

Developing a local cycle strategy and local cycle network plan

Purpose

This note describes a process by which a Local Cycle Strategy and Local Cycle Network Plan can be developed. Many local governments have developed a Local Cycle Network Plan but lack an overall Local Cycle Strategy to increase cycling. An Integrated Local Transport Plan (ILTP) is also required to ensure that the needs of cyclists are given consideration among all user needs.

Introduction

The planning process for cycling has two basic elements:

- developing a **Local Cycling Strategy**
- developing a **Local Cycle Network Plan**.

The **Local Cycling Strategy** is the primary tool for creating an environment that supports cycling at a local level. The **Local Cycle Network Plan** is an element of the strategy that focuses on the infrastructure required to support cycling.

Why are cycling facilities necessary?

The provision of bicycle infrastructure and facilities are considered necessary at any site that:

- is a link in the Local Cycle Network Plan
- is likely to attract or generate bicycle trips
- provides directness and accessibility to key destinations (e.g. transport or business hubs, large sporting venues, schools).

Why develop a Local Cycle Strategy and Local Cycle Network Plan?

Key reasons for developing a Local Cycle Strategy and Network Plan are:

- a fully consulted strategy and network plan offers a transparent policy instrument
- a fully consulted strategy and network plan that has been assessed against technical feasibility and cost will assist in the efficient provision of infrastructure
- to integrate with a Regional Network Plan or Regional Cycle Strategy, if one exists (see Cycle Note A2 – *Policy context for cycling in Queensland*)
- to offer better integration over an adhoc provision of infrastructure.

Aim

This series of notes aims to assist planners and engineers to provide for cycling in their local area.

The Cycle Notes should be read in conjunction with:

- Guide to Traffic Engineering Practice, Part 14 – Bicycles (Austroads, 1999)
- Queensland Manual of Uniform Traffic Control Devices, Part 9 Bicycle Facilities
- Road Planning and Design Manual (Queensland Department of Main Roads).

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What is a Local Cycle Strategy?

A Local Cycle Strategy forms part of the local government planning scheme which is the primary tool for creating an environment that supports public transport, cycling and walking trips at a local level. The strategy provides an overall direction for infrastructure provision as well as education and information requirements. These are usually presented in the form of actions. The strategy will also include an overarching vision, guiding objectives and performance indicators for implementation. A communication plan to coordinate strategy efforts can also be included.

Developing a Local Cycle Strategy

The typical steps (1 to 3) involved in developing a Local Cycle Strategy are listed below. These may be modified to reflect the desired scope and outcomes of local planning processes.

STEP 1: Research and consultation

It is recommended that the development of the Local Cycle Strategy begins with the establishment of a Bicycle Advisory Committee (BAC) (see Cycle Note A5 – *Staffing, BACs and BUGs*) to inform and guide the process. Background research should also be conducted to collect relevant information and identify critical planning issues from the outset. This research can include a review of other council's strategies to identify shared issues. Research, planning and implementation should be aware of the principles and issues outlined in Cycle Notes A1 – *Total quality management for cycling*, A2 – *Policy context for cycling in Queensland*, B2 – *Selecting appropriate cycling facilities* and C8 – *Maintaining cycling facilities*. Incorporating the expected costs of and expected demand for resources to maintain planned cycling facilities at an early planning stage is more likely to result in sustainable infrastructure outcomes.

STEP 2: Mapping existing conditions/cycling environment

Effective mapping of existing conditions can be supported by referring to Cycle Note B1 – *Cycle audit and review*. On a map of the study area, identify the local conditions for cycling by indicating:

- existing and committed cycle network infrastructure, including on-road and off-road facilities:
 - in the local area covered by the strategy
 - in adjacent local areas and the regional strategy to ensure connectivity.
- trip generators and attractors (existing and forecast) – they provide the 'anchor points' from which the cycle network will be developed and integrated with local land uses such as:
 - employment areas
 - schools and universities
 - public transit stops/interchanges
 - shopping areas/precincts
 - sport and recreation facilities (e.g. public parks, skate parks)
 - natural attractions (e.g. beaches)
 - tourist features
 - high density mixed-use built environments, and
 - other community facilities (e.g. public libraries).
- practical opportunities for developing the cycle network can include integration of cycling infrastructure with:
 - urban development, road network construction or improvements and public transit routes (including rail corridors – operational and disused)
 - the open space system
 - the regional cycle network.

- constraints or physical barriers for developing the cycle network can include:
 - topography
 - road characteristics (e.g. road function, traffic volumes, speed environment, available width, grades)
 - problem locations or cycling 'blackspots' (e.g. sites with an unacceptably high proportion of crashes, pinch points such as narrow bridges, roundabouts or channelised intersections)
- integration with greenfield development, redevelopment and urban infill
- integration with neighbouring local government cycle networks
- urban design principles - urban design principles should aim to enhance personal safety and perceptions for safety of cyclists, pedestrians and generally anyone living or passing through an area. This can be achieved through appropriate urban design that encourages streets and urban open spaces to be fronted and overlooked by housing and actively used facilities - especially on cycle routes to and from schools, public transport stops and other routes used at night. The development application stage is the best opportunity to achieve sympathetic urban design outcomes for cyclists. The following principles should be considered:
 - orientation of buildings to front cycle routes
 - minimum setbacks should be encouraged to enhance casual surveillance
 - encourage higher-density residential living to support public transport, cycling and walking
 - off-street car parking is located at the rear or side of a dwelling with driveway access from rear service lanes
 - ensure walking, cycling, public transport and disability access are to a high quality, and
 - provision of kerb ramps on all footpaths and shared paths.

STEP 3: Consultation - user groups and needs

Establish the likely stakeholders and their particular requirements:

- identify the groups who are expected to use cycle facilities for accessing the destinations compiled in Step 2. These may include both cyclist and non-cyclist groups (see Section 2.3 of *Austroads Part 14*)
- conduct consultation activities with local stakeholders to establish community needs and assist in the selection of the most appropriate facilities. It is important that community consultations commence at the beginning of strategy development and not just towards the end
- identify the types of facilities likely to be required to suit different stakeholders (see Cycle Note B2 – *Selecting appropriate cycling facilities*)
- identify levels of use or demand likely to be generated
- identify non-infrastructure actions (e.g. cycle brochures/maps, events and education campaign) which are important to progressing strategy outcomes.

What is a Local Cycle Network Plan?

A Local Cycle Network Plan (LCNP) is a blueprint for a network of cycle routes and facilities that support the Local Cycle Strategy (LCS). These facilities may be integrated into the existing and proposed road network, land use development and transport system of a local area. With the overall objective being to integrate cycling more comprehensively into transport and land use planning, it is helpful to incorporate the LCNP into an Integrated Local Transport Plan (ILTP) and also within an authority's planning scheme. Where appropriate, the development of an LCNP should also be coordinated and integrated with the relevant Regional Cycle Network Plan.

Developing a local cycle strategy and local cycle network plan

Developing a Local Cycle Network Plan

The extra steps (4 and 5) typically required to develop the LCNP are listed below. However, moving from steps 1 to 5 in this Cycle Note is not necessarily a linear progression. Complexities may require the movement to later steps and then a return to earlier steps. Community consultation through a Bicycle User Group (see Cycle Note A5 - *Staffing, BACs and BUGs*) or other processes may also necessitate a revisit to any of the steps. Again, as in the LCS development process, these may need to be modified to reflect the desired scope and outcomes of a local planning process.

The provision of cycling infrastructure must take account of:

- projected bicycle travel demand (or the ability to generate demand through well-conceived facilities and marketing)
- practical opportunities and constraints (as given in Step 2)
- expected vehicular traffic volumes and composition
- types of user groups
- stakeholder requirements/desires
- linkages between trip attractors such as schools, parks, sporting facilities, local business centres, local places of interest and other community facilities
- environment, location, safety, security and convenience for users.

A more comprehensive list of engineering considerations is presented in Section 2.4.1.1 of *Austrroads Part 14*. For state controlled roads the *Road Planning and Design Manual* (Queensland Department of Main Roads) should also be referenced.

STEP 4: Mapping the network and route suitability assessment

After completing steps 1, 2 and 3, the draft LCNP can be developed and assessed to ensure that it is coherent, continuous, convenient, direct, safe, attractive, comfortable and sustainable. The following tasks will assist in meeting these objectives:

- identify and map the most suitable local cycle network that meets user needs, builds on existing network infrastructure, provides links to key destinations and considers opportunities and constraints (refer to Cycle Note A6 – *Bicycle riding and new subdivision design* for information on design and planning for cyclists).
- assess the proposed cycle network to determine route cycling suitability. Key factors that will influence route suitability for bicycle riders include:
 - **distance** - people will not want to ride significantly further than the route offered by an arterial road unless there is an improvement in the gradient.
 - **gradient** - people will usually alter their course to avoid steep grades. If a grade of greater than 5% cannot be avoided, then additional road width is required for safety due to the increased difference in cycle and motor vehicle speed and the horizontal movement of the bicycle as it is pedaled uphill.
 - **traffic volume and speed** - unless there is sufficient lateral width on the road, bicycle riders will not feel safe on roads with high traffic volumes and high speeds. It is also important to have both on-road and off-road components on the cycle network to cater for varying skills of users.
 - **road space** – road/carriageway width is important, particularly if a route includes a busy road. As motor vehicle speeds increase, lateral distance between motor vehicles and bicycles must also increase to maintain safety.
 - **visibility** – some people will not want to ride along a route if there is a perceived threat to personal safety. Security can be enhanced through various measures such as improved route visibility (e.g. passing motorists being able to see users), route lighting, design, construction and sightlines. Furthermore, by encouraging greater use of the cycle route, a natural surveillance of the area can be enhanced.
 - **additional factors** – a number of factors influence the routes suitability for recreation purposes. These include capacity to share facilities with pedestrians, rest areas and attractions along the route.
- modify the proposed cycle network where required (and practical to do so) in accordance with the results of route suitability assessments.
- consult stakeholders to check the suitability of proposed route(s).

STEP 5: Network implementation

- identify suitable on-road and off-road facilities for different components of the cycle network. Information on the selection of facility types is presented in Cycle Notes:
 - B2 – *Selecting appropriate cycling facilities*
 - B3 – *Designing good quality off-road facilities*
 - B4 – *Designing good quality on-road facilities* and
 - B5 – *Finding space for on-road bicycle lanes*which are based on *Austrroads Part 14* (Sections 4, 5 and 6).
- identify infrastructure needed to support the LCNP, including:
 - end-of-trip facilities (see Cycle Note C3 – *Bicycle parking facilities* and Cycle Note C4 – *End-of-trip facilities for bicycle riders*)
 - signage, and
 - special provisions for cycle access (e.g. intersections, bridges).
- determine the priority of all identified infrastructure based on such issues as:
 - connectivity
 - the merits of the works in terms of improvements to safety and amenity
 - community needs and desires
 - available funding
 - land use planning, location of (existing and proposed) major developments and other initiatives
 - possible integration with other road construction or maintenance programs.

Projects that complete a route by providing a missing link or eliminate pinch points may be a good starting position. Significant improvements can come from bicycle facilities that are developed and integrated with other road construction or maintenance programs. Priority should also consider what projects provide the most benefit (e.g. increased safety and amenity for the greatest number of users). A higher priority may also be merited for those projects that may encourage lapsed or non-cyclists to participate in cycling.

- cost the works according to facility type (see Cycle Note A3 – *Funding mechanisms for cycling infrastructure*).
- prepare an implementation plan identifying works to be undertaken in order of priority including the staging of all works to budget. Construction and maintenance information is provided in Section 8 of *Austrroads Part 14* and in Cycle Note C8 – *Maintaining cycling facilities*.
- monitor and review implementation progress of the LCNP.

It is imperative that the various components of the LCS and LCNP (e.g. planning, design, construction, maintenance, monitoring and review elements) are integrated within a local government's existing corporate, planning and delivery programs. Establishing strong consultative relationships within council's senior executive, planning, engineering, project delivery and communication departments will be critical to achieving infrastructure delivery, building community awareness and developing 'behavioural' programs that seek to achieve increased trips by bicycle.

Legislation for bicycle facilities

Under the *Integrated Planning Act 1997* (IPA), local government can ensure the effective and efficient integration of cycling infrastructure and facilities (including LCNPs) into existing and future development, road systems and public transport networks. This can be achieved via the inclusion of cycling infrastructure into Infrastructure Charges Schedules. Cycle Note A3 – *Funding mechanisms for cycling infrastructure* and the Queensland Transport *IPA Guidelines* provide information on this issue. Relevant information is available at the Queensland Transport planning and projects website <http://www.transport.qld.gov.au>.

Integrating the Local Cycle Strategy and Local Cycle Network Plan into local government programs

Once the LCS and LCNP development is complete, the next stage is to comprehensively integrate the planning, design, construction and maintenance elements of the plan into the overall schemes of the authority. This includes the following:

- incorporate the LCNP map into the planning scheme
- use this plan as the basis to develop assessment and infrastructure charges
- development of an ICP for cycling facilities
- ensure that the works program (which identifies priority, timing, resources and funding requirements) supports those projects indicated in the LCNP.

Other references

1. Roads & Traffic Authority (2002), *How to Prepare a Bike Plan*, Sydney, New South Wales http://www.rta.nsw.gov.au/trafficinformation/downloads/bicycimpro_dl1.html.
2. Queensland Transport (1998) *Shaping Up: A Guide to the Better Practice and Integration of Transport, Land Use and Urban Design Techniques*, Main Roads/Queensland Transport, Brisbane.

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