

## **National Cycle Touring Routes: Some Thoughts on Where to Go from Here**

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### **Introduction**

Historically in New Zealand, cycle planning has focused on short-duration local trips, largely urban in nature. This is perhaps understandable given the relative lack of cycle facilities even today in our major towns. However, as the momentum in this country begins to address these issues, it is perhaps time to turn our attention more to the longer-distance trips.

Long-distance cycle routes can play a number of important roles:

- They can allow cycle tourists to travel around the country from centre to centre
- They can allow recreational cyclists to make day-trips
- They provide training runs for competitive sport cyclists
- In some areas they can also provide some utility links e.g. commuters between neighbouring towns

In the cycle tourism area in particular, the development of national touring routes can help to expand what is already a relatively popular activity. It is significant to remember that, in developing their first cycle touring guide, Lonely Planet chose to highlight New Zealand.

The experience of the Danube Cycle Route in Austria has shown that cycle tourism offers a tremendous potential for generating tourist traffic, with cyclists accounting for up to 90% of overnight stays and contributing \$90 million a year in economic benefits. The instant success of the Sea to Sea Cycle Route in northern England has proved the great potential for creating completely new tourist traffic with a surge of small-scale job opportunities.

This paper summarises some of the key issues facing this country if it wants to progress long-distance cycle touring from a haphazard pastime to a deliberately targeted activity. A key to this advancement is the development of national cycle touring routes.

### **Overseas Cycle Networks**

It is pertinent at this point to consider what has been done elsewhere overseas. Not only will this help to justify investment here, but it will also highlight ideas worth trying here.

Europe is a particularly good place to start. National cycle networks are already in place in several European countries, with much development having taken place over the last 15 years. Some countries have quite extensive networks of long-distance routes, for example Germany (48 main routes plus local networks covering 40,000 km) and Austria (30 routes covering 4,000 km).

The UK National Cycle Network is a safe, attractive, high-quality network for cyclists and pedestrians. Developed by the Sustrans organisation, it was officially opened in June 2000, with work still continuing. It offers 8,000 km of continuous routes, including traffic-free and traffic-calmed sections, and minor roads. The routes run right through urban centres and reach all parts of the UK, providing safe links to work, schools, shops and stations. This is the first stage of a larger network that will eventually pass within 2 miles of half the population.

In 1995 the "Cycling in Switzerland" Foundation was founded with the aim of realising a national cycling network within the framework of a "Public/Private Partnership" by 1998. Government, railways and tourism groups collaborated to plan and construct the routes. Nine national cycling routes, totalling 3,300 km, link all the Swiss regions and are uniformly signposted. The network is supplemented by over 3,000 km of regional routes.

In 1989 the first signposted Dutch national cycle route was inaugurated; the 270-km LF1 Noordzeeroute ("North Sea Route"), running from the ferry port of Den Helder to the Belgian border. The Stichting Landelijk Fietsplatform (a Dutch cycling organisation) has now designed a network of long distance "LF" cycle routes throughout the Netherlands with a total length of more than 6,000 km.

Eleven of these LF-routes have already been signposted in both directions and more routes will follow in the near future.

Some countries are, like us, still largely at the drawing board stage. The proposed Bicitalia (Italian national cycle) network comprises some 12,000 km of national cycle routes. Although quite a demanding target, in the opinion of FIAB (the Italian national bike federation) this is the minimum framework to cover the whole country. The network consists of a series of north-south routes, crossed by routes running east-west from coast to coast, and these routes are based on existing local and regional routes wherever possible.

The "EuroVelo" project is a proposal put forward by the European Cyclists' Federation (ECF) to develop a European Cycle Route Network spanning the whole continent within a time scale of some 15 years. Whilst designed for holiday cyclists from abroad, the network would also cater to local cyclists, for both utility and recreational purposes. Supporting funders include government transport and tourism agencies, local authorities, and cyclist organisations.

A working group within the ECF has produced an initial proposal comprising 12 pan-European routes. Linking all European countries, this network would be largely based on existing and planned routes at a national, regional and local level. The opening of the first route was in 2000, with the aim to open a new route each year until 2011. Routes would be opened on attainment of a "satisfactory" level but a process of incremental development would thereafter ensure the continual improvement of the network.

In the US, there is a large movement for the development of disused railway lines. Founded in 1986, the Rails-to-Trails Conservancy is the nation's largest trails organisation with 100,000 members, dedicated to creating a nation-wide network of public trails from former rail lines and connecting corridors. There are more than 18,000 km of multi-use trails in the United States operating on rail corridors no longer used by trains. In addition, over 800 km of trails alongside active railways have also been developed. Another US network promoted by the Adventure Cycling Association has over 39,000 km of on/off-road routes, starting in 1976 with the TransAmerica Bicycle Trail.

Closer to home, the Bicycle Federation of Australia (BFA) are planning to develop a Regional Australian Cycling Network. Many existing local and regional routes would be combined with other potential routes to create a nation-wide network that could then be promoted via various media (e.g. maps, internet). Long term it is hoped that further infrastructure and consistent signage could be developed.

Although it is very encouraging and inspiring to see what has been done elsewhere, it is also important to remember some of the crucial differences that make New Zealand different. For a start, New Zealand has a relatively lower population base, certainly given the size of the country. This makes it all the more difficult to obtain the resources to develop our own networks. It has also affected the development of our national roading system, meaning that we do not always have the opportunity to separate cycle traffic from high-speed heavy traffic volumes, in the same way that overseas motorway networks can. We are also not blessed with an abundance of disused canal towpaths or abandoned railway lines. The concept of routes alongside active railways, as used in the US, however deserves further investigation.

While these things do not help, they certainly shouldn't have us out for the count. Better co-ordination of effort can somewhat overcome these hurdles and, at worst, a "slowly but surely" approach is better than none.

### **Assessment of Demand**

Before going a long way down the track, many potential funders are likely to want to know how big the potential demand is out there for cycle touring routes. When it comes to prioritising development of different routes, this information will also be important. Although a "build it and they will come" approach would be enlightening, it is worth considering how this demand can be identified.

Counting techniques for cyclists have been very limited in the past, particularly away from urban areas. More and more roading authorities are now carrying out intersection and link counts of cyclists, invariably by manual observation. Manual surveys however are less likely to be very practical on rural links where cycle numbers may be relatively low and sporadic.

Automated count surveys would provide the most efficient solution. However it is not clear whether it is possible to accurately identify cyclists correctly using conventional tube count techniques. One possible approach may be to only extend the tubes slightly beyond the shoulder and eliminate any vehicles that do not fit the required speed and length profile. Properly tuned in-ground loops could provide a better long-term solution, however their cost is not likely to be justified until temporary surveys have established numbers. More work is required in this quite technical area.

Another approach is to carry out moving traffic counts whilst travelling along sections. By counting the number of bicycles observed in both directions and assessing the typical speeds of both the observer and the cycles, reasonable estimates of volume can be derived. This approach has the advantage that it can be carried out while the traveller is on their way to other business, eliminating additional costs.

Irrespective of the method used, some of the big problems with cycling data are the seasonal/temporal variations of counts. Overseas studies have found daily variations up to  $\pm 50\%$  of the mean flow at some sites, especially where numbers are relatively low. More research is needed in this area to identify how much surveying is required to get accurate pictures of cyclist use.

Since the tourist industry is a key contributor to the numbers of cyclists on long distance routes, some feedback from them may provide useful information. Cycle tour operators for example may be able to identify popular routes (and seasons) that can then be surveyed to confirm the actual numbers.

The International Visitors Survey (IVS) provides a comprehensive source of information for understanding international visitor behaviour. Face-to-face interviews are conducted at Auckland, Wellington and Christchurch international airports to over 5000 departing visitors each year. The IVS can tell us where visitors go and how they get there, the types of accommodation experienced, what activities they participate in, and how much they spend on their visit. Data from the five most recent quarterly surveys suggest that approximately 5-6000 international travellers each year are cycling at some stage of their trip. However some caveats must be considered with this data. Firstly, the numbers are extrapolated from a fairly small sample; it would appear that only about 20-30 people surveyed would have actually listed cycling. Secondly it is not clear whether this includes some recreational cycling, such as mountain biking or short-term hire cycles like Wellington Harbour's "crocodile bikes". Finally these numbers miss out on the substantial numbers of New Zealanders touring their country, no equivalent domestic surveying appears to be carried out.

Tourism New Zealand carries out a number of targeted studies, such as recent ones on backpackers and skiers/snowboarders. It is significant however that cycle tourism does not appear to have been investigated in recent times, and may present a useful research opportunity.

Another approach to assessing demand is to look at what routes are being recommended. The recent Lonely Planet cycle touring guide of New Zealand provides over 30 detailed routes, scattered around the country. It would not be surprising to expect that these routes would experience some growth in future years as a result of this publicity.

Finally, it is important to remember the probable hidden or "latent" demand for cycle routes if they provided a good consistent level of service. Like motor traffic, cyclist numbers can only be expected to grow with improved facilities. Various demand estimation techniques for cycling are starting to become widely recognised. For example, comparisons can be made with counts on equivalent existing routes, adjusted to allow for local parameters.

### **Identification of Routes**

Having identified a demand for a cycle link between destinations, work is required to identify the most optimal route. A number of factors should be considered:

- Routes should ideally link with significant tourist or historic sites along the way
- Routes should provide regular links to accommodation and other service facilities
- Routes should avoid high-speed high-volume highways where there is a reasonable alternative
- Routes should avoid where possible difficult terrain such as long up-grades and unsealed sections
- Routes should make maximum use of existing facilities (e.g. existing roads & bridges, railway and river corridors, off-road tracks & paths) to minimise cost and environmental impact

In many parts of New Zealand, there is a lack of alternative routes to the State Highway and so this may dictate the general route alignment. In other places there may be more suitable parallel routes on

local roads or perhaps off-road tracks. One potential source of off-highway routes would appear to be the service tracks that run adjacent to much of the national rail network.

Although ideally routes should be sealed, it may be very useful in places to make use of unsealed roads and tracks. Certainly, some riders prefer the more rugged approach! Well-maintained unsealed surfaces can provide almost an equivalent level of service to sealed routes. However, such sections should be adequately warned about and alternative (sealed) route information provided.

It is important when routes approach major towns that clear linkages are provided both into and through the urban area. Given the additional traffic and side roads, safe and well-signed routes to key locations (such as accommodation, tourist information, and transport terminals) are a must. Co-ordination of public transport services with cycle touring will also help, especially for more difficult sections of the journey.

### **Required Improvements**

In many cases, much of an existing route is already physically in place. What is needed however are often relatively minor improvements that will provide a more consistent route to the cyclist. Cycle route designers should be mindful of the five guiding principles of Coherence, Directness, Attractiveness, Safety and Comfort.

For on-road routes, particularly with high traffic volumes, adequate lane and shoulder widths are very important to cyclists. It is important to remember that wider shoulders also benefit motorists by providing emergency pull-over space, reducing run-off-the road crashes and minimising edge maintenance costs.

To accommodate bicyclists, a minimum paved shoulder width of 1.2 m should be provided, and preferably 1.5m. Wisconsin Department of Transportation's Rural Shoulder Policy for example suggests that segments of highway having a current Average Daily Traffic in excess of 1000 vehicles and consistently carrying bicycle traffic of 25 or more per day (two-way) during the normal bicycling season shall have shoulders sealed to 1.5m width. Wider shoulders are also important on steep uphill grades (>6%) where cyclists may be more inclined to weave.

Where adequate width cannot be provided easily, warning signage should alert motorists to the possible presence of cyclists. One innovative system used in the US through sections of narrow highway is to provide push-button devices that cyclists can activate when passing. These provide a more active warning (e.g. flashing lights) for a period of time, so motorists know that cyclists are in the vicinity.

In some cases, a connection will need to be constructed to link two adjacent route sections. This could involve a river crossing or short track between roads. Although they are often the most expensive part of developing cycle routes, they are crucial to providing that overall connectivity and must be planned for. Negotiation with private or government land-owners may be necessary.

Bridges often present some of the most difficult barriers for cyclists, either through their narrowness or non-existence. Some possible treatments include:

- Install pre-fabricated structures for small crossings
- Recycle disused road/rail bridge structures
- Provide a lightweight crossing in conjunction with utility (pipe/cable) bridges
- Make alterations so that cyclists can use an existing footpath on a bridge
- Re-mark the road to provide narrower traffic lanes with adequate shoulders
- Provide warning signage and/or ban overtaking on the bridge
- Add clip-on lanes to the bridge sides for cyclists and pedestrians
- Provide alternative routes via sealed fords across generally dry channels
- Widen the existing bridge carriageway (perhaps in conjunction with strengthening projects)

An excellent example of a recent bridge solution was the construction of an off-road bridge link across the Manawatu River on SH1 south of Foxton. This traverses the floodplain to a simple bridge over the small main channel, avoiding the narrow 1-km highway bridge.

Cyclists travel at a slower pace than motorists and use up a lot of personal energy along the way. Because of this, it may be important to consider the appropriate spacing of rest areas and water

facilities on long sections without intermediate towns. These should be adequately sign-posted on site and in advance, as well as being identified on cycle touring maps.

An attractive system of route signage can enhance the understanding of cycle route networks. National routes in particular should have signing standards equivalent to that found on State Highways. Some signage conventions to consider include:

- Development of route numbers that can be displayed on all relevant signs and documentation
- Orientation panels at terminal points and major crossroads *en route* to give information on the various national and regional cycling routes in the area
- At intersections, distance and direction details given in addition to the route symbol
- Repeating route symbols at regular intervals between junctions to confirm correct direction and inform of distances left to destinations
- Advance warning of an imminent change of direction or intersection
- Altitude difference panels to give advance information on significant uphill stretches

A national route numbering and signing system would be enhanced by the production of route guides and maps that also use these conventions.

### **Who will pay for and look after?**

As with anything in this world, funding and resources are needed to make things happen. The multi-faceted nature of national cycle routes opens up a whole range of possibilities, certainly based on what has happened overseas. Some possible avenues for funding and/or other resources include:

- Transfund New Zealand, Transit NZ and local road controlling authorities
- Vote Tourism, national tourism associations and the local tourist industry
- Department of Conservation (DOC), Hillary Commission and other “active leisure” organisations
- Private company sponsorship, e.g. Tranz Rail, local businesses in the area
- Local cycle groups (sports, recreational, advocacy) and cycle retailers
- Levies on cycle tourists or bicycle purchases
- Employment/work schemes
- Public donations, National/Local Trusts, e.g. Lotteries Commission
- Environmental/conservation organisation grants
- Accommodation and hospitality associations, e.g. Youth Hostels, Camping grounds

Although it is encouraging that so many potential sources can be identified, it also highlights a problem of co-ordination. Unlike some undertakings, there is no clear champion to lead the development of national cycle routes. Therefore either an existing body has to take on this additional responsibility (e.g. Transit NZ, as part of its role in providing national road transport routes) or a new entity has to be created to oversee the role of the others (e.g. like Sustrans in the UK). The latter is probably preferable to enable the focus and momentum to be maintained, but it will require the full acceptance of the various other agencies to have any credibility.

Cycle routes, particularly off-road ones will require ongoing maintenance. It is important that responsibility for this is also agreed upon when negotiating development of routes. A number of the above agencies are likely to be able to assist, particularly if they can see the long-term benefits to them.

### **Coast-to-Coast Cycle Route – An Example**

Recently an initial concept meeting was held in Christchurch to discuss the possibility for a Canterbury-Westland cycle route. It is envisaged that ideally this corridor should be away from the main vehicle route, SH73. While further work is required to progress this idea further, some possible thoughts are presented below.

The trip over the main divide provides a number of opportunities for various route options, including:

- Use of local roads parallel to SH73 on the Canterbury Plains
- Development of tracks on farmland near Broken River
- Following the Tranz Alpine rail line via service tracks near Craigieburn
- Use of DOC land for paths near Arthurs Pass
- Following the old zigzag route near the Otira viaduct
- Following the quieter road via Lake Brunner/Moana

- Widened State Highways where other options are not feasible

It is clear from this that a number of parties would need to be involved to finalise and help develop such a route, including Transit NZ, local authorities, DOC, Tranz Rail, and private landowners. Local funding, such as the Canterbury Community Trust, is also likely to assist the rapid development of the route. Another possibility is to create a circuit returning via Lewis Pass, which is one of the routes suggested by the Lonely Planet guide.

Initial reaction has highlighted the need for this route to contact as many communities and points of interest as possible. There is clearly support for the concept and the next steps are to identify an initial investigation team, seek further public feedback and confirm the feasibility of the project.

### **Local Initiatives, Present, Proposed and Possible**

When looking around New Zealand, a number of other potential cycle routes appear promising. Some are already complete in terms of infrastructure; it is simply a matter of incorporating them into a wider network. Others are just figments of the imagination at this stage, requiring a lot of work to turn them into reality.

The most celebrated recent cycle route is the Otago Central Rail Trail, officially opened in 2000. It uses a disused railway line to traverse the 150 km between Middlemarch and Clyde. Cyclists, walkers and horse trekkers have taken to the route with much enthusiasm, and it has provided many of the small communities along the way with a much-needed economic boost.

In Northland, a Cycle-Walkway Network is being developed in conjunction with local authorities, DOC and local employment groups. The first stage proposed is planned for the coast just north of Whangarei, providing a link between existing local roads.

Other links could be developed further to eliminate key pinch-points for inter-regional routes. In some cases they would provide off-road routes not possible for motor traffic, adding to their attractiveness. Suggested possible links worth investigating include:

- Cyclist access across the Auckland Harbour Bridge
- Wellington to Wairarapa via the Rimutaka Incline and Baring Head, bypassing SH2 (Rimutakas)
- Wellington to Waikanae via Akatarawa valley, bypassing SH1 (Pukerua Bay)
- Golden Bay to Karamea through North-West Nelson National Park
- Nelson to Pelorus Bridge via the Maungatapu power pylon track, bypassing SH6 (Whangamoas)
- Rainbow Valley (Nelson Lakes) from St Arnaud to Hanmer Springs
- South of Kaikoura to Conway River via railway service track, bypassing SH1 (Hundalees)
- Haast to Hollyford through Fiordland National Park

As evidenced elsewhere, it is clear that not only will such links assist cyclists on their journeys, but are also likely to enhance the economic wellbeing of the surrounding districts and New Zealand overall.

### **Useful References/Websites for Further Information**

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- German tourism biking information: <http://www.germany-tourism.de/e/biking.html>
- Swiss national cycling network: <http://www.cycling-in-switzerland.ch/frameset.html>
- Cycling in Holland: <http://www.tribute.nl/nbt/fietsen/>
- Bicialia proposed Italian cycle network: <http://www.fiab-onlus.it/english/bicitale.htm>
- Rails-to-Trails Conservancy (US): <http://www.railtrails.org/>
- Trails and Greenways Clearinghouse: <http://www.trailsandgreenways.org/>
- Adventure Cycling's US National Bicycle Route Network: <http://www.adventurecycling.org/routes/>