道路安全研究小組
Community for Road Safety

Improvements to Existing Cycle Tracks and Cycle Parking Facilities in New Towns and Review of Existing Bicycle Prohibition Zones - Feasibility Study

Comments

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This document was prepared as an initial contribution of ideas to the study being conducted by Transport Department. The Community for Road Safety (CRS) looks forward to participating as a key stakeholder throughout the study, in particular, from the road safety point of view.

Bicycle Injury Analysis

The project introductory paper indicates that the Consultants will study bicycle-related accidents on carriageways. This is agreeable as carriageway-related accidents tend to be more severe, but cycle track accidents also contributed to 37% of KSI in 2012 (TD Road Traffic Accident Statistics). On the other hand, single bicycle accidents accounted for 66% of all bicycle-related casualties and 61% of KSI (Killed or seriously injured) in 2010 (CRS analysis of TRADS data). Overall, cyclist KSI is on a sharp rise in the past few years. There is an urgent need to further understand the circumstances and mechanisms of all types of bicycle casualties and to develop effective improvement measures.

Recommendations

1. Expand the study of bicycle-related accidents to cycle tracks in the last three years for justification and priority of measures
2. Study accidents from new perspectives e.g.

- Single bicycle accidents
- Relationship with roadside obstacles
- Relationship with vehicle speed profile and heavy vehicles
- Bicycle speed profiles

The “Forgiving Roadside” Principle

The majority of bicycle accidents result in cyclists falling off onto the travel ways or over their edges. Injuries may result from cyclists impacting onto the ground surface or protruded objects. Such injuries could be severe e.g. disfiguring lacerations, fractures, head injuries. Notable fatal accidents include a cyclist impacting onto the headwall of a bicycle tunnel in Tseung Kwan O and another cyclist colliding onto a lamp pole at a cycle track roundabout in Ma On Shan. A “forgiving roadside” can help to minimize the severity of such injuries.

For motor vehicle highways, a “forgiving roadside” generally consists of a “clear zone” free of “aggressive features” or else appropriate safety barriers. In fact, the concept has become a regular requirement for highways (e.g. Roadside Design Guide (AASHTO); TD19/06 UK Department for Transport). The general approach in order of preference is:

1. Remove the aggressive feature, especially at high risk sites
2. Redesign the feature so that it can be safely traversed
3. Relocate the feature or provide a larger clearance to reduce the probability of an impact
4. Reduce impact severity with an energy absorbing device
5. Shield the feature with an appropriate safety barrier
6. Delineate the feature where the other alternatives cannot be applied

It is understood that out of the previous study completed in 2013, this subject was given attention to a certain extent including usage of frangible plastic bollards around crossings and soft landing materials or cushion protection at sharp bends/steep gradients. These initiatives are very important yet insufficient as bicycle fall accidents are by no means restricted to sharp bends or steep gradients. Our general inspections reveal a far wider range of aggressive features with no or minimal clearance from the edge of cycle tracks e.g.

- Drainage features including U-ditch and catchpit
- Utility boxes
- Lamp poles/Traffic signs posts
- Railings under certain conditions
- Bicycle tunnel headwalls


Lamp pole on the central island of a cycle track roundabout (left)
Protruded catchpit at the bottom of a long descent with a bend (right)

Headwall of a bicycle tunnel (left)
U-channel and catchpits (right)

Recommendations

- Expand and develop a comprehensive strategy of forgiving roadside for existing and new cycle tracks for incorporation into the TPDM
- Accordingly reduce or treat aggressive features on existing cycle tracks in priority of risk

Cycle Track Junctions and Crossings

Current provisions are based on the following arrangements:

- Traffic signal pedestrian crossings
- Cautionary pedestrian crossings
- Access/run-in crossings

Some crossings are bent into the side road to improve the visibility of turning vehicles. With the exception of minor accesses, these crossings invariably require cyclists to dismount, presumably to ensure safety. This poses a problem as some cycle tracks are interrupted frequently by junctions and accesses and this becomes a nuisance for cyclists. As it is not uncommon to see cyclists crossing without dismounting, such arrangements are not always safe by themselves in the absence of traffic calming measures for motor vehicles, e.g. gateway raised tables, raised tables, additional give-way lines or similar. Furthermore, visibility is not always assured between side road traffic and cycle tracks.

Recommendations

1. Investigate and implement measures to improve safety at crossings based on physical traffic calming measures as well as additional give-way lines, and where appropriate improvement of sightlines. It is though admitted that the dismounting rule will still need to apply on busier traffic routes if safety cannot be assured.
2. Give attention to sites other than crossings where high speed cyclists tend to mix with leisure cyclists, pedestrians or other slow speed users.

Missing Links and On-street Cycling

In Tseung Kwan O, bicycle parking is systematically provided at the terminations of cycle tracks and at interface with district neighbourhoods. The situation in Yuen Long is different as bicycle parking is extensively distributed within the old town remote from the cycle track system. At Tai Po Industrial Estate, bicycle tracks serve the periphery but no parking is provided.

Despite the current policy not to encourage on-street cycling, it must be admitted that on-street cycling is a reality and there is a need for destinations beyond the cycle track system. On-street cycling may be broadly classified into the followings:

- Regular cyclists extending their journey on cycle tracks to urban streets or even major roads (e.g. Yuen Long town; Luen Wo Hui; residential districts)
- Commuter cyclists extending their journey on cycle tracks to industrial/business access roads (TKO/YL Industrial Estates; Fanling industrial zone)
- Regular cyclists extending their journey on cycle tracks to village access roads
- Leisure cyclists on missing links
- Experienced cyclists on all types of roads

Recommendations

1. Complete important cycle track itineraries as a priority e.g. Tai Po Waterfront Park towards Plover Cove Reservoir. Possible routes include a new cycle track along the dual 2-lane Tai Kwai Street or passage through/around the restored Shuen Wan Landfill
2. Study cycling needs for ongoing journeys using village roads and develop strategies

based on traffic calming measures

3. Study the need for connection and traffic calming on existing leisure itineraries e.g. North Lantau shorelines, Tsim Bei Tsui.
4. Where necessary collaborate with other Government Departments, notably WSD (e.g. Plover Cove Reservoir dam), DSD (e.g. Kam Tin River Channel) to increase leisure cycling itineraries and to enhance their safety

Unused access road at the Shuen Wan Landfill (left)
Tai Kwai Street in the Tai Po Industrial Estate (right)

Lower Speed Limits and Traffic Calming on Urban Streets

The 2003 Cycling study recognizes that the envelope of traffic speed and flow in Hong Kong is not suitable for on-street cycling and that traffic calming would be needed if on-street cycling is encouraged. To date, the situation of traffic speeds and flow on urban streets and roads remain similar.

In the past few years, CRS has been promoting area-wide lower speed limit zones and traffic calming *http://www.civic-exchange.org/wp/wp-content/uploads/2013/05/130507S2_1_Julian.pdf* , for reasons of pedestrian safety and a more attractive walkable road environment. It is now clear that such policy would also be critical for the safety of any cyclists who are already using urban streets and roads for one reason or the others. It is not the intention of this article to discuss the wider issues of on-street cycle facilities or the promotion of on-street cycling, but this does not prevent the need to urgently establish a safer cycling environment for those already cycling on the streets. In our opinion, there is no question for area-wide lower speed limit and traffic calming in Hong Kong and this will also enhance the safety of cyclists. Furthermore, measures which help to increase the safety margin of on-street cyclists should not be precluded.

Recommendations

Although this topic touches on a much wider policy for pedestrians and cyclists and possibly beyond the scope of this study, it is still considered highly relevant to take this opportunity to improve the safety conditions of cycling where cycle tracks end and cyclists will continue their journeys on roads and streets.

1. Provide traffic calming measures including lower speed limits i.e. 30km/h for minor streets/40km/h for more major streets/20km/h for shared surface, raised tables etc where cyclists unavoidably mix with or cross traffic
2. Provide additional margins of safety e.g. additional shoulders, bicycle climbing lanes, refuges etc where cyclists unavoidably mix with traffic

Traffic Signs and Markings

A number of measures based on signs and markings were recommended in the 2013 study and tested in Tai Po. These include warning signs for bends and pedestrians, chevron bend signs, frangible bollards and coloured surface pedestrian crossings etc. These measures are generally well conceived and desirable. Nevertheless, it should be cautioned that some of these are not without disadvantages and therefore their use should be vigorously reviewed before widespread applications. Important issues are:

- Closely spaced large chevron bend signs equated to those used on expressways causing substantial visual impacts
- Traffic sign posts being themselves hazards
- Excessive image of a highway encourages cyclists to speed up on cycle tracks not designed for such purpose
- Over-borrowing of signs and markings from motor vehicle highways could diminish the visual attractiveness of cycle tracks, especially when used for leisure purpose

Recommendations

1. Use a limited number of a smaller version of chevron signs commensurate with the level of hazard
2. Provide only basic traffic signs positioned with a larger clearance e.g. 900mm
3. Study alternative lighter mounting posts e.g. aluminium
4. Foster the concept of appropriate bicycle speeds and behaviour for different cycle track types

Directional Signing for Cycle Tracks

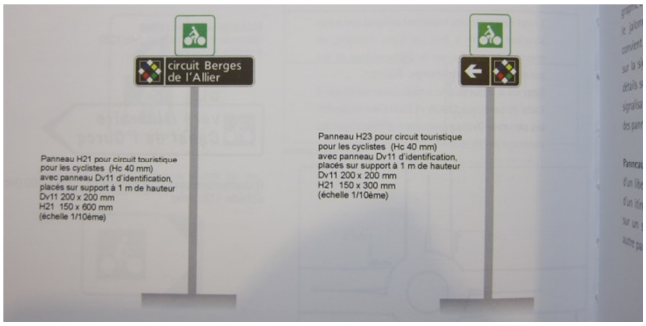
Directional signing and map boards play a major role in the cycle track network. To date a basic system exists with extension for the NT cycle track network. With further expansion of the cycle track network, it is important to provide adequate and timely information to cyclists. It is hoped that a new system is already planned or underway. We see current issues being:

- Lack of design rules to assign destinations of different hierarchy or itineraries
- Lack of graphic designs to distinguish destinations of different hierarchy
- Lack of a master signing plan

Recommendations

1. Study destination hierarchy, itineraries, selection and assignment rules and master plans of bicycle routes directional signs.
2. Incorporate into graphics design a method to distinguish different destinations e.g. through font types (normal, italics etc) or colours

Example of bicycle directional signs with hierarchy based on upper case and italic fonts



Example of Signing of tourist circular itineraries

Bicycle Parking at MTR Stations and Public Transport Interchanges (PTI)

Adequate parking facilities at MTR stations and PTI are necessary for the success of a cycle track network.

Recommendations

1. Provide incentives to the MTR and public transport operators to provide adequate bicycle parking facilities

References

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