Sensory-rich trails
– a design framework
From the Mayor

I am pleased to see that the Sensory-rich trails design framework was designed with Council’s Community Inclusion Policy in mind. The Policy reflects Council’s vision to develop a more inclusive environment, one that encourages people to take greater responsibility and pride in their community.

Open space planners need to understand the requirements of their target audience, and encourage the creation of parks, trails and open spaces that are accessible in both physical and psychological terms. The Sensory-rich trails design framework’s practical and achievable set of guidelines enables duplication to a wide range of environments, promoting positive experiences for all residents and visitors.

By recognising current constraints and barriers the guidelines enable designers to reduce physical barriers and empower people to develop a greater sense of independence and improve their self-confidence and self-esteem.

Sensory-rich trails – a design framework demonstrates yet another example of how Council aims to achieve a high standard of health and wellbeing for our residents of all abilities, through planning which promotes inclusion and accessibility within natural environments.

I encourage the use of the Sensory-rich trails design framework when design or redevelopment of a trail or parkland is being considered. By making the space accessible it allows people to take part in their community in an equal and dignified manner, while improving both their physical fitness and mental wellbeing.

Councillor Warwick Leeson
Mayor

Minister’s Message

The benefits of being physically active are well known – it improves people’s health and wellbeing and helps them feel part of their community.

That’s why it’s important there are engaging and accessible leisure opportunities for Victorians of all ages and abilities.

Sensory-rich trails are for much more than a walk in the park. They offer a gentle activity and provide a unique experience engaging the senses and encouraging exploration, curiosity and learning.

Yet, there are very few sensory trails available to the general public in Victoria.

Nillumbik Shire Council is to be congratulated for their leadership in developing the framework required for good sensory trail design. This publication provides valuable information to Councils and other organisations about how to establish high quality sensory-rich trails for people of all abilities.

Already it has received national and international recognition. I am sure it will inspire organisations to create a stimulating environment in their local area and the end result will be more opportunities for people of all abilities to get more active.

This is why the Victorian Government introduced the Go for your life campaign. It’s about getting more people healthy and involved in their own community. The campaign is working, with more Victorians than ever involved in sport and recreation.

I would encourage everyone to explore sensory trails – you never know what you might discover.

James Merlino MP
Minister for Sport, Recreation and Youth Affairs
Sensory-rich trails – a design framework is intended to work alongside existing trail designs and extend concepts to create a space that better connects people to their environment. The framework assesses what the environment has to offer the following four senses; touch, sound, sight and smell. This is achieved:

• consciously with the use of signs, or;
• unconsciously by listening to the trees blowing in the wind or smelling the scents in the air.

People’s individual needs and expectations are the focus of sensory-rich trail design, including people of all abilities, people of different ages and people from different cultural backgrounds. This framework aims to encourage and guide the development of inclusive trails that meet the needs of people in the community.

Nillumbik Shire Council is responsible for trail development in both rural and suburban areas in the north-east of Melbourne. The Shire of Nillumbik is located less than 25 kilometres north-east of Melbourne and has the Yarra River as its southern boundary. It extends 29 kilometres to Kinglake National Park in the north. The Shire stretches approximately 20 kilometres from the Plenty River and Yan Yean Road in the west to Christmas Hills and the Yarra escarpment in the east. The Shire covers an area of 430 square kilometres and has an estimated population of 61,048 who live in close-knit communities which range from typical urban settings to remote and tranquil bush properties.

A local Adult Training Support Service approached Council regarding a lack of open spaces that took into consideration the needs of people of all abilities. The desire was to design and develop an open space that stimulated all four senses; touch, sound, sight and smell, giving people the opportunity to explore their surroundings and enjoy the outdoors.

The project was funded by the Victorian Government, through the Department for Victorian Communities Access for All Abilities (AAA) Program, with additional funding from Nillumbik Shire Council.

The 12-month project involved undertaking an extensive research and consultative process. The content comes from discussion with interested groups and individuals, a search of relevant websites and printed literature, and principles and learnings from the fields of disability, recreation, interpretation, landscape design, health, arts and public land and park management.

Definitions

Sensory-rich trails are:

• designed to give all visitors a valuable outdoor experience
• much more than just a trail with an easy gradient or a smooth surface that is labelled ‘accessible’ or ‘sensory trail’
• of physical, emotional, social and spiritual value to users.

Concentrating a range of sensory opportunities along a trail means that all visitors can have valuable experiences. Such concentration facilitates involvement for everyone, including people with limited mobility, families, elderly people and people from different cultural backgrounds.
Frame
work outline

The purpose of this framework is to assist people and organisations wishing to develop trails that offer sensory-rich experiences for all those who use them. Some, though not all of these sensory-rich trails will be wheelchair accessible.

The framework contains a rationale for such trails and design considerations for developing them.

Aims of the framework

1. To encourage and guide open space planners to include design considerations that enhance the sensory experience of trails in a wide range of environments.
2. To supply tools with which people with disabilities, elderly people, and families with young children, and their advocates, can influence design in public open spaces.
3. To assist open space planners to engage people of all abilities in the sensory analysis design process.

Key point summary

Design

• Design should consider all the senses and aim to create pockets or features of sensory experiences along the trail.
• The design may include making an already rich site or area accessible or enhancing a dreary or degraded site. Both approaches are valid.
• Trail design should draw on the principles of universal and inclusive design.
• Design must consider sustainability.
• Plan for returning visitors, and improved physical fitness.

Process

• Trail design should be an inclusive and collaborative process involving managers, designers, stakeholders and potential users of all abilities, ages and backgrounds.
• Completion of trail audits and sensory mapping involving a range of stakeholders, should guide the development of design concepts.
• Test design concepts by considering how they work in the whole cycle of visiting, from the decision to visit to the return home.

‘Rich-dreary’ spectrum

When assessing a site it is important to plot it on the ‘rich-dreary’ spectrum. This provides a better understanding of the requirements needed to improve the site both for access and sensory stimuli.

A rich site is one that has the potential to expand on existing resources, or enhance the natural environment, making the space more accessible and sensory plentiful. It also promotes nearby facilities, such as public transport, making the spaces easily reached.

Alternatively a dreary site is a space that has limited resources and is not currently utilised by community members. Dreary sites are more likely to be barren areas with limited sensory stimuli. Sites might be located close to facilities however appropriate links may not yet be established, for example despite public transport being nearby there is no connection between the two.
Choosing a trail site

When considering a site, the first task is to recognise whether it is one with a high density of rich experiences close at hand, or a dreary or degraded site. In practice, trail sites will usually fall somewhere along the ‘rich-dreary’ spectrum. Parallel with the first task is a preliminary assessment of its physical access. Sensory-rich trails can ‘improve’ the experience of an already positive landscape and greatly enhance the value of a degraded landscape.

Assessment steps

1. Assess the site along the ‘rich-dreary’ spectrum.
   a. Offsite – first describe the landscape topography, heritage significance, reservation status, zoning, ecosystems and habitats.
   b. Onsite – record first impressions and describe the landscape: its character, condition, topography.
2. In different seasons and different times of day, undertake a sensory mapping exercise (see Assessment tools p. 7) or equivalent (e.g. photographic journal)
3. Undertake a preliminary survey of physical access.
4. Attempt to understand the quality of the visitor experience a place could offer.
5. Record suggestions, ideas and opportunities for improvement.

Involve representatives of stakeholder groups including people of all abilities, backgrounds and interests, as well as the immediate local community, in all stages, but particularly stages 2-5.

Testing the steps
Kalbar Road Reserve is a 135m hilly, urban linear corridor in Research, 20km from Melbourne. A landscape architect, recreation planner and a disability advocate tested out the assessment steps. The reserve is an example of a dull, partly-developed urban site.

A 2m wide path runs through the site dipping in the middle and rising significantly towards roads at either end. Open, with a number of small trees on the periphery, the reserve is intersected by powerlines which create a minor sound incursion to an otherwise quiet site.

Assessment tools

Sensory mapping

Sensory mapping assesses what a site has to offer to the following four senses; touch, sound, sight and smell and, records other feelings that a particular space evokes. ‘Sensory hits’ are logged on a form (see p.18) and the position of the ‘hits’ are sketched on a map. The end result of this exercise is a picture of the site in relation to its areas of sensory value. Places of sensory richness are easily identified from the resulting map. Seating, planting, design and access can be planned and prioritised accordingly.

The Access Chain

The Access Chain describes access as it is experienced from a visitor’s perspective. Seeing access as a chain of events makes it clear that failing to consider and provide for every link in the visitor experience can mean that the visit may end with frustration, or may not happen at all.

Access information in accessible formats.
Good publicity, good distribution.
Welcoming image.
Information about accessible facilities.
Accessible public transport.
Timetables and route information available.
Close to bus stop or train station.
Accessible car parking.
Welcome entrance with staff on hand.
Free entry for essential support workers.
Routes and sign posting for all levels of ability.
Accessible information, interpretation and facilities.
Highlights of site are accessible or alternative of equal quality is provided.
Highlights are identified in collaboration with people with disabilities and made accessible.
Accessible public transport.
Timetables and route information available.
Close to bus stop or train station.
Accessible car parking.
Feedback encouraged.

Nillumbik Shire Council acknowledges this technique has been developed by The Sensory Trust.

www.sensorytrust.org.uk

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The planning and implementation of sensory-rich trails is a multi-disciplinary activity that draws on design principles for recreation trails, landscape design, universal and inclusive design, communications and infrastructure (buildings, tracks and structures).

**Design considerations**

In designing for visitor engagement, it is important to relate the trail to the site. An organised space ‘anchors’ the trail and ‘provides reasons to be here, not there.’

In the design phase, consider how to:
- incorporate natural shapes into all aspects of the trail (including basic shape and width of trail, tread surface and structures such as bridges and seats)
- include vertical features of great contrast that anchor attention; for example tall trees
- have distinct edges between land and water and between different vegetation types
- provide gateways which create a sense of passage and distance
- provide well-placed seats inviting visitors to pause, reflect, observe nature and rest
- plan paths along contours giving an easy gradient and often better views
- use materials sympathetic to the setting that offer tactile experiences.

Troy Scott Parker, *Natural Surface Trails by Design*.

**Enhancing sensory richness**

Sensory design...is largely based on imaginative approaches and finding ways of concentrating or ‘stage-managing’ events and experiences that would normally require venturing further afield.

Based on the results of the site assessment, particularly sensory mapping, create pockets of sensory experiences with:
- enclosed spaces giving separation from distraction and evoking secrecy or mystery
- different ambiances that give a visitor a chance to feel change in wind strength, air quality, light quality and smells
- gaps in the tree canopy for contrasts in light and shade
- small-scale patterns that can help people experience rich detail over a short distance. Such patterns can point to active involvement areas.

Price and Stoneham 2001

**One-way trails**

A sense of solitude can be achieved on one-way linking and loop trails because there are fewer encounters with others and visitors don’t see the same portion of the trail twice.

**Selection of vegetation**

When designing plantings, source vegetation to suit overall design with:
- smells from Australian bark and flowers
- tactile encounters using shapes
- foliage with diversity in texture, patterns and density
- seasonally-changing foliage
- attractions for different birds and insects at different times of the year.

**The arts**

Sensory-rich trails provide an ideal setting in which to involve artists. They can create all-season experiences specific to the setting. Natural settings can act as backdrops for the arts, particularly sculpture and sound installations.

Environmental psychology can influence landscape design by explaining and encouraging the creation of landscapes that are ‘accessible’ in psychological terms and that help people to relate and connect more easily to the immediate environment. (Refer Stephen and Rachel Kaplan in Price and Stoneham, *Making Connections – a guide to accessible greenspace*, 2001)

Designing should be about designing to satisfy our senses as much as our intellect.
Universal and inclusive design

Design considerations for sensory-rich trails draws on the principles of universal and inclusive design.

**Universal design** is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design.

The intent of universal design is to simplify life for everyone by making products, communications and the built environment more usable by as many people as possible, at little or no extra cost. Universal design benefits people of all ages and abilities. [www.design.ncsu.edu](http://www.design.ncsu.edu)

**Inclusive design** is the intervention in environments, products and services with the aim that everyone, regardless of age, gender, capabilities or cultural background, can participate in our society on an equal basis. Too often facilities and designs have been developed on assumed preferences and needs. [www.inclusivedesign.org.uk](http://www.inclusivedesign.org.uk)

Benefits for trail design

When incorporating universal and inclusive design principles into trails:

- design arrival zones to facilitate transition from travelling to walking the trail
- allow space and time for visitors to respond and make choices on the trail
- offer choice of routes and experiences
- create cut-backs or shortcuts to enable short trips and easy returns to the start
- inform people about what is on offer so they are to be able to make their own choices.

The application of universal and inclusive design principles in trail design results in greater visitor benefits for all.

Features of interest

For inclusiveness, it’s important to:

- create features of interest with at least some features near the entrance, adjacent to the car park and at nearby road pull-offs. Many people don’t get much further than the car park. They may be happy just to have seen the destination.
- identify features of a site in collaboration with people with disabilities
- design the trail ensuring the features are accessible, or provide an alternative of equal quality.

To enable people of all ages and abilities to reach out and touch features of interest (rocks, trees, shrubs, flowers and artworks):

- maintain zero clearance around the feature
- raise the height of the feature by using planter boxes or plinths.

Access interventions

Sensory experiences are inherent in all trails. However, people have different requirements to enjoy the outdoors, regardless of ability, age or background.

- Unless the quality of experience offered by a place is understood, there is a real danger that costly access improvements may rarely, if ever, be used.
- Many access interventions control recreation activities and experiences through poor access or inappropriate design. (Refer to [Sport and Recreation Access for All – a guide to the design of accessible indoor and outdoor recreation and sporting facilities.](http://www.sensorytrust.org.uk))
- It is difficult for people with disabilities to find appropriate challenges in public open space, because the access improvements can prescribe and formalise the visitor’s experience. There is a need to include some challenges and/or risks, such as omitting railings and widening paths instead. [www.sensorytrust.org.uk](http://www.sensorytrust.org.uk)

Price and Stoneham warn that the development of such concepts as universal design and barrier-free environments have fostered a belief that if an environment can be designed without obstacles, people will be free to enjoy independence and well-being. This does not necessarily follow. (Open Space 2003)
Standards

The Australian Standard for Walking Track (trails) Classification and Signage AS2156.1-2001 designates six classes of walking tracks (trails) covering the various intended uses in terms of difficulty and level of skill of intended users. The Standard includes guidance for the design, fabrication and use of track markers and information signs to be used for walking tracks.

Class 1 and 2: Typified by good urban paths with hardened surface and generally 1800m+ wide. Class 1 provides for wheelchair access, without steps and with grades of less than three degrees.

Class 3: Walking tracks in natural areas where there is a defined track. Specific control of grade ensures accessibility to a wide range of walkers. Walking surface is natural substrate, 300-450mm in width. Use of steps is nil or minimal. Maximum grade is six degrees.

Class 4: High-quality walking tracks with a defined track, hardened surface, and a maximum grade of six degrees.

Class 5: Walking tracks in natural areas with a defined track, hardened surface, and a maximum grade of four degrees.

Class 6: Walking tracks in natural areas with a defined track, hardened surface, and a maximum grade of three degrees.

Sensory-rich trails are most likely to be created on Class 1 to 3 tracks. Many existing walking tracks in natural areas could be raised to Class 3 standard (ideally to a maximum grade of four degrees), allowing access to a wide range of people. www.walkingsa.org.au

AS 2156.2-2001 - Infrastructure design - offers a framework to best match the wide range of environments with appropriate man-made structures. www.standards.org.au

Structures

Price and Stoneham (2001) recommend:

- facilitating technical solutions to access on trails that neither dominate a design nor substitute for it
- providing for wheelchair users where possible because this group represents those making the largest demand for specific landscape facilities.

Linkages

- The nature of the path network strongly influences the way people read the landscape and choose to explore it.
- Different surfaces can be used to demarcate path hierarchy, indicate a special feature or at trail junctions for wayfinding purposes.
- Creative surfaces can add a ‘narrative’ to the journey and supply detail for people who cannot walk very far or very quickly.
- Paths from community facilities and aged care services to trails encourage use by volunteers and residents. Safety on trails is improved when more people are about. www.sensorytrust.org.uk

Images previous page:

First: Curved Class 1 trail designed to encourage touching of rocks and plants and appreciating the coastal view, Cape Tourville, Tasmania.


Third: Design features in the handrail and accessible entrance path at Port Pirie Visitor Centre (South Australia) create a narrative. Port Pirie is famous as a meeting point of three different Australian railway gauges, as indicated in the path tiling. Train parts feature in the handrail.

Fourth: Apart from its inherent interest, this path’s design feature indicates an activity node and link to another aspect of the Royal Botanic Gardens, the Ian Potter Children’s Garden.
For the trail user, information at the pre-visit, visit and post-visit stage is essential to a successful visit. Knowing about the availability of facilities helps with planning the trip. Much pre-visit information is on the web. Refer to www.visionaustralia.org.au for information on writing and designing for web accessibility.

On-site it is necessary to ensure basic human needs are met. This is fundamental to a person’s enjoyment of a place. Food, water, shelter and toilets can dominate your thoughts if you are hungry, thirsty, wet or in need of a toilet.

Signage which provides information related to the trail and its use includes advisory, directional, descriptive, interpretive, regulatory and warning signs. Directional information that conveys simple and clear information should be at the trailhead and at relevant points along the route.

Accessible wayfinding

Directional, information and regulatory signage should:

- be a minimum of 900mm high
- be visible from the car park and at decision points
- contrast with the surroundings – choose colours and a background that contrast greatly with each other and the surrounding ground or wall surface
- use different colours and symbols for different tracks
- use standardised, international symbols where possible

Visitors should be able to self-select trails from the information provided - brief general descriptions of trails, grades, distances, times, accessibility and what there is to do and see.

Wayfinding is defined as simplifying complex environments by looking beyond signage to consider the full range of user touchpoints. The use of technology tools allows effective management as well as maintains the entire wayfinding system. www.fd2s.com

Interpretation

What is interpretation?

Heritage interpretation is a means of communicating ideas and feelings which help people understand more about themselves and their environment. There are many different ways of communicating these ideas, including guided walks, talks, drama, displays, signs, brochures and electronic media. www.interpretationaustralia.asn.au

Interpretation can improve the quality of a visitor’s experience by giving it a context and meaning and making it more enjoyable. Some interpretation gives prompts for carers and parents, encouraging engagement and communication between people.

First: Plain English, informative interpretive sign at Cape Bridgewater, Victoria.
Second: A memorable experience is created by knowledgeable tour guide using a tactile model to explain volcanic features to a diverse audience. Kauai, Hawaiian Islands.
Third: A sign that is reflective with very little contrast making it difficult to read. Tall Trees Trail, Tasmania.
Face-to-face (personal) interpretation is generally preferable to non-personal interpretation such as signs or brochures because a well-trained and understanding guide can adapt the interpretation to the audience’s needs and interests.

Accessible signage

Accessibility Checklist in Signs, Trails and Wayside Exhibits: Connecting People and Places

- Use simple language
- Use graphics – including photos, art, diagrams, maps with written information
- Use color and other creative approaches
- Ensure signs are made with a matt finish, not a gloss finish
- Minimise clutter
- Incorporate large-print maps or raised line/tactile maps
- To help people with vision impairments, use plain dark backgrounds and light (white) text, particularly in a shaded setting
- Use readability guidelines to improve writing


Making sensory mapping data collection forms more accessible

Modified forms of communication can also be implemented when using the sensory mapping data collection forms. The form can be formatted to make it more accessible for people with disabilities or for people where English is a second language. For example substitute key words with pictures, i.e. instead of using the words “Feel”, “Sound”, “Sight” and “Smell” have universal pictures to represent their meaning. For more information see; http://www.scopevic.org.au/therapy_crc/easyenglishstyleguide.html.


Access Chain, The Sensory Trust, UK.
www.sensorytrust.org.uk/information/factsheets/access_chain2.html

Accessible Environments: Towards Universal Design, Ronald L. Mace, Graeme J. Hardie and Jaine P. Place, 1996
http://www.design.ncsu.edu/cud/publications/docs/ACC%20Environments.pdf

Australian Standards for Walking Tracks
www.standards.org.au
AS 2156.1-2001 - Classification and signage and AS 2156.2-2001 - Infrastructure design.

Easy English - Writing Style Guide,

Exhibit Accessibility Checklist,
USDA Forest Service Accessibility Program, www.fs.fed.us/recreation/programs/accessibility/smithsonian.htm


Inclusive Design www.inclusivedesign.org.uk

Landscape Design for Elderly and Disabled People, Jane Stoneham and Peter Thoday, 1994, Garden Art Press.
Available: www.sensorytrust.org.uk


Readability Guidelines

Signs, Trails and Wayside Exhibits, Connecting People and Places.
Trapp, Gross and Zimmerman, 1994. UW-SP Foundation Press Inc.


Universal Design
www.design.ncsu.edu/cud/about_ud/aboutud.htm


Web Accessibility www.w3.org/WAI/
Stop at point where something catches your interest or designated points on the map.
- Record this interest and then scan spot for other things of interest ('hits').
- Write each hit on this form and mark a dot on the sketch map for each hit.
- Once you have completed the scan of this area, write the location in the left hand column and draw a line under that area group.

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This form has been adapted and reproduced with the permission of The Sensory Trust. See [www.sensorytrust.org.uk](http://www.sensorytrust.org.uk).
Existing Conditions – Summary

The Kalbar Rd site is approximately 133m long x 20m wide. The 2m wide path that runs through the site dips in the middle and rises significantly towards Kalbar Rd. The undulation in the site implies that this area may have been a minor drainage line in the past and to a lesser extent it may still function today.

The site is quite open with a number of small trees on the periphery of the park. The park is adjacent to large residential allotments. Powerlines intersect the site towards Parsons Rd and create a minor sound incursion to what would otherwise be a quiet site.

The site presents a number of opportunities and constraints. The openness of the park allows for interesting long and short views. These views can be framed or screened out depending on the quality of these views. The linear nature of the park creates an opportunity where the park can be experienced at some speed – whether walking or cycling. This physical characteristic can inform the proposed landscape design, where linear mass plantings of a single species adjacent to paths can heighten ones perception of speed by giving the park user a sense of enclosure and accentuating/reinforcing the linear nature of the path. The two entry points to the park also create an interesting opportunity, the details of which are written on the plan.