



Figure 2: Cycle facilities guidelines provide practitioners with advice and ideas for many types of cycle infrastructure. *MUTCD* and the *TRUM Queensland Cycle Network Signage Guidelines* are the primary signage guidelines for use in Queensland.

1.3.3 Cycle network signing guidelines

There are a number of guidelines designed specifically to assist road designers, engineers and transport planners to provide high quality, professional and consistent signage for cycling networks across Queensland cities and towns. These guidelines are listed in order of importance.

Traffic and Road Use Management Manual Section 1.36: Queensland Cycle Network Directional Signage Guidelines, (TRUM 1.36) outlines procedures for the design and layout of directional signage systems for bicycle networks in Queensland. It deals only with wayfinding or directional signage for cycle routes (both on- and off-road) within a cycle network. It does not cover the many other aspects of cycle network facilities signage and marking, such as regulatory and warning signage, linemarking, pavement symbols and advisory signage covered in guidelines listed below.

Manual of Uniform Traffic Control Devices – Part 9, Bicycle Facilities (MUTCD Part 9) sets out the traffic control devices (signs and markings) used to designate bicycle facilities in Queensland. *MUTCD Part 9* covers regulatory, warning, and guidance and direction signs for cycle facilities. *TRUM 1.36* is the preferred Queensland guideline for cycle network direction signage.

Austroads Guide to Traffic Engineering Practice, Part 14 – Bicycles (Austroads GETP 14) is the national bicycle facilities design guidelines. It covers a wide range of

design issues including bicycle facilities on- and off-road, bicycle parking and provision at road works. The preferred Queensland guidelines for bicycle related regulatory, warning and guidance signage is *MUTCD Parts 2 and 9*, and for direction signage *TRUM 1.36*.

Manual of Uniform Traffic Control Devices – Part 2, Traffic Control Devices for General Use (MUTCD Part 2) is the primary reference for regulatory, warning and guidance signs for general road use in Queensland.

Guide to Pavement Markings (Main Roads Queensland) is the primary reference for linemarking for road-based transport.

NSW Bicycle Guidelines (NSWBG). This manual is approved for use in Queensland and provides additional advice on facilities design to *Austroads GETP 14*, particularly in relation to urban street/road environments. It should be read and applied in conjunction with the guidelines listed above.

Local path signing standards

Local governments are implementing wayfinding signage systems to assist people to navigate shared paths and urban greenway networks. These paths have often been developed with unique signage, distance marker systems and identity branding.

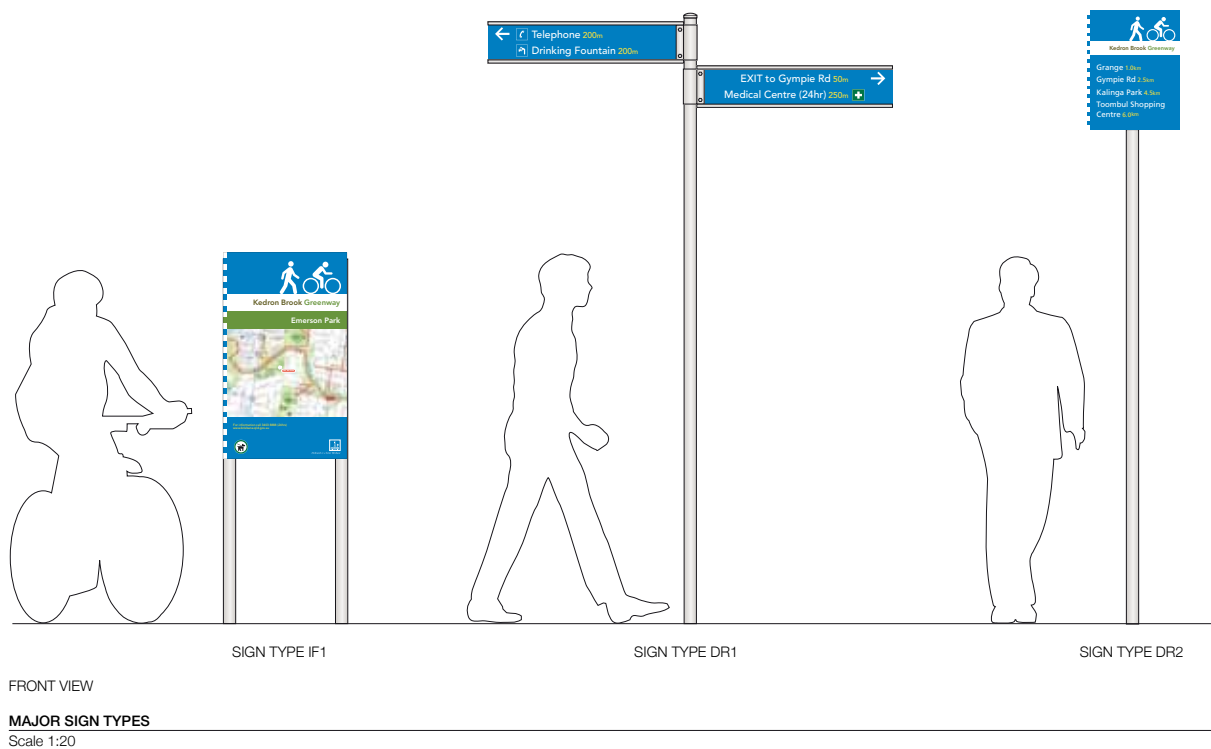


Figure 3: Councils are progressively implementing signage guidelines covering pathway use and public transport wayfinding. The 2008 Brisbane City Bikeway and Greenway Signage Manual provides guidelines for the city's growing network of paths and trails.

Where existing branded paths form part of a principal route, cycle network directional signs will take precedence for route navigation over any local signs, but their use should be restricted to these locations:

- Where the principal route joins the path;
- Any branching intersections of other principal routes along the path; and,
- Where the principal route exits the path.

Local path signage should provide the necessary reassurance destinations and distances, directions to facilities and side destinations, intersecting and cross street naming and map display boards.

Care should be taken to harmonise the use of standard cycle network signage with existing path signage systems through careful sign location and mounting.

Off-road paths and path junctions to other named destinations should be signed the same as on-road routes. Where no path signage system is in place, normal cycle network signage should be applied throughout the path.

On paths through parklands and reserves, consideration should be given to the installation of additional signage indicating facilities such as water points, toilets, information centres and points of interest. These destinations are important particularly to recreational cyclists and tourists and should be included in any signage plan associated with the development of tourist and recreational routes.

If facilities signage is not installed and not defined by the relevant local council's path sign system, *Manual of Uniform Traffic Control Devices – Part 5 Street Name and Community Facility Name Signs (MUTCD Part 5)* should be used.

1.3.4 Signing methodology

Consistent, accurate and unambiguous bicycle network signage uses a methodology based on the established practice of highway network signage which embodies the following key signage and wayfinding principles:

1. Ensure consistency of signage layout and quality across the networks. A consistent standard, location and quality of signage across cycle networks will assist cyclists and other road/path users to identify cycle routes, minimise the risk of confusion and build community confidence in the system.
2. Identify important departure/ destination locations and decision points. These are the only places which are to be named on signage for a particular cycle network. These locations are to be plotted onto a Network Focal Point Signage Map (see Section 2). This map provides the framework for directional signage on the cycle network and is an important tool in its ongoing development.
3. Maintain rigid consistency in naming locations. Absolute consistency in naming locations must be maintained throughout the system. Once a destination has been named it must have priority over other names and should appear on all subsequent signs until that destination has been reached.
4. In the event of alternate routes, sign the most direct route. If more than one route is possible from a departure point the most direct route should be the only one indicated on the signs. This may be varied if the alternative offers major advantages over the shorter route, but the extra distance must not amount to more than 10% of the shortest route.

5. In larger centres sign the centre (CBD or City). Routes from the edge of a built-up area to the centre should be regarded as continuous even though they may pass through other regional centres. The destination wording (City, CBD Town Centre etc) should be continued right into the town/city centre.
6. Indicate distances in kilometres. Distances to destinations provide essential wayfinding and orientation information and should be indicated on all fingerboard and reassurance signage. Where indicated distances are less than 10km, 100m increments should also be shown (eg 9.4, 4.2 etc). For greater legibility the numerals indicating 100m increments should be 75% of the height of the whole kilometre numerals.
7. Number the important routes (optional). The use of route numbering should be limited to a small number of high-speed, limited-access, principal cycle routes usually paralleling State Controlled roads or major regional roads within a city or between cities in a densely populated region such as Southeast Queensland (see Section 2).
8. Use map boards at key entry points. Network map boards provide additional navigational assistance to cyclists and can often indicate multiple route options and wayfinding possibilities (see Section 2).
9. Ensure street name signs are in place at all network intersections. Street name signs provide the fine grained information to enable riders to know precisely where they are and to efficiently find their way to their destinations (see Section 2).

Route signing design procedures

Before starting the detailed layout and design of cycle network direction signs in accordance with the *Queensland Directional Signage Guidelines (TRUM 1.36)* or local path signage guidelines, designers will need to determine:

- Named destinations to use on cycle route directional signage. This will involve the formulation of a cycle network focal point map (see Section 2.3.1);
- The current physical condition of the route via a survey and risk assessment (see Section 2.3.2); and,
- The level of signing required for the type of route to be signed (see Section 2.3.3).

This information will then be used to produce a signage schedule (see Section 2.3.4) – an essential tool for the accurate installation of cycle route signage.

Selecting destinations

Focal Point Signage Practice is used for determining all key destination and decision points within a cycle network to ensure the accurate and consistent signing of the network. Focal Point Signage Practice is commonly used to determine all place names for the State Road Network and road networks in cities and towns. These focal point maps are maintained by MR Regions for the State Road Network and by local councils for networks within cities and towns.

As bicycle networks are locally or regionally based, bicycle network focal point maps will usually be more fine-grained and urban-oriented and will often use additional or differing focal points to the MR road-based maps. Cycle network signage focal point maps will be maintained by local councils in consultation with MR and neighbouring LGAs and use destinations initially based on road network focal point mapping for that area.

Focal Point Signage Practice as it applies to cycle network signage systems is explained in detail in Section 2 of this guide. Further advice and details on Focal Point Signage Practice as it applies to road network signage systems can be found in *TRUM 1.21 Appendix B*.

Route assessment

Prior to signing a cycle route a physical risk assessment of the route should be made. This assessment will study the route and note the condition of existing street/road facilities, intersections/crossing points and any critical safety issues for cyclists using the route. Where major deficiencies occur in the permanent infrastructure (lane widths too narrow, hazardous drainage grates etc) remedial action will be recommended and carried out prior to sign installation.

The type and extent of remedial work will usually depend on the structure of the road environment and the availability of any bicycle specific treatments and infrastructure. The signing of routes with and without cycle infrastructure already installed is discussed in the next subsection of this guide. Recommendations for carrying out a physical risk assessment of a cycle route for signing are provided in Section 2 of this Guide.

Signage schedules

The signage required for the route is determined by a detailed field inspection and a route signage schedule is prepared for use by the sign manufacturer and the sign erection crew. The route signage schedule will be made up of individual intersection schedules. To ensure accurate installation of the signs it is advisable to provide detailed maps, sketches or marked up plans or aerial photography to guide the sign erection crew.

Following installation it is recommended that the route be inspected by the sign system designer or other knowledgeable cycle network specialist to ensure that the installation work has been carried out correctly and that the sign system functions safely and efficiently for the users. Details of these procedures and sign schedule samples are provided in Section 2 of this Guide.

This section provides details and recommended procedures for the practical tasks which need to be undertaken to plan and physically sign a route. This section provides information on the various types of signs and their use within the signage system and recommends a methodology for designing and implementing a signage system for a route and the wider cycle network.

2 Signing cycle routes

Photo 6: Regulatory sign denoting a bicycle lane near Freemantle, WA. This lane is located beside the kerb on a road without parking.



2.1 Using signing guidelines

There are two principal guidelines covering the use of signs which regulate, warn and guide cyclists on Queensland streets, roads and paths. Regulatory, warning and facility guidance signs, their usage and application are defined and described in *MUTCD Part 9, Bicycle Facilities* with additional signs and linemarking details in *MUTCD Part 2, Traffic Control Devices for General Use*. Route direction guidance signs for wayfinding and information signs are described in *TRUM 1.36*.

2.2 Types of signs

There are four basic types of cycle network signs:

- Regulatory signs define regulated facilities such as bicycle lanes, bicycle paths and shared paths. They have to be obeyed by all road users. Stop and Give Way signs are also regulatory signs used in conjunction with cycle facilities.
- Warning signs are the familiar yellow and black diamond shaped signs which warn of hazards in the road environment.
- Guidance signs have two broad purposes. They are used to guide road/path users through complicated or potentially hazardous locations or to provide simple behavioural messages and instructions (see Photo 7). The other purpose is to provide directional and wayfinding guidance throughout the cycle network.

- Information signs have multiple purposes, such as area-wide maps, information on construction projects, and interpretation panels for sites of interest.

2.2.1 Regulatory signs

The combination of regulatory signage and linemarking usually defines a bicycle facility. Figure 4 shows the most common cycle facility signs and optional supplementary plates used to define on-and off-road bicycle facilities.

Regulatory signage is always used to define the start of a facility. It is best practice to carry bicycle lanes and paths right up to and through intersections to provide a complete network connection. The use of the END supplementary plate is only necessary if the facility is terminated mid-block, or at some other part of the road other than an intersection. Some types of facilities, such as contra-flow bicycle lanes require other signage (R2-4 No Entry) in addition to bicycle specific regulatory signage (R9-3 Bicycles Exceeded plate). These facilities require linemarking and pavement symbols supported by general regulatory and warning signs at critical locations.

Regulatory signs should be located so as to not conflict with existing road directional signage, or create ambiguity at critical turning points or crossings. The precise location for regulatory signage should be adjusted to suit the design of the intersection/road to include the bicycle facility. The positioning of signs and the need for additional signs or delineating devices may be affected by the variations in layouts, particularly where there are curves and crests on any approach.

The use of regulatory and warning signage for cycle facilities in Queensland is detailed in MUTCD Part 9.

2.2.2 Warning and guidance signs

Yellow diamond shaped warning signs are used to alert riders to changed or potentially hazardous path or road conditions. This type of sign is similarly used to alert other road users of intersecting or merging bicycle movements. Figure 4 shows warning signs, optional supplementary plates and guidance signs for both bicycle network and general road network use.

Warning and guidance signage should be located to provide advance indication of changed riding conditions or potential hazards. *MUTCD, Parts 2 and 9*, should be referred to for recommended siting distances where these are not provided in this guide. The precise location for warning and guidance signage should be adjusted to suit the overall design of the intersection/road and bicycle facility.

Shared path guidance signs

A signage system to encourage cyclists and pedestrians to behave in a predictable and co-operative manner has been developed for use on shared paths (see Figure 5).

Guidance signs to communicate four key behavioural messages to path users can be used singly or in groups to suit each shared path situation:

1. keep left when using the path;
2. warn other path users on approach and overtaking;
3. move off the path when stopped; and,
4. walkers control your dogs.

Photo 7: Cycle network warning signage on the Pacific Motorway Cycleway, South Brisbane providing advance warning of a tight curve. The W1-3L sign is a standard sign in *MUTCD Part 2*. The G9 Reduce Speed traffic instruction sign is based on other common G9 signs for cyclists.



Figure 4: Regulatory, warning and guidance signs for bicycle facilities



Figure 5: Shared path behavioural signage



To improve management of shared paths through the promotion of these four key messages, a three level implementation framework is recommended. Choosing the appropriate level of path signage requires an understanding of the types of path user and some information on the predominant types of conflicts and their locations. This framework (Table 4) provides recommendations from a basic Level 1 management up to high Level 3, where specific problem issues are addressed by targeted signage erected at path ‘hot spots’.

It is recommended that an incremental ‘bottom up’ approach be used when installing the signs. Begin with Level 1 behavioural messages. These may be sufficient to significantly improve user behaviour and reduce conflicts to an acceptable level. Allow path users to get used to the Level 1 messages and, if necessary, make some observations or obtain feedback from path users. If further education of path users is required, consider introducing a Level 2 approach and then, if appropriate, site specific Level 3 messages.

Table 4: Shared path behavioural sign installation

Level	Level of usage	Recommended installation
Level 1	Basic requirement for all shared paths. Low use and few reported conflicts.	Path centreline and pavement symbols. See <i>MUTCD Part 9</i> for path linemarking recommendations.
Level 2	Moderate path use and number of reported conflicts.	As for Level 1 plus group signs (Figure 5 (e) or (g)) at key locations and sign columns (Figure 5 (f)) at min 500m spacings.
Level 3	High path use and number of reported conflicts.	As for Level 2 plus additional single or grouped behavioural signs according to the type and level of reported and observed conflicts.

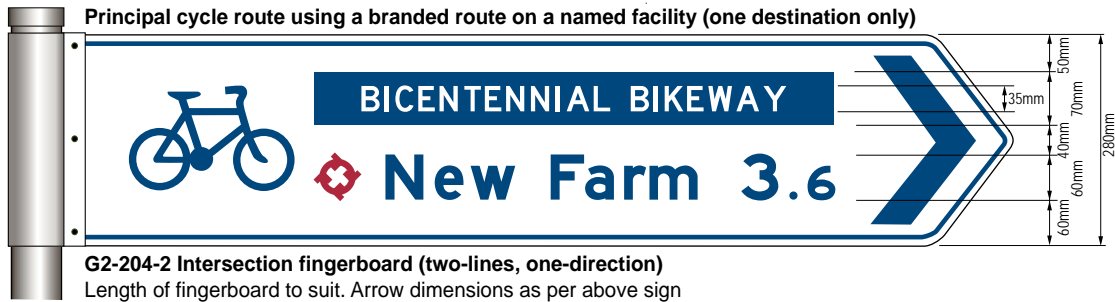
2.2.3 Directional guidance signs

The main purpose of this type of signage is to provide directional and wayfinding guidance to cyclists using the cycle network. Directional signing reinforces system connectivity and coherence and gives high visibility and recognition to the collection of through routes which make up any network.

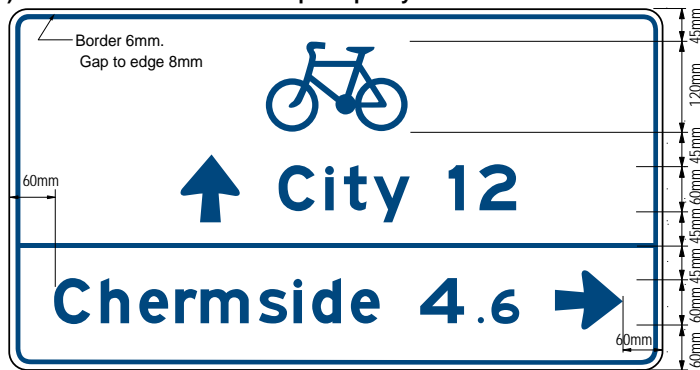
In the general traffic environment there are many directional signs provided for road users. This general road and highway signage is usually attuned to motorised traffic and does not adequately serve the bicycle rider, when a separate or parallel bicycle network is in existence. As an add-on system of directional signage can create ambiguity and conflict for both motorised road users and cyclists alike, a completely independent system of signing is used to mark cycle routes.

There are three categories of directional signage recommended for use on Queensland cycle networks: principal route signage; local route signage; and, tourism and recreational route signage. All cycle network directional signage should comply with the requirements and individual sign details described in *TRUM 1.36* (see Figures 6, 7 and 8 in this Guide).

(a) Principal cycle route direction finger boards

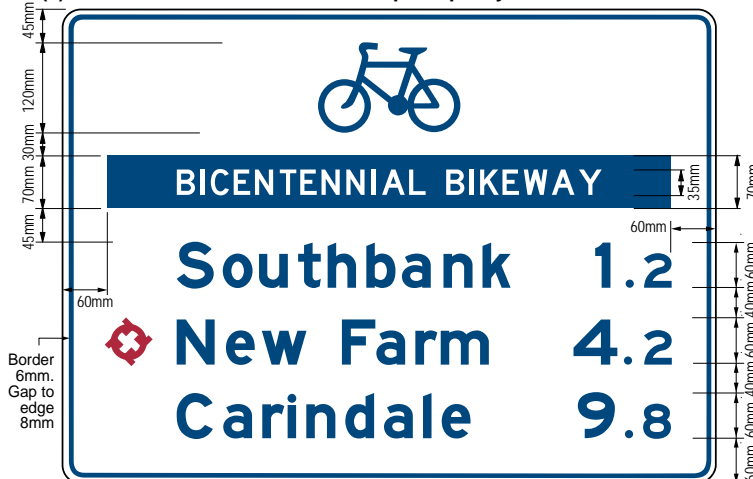


(b) Advance direction board for principal cycle route intersection



G1-205 Advance direction board - width to suit

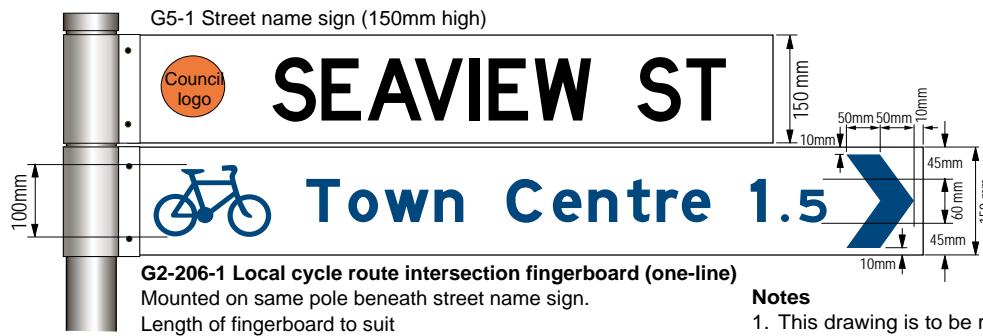
(c) Reassurance direction board for principal cycle route on named facility



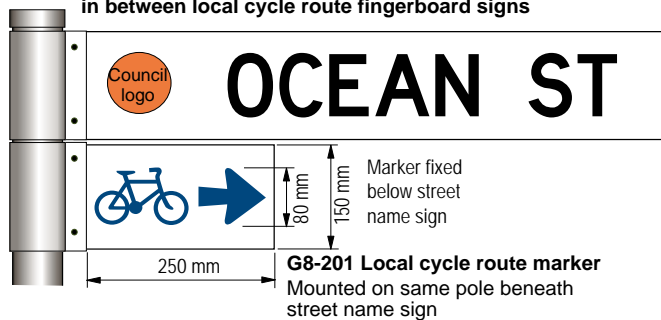
G4-202 Reassurance direction board - width to suit

Notes

1. This drawing is to be read in conjunction with TRUM Volume 1 Section 36 .
2. See separate diagram for typical intersection sign layout and mounting methodology.
3. All signs are dark blue lettering/arrows on white retro-reflectorised background. Letter sizes as shown.
4. Typeface used for destinations/distances is AS1744 Modified E mixed capitals and lower case. Where distances are less than 10km these should be indicated to the nearest 100 metres expressed in standard decimal form with the sub kilometre numeral 75% of the height of the whole kilometre numerals.
5. On fingerboards, distance numerals are located adjacent to the direction arrow. On reassurance direction boards they are located to the right of listed destinations.
6. Typeface used for named routes is AS1744 Series D Medium capital letters.
7. Fingerboards are double sided from thick aluminium or steel plate or extrusion (height as above) and cut to length. Fingerboard signs are mounted on poles using standard pipe clamps. Clamps should be pinned to prevent accidental movement due to wind or vandalism.
8. Fingerboard sign plates can be square-ended provided that the sign border and main directional arrow are reproduced to dimensions given.
9. Direction arrows on advance and reassurance direction boards are AS1743 - short arrow.



Alternative method of marking a local cycle route in between local cycle route fingerboard signs



Left: Figure 6 - Cycle Network Principal Route Direction Signage (Source: TRUM 1.36 Figure 1). Above: Figure 7 - Cycle Network Local Route Directional Signage (Source: TRUM 1.36 Figure 2).

Notes

1. This drawing is to be read in conjunction with TRUM Volume 1 Section 36.
2. Local signs are dark blue on white retro-reflecterised background. Letter sizes as shown.
3. Typeface is AS1444 Modified E mixed capitals and lower case. Where distances are less than 10km these should be indicated to the nearest 100 metres expressed in standard decimal form with the sub kilometre numeral 75% of the height of the whole kilometre numerals.
4. Distance numerals are located adjacent to the direction arrow.
5. Fingerboards are double sided from thick aluminium or steel plate or extrusion (height as above) and cut to length. Fingerboards and markers are mounted on poles using standard pipe clamps. Clamps should be pinned to prevent accidental movement due to wind or vandalism.
6. Local route signs can be square ended provided that the main directional arrow is reproduced to dimensions given.

Principal cycle route signage

There are three types of direction signs used on principal cycle routes (see Figure 6):

1. Intersection fingerboards are the primary means of indicating route direction at network decision points or intersections. Primary destinations for the route, plus any intersecting routes, are shown on intersection fingerboards. Named destinations used on intersection fingerboards should be identical to those destinations used on any advance direction signs erected before the intersection. It is preferable to provide distance indication on intersection fingerboards even if reassurance direction boards (with destination distances) are used beyond each leg of the intersection.
2. Advance Direction Boards are placed in advance of an intersection to indicate destinations along each route leading away from the intersection, including the next principal destination along each route. An Advance Direction Board displays the route direction, route destinations and any turnings to other routes.
3. Reassurance Direction Boards are used beyond intersections that have been signposted with Advance Direction Boards and Intersection Fingerboards to reassure cyclists that they are travelling towards their intended destination and to indicate the distances to those destinations.

Local cycle route signage

There are two types of direction signs used on local cycle routes (see Figure 7):

1. Intersection fingerboards are erected at local cycle route turnings as a wayfinding aid to important local destinations. These signs may indicate distances similar to principal route signage. As this type of

cycle network signage is closely related to local street name signage, it may be necessary when signing local routes to install missing street signage to ensure completeness and easy navigation within the locality. Where a local route is short (maximum of three turnings from the principal route), the preferred method of marking destinations is to mount a local cycle route intersection fingerboard below the existing street name sign at each route turning. On longer routes with many turnings, it may be preferable to mark most route turnings with local cycle route markers affixed directly to street name signs or separately mounted beneath. When marked this way, Local Cycle Route Fingerboards (with destination and distance) should be used as the first and last sign in the sequence. Advance direction and reassurance direction signs are not used when marking local cycle routes.

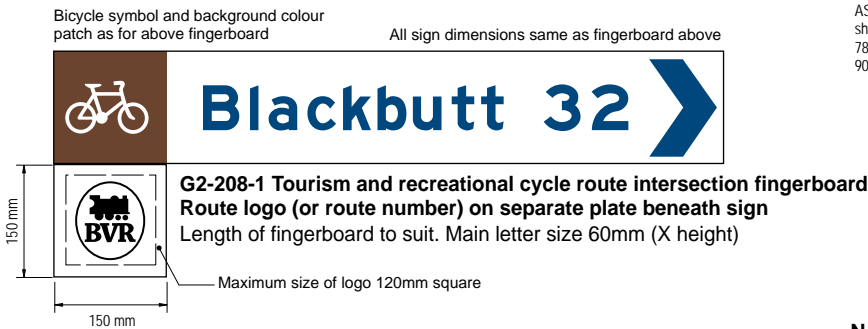
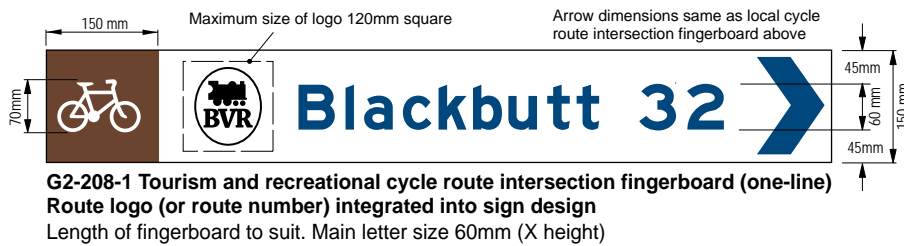
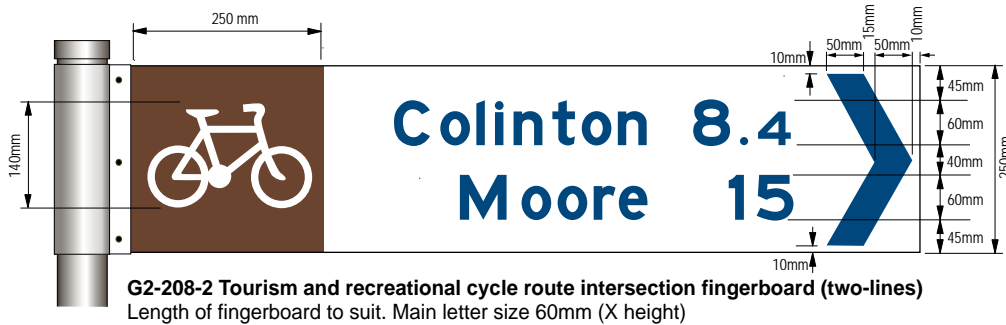
2. Route markers are used to supplement the use of local cycle route fingerboards and are affixed to existing street name signs to indicate a route turning. As this type of cycle network signage is closely related to local street name signage, it may be necessary when signing local routes to install missing street signage to ensure completeness and easy navigation within the locality.

Tourist and recreational cycle route signage

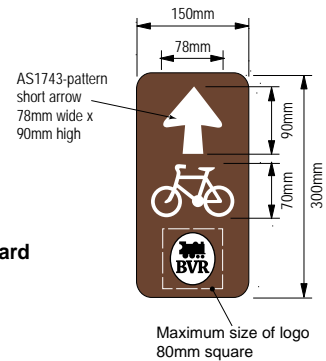
Tourist signs are intended to mark recreational and tourist routes which are usually (but not entirely) off-road and sometimes in remote locations. Tourist and recreational signs differ from normal network signage in that they use the standard brown tourist sign colour in their design. There are three types of direction signs used on tourism and recreational cycle routes (see Figure 8):

1. Intersection fingerboards are the major means of indicating tourism and recreational cycle route direction

(a) Wayfinding direction signs



G8-200
Tourism and recreational cycle route marker



Notes

1. This drawing is to be read in conjunction with TRUM Volume 1 Section 36.
2. Tourism and recreational signs are dark blue lettering on white retro-reflectorised background with a white bicycle symbol on a square brown background at the mounting end of each sign. Brown colour is standard tourist sign brown. Letter sizes as shown.
3. Typeface used for destinations and distances is AS1744 Modified E mixed capitals and lower case. Where distances are less than 10km these should be indicated to the nearest 100 metres and expressed in standard decimal form with the sub kilometre numeral 75% of the height of the whole kilometre numerals.
4. Fingerboards are double sided from thick aluminium or steel plate or extrusion and cut to length. Fingerboard signs are mounted on poles using standard pipe clamps. Clamps should be pinned to prevent accidental movement due to wind or vandalism.
5. Fingerboard signs are square ended. The main directional arrows should be reproduced to dimensions given.

(b) Facilities direction signs

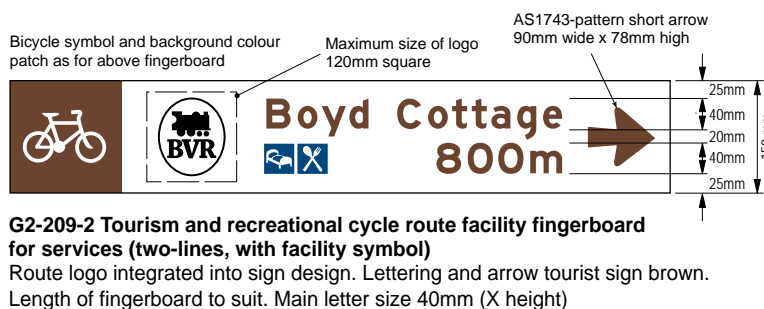
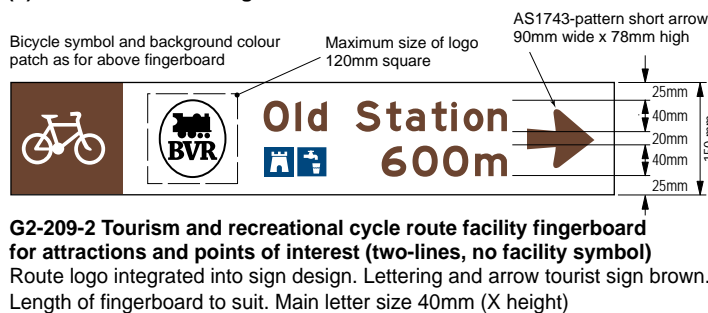


Figure 8- Cycle Network Tourist and Recreational Direction Signage (Source: TRUM 1.36 Figure 4).

at decision points or intersections. Primary destinations for the route, plus any intersecting routes, are shown on intersection fingerboards along with distances to these destinations. If advance or reassurance direction signage is required near an intersection on tourism and recreational cycle routes to ensure adequate route wayfinding (due to complicated intersection alignments etc), tourist cycle route markers should be used.

2. Facility direction fingerboards indicating facilities and attractions relevant to the route are used at intersections or access roads adjoining the route. The name of the facility/attraction is shown on the fingerboard along with distances to these destinations. Where distances are less than 1 kilometre these shall be shown in metres. These signs are subject to approval by the route management authority as detailed in Section 3 of this guide.
3. Route Markers are an additional aid to cyclist navigation and are used to supplement direction signing on routes that have significance as through-routes. Markers, when used, are placed at 5km intervals. Markers can also be used on trails as advance direction and reassurance signs to supplement intersection fingerboards.

2.2.4 Information signs

Map boards

Street maps and cycle network maps can be very useful aids to navigation especially when placed at key entry and exit points to a town or built-up area, at the ends or entrances to linear pathways and at mid-points along bikeways/shared paths. Examples of path map boards are shown in Figure 9. Map boards should be easily accessible from the bicycle route. If maps are located on a side path, or rest area they should be indicated with additional signs.

Though it is an established mapping convention to use street maps oriented towards north, care should be taken when presenting this information to the user. Map boards should be located so as to assist orientation, with the user facing up the page and generally in a northerly direction. Alternatively, a north point located on the ground nearby and/or on the map board may assist the viewer to orient the map.

When mounting map boards and other information boards, such as tourist information, care should also be taken
Photo 8: This map board has been located on a separate path loop to allow path users to study the map clear of the main shared path (lower left of photo). Roma Street Parkland, Brisbane.



to provide sufficient space and clearance from the path to ensure adequate space to inspect the map without interfering with the passage of other path users (see Section 3 for clearance recommendations). Map boards should be mounted flush with their support posts and finished so that they do not present sharp edges to users or protrude into the operational space of the adjacent cycleway or pathway.

Information and infrastructure signs

Information signs can be erected to provide technical details of cycle facilities and important network infrastructure. These signs can also be used to heighten awareness of major cycle facilities such as welcome and naming signage at major route gateways and trail heads. Figure 9 shows two examples of principal route signage and one example of information signage for tourist and recreational routes.

Information signs can incorporate maps, photographs and illustrations in addition to explanatory text. These signs should be no larger than 1,500mm x 1,200mm and should conform to the designs shown in Figure 9.

Figure 9: Information signs for providing technical details and important information about bicycle network infrastructure.

Welcome to the Bicentennial Bikeway

Linking Brisbane City to its suburbs along the Brisbane River

Cycle route name plate/welcome sign. Suitable for named principal routes and tourism and recreational routes. Example shown for multiple government funding agencies.

Red Bridge

The Old Logan Road Bridge was closed to traffic following a fire in the early 90's. It was re-opened as a vital cross-river cycle and pedestrian link on 29 November 2007. The renovated bridge was painted red and has become known locally as the Red Bridge. The main deck span is 94m.

Cycle route major facility information sign. Suitable for major cycle network infrastructure. Example shown for multiple government funding agencies.

Brisbane Valley Rail Trail

Ipswich Trailhead

The Brisbane Valley Rail Trail is a 148km multi-use trail which follows the old railway corridor from Ipswich in the south to Blackbutt in the north. The trail is managed by Somerset Regional Council with support from the Queensland Department of Infrastructure and Planning and a very active local community.

Tourist and recreational cycle route information and interpretation sign. Suitable for providing information on all aspects of major trails and routes. Example shown for multiple government funding agencies.