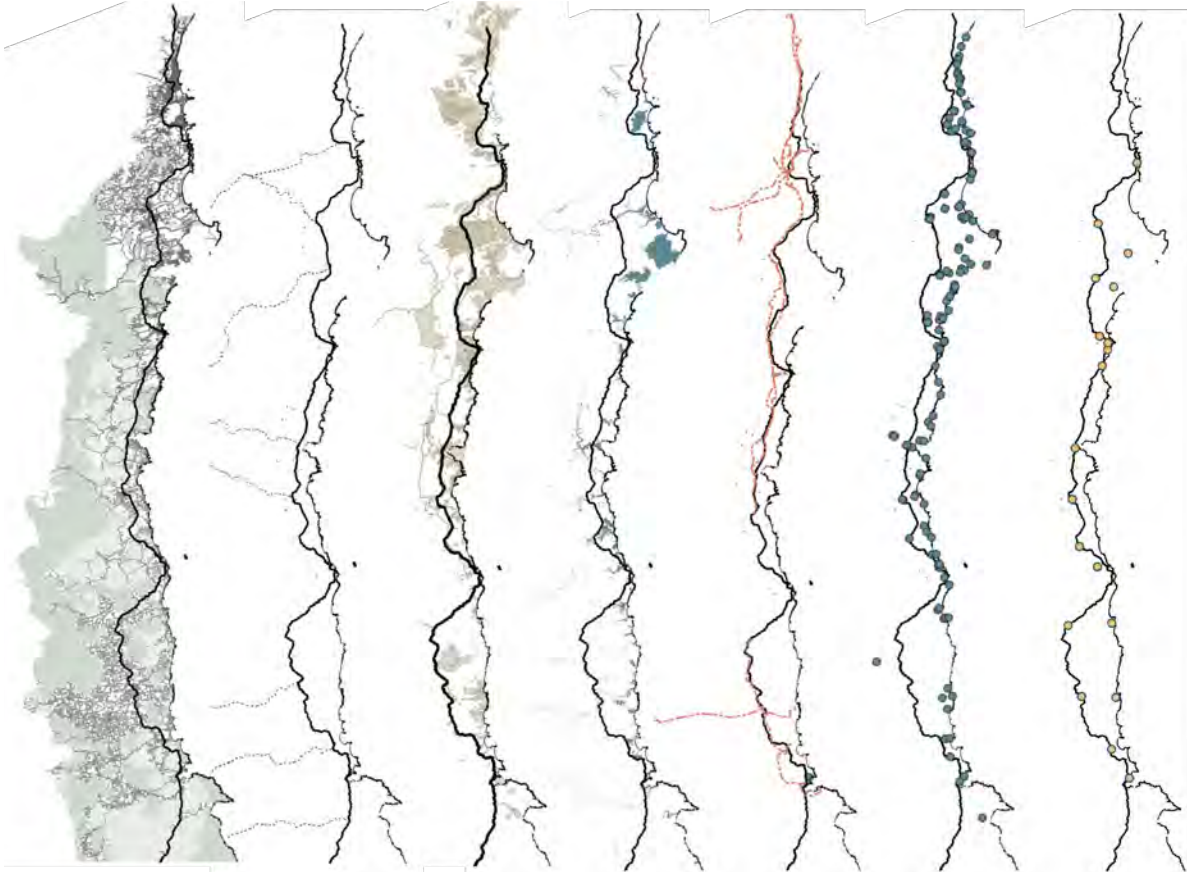
A Country-led approach through the guidance of Aboriginal people and their knowledge, understands the site within the broader corridor and its relationships with the natural, built, cultural and economic aspects of the South Coast.

A landscape-based approach identifies specific site conditions—or layers—which, taken together describe the natural, built, cultural and economic aspects of the South Coast.

Transport for NSW is committed to embedding Aboriginal and Torres Strait Islander co-design principles across Transport Projects. This applies to project outcomes and to the design of delivery of transport in communities throughout NSW and the urban design mechanism is set down in Beyond the Pavement 2020. For further information refer to the TfNSW Reconciliation Action and Plan and the NSW Government Architect 'Connecting with Country Draft Framework' and Beyond the Pavement 2020.

Figure 1—The ‘layers’ of landscape

1. National Parks and State Reserves
2. Major passes which connect east to west across the escarpment
3. Significant cultural and heritage sites
4. Major water bodies and rivers
5. Easements to power transmission lines
6. Maritime recreational infrastructure
7. Settlement



2.4 Overview of the South Coast towns

South of Sydney, there are four regions containing numerous towns and settlements:

1. Illawarra Region towns including Wollongong Shell Harbour and Kiama
2. City of Shoalhaven towns including Berry, Nowra, Ulladulla, Culburra Beach
3. The Eurobodalla Shire towns of Batemans Bay, Moruya and Narooma
4. The Bega Valley towns of Bega, Merimbula and Eden

The origins of these towns vary but focus around extractive industries, farming and fishing, for example Ulladulla on Budawang

land started as a Cedar logging settlement but the town developed into the region's largest fishing town. An annual 'Blessing of the Fleet' is held as a cultural practice to safeguard the industry.



Ulladulla

Berry on the land of the Wodi Wodi, began life also as a Cedar logging area and developed saw mills and related industry. With the development of the Agricultural showground, the town expanded and became an important farming centre and produce market. It has become a popular tourist stopover (helped by the bypass removing congested through traffic) and is the home of the annual fairgrounds festival.



Berry

Eden on Thawa land was a whaling port and cattle handing station. It was once considered as a site for the capital of Australia. It now has a strong tourism industry focused around the beautiful coastal landscape. All the south coast towns have their own character, attributes and are a valuable asset to the region.



Eden



Kiama



Bermagui

3 Princes Highway Urban Design Vision and Objectives

3.1 Introduction

Implementation of the vision, objectives and principles for the Princes Highway serve to protect and enhance the character of the South Coast. This is achieved through the primary connection the corridor provides with the landscape; the connection between users and the natural, built and cultural landscape they are travelling through. The vision and objectives which describe this apply across all scales and systems of the roadway. Specific principles are then provided to detail desired outcomes for the roadway.

3.1.1 A Whole of Corridor Urban Design Vision

While Beyond the Pavement sets a state-wide approach, the context of the South Coast requires a more tailored vision and set of objectives. The urban design vision for the Princes Highway, is thus defined as;

A safe, resilient highway, connecting with Country, supporting community lifestyles and culture, contributing to the region's recreation and economic potential and providing a journey experience celebrating the unique South Coast landscape and built heritage.

3.1.2 Whole of corridor Urban Design Objectives

1. Impart a 'connection to Country' through the journey experience
2. Create a dynamic interplay between formality and wildness
3. Emphasise the scale and scenic beauty of the natural landscape
4. Protect and enhance the unique characteristics, culture and heritage of the South Coast
5. Value and support the townships, their economic activities, transport choices, safety and liveability
6. Protect and support natural systems, environmental processes and South Coast biodiversity
7. Utilise infrastructure to support the South Coast as a place to visit and explore, with places of delight and amenity in the public domain
8. Enhance the sequential visual experience of travelling along the corridor

3.1.3 Relationship between Beyond the Pavement and the PHUDF

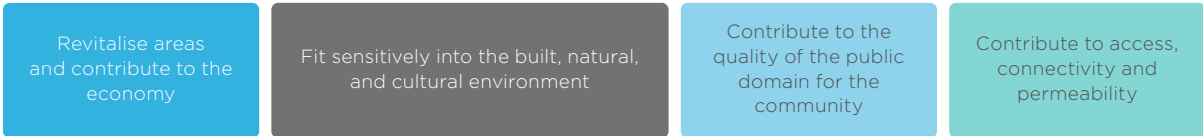
TRANSPORT FOR NSW

BEYOND THE PAVEMENT VISION

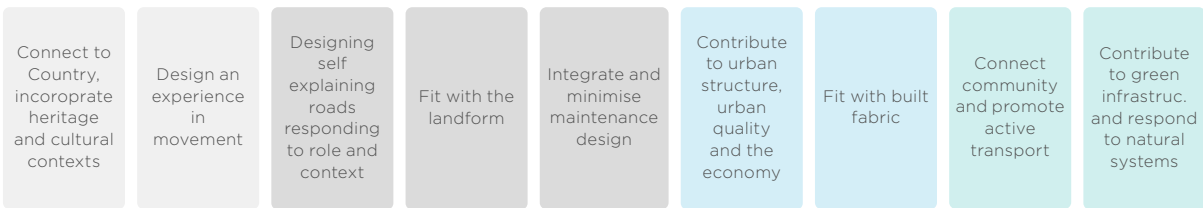
Enhance the livability, amenity and economic success of communities and places through infrastructure

OBJECTIVES

Urban design objectives for road and maritime infrastructure work



PRINCIPLES



PRINCES HIGHWAY VISION

A safe, resilient highway, connecting with Country, supporting community lifestyles and culture, contributing to the region's recreation and economic potential and providing a journey experience celebrating the unique south coast landscape and built heritage.

OBJECTIVES

Urban design objectives specific to the Princes Highway corridor



3.2 Whole of Coast Design Principles

Understanding and mapping how a given section of the highway responds to corridor-wide initiatives, whole-of-South Coast projects and infrastructure networks is central to the delivery of the Princes Highway. These aspects of the South Coast reflect current and prospective state government initiatives and networks across various aspects of culture, infrastructure and the natural landscape. As an infrastructure network which stretches the full length of the South Coast and services connectivity between its major hubs, the Princes highway plays a formative role in shaping, delivering and supporting other networks and initiatives in this region.

In some cases, upgrades to the transport corridor represent a rare opportunity to invest resources in an area. Large scale infrastructure, whether it is built, cultural, economic or environmental, is the product of resources invested incrementally over vast timeframes. When delivered in a cohesive manner, these contributions compound to produce thriving and resilient places. Conversely, the absence of these contributions allows landscapes and places to decline. Maximising the potential of the corridor to provide positive and lasting impacts on the community and environment can drive the future of the South Coast as a successful, liveable and sustainable region.

The following is a list whole-of-coast initiatives, both existing and prospective, which capitalise on this potential for the South Coast region. Identification of opportunities to implement or enable these initiatives form part of all proposed upgrades to the transport corridor.

- A. Whole of corridor, continuous public art strategy for the south coast (in consultation with Create NSW), implementing civic works along oblique views to powerline easements or incorporating land art into junctions, overpasses, cuttings and noise mounds. Foreground aboriginal artists connected to nations of the south coast.



The Women who made the Sea Locally created Aboriginal art, informing, telling local stories and improving the journey experience (Nambucca)



'Tides' art proposal at Batemans Bay by Joel Adler

- B.** A context sensitively designed, whole of coast tree strategy to provide safe access, safe homes as well as a scenic corridor and beautiful biodiverse setting.



A bypassed road and the potential for cycling

- C.** A continuous south coast off motorway walking route which could be known as 'The Great South Coast Walk'. Connecting the towns beaches farms and villages along a network of walking tracks, providing hard infrastructure (adjacent to or separate from the corridor) to facilitate connectivity along the route and reduce the need for motorway use.



Footpath improvements at Berry

- D.** Implementation of E-Highway technology throughout new upgrades with an emphasis on integrating charging facilities into the towns and well designed rest areas, drawing on local renewable energy production capabilities and energy exchange programs.
- E.** Strategic management and implementation of rest stops, including transition of select locations to accommodate bushfire and emergency response congregation points and access ways. Implement refuge clearings and emergency response services at priority locations along the corridor.
- F.** Development of the corridor as a scenic route and associated delivery of tourism infrastructure (eg. Sea Cliff Bridge) in collaboration with Destination Southern NSW (similar to the Wild Atlantic Way Project)
- G.** Whole of south coast strategic plan for crown lands identifying and nominating a necklace of sites to realise aboriginal land rights, expand natural landscapes and/or provide public amenity or tourism



The landscape can provide beauty and joy as well as stress and danger. It needs to be managed so that the south coast can thrive and retain its essential character.





4 Whole of Corridor Urban Design Principles

Under each of the eight Princes Highway Urban Design Framework (PHUDF) Objectives the following principles and guidance has been developed.

4.1 Impart a ‘connection to Country’ through the journey experience

4.1.1 Designing with Country

“Country” (with a capital C) has a specific and significant meaning for Aboriginal peoples. In the Aboriginal sense of the word, Country relates to the nation or cultural group and land that we belong to, yearn for, find healing from and will return to. However, Country means much more than land, it is our place of origin in cultural, spiritual and literal terms. It includes not only land but also skies and waters. Country incorporates both the tangible and the intangible, for instance, all the knowledges and

cultural practices associated with land. People are part of Country, and our identity is derived in a large way in relation to Country”

— Dr Danièle Hromek, Budawang/Yuin, Researcher and spatial designer (2019, Connecting With Country Draft Framework)

The Princes Highway and its broader corridor are situated on the traditional lands of the Aboriginal people of the South Coast—the Eora, Tharawal and Yuin nations (AIATSIS map of Indigenous Australia).

The highway is within, and a part of, Country and provides a connection with Country for all who travel on it. It follows that in any work Transport does, in improving or looking after the Princes Highway, it is working on Country and must strive to understand and respect its qualities, heritage, stories and its processes and characteristics—both destructive and regenerative. This can only be done with a measure of humbleness, a willingness to understand and collaborations with experts, knowledge holders and the community.



The highway is within and a part of Country

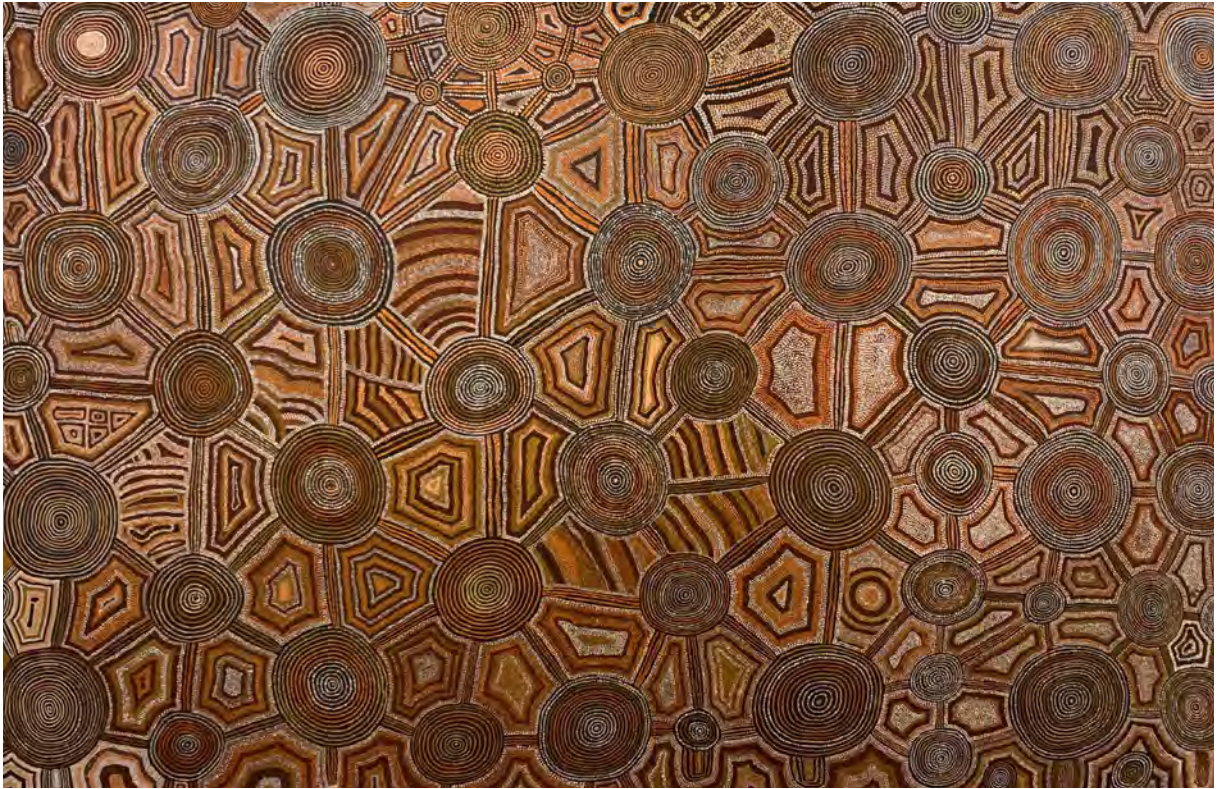
4.1.2 Design principles

- a. Work with Aboriginal groups to understand stories, song lines and topographic elements to interpret these in the design of the landscape, structural elements, planting, signage and Rest Areas.
- b. Co-design the planting with Aboriginal knowledge holders to understand the seasonal landscapes, flowering times, sentinel trees and other important species.
- c. In consultation with the local Aboriginal communities, use the colours and textures of the landscape and geology on the walls and other structural elements to complement and enhance the experience of the natural environment.



The colours of the geology can inform the highway character and its structures

- d. Identify a project colour palette with place specific colours reflective of the Koori artwork and ochre colours.



The beautiful colours of the Australian landscape can create a thematic approach to the road and its elements (Jupiter Well to Tjukula by Uta Uta Tjangala 1979)

- e. Work with local Aboriginal artists and designers to incorporate and integrate artwork into highway structures, landscape and Rest Areas.



Balgowlah Noise Walls by the late Jessica Birk and Balarinji

4.2 Create a dynamic interplay between formality and wildness

4.2.1 The formality and wildness of the South Coast

Within this Framework, ‘formality’ refers to the more structured features of the corridor including the road and built infrastructure, planted avenues of trees, and embankment formations. ‘Wildness’ refers to the natural landscape including scenic vistas and coastal vegetation and topography. The transport corridor facilitates a connection and interplay for the traveller between these two elements.

The design of the road can enhance this connection by:

- › reflecting the undulating topography of the landscape in the geometry and form of the infrastructure
- › connecting drivers with various features of the coastal landscape in diverse ways (experiencing it with intensity in high drama areas and at a steady rhythm through sweeping plains)
- › alternately reinforcing a sense of intimacy and close proximity to the landscape and a sense of openness within the vastness of the corridor, contrasting both to heighten these experiences.

In this way, elements of the corridor may be aesthetically distinct while reinforcing cohesion along the corridor and creating a seamless and legible experience of the South Coast.

Together the landscape and the highway create a dynamic experience for drivers and passengers which heightens their connection to their surroundings.



The Sea Cliff Bridge perfectly captures the intent of creating a dynamic interplay between formality and wildness.

In the case of the Princes Highway, the experience of formality and wildness in movement is one of constant change. This means that the road alternately emphasises diverse features of the highway. It consequently creates a distinct experience for drivers depending on their direction of travel; north or south. The northern section of the corridor generally has greater emphasis on movement with broader carriageways. The southern section is typified by a greater intimacy and closer connection to the natural landscape.



The wildness of the landscape and topography



The formality of roads, bridges and tree planting

4.2.2 Design principles



The landscape guides the alignment

- a. Modulate the corridor and reinforce the dynamic nature of the roadway through the design of infrastructure to ensure drivers remain engaged and to enrich the driver experience
- b. Approach the design with an experiential mindset organising and presenting motion, space and views to the traveller.
- c. Emphasise and celebrate the vast scale and breadth of the corridor and surrounding landscape.
- d. Let the landscape guide the alignment design—Minimise earthworks, independently grade carriageways on hillsides, work with topography to create a kinetic experience of the South Coast terrain and respect and learn from the songlines.
- e. Design roadway infrastructure to support and reinforce opportunities to implement public art or interpretive heritage works where appropriate
- f. Provide a connection to country in planting, interpretation, art and place naming with a focus on the bridges, paths and Rest Areas.
- g. Where possible and appropriate, use lighting to reinforce the underside of infrastructure and orient drivers along their journey
- h. In the design of structures, allow for through views, for example by the use of a double rail barrier on bridges instead of a Jersey barrier or the use of spill through abutments instead of walled abutments.



Two rail barrier on the viaduct passing Berry



Use wire rope fencing where practical to allow the views of the landscape and a less 'walled' environment, which is in keeping with the south coast

- i. Site and locate cultural and heritage interpretive installations to prompt drivers and orient them. Feature artworks between and on approach to thresholds along aboriginal nations, regional areas, scenic routes, heritage trails etc.

4.2.3 Further Guidance

- a. Ensure bridge parapets are continuous surfaces with a generous overlap extending out from the abutments
- b. Spill through abutments are preferred over walled abutments unless in more urbanised settings
- c. Black mesh fencing is to be used adjacent to the highway with planting in front to minimise visibility
- d. Position all signage away from scenic areas and vistas, below the skyline with a backdrop of vegetation
- e. All signage and advertising should be avoided where possible on overbridges
- f. Reinforce landmarks, way points and interchanges with unique and distinctive planting endemic to the local area
- g. Avoid the need for retaining walls noise walls and safety barrier walls in the south coast landscape. Use two rail parapets, wire rope safety fence, noise mounds and landform instead.

4.3 Emphasise the scale and scenic beauty of the natural landscape

4.3.1 The coastal landscape

The topography of the South Coast is one of its most distinctive assets combined with the adjacent Pacific Ocean expanse. Orientating the highway to experience this topography and emphasise its qualities can be achieved in the planning stages as well as in the finer scaled design of the cuttings, bridges and embankments. Noise walls and other features that disrupt this visual connection should be avoided or designed sensitively.



The journey should provide an experience of the topography of the south coast

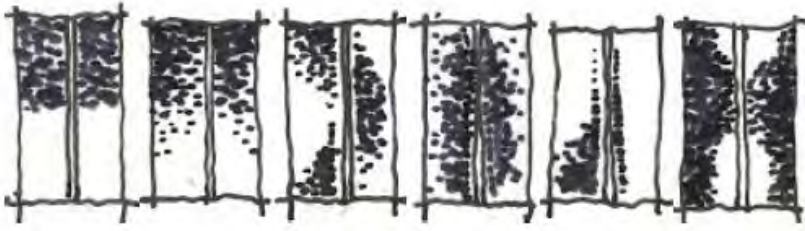
4.3.2 Design principles

- Where possible use the road alignment to orientate road users to vistas of landscape features such as mountains, valleys and coastline.
- Consider the route planning and alignment design decisions to allow an immersive experience in the South Coast so that road users can enjoy the experience and the infrastructure is designed to emphasise the landscape.



A journey through the forests can enhance an appreciation of the open sections

- c. Separate and re-join the carriageways where possible and appropriate,
 - to reinforce the rhythm along a given section of the roadway
 - where the road cuts into the hillside to afford expansive views in one or both directions of travel
 - to diverge through the landscape and come together at major intersections, crossings or bridges.
- d. Modulate the roadway by the use of density and proximity of planting where existing conditions present a sense of monotony.
- e. Control density and arrangement of trees and planting at transitions into/out of dense bushland areas or clearings to respond to the roadway conditions and sequence which occurs before/after this threshold. Possible arrangements include;
 - an abrupt transition out of dense bushland to heighten a driver's experience into sweeping plains by contrasting between compressed and expansive views
 - at a transition from/into bushland at grade, create a gradual thinning of tree density to taper the transition of the driver experience
 - on approach to a settlement, plant trees at regular intervals on the high side of the road to direct driver's sightline across lowlands/valley floor



The different patterns of trees and their groupings influence the visual experience

- f. Sightlines afforded by powerline easements, creek crossings, fire trails or cutaways through the landscape at descents, condition thresholds or significant aspects should be enhanced to frame views and orient drivers in the landscape and be considered for large scale public art opportunities
- g. Orient users in place by creating oblique and tangential views from the road using existing clearings and easements

- h. Where the roadway passes a water crossing, ensure water crossing views to the landward side (brief, long and shuttered) are distinct from the seaward side (broad, expansive and lingering) to orient and give drivers a sense of north/south travel direction and a sense of the landform features they are travelling past

Figure 3—Consider the composition and direction of views

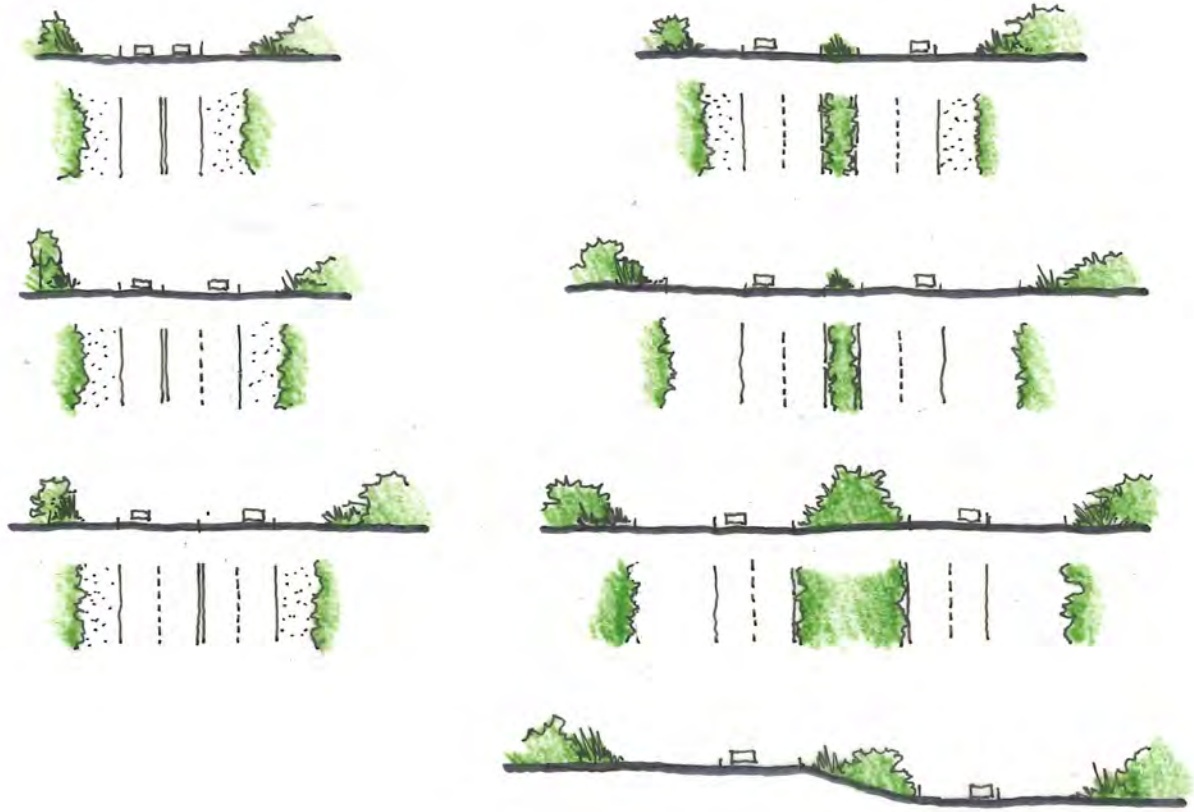


- i. Shape and design earthworks to create landforms which reinforce local character. (for example, build up earth mounds to the high side of the road to direct driver's views out across the low side of the road across a valley)
- j. Where upgrades to the highway will involve a duplication, widening of the corridor, broadening of the shoulders and/or dual carriageways, maintain a sense of connection and intimacy with the landscape. This can be achieved by;
- separating the carriage way through topography and planting
 - creating a densely planted median strip
 - separating the carriageway through a level change
- k. Highway signage should be rationalised to reduce the number of separate signs and location of signage should ensure that key vistas are not impeded.

4.3.3 Further Guidance

- a. Provide minimum two metre width at the base of walls, cuttings and benches for planting and seeding to self-establish without impeding access.

Figure 4—The range of different cross sections and independently grading carriageways



Median planting at South Nowra

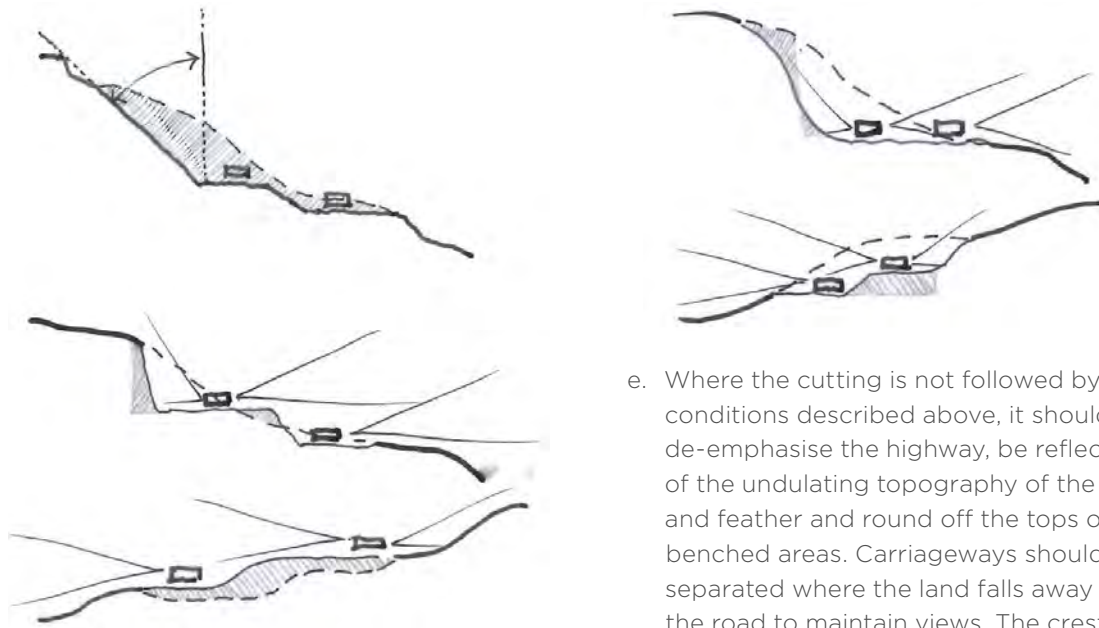
- b. Use landform embankments and bridging to reinforce the lie of the land and the flow of the topography.



Embankment graded to 1 in 3

- c. Form and sculpt the geometry of tunnels, overpasses, abutments, supports and undersides to frame and direct driver views. Ensure they serve to control headlight glare and orient drivers along the route.
- d. Where a cutting is required, give precedence to maintaining the natural substrate of the cut. Where the substrate is friable or unstable but can be retained, provide sufficient clearances along the shoulder for a planted buffer and rock fall zone to maintain a natural face to the cut. Shotcrete solutions to cutaways are undesired and to be avoided.

Figure 5—Independently graded carriageways terrace the road on hillsides minimising earthworks



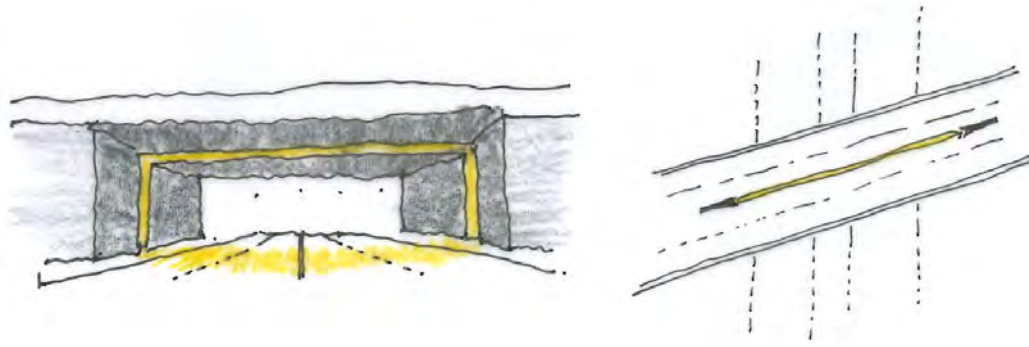
- e. Where the cutting is not followed by the conditions described above, it should de-emphasise the highway, be reflective of the undulating topography of the area and feather and round off the tops of benched areas. Carriageways should be separated where the land falls away from the road to maintain views. The crest, base and benched areas of the cut should allow sufficient clearance for planting to soften the edge/profile.



Shallow cutting on North Kiama bypass created using stone retaining walls

- f. Noise barriers, abutments and overpass design should respond to the driven experience of the corridor. Emphasis on oblique views is to take precedence over orthogonal views. Surfaces and designs should be angled and stepped to respond to the shifting perspective of the driver rather than run at 90 degrees to the corridor.
- g. Infrastructure elements should be shaped and designed to create shifting qualities of light and shadow throughout the day and diffuse reflection from headlights during the evening. Emphasise colour on reflected, recessed and/or 'highlight' areas of the structure into the evening.

Figure 6—Consider the relationship of light and shadow



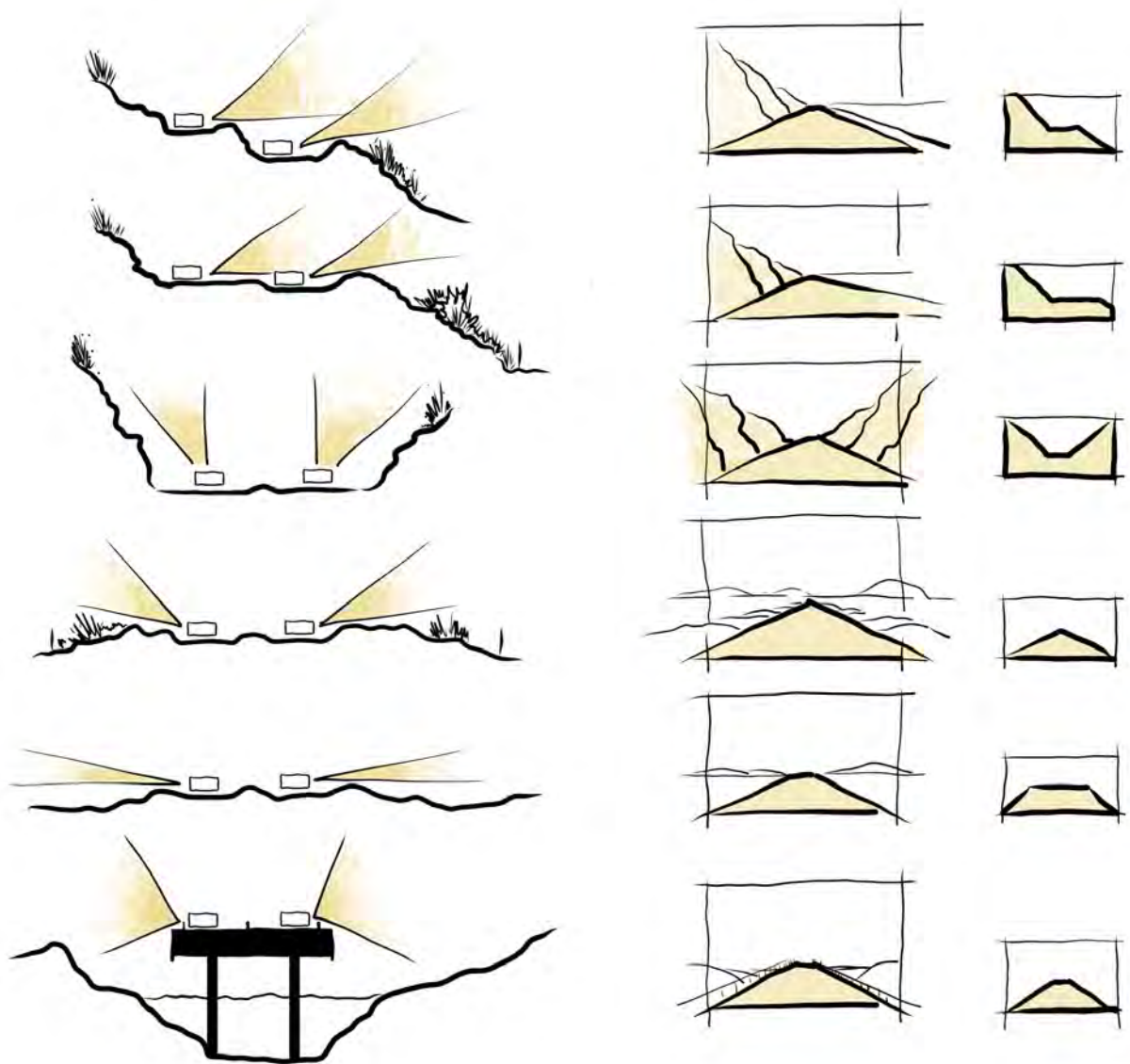
- h. Cuttings should be reflective of the natural undulating topography, be shaped to appear recede into the landscape and feather and round off the tops.



A combination of cuttings and embankments. In time only the steep cutting with the retaining wall will be noticeable. The other landforms will disappear into the landscape.

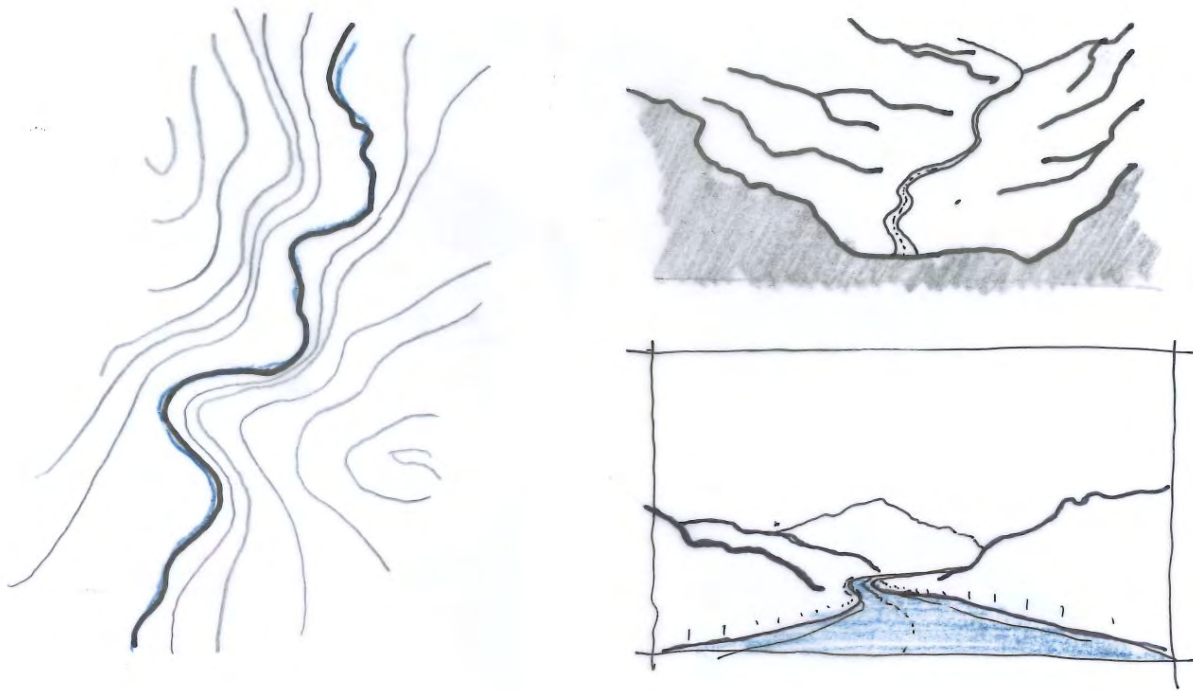
- i. Where a cutting is required, give precedence to maintaining the natural substrate of the cut. Where the substrate is friable, provide sufficient clearances for a planted buffers/ rock falls zones to maintain a natural face to the cut. Shotcrete solutions to cutaways are undesired and to be avoided.
- j. Ensure benches cuttings provide sufficient clearance for planting alongside vehicle access ways.
- k. Where the roadway is cut into a slope, separate carriageways to ensure drivers in both directions maintain unimpeded visual connections to the landscape

Figure 7—Considering views in different carriageway conditions



- l. Roadway alignment and geometry should follow the edge of valleys, skirt hills and aim for saddles in the topography to shape the roadway to the natural landform of the plain

Figure 8—Following the contours



4.4 Protect and enhance the unique characteristics, culture and heritage of the South Coast

4.4.1 Valuing the South Coast identity

The South Coast of NSW is unique on the Australian and world scale and has many character defining elements. These include the unusual topography of the Great Dividing range; the indented coastline, the bays and long beaches; the rivers, valleys, rain forests, green pasture and fig topped knolls, the built heritage of the harbours swimming pools, light houses coastal communities and the distinctive

- c. Pursue a context sensitive approach to bridge infrastructure reflecting local vernacular and conditions rather than creating a consistent family across the entire Princes Highway corridor.

colours and light of the area. All these need to be assessed understood and protected through the design process.

4.4.2 Design principles

- a. A project specific cultural and heritage approach should be developed providing a curated plan for the implementation of interpretive installations which acknowledge significant aspects of Country, heritage and landform.
- b. In line with a whole of corridor Strategy, provide rest area signage and artwork describing and interpreting the South Coast landscape.



A variety of structures on the Princes Highway enhances the context sensitivity of the highway

- d. Where earth mounds are not feasible and the roadway does not permit sufficient width for planting, noise walls may be acceptable if they are low height and transparent. Where transparent walls are not supported by the community, low walls may be designed in local materials such as dry rock walls and taller walls may be designed as artworks in their own right.



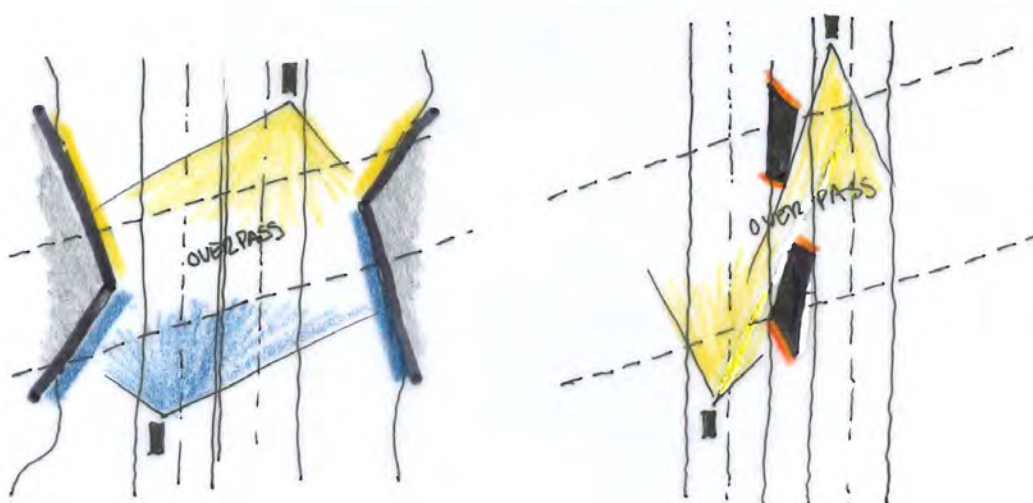
Acrylic Noise wall at Kiama



Acrylic patterned noise wall at Haberfield, Sydney

- e. Where abutments and supports to overpasses are designed to respond to driver views, implement cultural, heritage and place based civic art and interpretive works to visible angled surfaces. Other than for essential way finding, discretionary signage and advertising is limited to these locations within the corridor.

Figure 9—Consider opportunities for art in bridge infrastructure



- f. Implement best practices in rock face retention and stabilisation with reference to the Shotcrete Design Guideline.



Bridges and structures can accommodate integrated artwork

4.5 Value and support the townships, their economic activities, transport choices, safety and liveability

4.5.1 Supporting the economy and liveability

The South Coast towns nestle into the landscape, have a strong connection to the sea and the land, and form a string of attractive thriving communities. The tourism business, industry, agriculture, are finely integrated with the residential community. Accessible open space, beach access and recreation is

a strong characteristic of the South Coast with a transport network of bus, rail, walking, cycling, freight and private car use that tie all this together. The result is a highly liveable community which needs preserving, made resilient to natural events and climate change and strengthening where necessary. Land use planning that avoids sprawl needs to be supported where possible.

4.5.2 Design principles



Advance views of towns helps attract visitors and business

- a. Ensure a safe and attractive bushfire resilient access to and from the towns
- b. Design the road, structures and landscape to intuitively cue drivers on surrounding towns and villages, and local points of interest
- c. Design abutments and overpasses to frame specific views of significant landforms, waterbodies or heritage sites which surround the township
- d. Provide convenient walking, cycling, bus and motor vehicle access between and within settlements that are safe and comfortable. Design convenient public transport to encourage its use.
- e. Provide optimal access conditions across the highway at townships to ensure the highway does not become a barrier to sustaining a functional and thriving centre for the towns and villages. Where appropriate and feasible, consider bypassing the main streets of towns.
- f. Where townships and villages are bypassed,
 - Co-locate rest stops, look outs, service stations facilities and fire refuge areas at the turn off to a bypassed settlement
 - Create identifiable clearings at major roadway interchanges and settlement bypasses to create a milestone for drivers along their journey and convey a significant turn off

- Curate views from the corridor to maintain a connection with bypassed townships and signal to drivers in advance of the option to deviate through the settlement
 - Ensure bypass infrastructure is designed to elevate the township (in terms of visibility, economic attraction, and cultural vibrancy) through views, gateway moments and planting
 - Provide good connectivity and wayfinding in and out of the bypassed towns to facilitate an experience of the town qualities and the use of amenities/businesses (for example, Kiama).
- g. Where town and village centres are not bypassed,
- Ensure lower speed regimens (40-50 kmph) are implemented through designing the road corridor to lower speed requirements as well as a lower Posted Speed. The lower Design Speed allows for the design of the road corridor to complement and support a more urbanised, higher footfall area that is not supported with a higher speed regimen.
 - Safe crossings should be provided at reasonable intervals with special consideration given to locations with high footfall such as schools and bus stops
 - The design of road furniture such as fencing, seating and planters should complement and suit the South Coast character as well as the immediate locality.
- h. Ensure that scenic areas and routes that are valued by the local community and tourists are protected and enhanced. Vegetation that supports the scenic areas should not be disturbed.
- i. Provide appropriately designed and convenient access, if suitable, to local tourist attractions such as beaches, walking trails and heritage areas.
- j. Re-purpose legacy infrastructure to ensure they become a community asset following a governance transfer such as a cycleway, points of tourism and heritage interest and/or promotes local economy through community markets or food and beverage offerings
- k. Ensure the signage strategy considers local Council signage and supports local tourism attractions and heritage landmarks. Signage should enhance the legibility of these destinations from a multi modal point of view
- l. The approach to a settlement can be sequenced generally in two ways:

1. Transitional: A progressive accumulation and formalisation of the edge of the road and roadway elements—

- On approach to the settlement, gradually introduce grain and texture—more urbanised treatments—to foreground elements
- Where the approach is from dense bushland there may be a gradual thinning of planting either side of the corridor
- The introduction of foreground elements may occur in the following order; trees planted at regular intervals, a shared pathway to one side, signage, a kerb, parking bays, shared pathway on both sides, street planting, setbacks for shop fronts, street furniture, lighting etc.
- Give precedence to screening the corridor from residential areas through planting or earth mounds. Noise walls are to be introduced only where landscaping is not viable.

Figure 10—Consider the travelling sequence on passing through a town and how the road corridor design can influence speeds and placement of speed limit signs

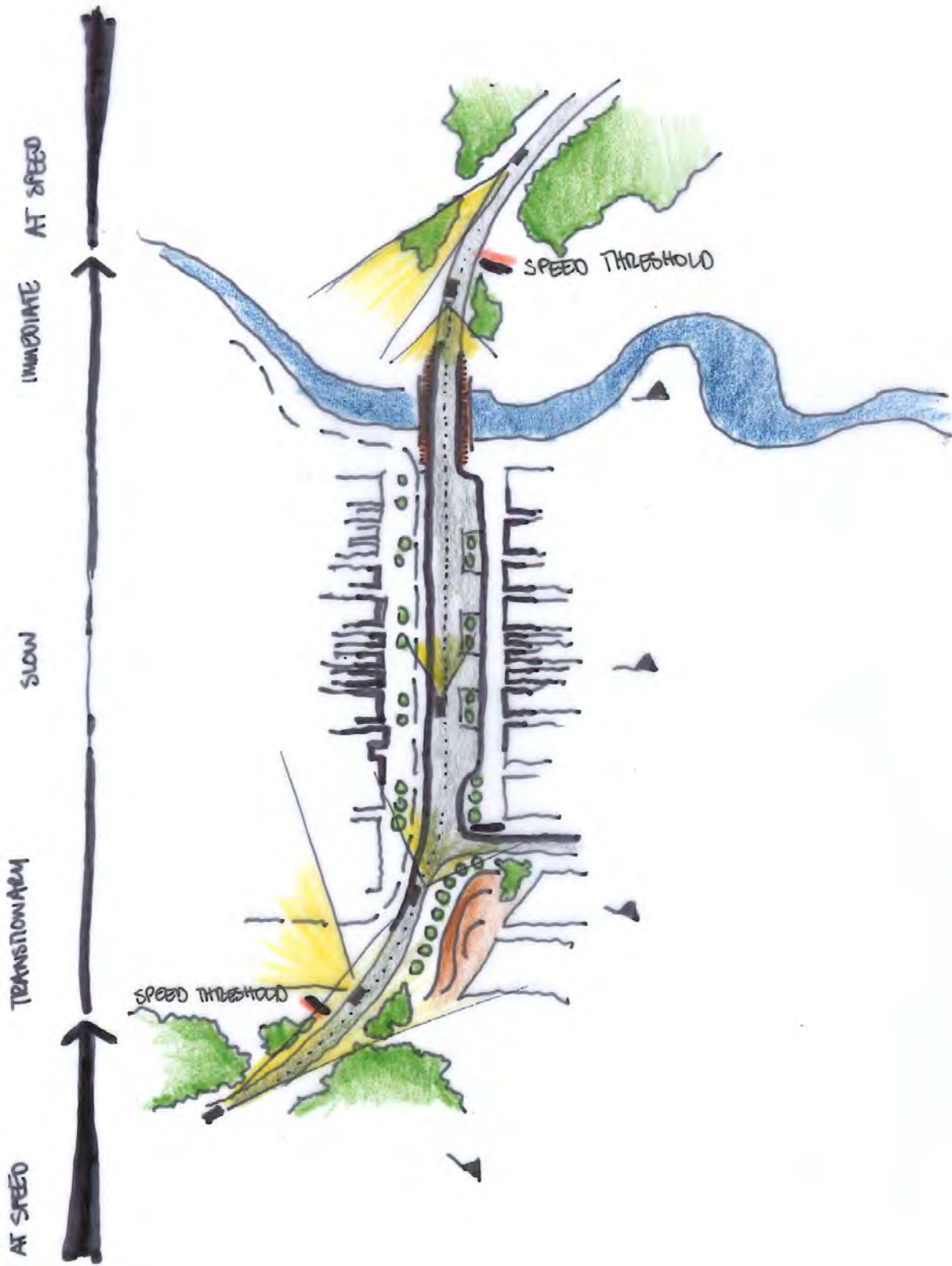
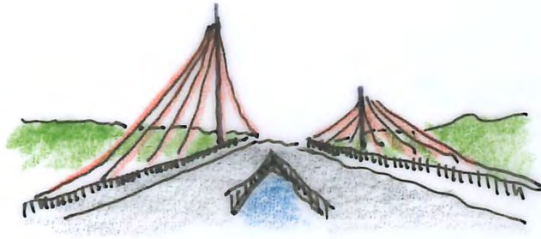


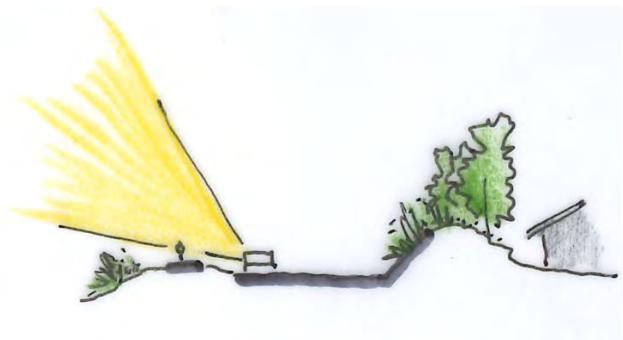
Figure 11—The sequence of experiences approaching a town



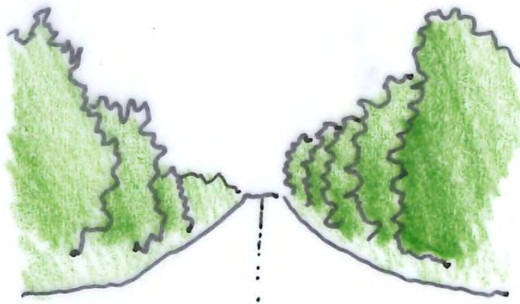
1. Views of bridges and structures warn of changing conditions and the town ahead. A good location for speed signs.



2. Tree planting build outs and built form in town helps ensure an awareness of speed and a safer driving attitude



3. Earthworks are used in preference to noise walls to protect communities. They mark a transition into or out of town and a good placement of speed signs.



4. The highway reverts to its rural condition.

2. Immediate—a gateway:

This approach may be introduced where a gradual transition is not possible.

- Mark the approach to a settlement through a gateway element.
- Ensure the approach to a settlement offers explicit and implicit cues to drivers of the settlement ahead
- Provide a series of glimpsed views of the township from afar
- Site and locate cultural and heritage interpretive installations to prompt drivers on upcoming settlements and orient them regionally. For example at thresholds between indigenous nations, regions, scenic routes, heritage trails, national parks or reserves
- Provide distinctive planting on the approach to a settlement. For example, space local tree species which flower seasonally at regular intervals to frame the approach
- Mark decision points for turn off through the design of roadway elements such as distinctive planting and noise walls
- Retain and reinforce existing rows of heritage trees planted as 'Avenues of Honor' on the approach to a settlement
- Reinforce localised clearings with expansive aspects and views



Artwork prior to the interchange access to Berry



Formality in the landscape can help add texture and character and warn drivers of settlements

4.6 Protect and support natural systems, environmental processes and South Coast biodiversity

4.6.1 Sustainably fit with context

Despite the long management of the landscape and agriculture, the coastline has a strong connection to nature. The original biodiversity of the Illawarra and littoral environment is prevalent and a key attractor of the area preserved in the inaccessible hillsides and the national parks. Understanding and adopting these natural systems and characteristics is fundamental to good urban design. Water sensitive design, fauna and flora connectivity, soils design, use of varied diverse ground conditions, plant species, and plant associations are all ways to deliver this on the Princes Highway projects.

4.6.2 Design principles

- a. Provide continuous creek connections supportive of fish passage and designed to fit sensitively into the character of existing water courses.
- b. Use swales, bio retention and green vegetated stormwater drainage systems to convey and cleanse water (Refer Water Sensitive Urban Design Guideline)
- c. Native species endemic to the area should be used where they can perform the requirements of the design. Resilient and safe tree spacings should be used where necessary, that support the South Coast fire strategy as well as road safety goals. (Ref Landscape Guideline)
- d. Species associations and landscape designs should respond the character of the South Coast and its natural characteristics, work with ecologists and Aboriginal knowledge holders to define the plant palette (use picture I sent of Durras).
- e. Large areas of concrete should be avoided in medians and verges that require weed killing in joints and a poorer drainage and sustainability outcome.
- f. Green Infrastructure provision should support flora and fauna connectivity helping create continuous bands of vegetation where possible—recognising and managing views, landscape character and bush fire issues.
- g. Cuttings and embankments should help to lead to natural diverse ground conditions where context dictates. Exposed rock can help create this as can deep soils and variable gradients. A context design approach should be applied to landform. Avoid harsh unnatural edges to landform and feather and blend into natural slopes.
- h. Soils should be managed and stored carefully in the construction period preserving their seedbank in biodiverse forested areas. The natural local seeds in the soils can ensure extensive additional plating is not needed and should be considered in the early design stage. They are more resilient and faster growing too.
- i. Ensure a net increase in trees and public open space provision on each project to support the bio diversity of South Coast towns.
- j. Manage water runoff through grass soaks and swales at rest stops, removed from the road, which can support wildlife and acts as drinker stations during droughts and bushfires.
- k. Where high drama conditions skirt cliff edges or require cutaways give precedence to retention of the natural rock substrate. Provide sufficient clearance at the base of the rock face to allow for a fall zone, drainage and planting where possible. Implement endemic planting to the crest of the rock face to soften the crest of the rock face and stabilise it.



Use the landscape to capture clean and use water for plant growth (Bullaburra, Great Western Highway)

4.7 Utilise infrastructure to support the South Coast as a place to visit and explore, with places of delight and amenity in the public domain

4.7.1 Approach to infrastructure provision as a holistic community asset

The Princes Highway upgrade and ongoing management are some of the biggest projects the South Coast will experience. They are fundamental to the ongoing quality of the region and have an indelible multi century impact on the landscape. They therefore represent an opportunity to do more than just the transport task and as Beyond the Pavement requires they can improve areas and create spaces and places around them. These include Rest Areas, scenic viewpoints, bridges with walking tracks and rest spaces, cycleways, parks of all sizes, driver facilities and seating, lighting and public art. The transport corridor can be a diverse and interesting journey in

its own right with a customer experience that improves travel, tourism and economic wellbeing of the community.

4.7.2 Design principles

- a. Design the roadway infrastructure as a spectacle in its own right through sculptural elements such as gateways, bridges or overpasses to enhance the customer experience.
- b. Create a tree character to the highway that not only minimises the incidence and severity of bushfires but which also enhances the visual experience of the landscape.



Dense woodland has its place but if dangerous fires can't be managed then a more open character near to the road can be designed well and enhance the journey

- c. Incorporate cycling facilities where appropriate into the road to broaden the South Coast cycling network as well as assist in creating fire retardant corridors.



The M7 shared path and curtilage adds 5+m to the corridor. Smaller wider spaced trees can provide shade but the dense woodland outcome close to the road is avoided and utilised for active transport.

- d. Utilise new and existing bridges for generous cycling and walking facilities and to create walking loops to support the tourism industry.



Burrill Lake Bridge above. Below The new Iron Cove bridge includes a 5m wide path which allows for regional connections as well as a waterside recreational loop.

- e. Create useful public open space from residual land in towns and villages to enhance the public realm to support local tourism.



Decommissioned spaces revitalised for public use at Burrill Lakes

- f. Strategic delivery of public amenity and tourism assets in conjunction with planned resilience upgrades either through re-purposing of decommissioned assets or integration with new assets to accommodate public amenity including cycle ways, shared paths, planting, heritage interpretation and/or community activation.
- g. Identify opportunities where local community and tourism assets could be enhanced through project public realm initiatives
- h. Strategic revitalisation of legacy and/or decommissioned infrastructure providing a range of places for people to use and experience the South Coast landscape. These include old bridges (e.g. Bridges over Burril Lake, Burril and Shoalhaven River, Nowra), Rest Areas, wide overbridges (e.g. Berry overpass) seating areas on paths, linear parks (e.g. along North Street, Berry) and lookouts.



Burrill Lake reuse of old bridge abutment

- i. Make provision for rest stops and lookout locations in conjunction with high drama locations to optimise local economic and cultural opportunities



Rest areas can be attractive with views and artworks

- j. The placement of lighting and signage should not clutter the public realm or impede valuable views.

4.8 Enhance the sequential experience of travelling along the corridor

4.8.1 Curating the experience

There is a clear sequential experience in traversing the Princes Highway which is worth considering in the design of the corridor. The close relationship between mountains and the sea creates a unique spatial quality: Views up or down; a feel of openness or enclosure; a sense of 'hereness' and 'thereness'; seeing the towns vs the mountains (Gordon Cullen, XXX), the gateway of entering and leaving landscape zones over ridge lines or through forest. All this is not seen elsewhere on the NSW seaboard with perhaps the exception of Coffs Harbour. The travel sequence of reaching the top of the Kiama Bends and looking down to Gerringong is a good example. However, there are many such instances that can be a part of the drive. Thinking about the heightening

of this experience and choreographing the landform and bridges and landscape should be considered as part of the design exercise.

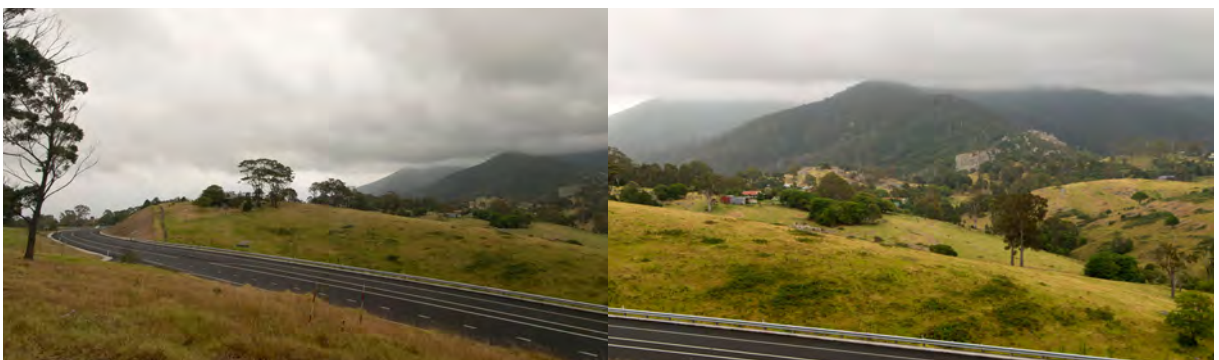
4.8.2 Design principles

- Mapping and study of the driver experience conditions during site analysis should be undertaken to identify the existing roadway sequence. By and large teams should reinforce the existing roadway sequence and intimate character of dense bushland sections.
- Give precedence to the traveller experience when determining the road and/or bridge alignment, geometry and grade and of the secondary landform topography and landscaping.
- Punctuate the driver experience with accentuated, framed and/or compressed views to create gateways on approach/ departure to/from a settlement.



Tintenbar to Ewingsdale tunnel

- d. Separate and re-join the carriageways where appropriate to reinforce the rhythm along a given section of the roadway, where the road cuts into the hillside to afford expansive views in one or both directions of travel or to diverge through the landscape and come together at major intersections, crossings or bridges.
- e. Provide intermittent views to prominent natural features and/or settlements (particularly if they hold cultural or historical significance) which can be seen from a distance to orient drivers and create an overarching sequence.
- f. Reinforce views to continuous landform features (such as the escarpment, the ocean, and/or waterways) to orient drivers in the direction of travel and locality. This can be achieved either by enhancing existing views and/or introducing and framing new views.



Repeated glimpses of natural landmarks

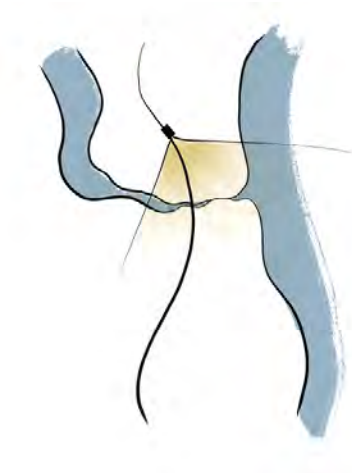
Figure 12—The principal landscape views to be optimised



Escarpment Views



Waterway Views



Coastline Views





5 The sequential experience of the Princes Highway

5.1 Understanding the changing character

During preliminary phases of the design process, the rhythm and sequence of the subject roadway form a fundamental aspect of site and context analysis. The purpose of this is to ensure proposed upgrades are designed and choreographed to enhance a user's connection with the South Coast landscape. Analysis occurs at various scales from the vast choreography of the whole corridor down to modulating fine grain road conditions on specific stretches of roadway.

The experience of driving along a transport corridor is rhythmic. The roadway curves, inclines and descends across the landscape in an undulating and repetitive pattern which follows the topography of the landscape. Drivers experience these patterns in a linear sequence, a key factor which frames how they perceive their surroundings and the landscapes they are moving through. For example, some views are snatched glimpses as they crest a rise in the road, others may be long lingering views down into a valley which they descend into.



A rhythmic experience



The Princes Highway has a distinctive rhythm which is unique to the geology and character of the South Coast. The corridor is dominated by the Great Eastern Escarpment to the west and the coastline to the east. At the northern section of the corridor, these two dramatic geological features meet, resulting in the iconic soaring ranges of the Illawarra skirting the ocean's edge.

Further south the escarpment separates from the coastline to create an undulating plateau along the coast. Sections of the corridor which move through these landscapes alternate between intimate stretches of dense bushland and sprawling pasturelands and floodplains, all within the lee of the escarpment.



Expansive views of the escarpment



Enclosed journeys through dense forest

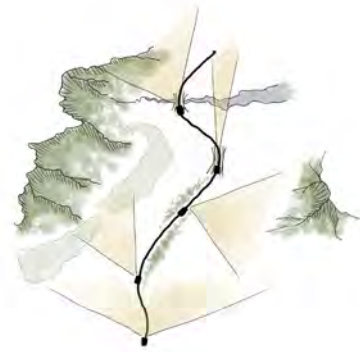
There are four spatial conditions to be considered on the highway and assist teams in understanding and designing for the character of the South Coast. These conditions are not intended to comprehensively canvas all of the conditions of the Princes Highway however they represent predominant, repeated sequences and roadway conditions which are evident to drivers who travel through the NSW South Coast.

1. High Drama (e.g. Kiama Heights)
2. Sweeping Plains (e.g. Berry)
3. Intimate Bushland (e.g. Jervis Bay)
4. Settlement Passings (e.g. Milton)

Mapping and study of the driver experience conditions during site analysis should be undertaken to identify the existing roadway sequence. By and large teams should reinforce the existing roadway sequence and intimate character of dense bushland sections.



1. High Drama and Gateways (eg, Kiama Heights)



2. Sweeping Plains (eg, Berry)



3. Intimate Bushland (eg, Jervis Bay)



4. Settlement Passings (eg, Milton)



5.2 The four spatial conditions

5.2.1 High Drama conditions

The guidance provided with this Framework establishes a broad, high level road sequence for the corridor based on observed existing conditions, natural landform and the character of the South Coast. The rhythm of the corridor predominantly follows a steady, sweeping

rhythm of broad turns and gradual rises/descents through dense bushland and sweeping plains. This rhythm is punctuated by 5 major points of high drama (existing and prospective) where the roadway sweeps out to meet the coastline. This Framework identifies 5 major locations of high drama (existing and prospective) along the corridor.

Kiama Heights



Iconic viewpoint of all that makes the south coast special

Ulladulla Bypass at Burrill Lake



Flat wide expanse of blue clear water and white sand—a living advertisement of the beaches and waters nearby

Batemans Bay bridge



A beautiful bridge in the making, a river and a town renowned for its fishing and seafood. Quintessential South Coast.

Narooma bypass/bridge



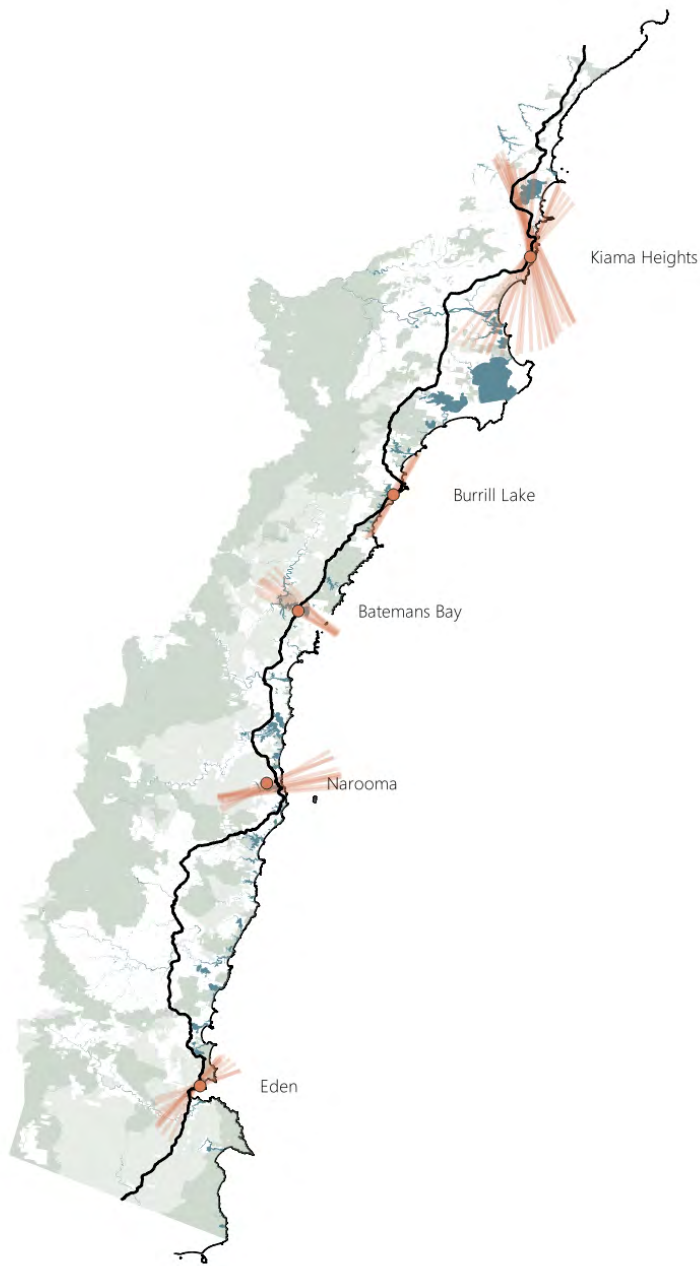
Heritage of the bridge, the waterside buildings and clear water create an iconic south coast place.

Nullica Lake bridge (Eden)



A classic south coast inlet and bridge crossing views of the water and a bushland fringe.

Figure 13—High Drama conditions



Typical characteristics

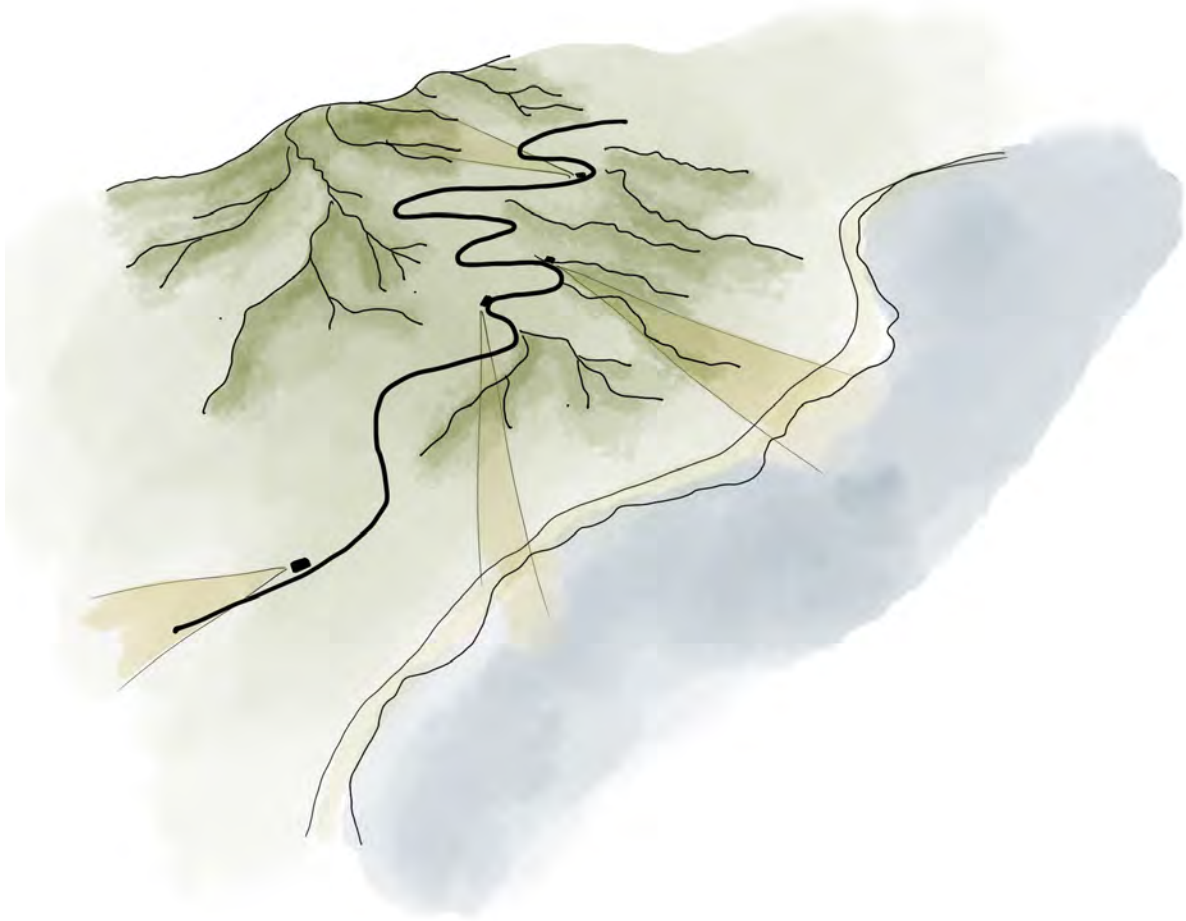
High drama road conditions occur in deliberate, specific places along the corridor. The short, sharp intensity of a high drama road sequence is distinct within the rhythm of the corridor and is an instance where, rather than receding into the landscape, the roadway becomes a spectacle in its own right.

These nominated 5 locations (listed above) are identified as moments of heightened natural beauty which celebrate the wildness of the

natural landscape of the South Coast. They are regularly spaced along the length of the corridor, create dispersed points of interest to local areas and give a heightened travel experience. Each location is also characterised by a location where the corridor meets the coastline.

Points of high drama ensure a varied driver experience which maintains focus, compels engagement with the roadway and provides intuitive cues on changing road conditions.

Figure 14—Caption



Design considerations

- a. Where appropriate, and where coastal views exist, elevate the roadway corridor, heightening both the transport corridor and the surrounding natural landscape by controlling sightlines, aspect and proximity to spectacular features of the coastline and escarpment.
- b. Designing to reduced speed limits through high drama areas may be appropriate to maintain a dynamic experience for drivers where the roadway navigates steep topography
- c. Signage is inappropriate on a steep incline or descent and to be avoided unless deemed essential to permit drivers to focus on changing road conditions

- d. Deliver cultural assets with high drama locations, rest stops and lookouts to optimise local economic and cultural opportunities

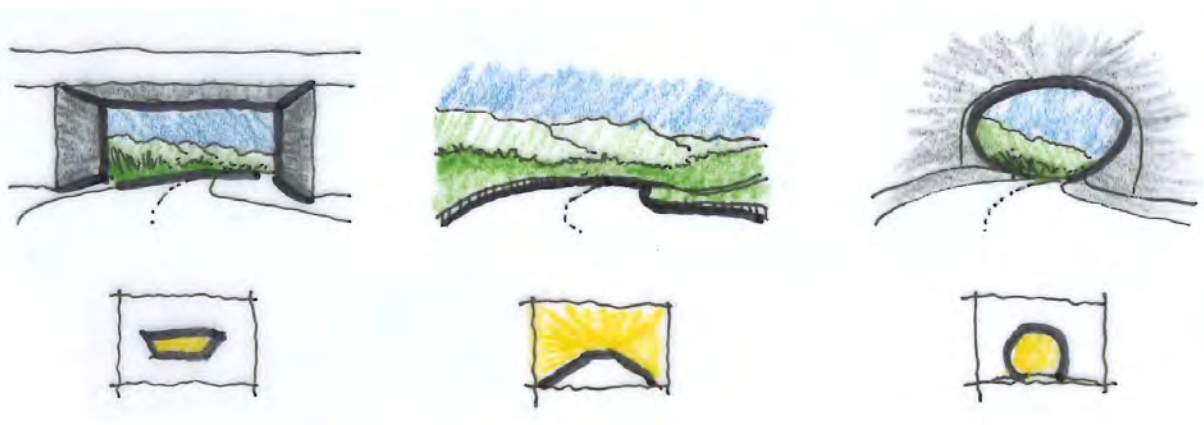
5.2.2 Gateways

Gateway elements along the corridor heighten the driver experience and the relationship between the roadway and natural landscape. They can be in the form of an overpass, bridge crossing or tunnel. Gateways fulfil the design intent for high drama areas by intensifying a driver's sense of anticipation and reveal—but they do this through infrastructure instead of the topography/road alignment. For example, tunnels create the same sense of compression and reveal which a driver may experience as they crest a hill and are afforded expansive views along the coastline below.

Design considerations

- a. In high drama areas, gateways should be designed as a spectacle at the culmination of the reveal
- b. Design gateways to frame significant aspects towards natural features, townships or cultural heritage and/or orient drivers along the corridor
- c. Design the gateway to provide distinction between northbound or southbound travel.
- d. Overpasses frame the aspect—an opportunity to frame views of features or points of interest. This serves to create a ‘shutter’ moment within the sequence and rhythm of the highway. This also help provide context to drivers on the road in the way of a visual marker.

Figure 15—Framing of views to enhance the experience of moving from one character zone to another



5.2.3 Sweeping Plain conditions

Sweeping plains open up episodically along the length of the Princes Highway corridor. They present as both pastoral and low lying-flood areas and are characterised by lush grass lands and agricultural grazing industries. These sections of the corridor are counterpoints to the extended stretches of dense bushland which occur along the route. They open up from intimate, compressed views through the national parks to sweeping views which allow drivers to scan the landscape as they move through. The contrast between sweeping plains and dense bushland plays a significant role in modulating the driver experience and maintaining their engagement with the road.

Map and study driver experience conditions during site analysis to identify the existing roadway sequence and where this can be reinforced to reflect desired characteristics and sequence for pastoral and/or flood plain areas.

Figure 16—Sweeping plains allow for the curation of scenic views

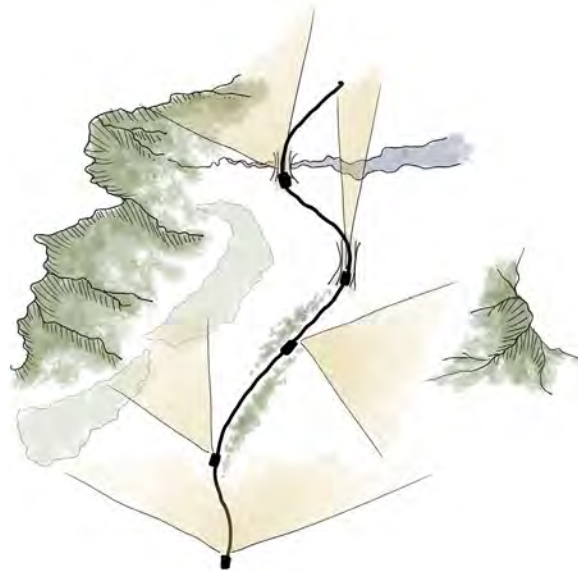
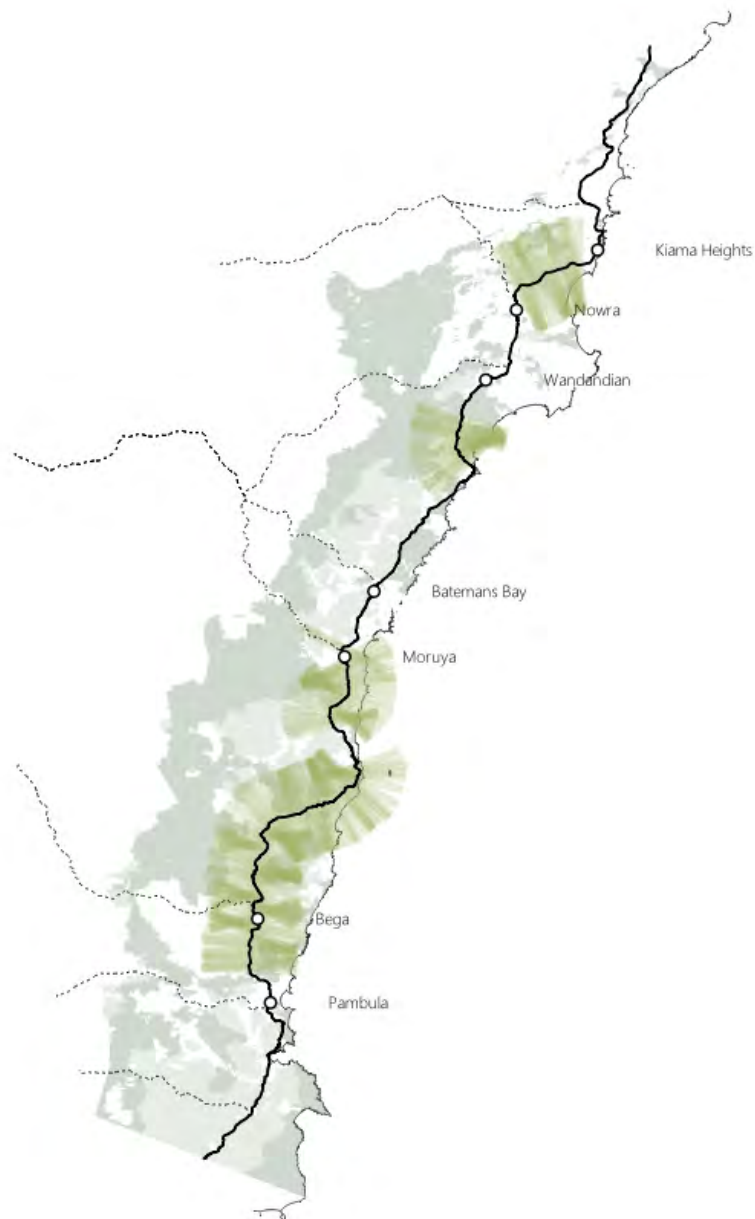




Figure 17—Sweeping Plain conditions



Typical characteristics

Long views allow drivers to anticipate changes to road conditions well in advance of them occurring. This lengthens time as drivers and surrounding vehicles have ample time to respond accordingly

The roadway geometry and elevation generally remains constant through these areas with gentle turn radiuses and no steep rises

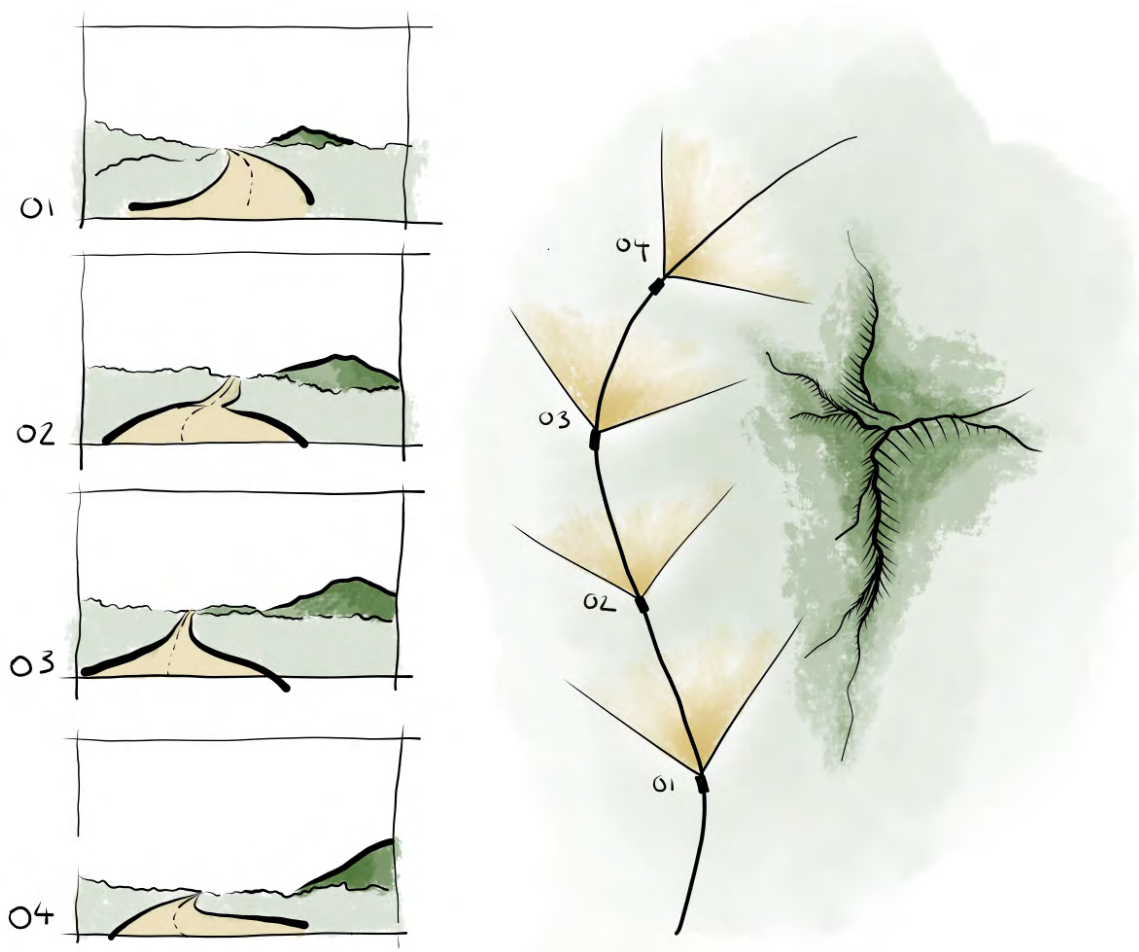
Design considerations

- a. Long, repetitive and evenly spaced roadway sequences create a gradual and regular rhythm. No aspect of the driver experience is abrupt or climatic.
- b. The sequence and rhythm is modulated primarily by changing sectional conditions (i.e. shallow cutaways or at grade roadways through the landscape) and length of view layering of the natural and built landscape in

the fore, mid and background (i.e. screening through wind buffers via tree planting, roadside earth mounds and roadway elevation). This creates the underlying roadway sequence.

- c. Drivers maintain intermittent views with significant landforms such as the escarpment, the Ocean, a mountain or a settlement as they travel through the plains. They become recurring and continuous features as they recede and re-appear along an extensive stretch of the route. They also orient drivers in the direction of travel with the escarpment always being to the west and the ocean to the east. This creates the overarching roadway sequence.
- d. Curate variation and modulation in the types of views afforded to drivers as they travel along the corridor (e.g. long distant views on descents, short intimate views on ascents through bushland)

Figure 18—Ensuring a sequence of changing views





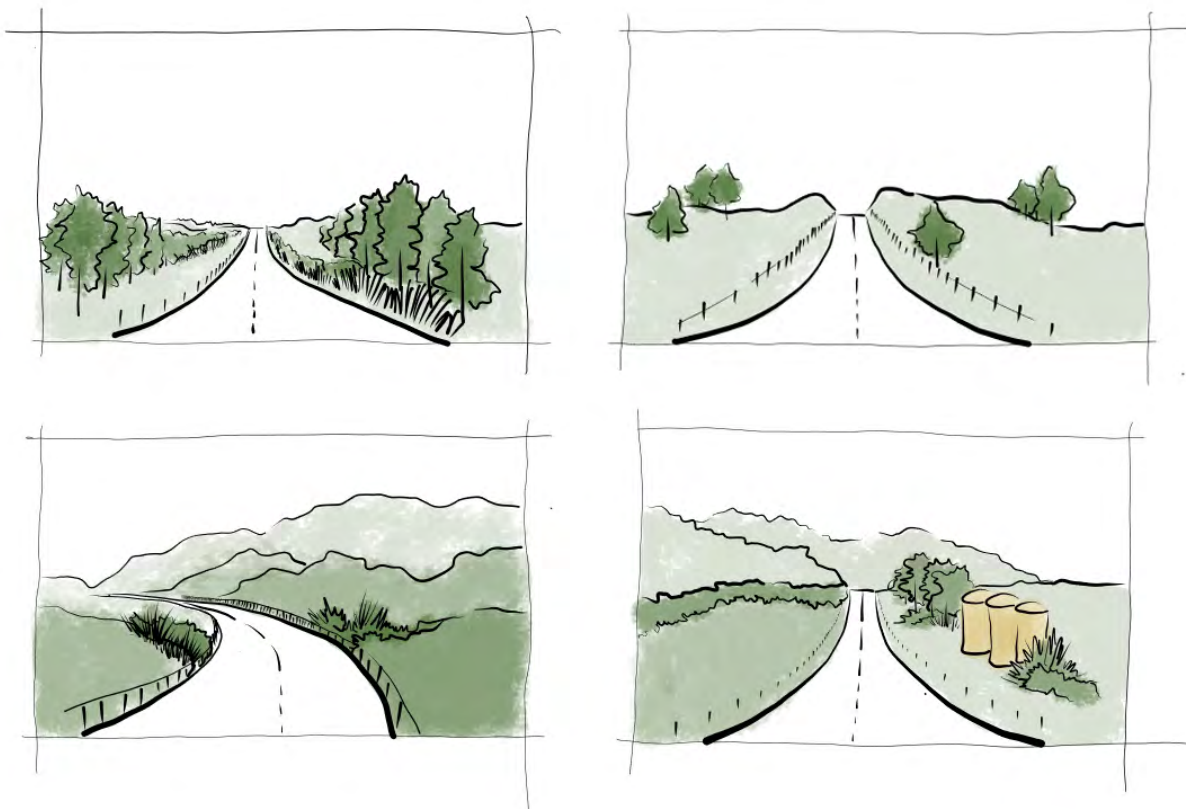
Divided carriageways

- e. Where possible, separate carriageways through sweeping plains by widening and densely planting the median strip zone.
- f. Design roadway alignment, geometry and siting of roadway elements to reinforce and modulate expansive views, maximises the length, breadth and duration drivers are able to scan the landscape in varied directions. Modulation can be in the form of depth of view foreground/ midground/ background), road geometry to pan the direction of the view and/or glimpses of a distant landmark over greater distances.



Layering

Figure 19—Foreground, background, and midground aspects layered to create a layers, rich viewscape.

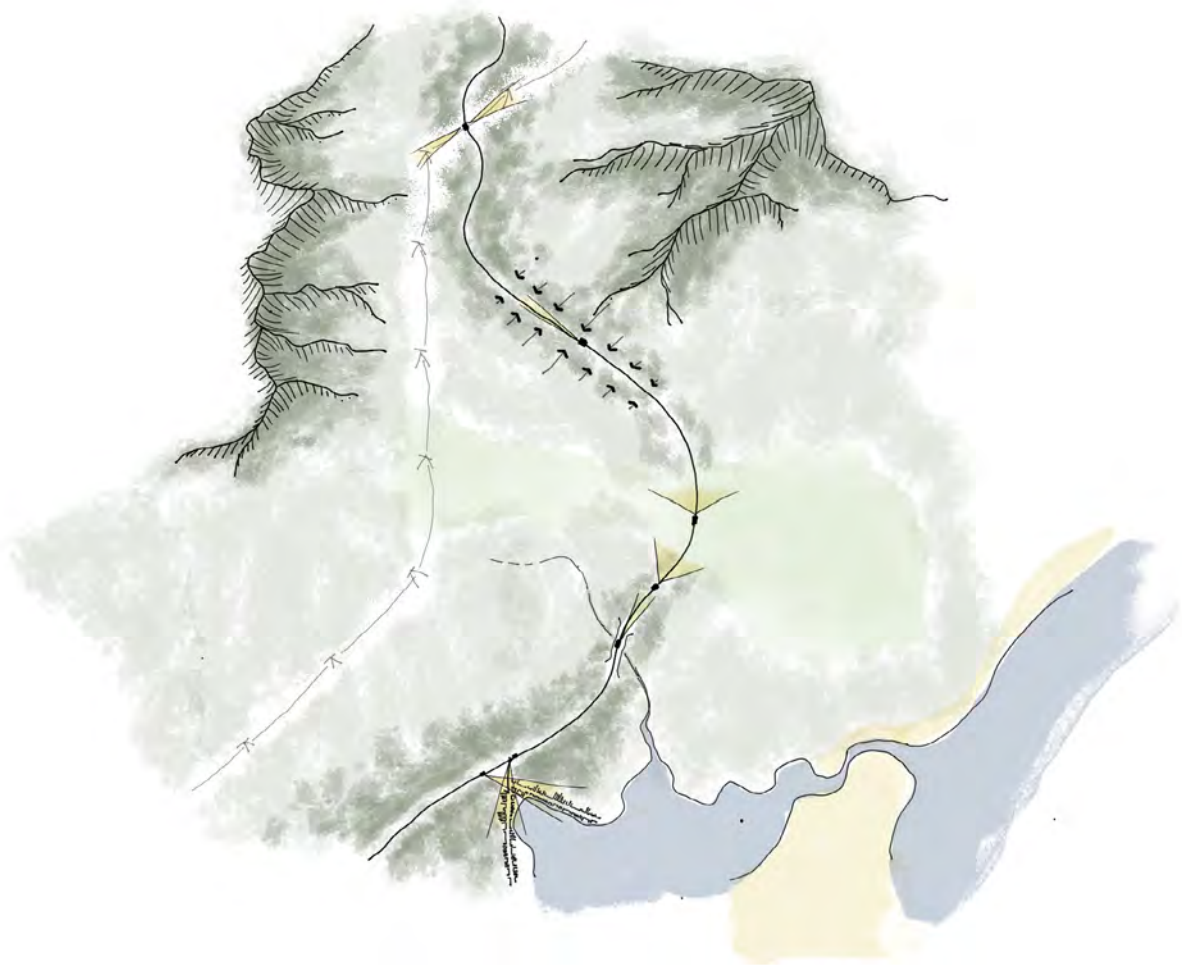


- g. Signage should be limited to the foreground of the corridor and be designed so as not to impede views of landscape features in the background or breach the skyline
- h. Consider planting as wind buffers or visual screens to the roadway through pastoral areas. Site trees to 'shutter' a driver's views either on both sides of the road (to emphasis views to the front) or to one side (to emphasis views to one side of the road). Where this occurs through a valley, plant on the high side of the road to direct views across the low lands.
- i. Plant trees along riparian corridors which run parallel to the roadway as a visual cue to drivers they are moving past a water body
- j. Where the carriageway is greater than two lanes plus one overtaking lane, separate the carriageways with a densely planted median strip.

5.2.4 Dense Bushland conditions

Long stretches of dense bushland, particularly as the Princes Highway moves south, give drivers an intimate connection with the natural environment and landscape of the South Coast. The roadway is typically a single carriageway with limited shoulders, resulting in the bushland coming right to the edges of the corridor. This sense of closeness and intimacy is central to the character of the South Coast. Many upgrades to the highway will involve a duplication or widening of the corridor, including broad shoulder widths and dual carriageways. The design intent for any upgrade is to ensure it maintains wildness or a connection with the landscape.

Figure 20—The experience through dense woodland



Typical characteristics

Typical characteristics include enclosed and intimate views surrounded by endemic bushland; views are focused on elements in the foreground with extended views only afforded on straight descents in the route; open sky above the roadway accentuates and elongates the driver's perception of the road corridor; and any elevation changes may be evident in the frequent cuttings the road passes through.



Caption

Figure 21—Dense Bushland Conditions



Typical roadway sequence

The steady rhythm of dense bushland is punctuated by;

- › easements (for high voltage power lines or fire trails) which cut through the bushland/natural landscape to provide with long, but brief views
- › Creek/water crossings also as drivers pass through a brief flash of open space along the riparian corridor

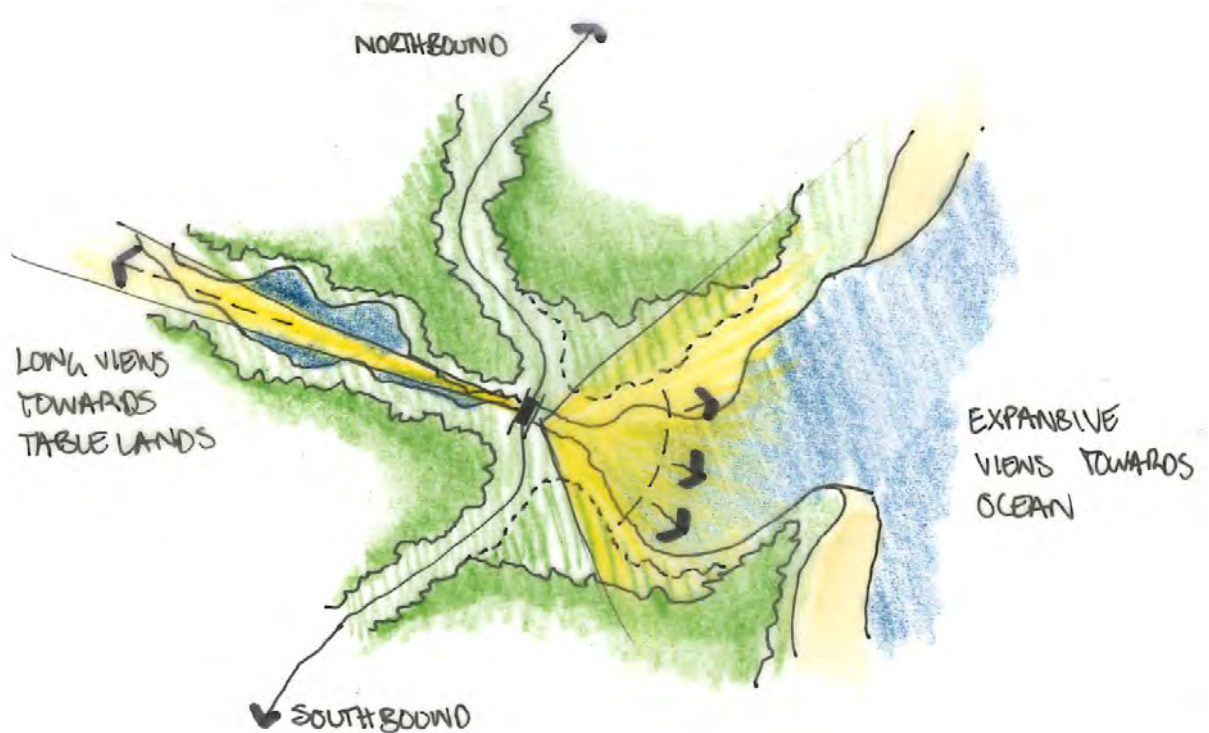
The conditions on entry and exit through dense bushland can be gradual or immediate.

The driver experience is predominantly modulated through the amount of sky which is visible. The proximity of the bush along either side of the road combined with cutaways acts as an aperture to the sky which opens and closes and drives travel along the route.

Figure 22—Modulating the ‘aperture’ of the roadway to the sky



Figure 23—Dense bushland opening up



Design considerations

The design considerations for this sequence are contained in the Objective 4—'Emphasise the scale and scenic beauty of the natural landscape'

5.2.5 Settlement passing

Throughout the South Coast, the corridor passes through settlements of varying scales and densities. Some upgrades to the corridor will bypass select settlements in some instances and in others the highway will continue to be a central spine to the township. In both cases the corridor should cue drivers on approach to the settlement through the scale and grain of the roadway either to indicate a reduction in speed and changing conditions or to signal a decision point to turn off into the settlement.

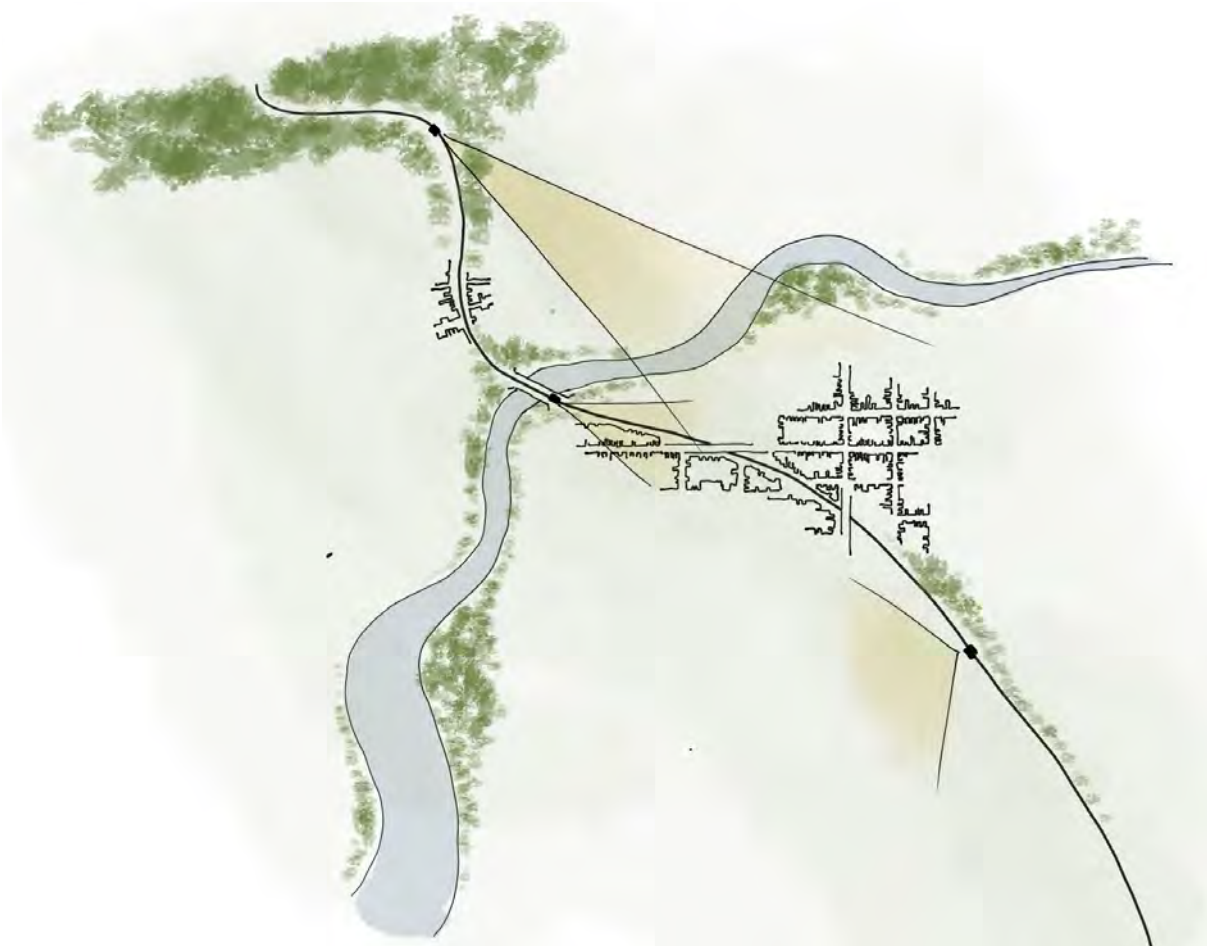
Figure 24—Settlement Passing Conditions



Typical characteristics

Typical characteristics include, change in road conditions in response to speed; expansive tracts of land or large scale developments become fine grain—for example large expansive plains segregate down into paddocks, into residential property allotments and then shop fronts; on entry from a dense bushland there is a gradual thinning of planting; on entry from sweeping plains the approach to a settlement is lined with copses of trees as wind buffers, visual screens or gateways to the township.

Figure 25—Early views of settlements encourage rest breaks and safety awareness

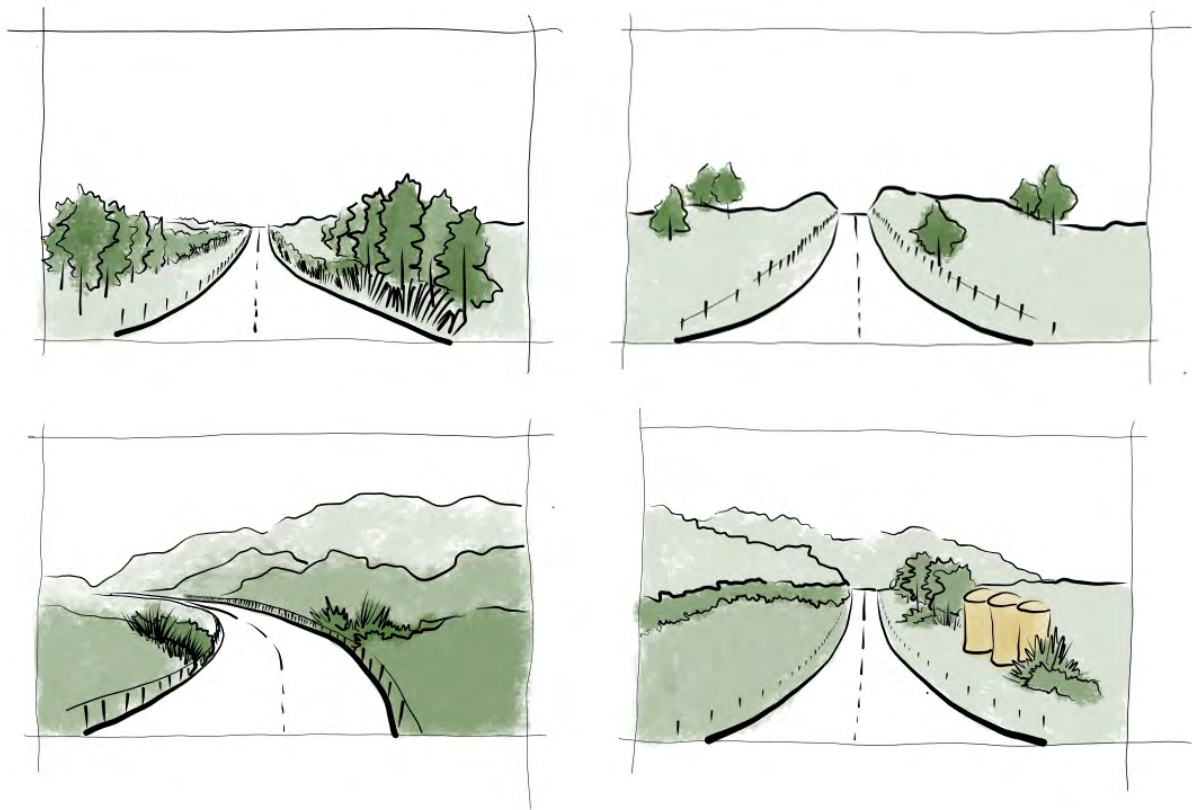


Typical Roadway Sequence

On entry to the settlement drivers experience a foreshortening of views, compressing their focus onto immediate elements of the roadway and various decision points as they approach and move through the settlement.

On exit from the town the reverse occurs and the surrounding context gradually transitions to high speed travel, decision points fall away and the driver's focus returns to scanning conditions ahead.

Figure 26—Caption



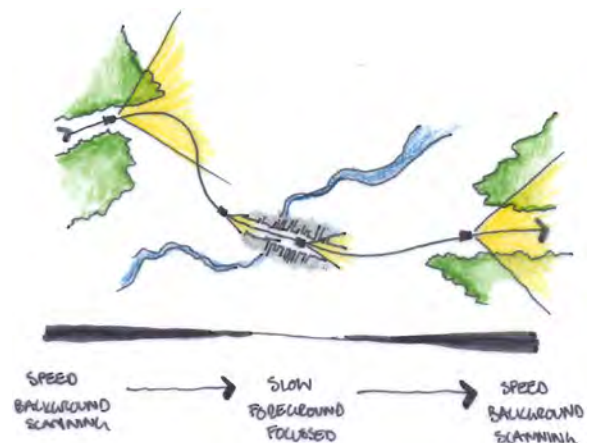
Changes in speed can serve to focus driver's attention on the foreground (low speed areas with decisions points) or the background (high speed areas with long views)

Design Considerations

- a. Map and study driver experience conditions during site analysis to identify the existing roadway sequence.
- b. Where the upgrade proposes to bypass a settlement, teams should map and design for the approach to identify appropriate decision points for a turn off which give precedence to intuitive drivers responses and experiences
- c. Where the settlement is not bypassed, the corridor analysis should establish the function of the roadway as a central spine to the township

Further design principles in relation to this sequence are contained in the Objective 7—'Value and support the townships, communities and economic activities of the South Coast'

Figure 27—The context and corridor design influences driver behaviour



5.3 Hypothetical case studies

The following case studies illustrate desired outcomes for the Princes highway corridor. They are intended to prompt teams and give practical examples of how this Framework can be implemented. Each summarises predominant conditions of the corridor and landscape characteristics which occur throughout. They also illustrate how various principles can achieve the urban design objectives for the corridor.

5.3.1 Case study 1: High drama road conditions

Spatial Experience—Experience builds to a dramatic reveal

The drama of the NSW South Coast marks the point where the Great Eastern Escarpment meets the sea. It defines the landform and topography of the region and is a significant part of the area's local character. This is particularly evident through Kiama Heights where the highway moves through a significant level change. The design intent is to maintain and elevate this unique and highly valued character of the corridor in select conditions and to celebrate the drama of the landscape and roadway.

5.3.2 Case study 2: Sweeping coastal plain conditions

Spatial Experience—Experience creates a steady, engaging rhythm and expansive views

The pastoral plans of the South Coast wind between the elevations of the eastern escarpment and the coastline. A significant amount of the driving experience is defined by these conditions and is a counterpoint to sections of dense bushland or high drama along the corridor. The design intent maintains the driver experience of sweeping views as they move through undulating topography and across verdant lowlands. Emphasis is placed on continuous visual connection to significant geographical features at distance, which are continuous focal points for drivers moving at speed. These features allow drivers to orient themselves along their trip and within the landscape.

5.3.3 Case study 3: Dense bushland interchange road conditions

Spatial Experience—Intimate connection with surrounding bushland

Alongside pastoral plains, the Princes Highway is also dominated by stretches of the road which pass through dense bushland. This is another unique characteristic of the corridor as a character of the South Coast. It provides a counterpoint to expansive views of the pastoral plains, instead views are enclosed and focused on aspects of the roadway and landscape close to hand. The design intent for these conditions is two fold. On a broad scale they serve as a counterpoint to sections of pastoral plains which modulate driver experience and ensure the corridor remains engaging for drivers. On a more immediate scale they provide a sense of intimacy with the surrounding bushland and country typical to the South Coast.

5.3.4 Case study 4: Local bypass and town centre revitalisation

Spatial Experience—A slowing from movement at speed before accelerating again

Where the corridor passes through a settlement it either deviates to maintain travel at speed or slows to accommodate a pedestrianised zone. Where it slows through a settlement, the conditions of the roadway change to reflect the speed of travel and, so do the factors which influence the drivers experience. The design intent through a settlement is to reinforce cues which signal slowing traffic conditions to drivers. It also shifts to accommodate the driver's attention on features within the foreground, which they otherwise do not perceive at speed.

5.4 Case study 01—Bypass project through high drama landscape

This case study focuses on a bypass to the former highway route through a coastal settlement. Bypassing the town allows it to reclaim the main street as an active place, with improved pedestrian and cycle access, increased footpaths, expanded public domain and increased local parking. A dedicated cycling loop facilitated by the new bridge supports local tourism businesses and creates an inducement to divert through the town. The existing much-loved low-lying bridge over the river mouth has been retained and redeveloped as a piece of legacy infrastructure, and regional attraction. The main drivers behind the project are increased traffic flow, economic enhancement of the settlement, and delivery of an internationally recognised highway infrastructure.

5.4.1 Challenges and Opportunities

- › River Crossing: The route location is a coastal area conflating an estuary and river mouth with dramatic topography. The bypass must bridge a significant expanse over the river.
- › Congestion: The current highway runs through the centre of the settlement, creating congestion, a disconnection between east and west and limiting streetfront activity. This poses a safety hazard to pedestrians and vehicles alike.
- › Exposure: Despite this congestion the town benefits from through traffic: the local shops, restaurants and other facilities are located directly on the highway.
- › Streetscape: The main street is lacking in amenity, decent pedestrian connectivity, local parking and cycle access.

5.4.2 Spatial Experience—Continuous (exemplary experience)

This case study is described below in terms of how the roadway has sequenced the driver experience and shifts the focus point of the driver to emphasise the drama of the landscape.

Approach: from both directions the roadway emerges from dense bushland and tight curves before opening up to expansive views as drivers ascend the river crossing. This contrast heightens the drama of the crossing, by bookending it with roadway conditions which create a short field of view and close proximity.

Orientation: the views from the river crossing are expansive and sweeping towards the coast. Views inland down the river are long, narrow and fleeting. The alignment of the bridge and roadway in addition to planting and the bridge edge conditions are designed to facilitate these two different views. These two views are understated cues which assist in orientating drivers.

Thresholds: viewing platforms, interpretive public art and planting of endemic bush species at 'sticky' points. Creating cues which indicate to drivers opportunities for tourism or exploration as an invitation to stop and visit the town despite it being bypassed.

5.4.3 Urban Design Outcomes

The bypass project improves highway performance as a default, while also delivering significant benefits and assets to the immediate community, the surrounding region and the entire South

A Destination Point. Like Seacliff Bridge, the highway infrastructure itself becomes a local attraction, making the bridge and settlement a destination in their own right.

Leaving a Legacy. The former highway becomes a generous main street winding through the settlement, linking neighbourhoods and businesses, with increased pedestrian and cycle space, additional public domain areas, footpath dining areas, increased street tree planting and universal access along and across the main street.

Public Amenity. A regionally significant cycle loop connects the town centre with the new bridges and viaducts, and wraps around and along the estuary edge, allowing cyclists the same iconic experience of the valley and settlement as motorists on the highway.



Figure 28—Caption



KEY

- 1** Localised views in entry clearings allow the divergent routes (bypass and town centre street) to be clearly identified.
- 2** Cultural marker. Large scale artwork and signage marking Country and the region.
- 3** Local grove. Special planting area to mark place and reflect Aboriginal seasons.
- 4** Enclosed passage through stands of bushland create a compressed threshold to highway infrastructure.
- 5** Long glimpsed view into the landscape along infrastructure easements.
- 6** Viaduct landing point and under croft provides public amenity.
- 7** Cycling loop joins elevated viaduct to continue across estuary valley.
- 8** Local business cycling hub as embarkation point for cycle loop journeys.
- 9** Formerly congested bridge crossing transformed to celebrated gateway into town.
- 10** Legacy infrastructure of old bridge elevated to local landmark and event space.
- 11** Foreshore cycleway provides viewing points to new bridge infrastructure.
- 12** Elevated bridge offers framed views up the estuary.
- 13** Bridge, walkway and cycleway offer rolling views of estuary side of settlement.
- 14** Bridge pylon generates energy from tidal flows.
- 15** Pylon lookouts offer panoramic views of settlement, river mouth and ocean beyond.
- 16** Elevated cycleway suspended below bridge deck does not obscure views from roadway.
- 17** Pylon with lift and observation deck connects bridge cycleway with foreshore cycleway.
- 18** Cycle loop winds through hidden landscapes.
- 19** Elevated viaduct presents town to passing motorists.
- 20** Streetscape improvements in residual highway space: widened footpaths, cycleways, outdoor dining space, local parking, street trees and planting.
- 21** Main street transformed in the absence of heavy traffic volumes into walkable, active centre. Secondary activity centre connected by pedestrian and cycling links to town centre.
- 22** Secondary activity centre connected by pedestrian and cycling links to town centre.
- 23** Streetscape improvements create new business opportunities and civic activity space.
- 24** Elevated viaduct over water side park creates new civic landmark, with social and sporting spaces and facilities.
- 25** Viaduct infrastructure provides civic amenity and community facilities.
- 26** Outdoor public art opportunities under and on underside of elevated viaduct.
- 27** Sporting service facilities created under viaduct.
- 28** Viaduct landing point and under croft provides public event space.
- 29** Local grove. Special planting area to mark place and reflect Aboriginal seasons.
- 30** Cutting on downslope into town reveals geologic markers of region.
- 31** Cultural marker. Large scale artwork and signage marking Country and the region.
- 32** Enclosed passage through stands of bushland create a compressed threshold to highway and local road entries.

5.5 Case study 02—Sweeping coastal plain conditions

The route location is in a remote area between settlements characterised by pastoral plains and agricultural activities. The eastern escarpment to the west is a predominant and consistent feature in the landscape, which the road affords broad sweeping views towards. The topography moving up and down from the escarpment can be dramatic, while the route across the coastal plains consists of more gentle meanders, in both elevation and curvature.

5.5.1 Challenges and Opportunities

- › **Congestion**—Sections of the current route are rolling bottlenecks, with tight curves, steep slopes and limited lane capacity preventing overtaking traffic.
- › **Climate resilience**—Located between the drainage catchment of the eastern escarpment and the low-lying wetlands this is a landscape which can be inundated by water. Low lying bridges are local landmarks but often unsuitable for heavy vehicles and are impassable during heavy rain.
- › **Landscape relationship**—The presence of this undulating landscape is often diminished by overemphasised highway infrastructure, creating a sharp distinction between roadway and landscape.

5.5.2 Spatial Experience—Steady and engaging (rhythmic movement)

Rhythm: As drivers move through pastoral plains, the roadway affords them a steady sequence of views. This is modulated by the road alignment, conditions either side of the road and speed; taking advantage of rises in the landscape and the natural topography to either screen or open up expansive views. Drivers are aware of, and anticipate changing conditions well ahead of time.

Focus: Generally the road presents long views which gradually reveal significant landscape features in the distance. The corridor emphasises this by locating cuttings and tree lined buffers outside of significant views lines.

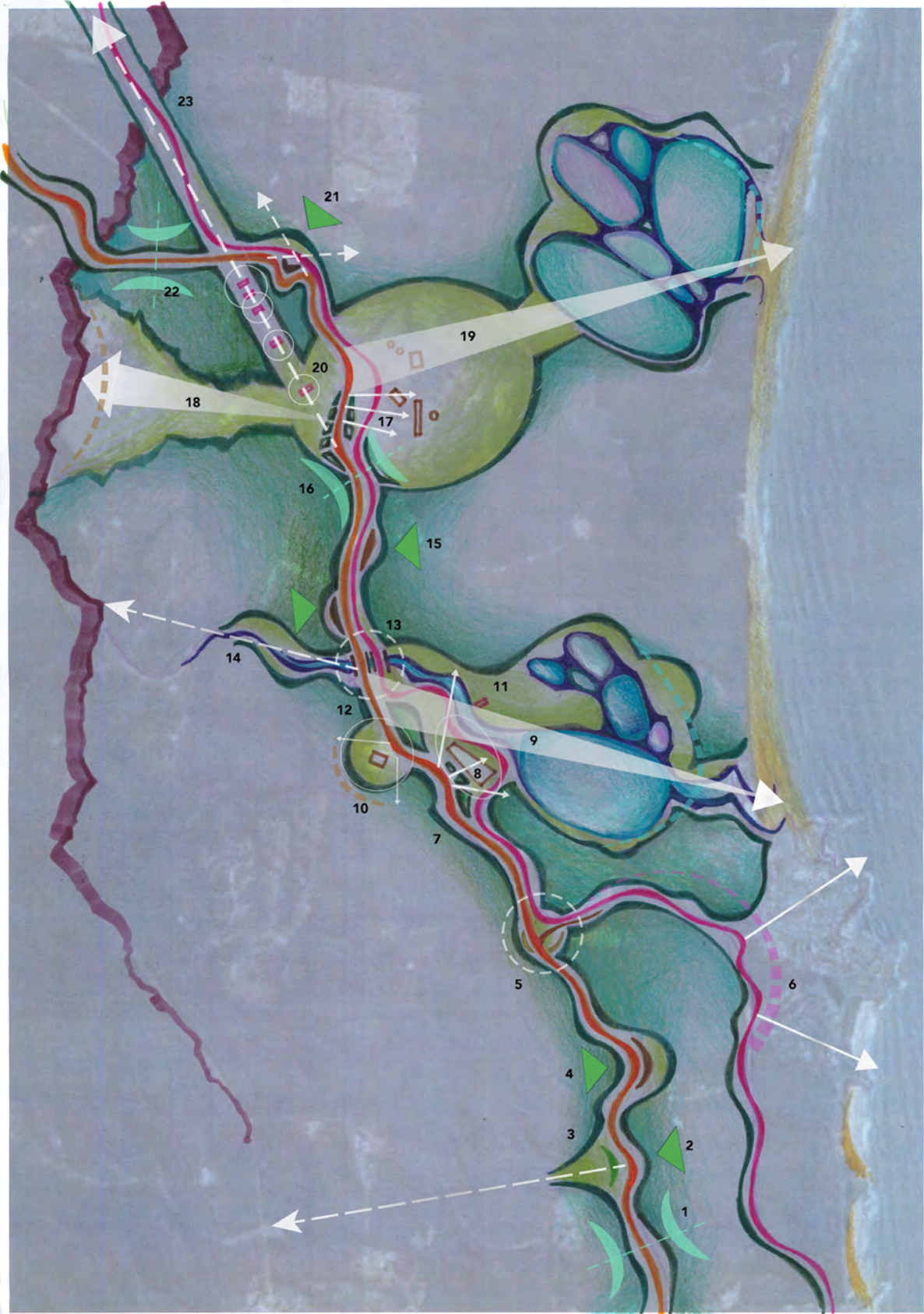
Orientation: As the roadway offers long, expansive views of the landscape and roadway ahead the driver's eye can dwell on features of the landscape which they are moving through. Where significant features, such as the escarpment, coast and distinct rivers or mountains are locating features. Where the roadway maintains continuous glimpses of these features it serves as way-marks for drivers along their route.

5.5.3 Urban Design Outcomes

- › **Celebrating Place:** Key features of the region are emphasised and celebrated as drivers move through the area. They focus on the heritage of the area, significant indigenous planting, flora or fauna, or geological features.
- › **Regional Links:** Roadway and bridge upgrades to improve flood resilience have included the delivery of a regional cycleway alongside the highway. The cycleway is of sufficient width to double as a secondary access route for emergency or maintenance vehicles. At other points like clearings, the path deviates into the open space, with the opportunity to integrate tourism opportunities such as camping grounds, rest stop food trucks and recreational centres. The cycleway makes use of infrastructure easement corridors and lightly trafficked side roads where available to diverge from the highway corridor.



Figure 29—Caption



KEY

- 1** Dense bushland pinch points in advance of unique spatial experiences on the route.
- 2** Slight diversions around valleys and swales allow sweeping views into the middle distance.
- 3** Cuttings on the low side of a curve remain unseen, creating a closer relationship with a distant valley.
- 4** Cuttings on the high side of a curve are reinforced with endemic landscape, background by native bushland.
- 5** Minor intersections are marked with a curated clearing of trees.
- 6** Where available, the accompanying cycleway should be developed along less trafficked minor roads, where direct relationship with the coast can be achieved.
- 7** At the approaches to clearings, the corridor can open out into the clearing, punctuated with stands of planting to separate the cycleway and local attractions from the highway.
- 8** Planting screens the highway from recreational spaces and campgrounds, allowing intermittent glimpses through the trees to the clearing.
- 9** Distant framed views across the clearing, to coastal water bodies, with glimpses of the coast beyond.
- 10** Discrete single buildings in small clearings provide spatial punctuation.
- 11** At clearings, the cycleway deviates into open space, connecting with businesses and recreation areas, with cycling infrastructure provided along natural features.
- 12** Establish dense stands of variegated planting between road corridor and clearing to provide spatial rhythm and separation.
- 13** Separate carriageways at river crossings and minimise the bulk of guardrails and edge obstructions to maximise spatial connections to the riparian corridor. Provide cycle connectivity on separate bridges.
- 14** Focus views to distance along riparian corridors.
- 15** Align corridor through gently sloping terrain to alternate orientation of cuttings or embankments.
- 16** Dense bushland pinch points entrance and exit of clearings.
- 17** Windbreak planting screens the road corridor, while allow syncopated views through to pastureland and farms.
- 18** Natural clearings along valleys and water catchments allow distant views to escarpment faces.
- 19** Open expanses of highway in clearings allow vast sweeping views across clearings, to water bodies in the middle distance, and to the coast in the far distance.
- 20** Curate locally available utilities infrastructure as canvasses for large-scale regional artworks creating cultural interpretation along the highway.
- 21** At steeply sloping switchbacks, create advance views of roadway ahead, framed by curated landforms and bushland backdrop.
- 22** Contain corridor in dense bushland between high points and spatially rich curved sections of the highway.
- 23** Utilise infrastructure easements for long distance curated views, and to route cycleways, where possible.

5.6 Case study 03—dense bushland interchange road conditions

The interchange site is in an isolated area and surrounded by bushland. As with much of the South Coast, the area will have been under severe threat in recent bushfire events, with motorists trapped and unable to escape or access essential and emergency services.

5.6.1 Challenges and Opportunities

- › **Congestion**—The current intersections typically are bottlenecks, conflating highway through-traffic with local, regional and visitor access between settlements.
- › **Fire Hazards**—In the 2020 fires, hundreds of motorists were trapped on various stretches of the highway, unable to proceed or find a place of refuge. Emergency vehicles were unable to move past the traffic.
- › **Place Identity**—Despite often being major gateways to coastal regions, these intersections are generally anonymous junctions, with neither local character nor elements of distinction.

5.6.2 Spatial Experience—Intimate and engaging (cinematic movement)

Immediate and Distant Views: Through stretches of dense bushland, trees either side of the road create a narrow field of vision for drivers. Prior to approaching the intersection their focus is on a thin strip of the road and the sky above, and the road is relatively enclosed on either side. The intersection creates a decision point which brings their focus onto immediate features in the foreground. Wayfinding, planting and a terraformed earth mound take advantage of this, punctuating the intimacy of the dense bushland and creating a memorable way-marker along their journey.

Aperture to the sky: The narrow field of vision along stretches of dense bushland is modulated by the proximity of trees to the road, how dense the bush is or if the land slopes. The roadway alignment, roadside planting and features such as electricity easements at regular intervals creates relief from the intimate bushland. A terraformed earth mound at this

intersection punctuates the intimacy of the dense bushland with a long, fleeting view for north bound travellers. This serves as a distinct way-marker which oriented drives in their direction of travel.

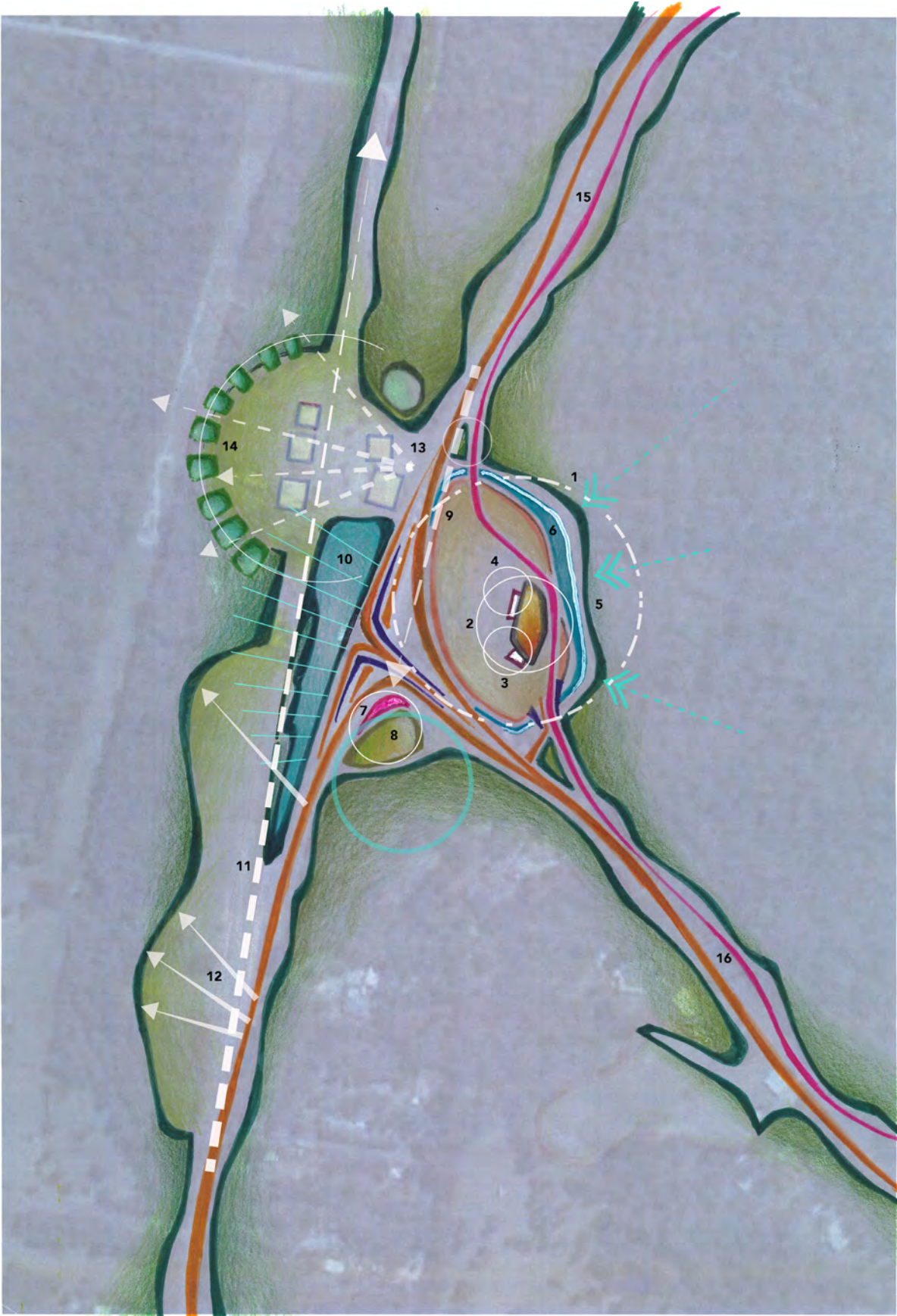
5.6.3 Urban Design Outcomes

Beyond addressing the highway's operational needs, this case study establishes place identity while offering increased safety, amenity and environmental performance. It creates a distant way-point along the corridor by strengthening the orientation of the highway towards the open pasturelands beyond.

- › **Delineation.** Reinforcing the spatial character of dense bushland, the interchange is distinguished by a series of clearings marking a decision point which punctuates the corridor
- › **Form and scale.** The interchange overpass is reinforced with a significant embankment, topped with an endemic landscaping and planting. A major artwork complements this, as part of the broader corridor curation, that reflects the cultural and social heritage of the area.
- › **Amenity:** A large clearing directly adjacent spatially identifies the interchange and offers a range of operations and amenity: commuter parking, bike hub, bus station, rest stop, fire bunker, emergency water reservoir, helicopter landing pad. It is one of a series of refuge clearings along the highway improving the corridor's resilience against bushfires and flooding.
- › **Aspect:** Curated views mark the exchange for both through traffic and local drivers: long views to the distant bush and escarpment, localised glimpses to existing and reinforced pastoral clearings, locally coloured undersides to the overpass and wayfinding views along the highway to the new infrastructure, the enhanced landscape gesture and the cultural marker.



Figure 30—Caption



KEY

- 1** Refuge Clearing. A protected open space carved out of dense bushland.
- 2** Emergency services. Helicopter landing and emergency vehicle access point, water reservoir, communications and emergency equipment.
- 3** Kiosk. Rest stop amenity for travellers, commuters and cyclists.
- 4** Cycling hub. Storage, rest point and repair stop.
- 5** Waterhole. Managed wetland at edge of refuge to attract and protect native wildlife.
- 6** Water management. Rainwater and stormwater harvested, treated, stored and re-used.
- 7** Cultural marker. Large scale artwork and signage marking Country and the region.
- 8** Local grove. Special planting area to mark place and reflect Aboriginal seasons
- 9** Sign-posting. Long and constant view to cultural marker to establish awareness of place.
- 10** Landform. An over-scaled embankment, supporting the interchange overpasses, reinforcing the spatial enclosure of the clearing, and creating a human-made topographical element in the landscape. A green, South Coast version of the Pacific Highway “mohawk,” planted distinctly from surrounding bushland.
- 11** Easements. Long glimpsed view into the landscape along powerline easements.
- 12** Local clearings. Intermittent views to bushland opening up alongside the highway.
- 13** Managed clearings. Short view window to agricultural or homestead clearing.
- 14** Curated edges. Mid-distance views to managed clearings emphasised by consistent planting.
- 15** Shared path. Cycleway established in highway verge can also accommodate passage of emergency vehicles in event of highway congestion.
- 16** Local cycle connectivity. Highway active transport links connect dedicated cycleways and shared paths on less-trafficked local roads, always emphasising movement towards the coast.

5.7 Case study 04—Local bypass and town centre revitalisation

The township is in a remote area and surrounded by bushland and cleared pastureland. As is typical of the far South Coast, the area will have been impacted by recent bushfire events, with residents trapped and unable to escape or access essential and emergency services.

5.7.1 Challenges and Opportunities

- › **Congestion**—The current main street is a local bottleneck where arterial traffic slows to accommodate local traffic, parking and access to main street businesses. The bridge crossing the river is a local landmark but is unsuitable for heavy traffic and emergency vehicles.
- › **Fire Hazards**—In the 2020 fires, with local roads impassable, residents were trapped in the town centre, sharing refuge in the open spaces of the town's public buildings. Fires on the main street and along the creek cut the town off from emergency assistance and evacuation.
- › **Place Identity**—In the course of accommodating an arterial road, the streetscape and place identity has been diminished. The street frontage is inactive and homogenous.

5.7.2 Spatial Experience—Diminishing and accelerating speed (gradation of movement)

Pre-emptive: glimpses of the town or an associated distinct geological feature (river, rise, coastal inlet) in the distance orientate drivers, cues on changing conditions and creates a sense of anticipation.

Focus: on approach to the town a driver's focus pulls in from the background, to the mid ground and then the foreground as speed slows. This occurs in reverse as they accelerate out of the town.

Direction of Travel: the road alignment, planting and noise barrier mounds on approach and/or departure make the direction distinctive for drivers depending on whether they are headed northbound or southbound.

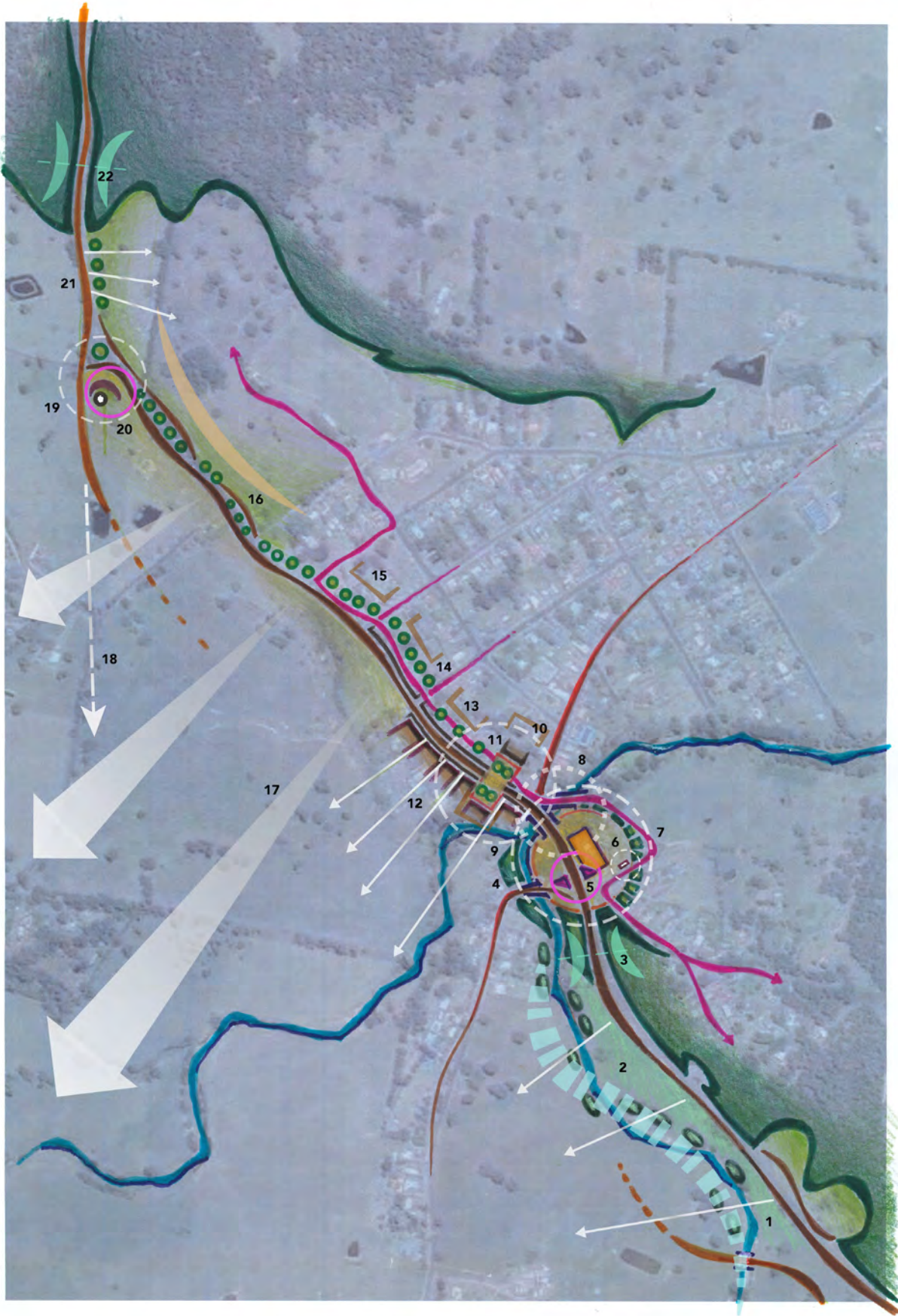
5.7.3 Urban Design Outcomes

A localised bypass presents the opportunity to significantly improve the settlement's main street. This case study illustrates a number of incremental main street improvements which can contribute to the eventual amenity and identity of the town but can be implemented at any point in time. Increasing the highway's operational performance, the local improvements reinforce place identity while offering increased safety, amenity and emergency refuge.

- › Reinforcing the spatial orientation of the highway and the settlement, towards the open pastureland and escarpment, the approach roads are edged by tree planting or dense bushland, both accentuated by a slight topographical rise to the east.
- › The central space of the town, centred on the hotel and associated facilities, is reinforced and defined with surrounding planting, signage, meeting/parking space and a major artwork reflecting local context and recent history. This space doubles as a refuge/assembly point.
- › In the centre of the town's main street, the replacement of buildings lost in recent fires presents the opportunity to create a civic plaza, with external footpath space for local businesses, continuous surface treatment across the street and enclosed and shaded by new tree planting.
- › An improved, separated runs through the built-up side of town, providing locals with quick connectivity throughout the settlement.
- › Vast, expansive views are maintained from both the existing highway and future bypass road towards the sweeping pastureland and distant escarpment.



Figure 31—Caption



KEY

- 1** Approach views to and through intermittent tree line along local creek.
- 2** Cleared, maintained space between creekline and road announce approach of settlement.
- 3** Constrained passage through stands of bushland create a sudden entry into town clearing.
- 4** Town “clearing” formed by defining space around the main hotel with dense stands of trees and lines of individual trees.
- 5** Gateway into town created through local artwork, incorporated into fabric of existing social and cultural landmark of the hotel.
- 6** Cycling infrastructure (racks, storage, air) support cycling to and from town centre.
- 7** Cycleway integrated with town clearing.
- 8** Dedicated cycle bridge across creek provides secondary means of crossing the river, in event the main bridge is impassable.
- 9** Bridge across creek improved to allow improved pedestrian movement.
- 10** Town centre defined and reinforced through new buildings, improved public domain, and additional social infrastructure (lights, seats, signage, water, etc).
- 11** Town square created through expanded footpaths, continuous paving and surrounding tree planting.
- 12** Town centre streetscape separates footpaths, parking, cycleway and tree planting
- 13** Build up of street articulation (tree line, separated cycleway, kerb line) transitions into and out of town centre.
- 14** Separated cycleway indicates beginning of settlement and slowing of through traffic
- 15** Slight topographical rise to east reinforced by tree planting focuses views on open pasture land opposite and distant escarpment.
- 16** Pastureland vista and distant views to escarpment retained.
- 17** Localised bypass orients towards open pasture land before turning back towards town centre.
- 18** Graded intersection between original highway and new bypass marked with distinctive tree planting and shaped landform with unique plantings.
- 19** Cultural marker. Large scale artwork and signage marking Country and the region.
- 20** Threshold between dense bushland and intersection screens views to east through tree lines, focusing long views on pastureland.
- 21** Aperture. Constrained passage through stands of bushland create a sudden entry into open valley of settlement.

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For further enquiries

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