

Comments on the design of Streets and Cycleway Network in the Road Works for PWP Item Nos. 7787CL (Part) and 7829CL Hung Shui Kiu/Ha Tsuen New Development Area Advance Works Phase 3 and Stage 2 Works – Site Formation and Engineering Infrastructure

1. Introduction

- 1.1. Street Reset is a collective in support of human-oriented transport planning and street design, founded in 2020 by a group of practitioners and students in the field of transport and urban planning, architectural design and social innovation.
- 1.2. We strive to shape better streets for Hong Kong through our imagination, knowledge and experience from around the world. We advocate for Hong Kong's streets to be designed in such a way that people walking and cycling are treated more reasonably, and that road space is utilised in such a way that can enable a wider variety of convenient and reliable mode choices to the public, aside from private cars and rail transport.
- 1.3. In response to the gazetting process for the road works for the Hung Shui Kiu/Ha Tsuen New Development Area Advance Works Phase 3 and Stage 2 Works – Site Formation and Engineering Infrastructure (PWP Item Nos. 7787CL (Part) and 7829CL) (hereafter NDA Road Works), practitioners within Street Reset who specialise in street design and active travel have gathered and formulated our views and suggestions to the said scheme going forward.
- 1.4. In principle, Street Reset has no objection to the said scheme. However, we have particular concerns with some opportunities identified with the said scheme that should be addressed.

2. Background Principles

Proliferating Active Travel Through Well-Designed Infrastructure

- 2.1. One of the key directions in the upcoming comprehensive Traffic and Transport Strategy Study (“TTSS”) was to “[advocate green and active transport as healthy lifestyles to enhance the public's quality of life and accomplish carbon neutrality and associated policies](#)”. The departure from the traditional perception that cycling in Hong Kong is purely for leisure and recreation is important that cycling should start to be factored in for utility purposes - upon our ever-increasing travel demand with the climate emergency ahead.
- 2.2. We believe that the **Kwu Tung North and Fanling North** New Development Areas, as part of the new Northern Metropolis, would be a crucial ground to realise such a new direction for active travel, which should set an example for other areas for decades to come. It is therefore important for this scheme to be designed to the highest standards for future-proofing paradigm shifts in travel into a more sustainable pattern.

Consideration of Place Function of Streets

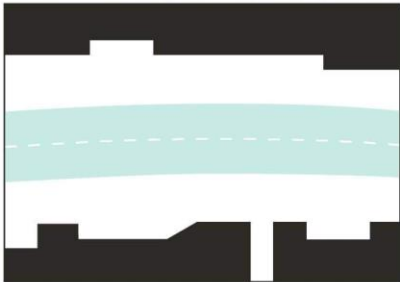
- 2.3. Streets and roads are not only how we get from point A to point B, but also a vital part of the public realm. Hence, streets embody both functions as a ‘link’ and a ‘place’ and it is therefore vital to maintain a comfortable and convenient experience for both walking and dwelling purposes, to allow people to enjoy spending time on the street.

- 2.4. We understand the Transport Department (TD) has adopted the 'link and place' concept through the new Pedestrian Planning Framework released in December 2021 as a result of the Walkability Study. It stipulates the design priorities of streets should be given to both the "link" and "place" functions so as to meet different pedestrian needs.

街道的雙重功能：運輸與場所

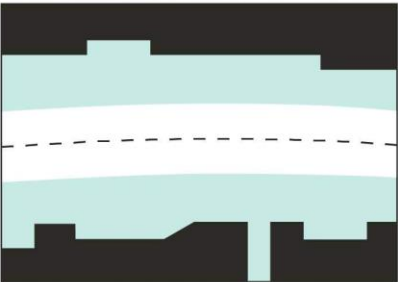
運輸

街道作為道路、供人車通行



場所

街道作為目的地、讓人停留活動



建築物 主要使用者 次要使用者

現時許多街道設計只重視運輸功能、忽略場所功能，行人和街坊淪為街道的次要使用者。

- 2.5. For example, a street having both high "link" and "place" significance may be a crucial pedestrian link as well as a key destination in district centre. Major walkability enhancement measures could be planned for such kind of street to provide a pleasant walking environment whilst accommodating efficient movement of pedestrians.
- 2.6. According to the Framework, walkability enhancement measures such as footpath widening, built-outs or building set-back to increase pedestrian space, provision of building canopies to improve weather protection, low speed limit zone to enhance pedestrian safety, etc. should be considered when applying the link and place concept in the pedestrian planning process.
3. Designing Streets for Walkability, Safety and Humanised Streetscape

Lower Design Speeds on District and Local Distributors

- 3.1. Vehicle speeds are the key determinant of pedestrian safety. Hence, where pedestrian-vehicle conflicts are frequent, it is particularly important to manage risk effectively to maintain 85th percentile speeds below 30km/h through speed limit, physical traffic calming features and a humanised streetscape.

- 3.2. According to the OECD's International Transport Forum (ITF-OECD), the pedestrian's risk of death is about 4-5 times higher in collisions with a car at 50 km/h compared to the same type of collision at 30 km/h.¹ Another study by the UK's Transport Research Lab also found a direct correlation between speed and crash risk - for every 1 mph (1.6 km/h) reduction in average speed on urban roads, there was an average reduction of 5% in the chance of a collision.²

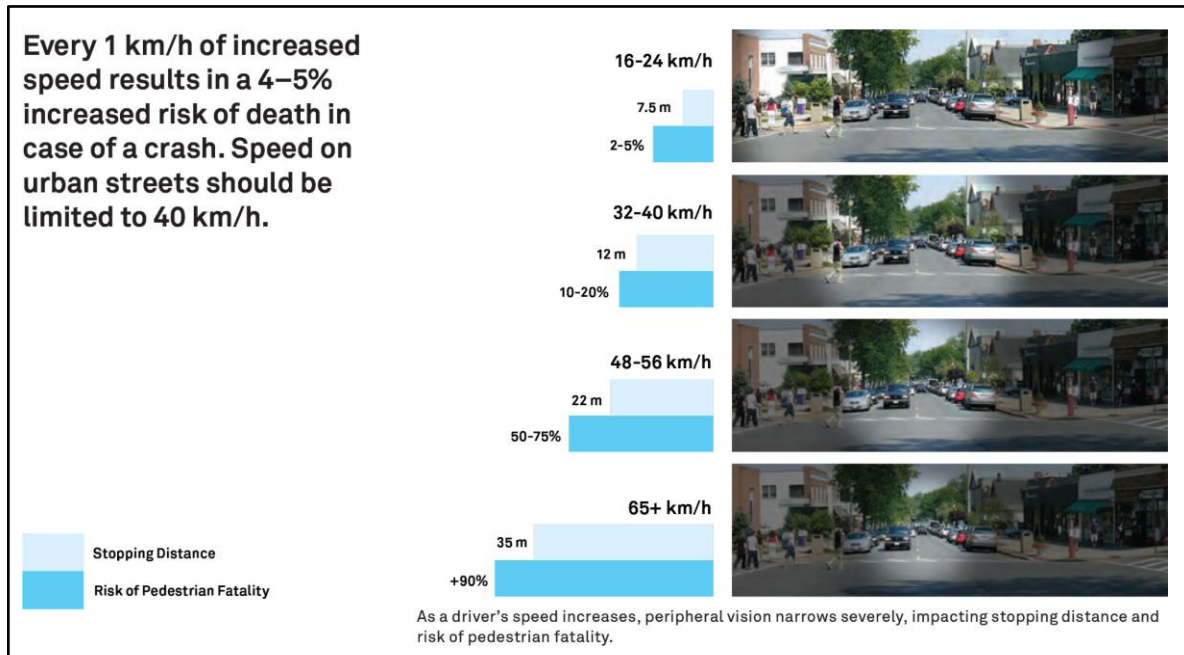


Illustration explaining drivers' diminishing peripheral vision and increasing risk of pedestrian fatality related to vehicle speeds, image from Global Designing Cities Initiative (2016)³

- 3.3. Hence, the concept of area-wide lower speed limits is becoming a worldwide norm. Many major cities, including London, Paris, Tokyo, Singapore, Sydney, New York City and Shanghai, have already implemented large-scale speed reductions (to 30 and/or 40 km/h) in residential areas or areas with high footfall to reduce traffic collisions and pedestrian fatalities. In London, 60% of the streets have implemented a 20mph (32 km/h) speed limit.⁴ Shanghai's Street Design Guidelines published in 2016 also stipulate that minor roads should be implemented with a 30 km/h speed limit.⁵
- 3.4. The TD has also adopted such an approach as part of the new Pedestrian Planning Framework aforementioned, with lower speed limits set to be

¹ ITF-OECD (2018) *Speed and Crash Risk*, <https://www.itf-oecd.org/sites/default/files/docs/speed-crash-risk.pdf#page=15>

² Taylor C, Lynam D C, Baruya A (2000) *The effects of drivers' speed on the frequency of road accidents*, TRL 421, <https://trl.co.uk/uploads/trl/documents/TRL421.pdf>

³ Global Designing Cities Initiative (2016) *Global Street Design Guide*, <https://globaldesigningcities.org/publication/global-street-design-guide/design-controls/design-speed/>

⁴ Transport for London (2022) *London Digital Speed Limit Map*, <https://content.tfl.gov.uk/london-digital-speed-limit-map.pdf>

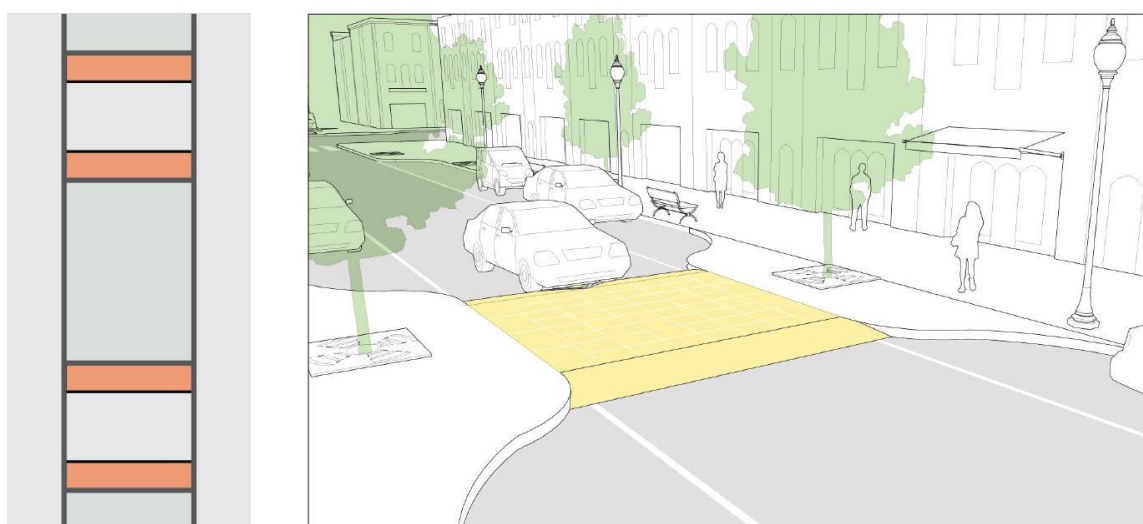
⁵ Shanghai Bureau of Planning and Land Resources (2016) *Shanghai Street Design Guidelines* (Chinese only), <http://files.in5.cn/201906/jiedaodaoze/%E4%B8%8A%E6%B5%B7%E8%A1%97%E9%81%93%E8%AE%BE%E8%AE%A1%E5%AF%BC%E5%88%99%E5%85%AC%E7%A4%BA%E7%89%88.pdf>

implemented in areas within Sham Shui Po and Ap Lei Chau.

- 3.5. To ensure pedestrian safety and walkability of the NDAs, we believe such an approach should also be incorporated in the NDA Road Works from the start to create a truly walkable and safe street environment. District and Local Distributors should therefore adopt the design speed of 30km/h, particularly at the places with high place function and/or footfall, as well as those in proximity to sensitive land uses (such as healthcare facilities, schools and elderly/community centres, etc.).

Managing Vehicle Speeds Through Traffic Calmed Street Design

- 3.6. To manage vehicle speeds effectively, it is important to make the speed limits self-enforcing by installing traffic calming measures where possible. We recommend the NDA Road Works to incorporate raised crossing, road humps and tightening corner radii to reduce vehicle speeds and increase drivers' likelihood to give way to pedestrians.



Raised Table (illustration from GCDI)⁶



A raised table junction trialled in Shum Shui Po and a mid-link raised table zebra crossing trialled in Kai Tak

- 3.7. Lane and carriageway widths should also be reduced wherever possible. We

⁶ Global Design Cities Initiative (GCDI) (2016) Traffic Calming Strategies, Global Street Design Guide, <https://globaldesigningcities.org/publication/global-street-design-guide/designing-streets-people/designing-for-motorists/traffic-calming-strategies/>

are aware that most roads section in the NDA adopts a standard carriageway of 7.3m for two lanes (3.65m for each), as set by the minimum carriageway width specified in the TPDM.⁷ However, plenty of overseas research suggests that such widths are too wide, which can contribute to excessive speeds and negative pedestrian safety impacts.

- 3.8. The *Manual for Street 2*, published by the Chartered Institution of Highways and Transportation (CIHT) and endorsed by the UK Department for Transport (DfT), specifies that lane widths narrower than 3.65m will be appropriate in many circumstances (particularly in built-up areas) as it could encourage low traffic speeds without causing a significant loss of traffic capacity and the carriageways easier for pedestrians to cross.⁸ This is supported by Transport Research Lab's findings about the association between reduced road widths and lower speeds.⁹
- 3.9. Such views are echoed by counterparts in the United States. *The Urban Street Design Guide*, published by the National Association of City Transportation Officials (NACTO), also specifies that lanes greater than 11 feet (3.35 m) should not be used as they may cause unintended speeding.¹⁰ Research also suggests that each additional metre of lane width is related to a 15 km/h increase in drivers' speeds.¹¹
- 3.10. Hence, we recommend that lane widths be reduced to between 3 and 3.2 m in order to make speed limits more self-enforcing. If lane width reduction is not feasible due to local circumstances, the use of special road markings or material to give the appearance of reduced lane width should at least be implemented.

⁷ Table 3.4.2.1 (Minimum Carriageway Widths in Urban Areas), Volume 2, Chapter 3 of the Transport Planning & Design Manual (TPDM)

⁸ CIHT (2010) *Manual for Streets 2: Wider Application of the Principles*, <https://tsrgd.co.uk/pdf/mfs/mfs2.pdf>

⁹ York, A Bradbury, S Reid, T Ewings and R Paradise (2007) *The Manual for Streets: Redefining Residential Street Design*. TRL Report No. 661. Crowthorne: TRL
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/3893/manualforstreetsevidence.pdf

¹⁰ NACTO (2013) 'Urban Street Design Guide', <https://nacto.org/publication/urban-street-design-guide/>

¹¹ Fitzpatrick, K. et al. (2000) 'Design Factors That Affect Driver Speed on Suburban Arterials', *Transportation Research Record* 1751 (2000):18–25.
https://nacto.org/docs/usdg/design_factors_that_affect_driver_speed_fitzpatrick.pdf

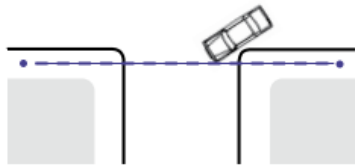


Lane width reduction (illustration adapted from GCDI)¹²

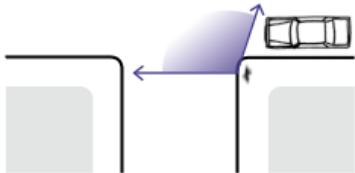
- 3.11. Hence, we recommend that lane widths be reduced to between 3 and 3.2 m in order to make speed limits more self-enforcing. If lane width reduction is not feasible due to local circumstances, the use of special road markings or material to give the appearance of reduced lane width should at least be implemented.
- 3.12. Corner radii of the streets should also be minimised wherever possible. Many junctions in the NDA Road Works show generous corner radii (7 m or wider) to facilitate swift vehicle turning movements. However, such large radii can cause more danger to pedestrians. As vehicles can turn faster (32-48 km/h) compared to smaller radii (16-24 km/h), it can cause more danger to pedestrians, with fast turning vehicles being more likely to cut across crossing movements. Large corner radii also requires deflection to the pedestrian desire lines since it requires detour to minimise crossing distance, as illustrated in Figure 40 below. Pedestrians must also look further behind to check for fast turning vehicles and cannot normally establish priority to cross.
- 3.13. Narrowing corner radii can reduce vehicle turning speeds as well as pedestrian crossing distances. Minimising the size of a corner radius is critical to creating safe and compact intersections.

¹² Ibid, GCDI (2016)

Small radius (eg. 1 metre)

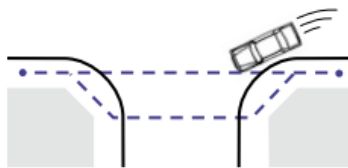


- Pedestrian desire line (---) is maintained.
- Vehicles turn slowly (10 mph – 15 mph).

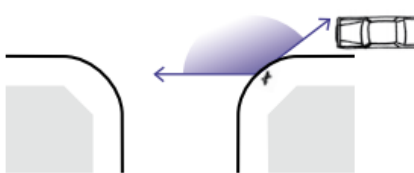


- Pedestrian does not have to look further behind to check for turning vehicles.
- Pedestrian can easily establish priority because vehicles turn slowly.

Large radius (eg. 7 metres)



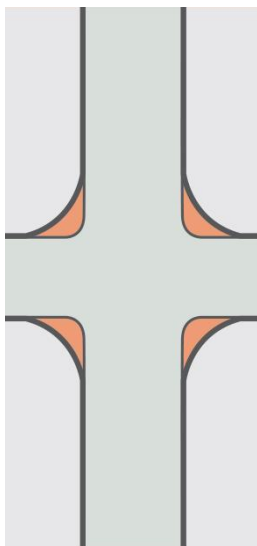
- Pedestrian desire line deflected.
- Detour required to minimise crossing distance.
- Vehicles turn faster (20 mph – 30 mph).



- Pedestrian must look further behind to check for fast turning vehicles.
- Pedestrian cannot normally establish priority against fast turning vehicles.

Devon County Council

Negative impacts of large corner radii on pedestrians (image from Manual for Streets)¹³



Tightening corner radii (illustration from GCDI)¹⁴

Adopt Appropriate Setback to Preserve Street Character

- 3.14. For Local Distributor Roads with streetside buildings which contain businesses and public uses on the sides, the width of street canyons should be limited to an extent where potential street characters can be nurtured. Distant publicly-

¹³ Department for Transport (2007). Manual for Streets. Thomas Telford, London, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/107272/Essex_Manual_for_Streets_Redacted.pdf

¹⁴ Ibid, GCDI (2016)

accessible buildings on both sides of streets may risk the lack of street activity, which is detrimental to economic vibrancy. Understanding fire safety concerns, site boundary lines of the buildings with the aforementioned uses should be within 10 metres from the carriageway without any necessity for additional Emergency Vehicle Access in front of the buildings, which may induce further setback and further undermine the thriving of the streetscape.

4. Cycleway Network Planning and Design Improvements

- 4.1. Despite the more generous geometric standards adopted in the HKPSG & TPDM with regards to cycle track width, and a more comprehensive provision cycle track network in the NDAs, the planning and design of the cycle network can be improved. It is worth noting that cycling standards stipulated in both HKPSG & TPDM are deemed out-of-date and unambitious when compared to international counterparts. We encourage upon taking up concept designs of the work, to use up-to-date international references and best practices to provide for contemporarily high-quality, future-proofing cycle provisions.
- 4.2. For the purpose of this submission, we encourage the reference to the UK Department of Transport Local Transport Notes (LTN) 1/20 Cycle Infrastructure Design.¹⁵ LTN 1/20 is the third generation of guidance in the year 2020 in the UK with regards to cycle infrastructure, superseding the LTN 2/08 (2008) and the earlier suites of LTNs in the 70s & 80s, as early as 1/78 that the current TPDM is still referencing to (as seen in TPDM Volume 3 Chapter 6).
- 4.3. LTN1/20 has stated 5 core design principles, which are: Coherent, Direct, Safe, Comfortable, and Attractive. Inclusivity and accessibility should run through all five of these core design principles, where the infrastructure should be accessible for all, especially the vulnerable.

Junction, Crossings & Traffic Environment

- 4.4. We are aware that cycle tracks in the NDAs are now universally designed to terminate at junctions (like the screenshots provide below), which we believe is an outdated practice and they should be redesigned to provide continuity across junctions or vehicle accesses.



- 4.5. “Giving up at junctions” - i.e. requiring cyclists to give way at every side road it

¹⁵ <https://www.gov.uk/government/publications/cycle-infrastructure-design-ltn-120>

encounter, will affect the directness and coherence of the route and would result in the following two scenarios even if it is less safe:

- Cyclist non-compliance upon junction, i.e. not dismounting as suggested and required without adequate junction treatment
- Cyclist choosing the ride on the main carriageway as it is faster and more direct

4.6. A well-designed facility should not see any discontinuity in the journey as it is highly disruptive. Therefore any instruction instructing cyclists to dismount, especially across junctions is deemed inappropriate. In the UK there is now a paradigm shift moving to use more positive language & instructions instead, say “Cyclist to rejoin carriageway”, “Give way” or simply by design implementing appropriate junction/ crossing interventions.

4.7. The choice of junction/ crossing intervention is subject to the following criteria, as suggested in LTN 1/20 Table 10-2 ([see page 97 of the LTN 1/20](#)):

- Traffic flow across the minor arm
- Traffic speed to and from the major arm
- Number of lanes to cross (i.e. crossing distance)

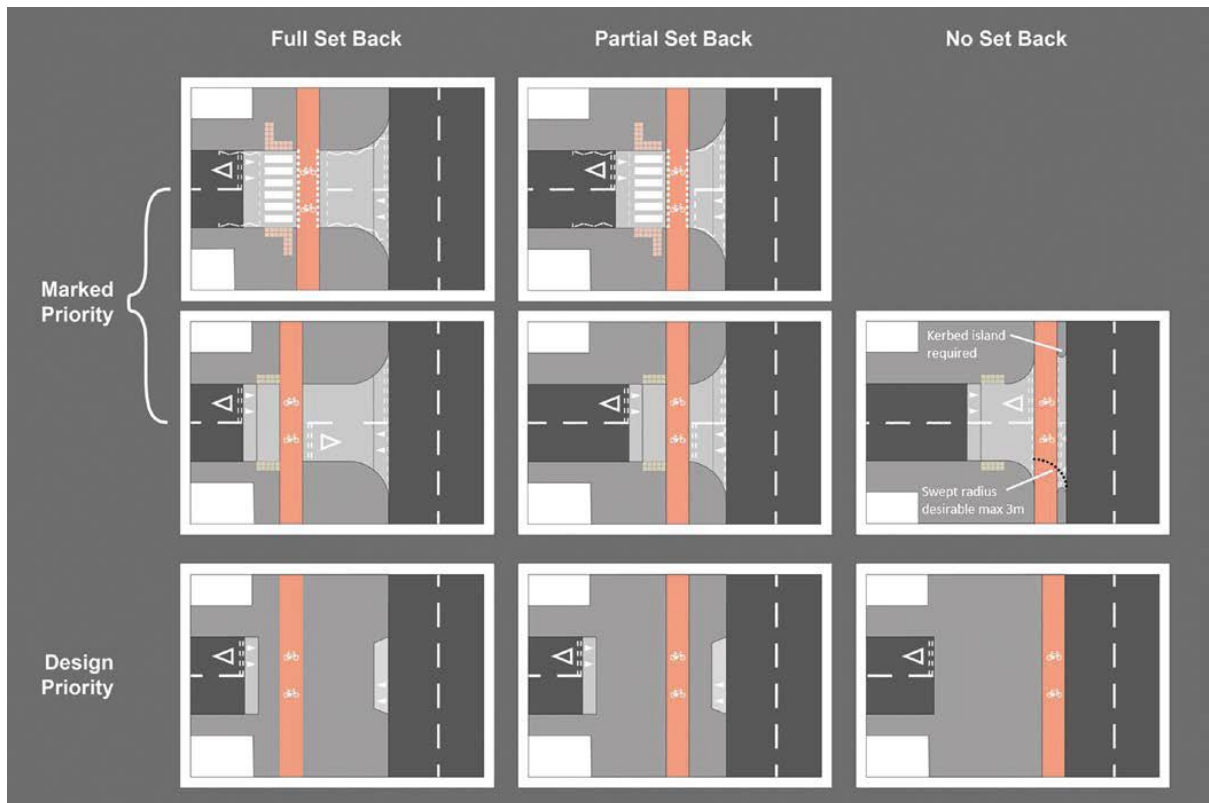
Speed Limit	Total traffic flow to be crossed (pcu)	Maximum number of lanes to be crossed in one movement	Uncontrolled	Cycle Priority	Parallel	Signal	Grade separated
≥ 60mph	Any	Any					
40 mph and 50 mph	> 10000	Any					
	6000 to 10000	2 or more					
	0-6000	2					
	0-1000	1					
≤ 30mph	> 8000	> 2					
	> 8000	2					
	4000-8000	2					
	0-4000	2					
	0-4000	1					

	Provision suitable for most people
	Provision not suitable for all people and will exclude some potential users and/or have safety concerns
	Provision suitable for few people and will exclude most potential users and/or have safety concerns

Notes:

1. If the actual 85th percentile speed is more than 10% above the speed limit the next highest speed limit should be applied
2. The recommended provision assumes that the peak hour motor traffic flow is no more than 10% of the 24 hour flow

4.8. Wherever cycling across sideroads where the minor arm is with quiet traffic and supposedly low traffic speed - for example village/ residential access, a cycle priority across junctions should be implemented to ensure the directness of the track. In the context of Hong Kong where drivers might not be used to interfacing with cycling traffic, a more conservative & protective design for cyclists should be used. We suggest a partial or full setback with marked priority for cyclists, as suggested by LTN 1/20 Figure 10.13 below ([see page 103 of the LTN 1/20](#)):



Integration with Public Transport

- 4.9. To proliferate the use of cycling in the NDAs, secure cycle parking should also be provided at all railway stations, Light Rail stops and Public Transport Interchange (PTI) to facilitate convenience of first-mile-last-mile cycle usage. Secure cycle parking would mean a covered facility with 24-hour CCTV cameras to enhance the security of the parked bicycles (like the picture below).



Cycle Parking Location

- 4.10. To make cycling more convenient in the NDAs, cycle parking should be provided on every street whenever possible. Unlike motor vehicles, cycle parking should not be provided in 'a large amount at few locations'. Rather, they should be provided in an approach of 'small amount at many locations'.

Thanks for your attention.

Street Reset

29th November 2022