Cycling Evaluation Review System
Hoddle Street Planning Study

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Contents

1. Introduction

Aurecon, as part of the Hoddle Vision Team, and as a part of VicRoads Contract 7806 – Hoddle Street Study, undertook a Cycling Evaluation Review System (CERS) audit along Hoddle Street, between Swan Street (Olympic Boulevard) and the Eastern Freeway.

CERS and PERS (Pedestrian Evaluation Review System) are dynamic software applications used to assess and audit the quality of any pedestrian and cycling environment, which can assist in the identification of opportunities to improve pedestrian walking routes, public spaces and cycling infrastructure whilst supporting the effective targeting of resources.

On site audits were undertaken on various days between 22/03/2010 and 14/04/2010. The area between Swan Street and Alexandra Parade has been investigated, as well as the routes to local train stations.

Hoddle Street was found to be dominated by vehicles, which generally creates an uninviting environment for pedestrians, cyclists and other users. The lane configuration along Hoddle Street varies from three to four lanes in each direction, turning lanes, bus lanes and kerbside parking. Also, Hoddle Street intersects with Swan Street, Bridge Road / Wellington Parade and Victoria Parade, which have through tram lines running east-west across Hoddle Street.

The following figure displays the sections, or ‘links’ that were assessed.

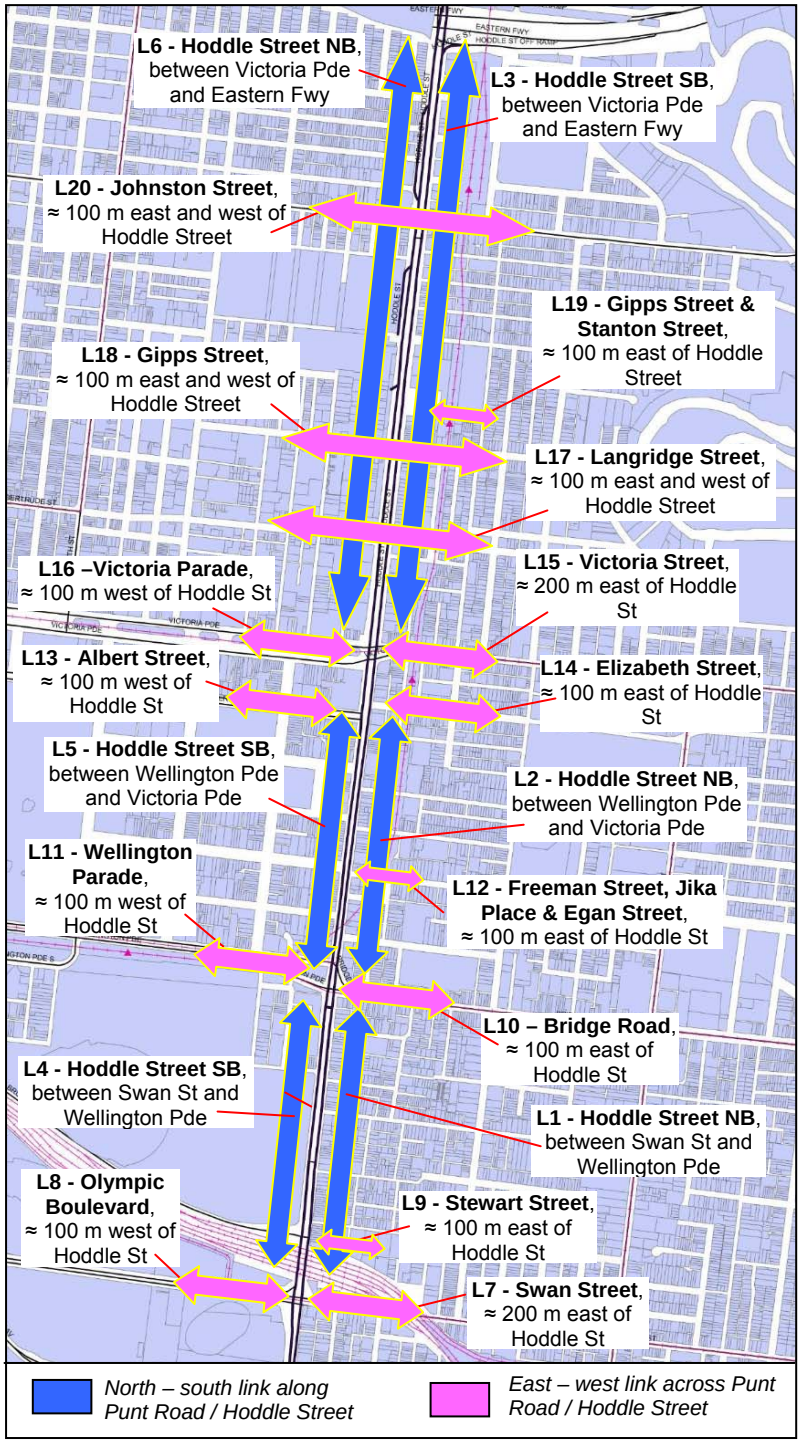


Figure 1-1: Study area and links assessed. Note that the links shown are not to scale and are for diagrammatic purposes only.

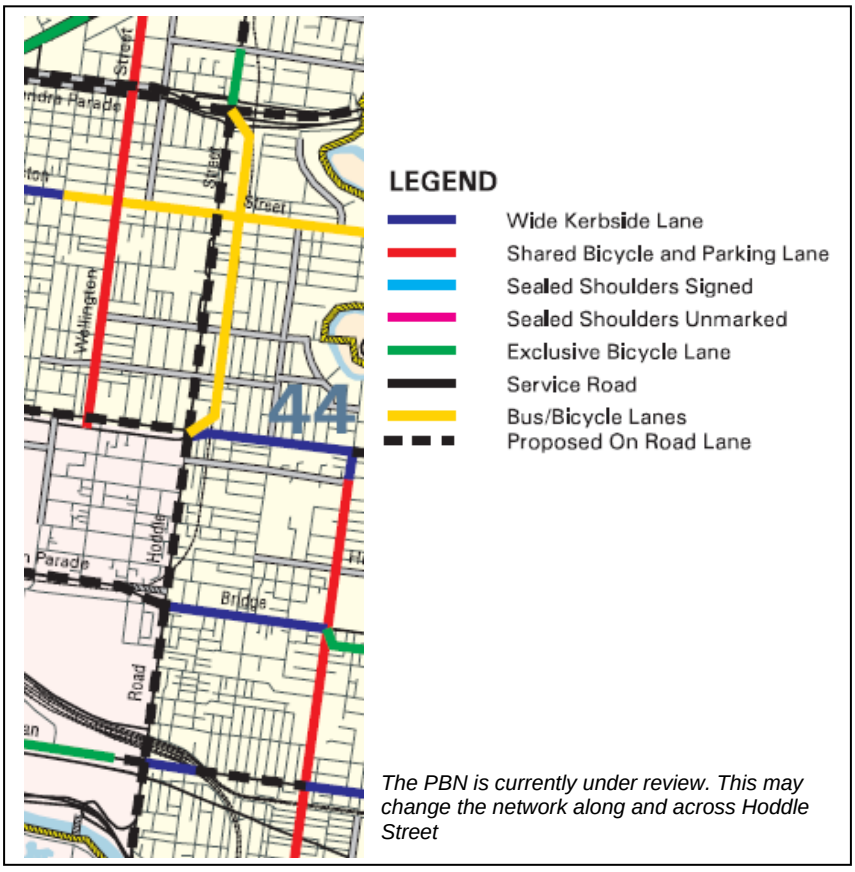
1.1 Background information

The cycling facilities or infrastructure provided within the vicinity of Hoddle Street are shown in Table 1-1 and Figure 1-2, according to the VicRoads Principal Bicycle Network (it is understood that this document is currently under review):

Table 1-1: Bicycle facilities, as per the VicRoads Principal Bicycle Network

Location	West of Hoddle Street	East of Hoddle Street
Swan Street	Exclusive east bound bicycle lane ending 230 from Hoddle Street	Wide kerbside lane to Richmond Station
Wellington Parade / Bridge Road	No bicycle infrastructure	Wide kerbside lanes to Chapel Street
Victoria Parade	No bicycle infrastructure	Wide kerbside lanes to Chapel Street
Johnston Street	Bus / bicycle lanes to Smith Street	Bus / bicycle lanes to Clarke Street
Railway track between Victoria Parade and Alexandra Parade	n/a	*Parallel to Hoddle Street* Bicycle lane (this bicycle lane was not observed or noted whilst on site visits)

Figure 1-2: VicRoads Principal Bicycle Network[1]



[1] Extracted from VicRoads Principal Bicycle Network Map 1 – Port Phillip, Melbourne and Yarra, accessed June 2010

As shown in Figure 1-2, the Principal Bicycle Network in its current form also suggests on road bicycle lanes be implemented at the following locations:

- Hoddle Street, between Alexandra Parade and Toorak Road
- Swan Street, between existing on road bicycle lane and Hoddle Street
- Wellington Parade, from Spencer Street and Hoddle Street
- Alexandra Parade between Flemington Road and the Yarra River

Towards the northern end of Hoddle Street, it was noted that shared paths were signed and a toucan crossing[2] was provided at the Eastern Freeway / Hoddle Street intersection, across the eastern approach.

A signed shared path, with inconsistent signage, is provided along the western side of Hoddle Street, between Swan Street and the Eastern Freeway.

Facilities for bicycle parking were also provided sporadically within the areas visited, such as bicycle loops at the train stations within the study area.

Table 1-2 shows which links are listed within the current Principal Bicycle Network.

Table 1-2: Summary of links and VicRoads Principal Bicycle Network (PBN)

Link		
L1	Punt Road northbound, between Swan Street (Olympic Boulevard) and Wellington Parade (Bridge Road)	
L2	Hoddle Street northbound, between Wellington Parade (Bridge Road) and Victoria Parade	
L3	Hoddle Street northbound, between Victoria Parade and Eastern Freeway	
L4	Punt Road southbound, between Swan Street (Olympic Boulevard) and Wellington Parade (Bridge Road)	
L5	Hoddle Street southbound, between Wellington Parade (Bridge Road) and Victoria Parade	
L6	Hoddle Street southbound, between Victoria Parade and Eastern Freeway	
L7	Swan Street, approximately 200 m east of Punt Road to Richmond Train Station	
L8	Olympic Boulevard, approximately 100 m west of Punt Road	
L9	Stewart Street, approximately 100 m east of Hoddle Street to Richmond Train Station	
L10	Bridge Road, approximately 100 m east of Hoddle Street	**PBN**

[2] A combined bicycle and pedestrian signalised crossing

Link		
L11	Wellington Parade, approximately 100 m west of Hoddle Street	**PBN**
L12	Freeman Street, Jika Place and Egan Street, east of Hoddle Street to West Richmond Train Station	
L13	Albert Street, approximately 100 m west of Hoddle Street[3]	**PBN**
L14	Elizabeth Street, approximately 100 m east of Hoddle Street to North Richmond Train Station	**PBN**
L15	Victoria Parade, approximately 200 m east of Hoddle Street to North Richmond Train Station	
L16	Victoria Parade, approximately 100 m west of Hoddle Street	
L17	Langridge Street (Gertrude Street), approximately 100 m east and west of Hoddle Street	
L18	Gipps Street, approximately 100 m east and west of Hoddle Street	**PBN**
L19	Gipps Street and Stanton Street, east of Hoddle Street to Collingwood Train Station	**PBN**
L20	Johnston Street, approximately 100 m east and west of Hoddle Street (including to Victoria Park Station)	**PBN**

[3] It is noted that this score is based on site visits conducted prior to the Albert Street upgrade. It is understood that cycle lanes have since been implemented, which will affect the overall score of Albert Street.

2. Methodology

The TRL[4] CERS spreadsheet was used, which included an embedded scoring system.

The following steps were employed to assess each link.

Step 1 – Identify start and termination point of link

1. Use Google Maps to determine individual link lengths (this includes the division of routes / corridors).
2. Check each link length logically using data collected on site for suitability.
3. Input name and reference code in the spreadsheet.

Step 2 – Check data availability of route

1. Traffic data – using the survey results obtained the week beginning March 15 2010, rounded to the nearest 1000.
2. Collision data – what crash data is available for each link – assess crashes especially those at major intersections.
3. Traffic speeds –Note the on-street posted speed limit and determine whether or not the speed onsite is perceived to be travelling faster. Enter speed information into the spreadsheet.
4. Terrain – From site visits, an indication of the terrain (uphill or downhill slopes) along the link was gathered.

Step 3 – Intersections

1. Once link length is established note all types of intersections along the extent of the link.
2. Enter each intersection type in the 'minor intersection' spreadsheet. This will provide an aggregated and averaged score for intersections. More crucially it will highlight the worst performing intersection. If there are a number of intersections which score the same, use professional judgment, available data and discussion to ascertain the "worst" of these intersections.
3. Transpose the worst scoring link into the main link assessment autoscore spreadsheet.

Step 4 – CERS assessment

1. Undertake site visits to complete the CERS assessment, ensuring all parameter fields are completed (refer Section 2.1 CERS Assessment framework).
2. Where necessary add comments which substantiate decisions or any other relevant information and for future reference.
3. Total score for the link will be automatically assigned on completion of all parameters.
4. Add any relevant conclusions for each link for future reference.

[4] Transport Research Laboratory

2.1 CERS Assessment framework

Each link was assessed based on the following categories:

- Convenience
- Accessibility / safety
- Comfort
- Attractiveness

Each of these categories included several parameters, as shown in Table 2-1.

Table 2-1: CERS Assessment framework

Category	Parameter	What to assess
Convenience	**Continuity**	- Any issues that may affect the continuity if a facility were to be introduced. - This could include change in carriageway width, or delay to cyclists (e.g. through signalised intersections)
	Legibility	- Issues that may affect a cyclist's ability to follow the route. - Take note of any existing cycle / traffic signs that provide directions and any landmarks.
	Directness	- Ascertain if the proposed link is the most direct path with no delays. - Use Google Maps and other data to ascertain if there is an alternative route by which cyclists could use. Take into account intersections or other features that may result in delay.
Accessibility / safety	**Intersection conflict points**	- Based on the type of intersection in combination with traffic flow and the size of the intersection. - Those intersections with fewer potential conflict points are awarded a greater score. - Ascertained using provided traffic data, collision data and Google maps.

Category	Parameter	What to assess
	Traffic volume	- Use existing data for assessment purposes. - Those roads with a lighter traffic flows will receive a high score.
Accessibility / safety (continued)	**Traffic proximity**	- Based on mixture of traffic and width of traffic lane(s) in a single direction of travel. - A wide lane with cars only will provide a higher score than a narrow roadway which routinely accommodates buses or other large vehicles.
	Traffic speed	- Use recorded 85th percentile speeds or if unavailable posted speed limit signage. - The lower the speed of vehicular traffic the higher the score.
	Link conflict points	- Includes obstructions along the route carriageway surface. - Whether visibility is restricted due to roadside furniture, vegetation etc. - Considers the presence and frequency of private access points (driveways etc)
Comfort	**Effective width**	- Assess any existing cycle lane provision. - Assess the entire width of the carriageway (to include possible effect of overtaking) - Make note of parked cars; this will determine what measures may be required to remove parking or whether an cycle lane away from the edge of the carriageway could be introduced.
	Surface quality	- Observe quality of road surface and type, i.e. cracking, potholes, cobblestones etc. - Observe any skid / fall hazards such as gully gratings, service chamber covers etc. - Observe number of reinstatements and quality.

Category	Parameter	What to assess
Comfort (continued)	**Maintenance**	- Assess current drainage facilities and whether drainage channels appear to be free from detritus and regularly swept. - Identify any areas where ponding of water is evident; large areas of standing water will deter cyclists and alter their path, a particular issue on signed only routes where there is no designated lane. - Assess quality of road markings to determine clarity – will affect vehicular paths and therefore behaviour through intersections and along routes. - Provides an indication of the future score of maintenance if not addressed.
	Effort	- Make note of the gradient of the link to determine the effort cyclists would need to make to negotiate links. - Especially problematic if cyclists are required to stop, e.g. at. intersections, pedestrian crosswalks, and need to restart.
Attractiveness	**Personal security**	- Determine whether the area around the link has litter / graffiti or evidence of vandalism as cycling demand can be suppressed through fear of crime. - Make a note of the presence of any CCTV cameras in the vicinity. - Identify any areas of concealment adjacent to the proposed route.
	Lighting	- Make note of the regularity and positioning of lighting columns to determine the lighting levels during the hours of darkness. - Lighting should be available on cycle routes as a safety measure and to provide an additional level of personal security.

Category	Parameter	What to assess
Attractiveness (continued)	**Quality of environment**	- Determine the quality of the property frontages along the link, is this a route that cyclists would want to navigate? Are the frontages and fence lines etc of good quality and well maintained? - The presence of trees / vegetation will make the route more appealing to cyclists. Is regular maintenance likely to occur?

Each parameter is scored on a range from -3 to +3, where +3 is the highest score and -3 the lowest. For a parameter to warrant a score of +3, it would need to be exemplary and of a standard to be identified as best practice. The scores are therefore allocated on a range from very poor to optimum with 0 representing the average.

The scoring scale is set out below:

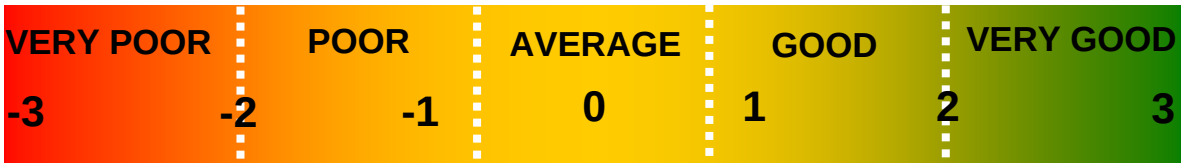


Figure 2-1: Scoring scale – parameters

As there are 15 parameters, total scores of -45 to 45 are possible.

3. Results

Transposing the scoring scale as shown in Figure 2-1 to the total score, produces the following scoring scale:

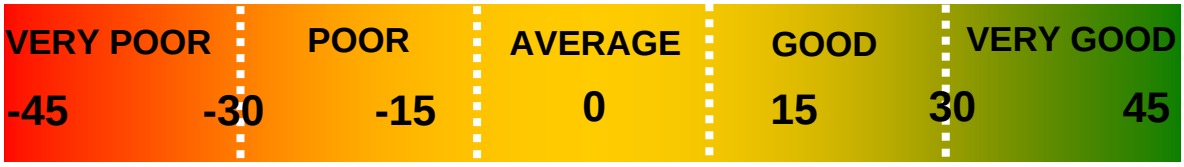


Figure 3-1: Scoring scale – total score

The results are presented schematically in the following figure.

It is immediately apparent that there is an absence of 'very good' cyclist facilities. An average score of **-8** is achieved throughout the study area, which falls within the 'average' category.

The highest score of **12** is achieved along Olympic Boulevard (Link 8). The next highest score of **1** occurs along Freeman Street, Jika Place and Egan Street, east of Hoddle Street to West Richmond Train Station (Link 12).

Two links achieve a score of **0**, which occur along Stewart Street (Link 9) and Elizabeth Street (Link 14).

The remainder of the links received scores below 0, with the majority of links scoring between **-14** through to **-2**.

The lowest scores of **-20** to **-19** were allocated Hoddle Street northbound (Links 1, 2 and 3). Hoddle Street southbound, between Victoria Parade and Eastern Freeway (Link 6) received a score of **-16**.

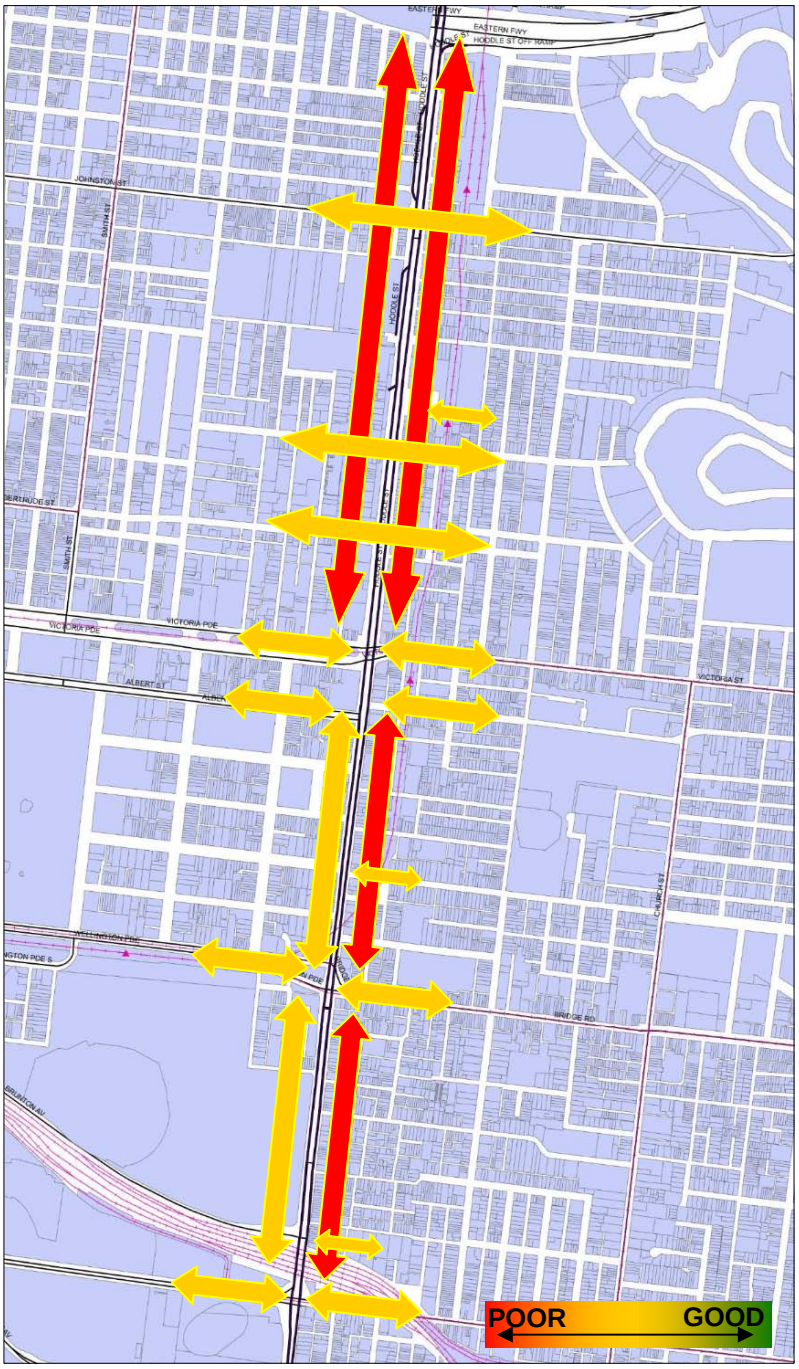


Figure 3-2: Schematic of results (colour coded based on scoring scale shown in Figure 3-1) [5]

[5] It is noted that this score is based on site visits conducted prior to the Albert Street upgrade. It is understood that cycle lanes have since been implemented, which will affect the overall score of Albert Street.

4. Discussion

The following section will summarise the 'poor' and 'very poor' parameters or categories continuously found within the study area and aspects that could be improved.

4.1 Continuity

The majority of links did not have any formal bicycle facility provision and as such received a poor score.

There is a shared path provided along Hoddle Street northbound (Links 4, 5 and 6), however it is inconsistently signed. It scored particularly badly between Victoria Parade and the Eastern Freeway (Link 6), as there were many interruptions. Service roads were provided along this link and it was not clear where the shared path continued.

However, it is noted that in terms of continuity, links where a shared path is provided scored better than links without any formal cycling facilities.

4.2 Legibility

It was found that throughout the study area, there was generally a lack of cycle specific signage, with important landmarks (such as train stations) not signed.

Cyclists would have to rely on other road signs for directions and in some sections, the built form is not conducive to way finding.

4.3 Accessibility / safety

The accessibility and safety parameters were consistently scored very poor due to the following reasons:

- Hoddle Street is continuously heavily trafficked by cars and large vehicles, which does not lend itself to a bicycle friendly environment
- Hoddle Street is very wide, spaning approximately 8 lanes, plus turning lanes and a central median. As such, crossing Hoddle Street may be potentially intimidating
- Generally vehicle speeds of over 50 km/hr are uncomfortable for cyclists on road
- On road bicycle facilities have a higher likelihood of vehicle conflict than off road facilities. The shared path also has a reasonable likelihood of conflict with pedestrians

4.4 Effective width

The majority of links did not have any formal bicycle facility provision, and as such received a poor score for effective width.

Also, the shared path northbound of Hoddle Street did not separate foot and bicycle traffic and there were many obstructions present, which reduced the effective width.

4.5 Attractiveness

The presence of vandalism and graffiti within the study area was continuous evidence of anti-social behaviour. Together with average lighting and the occasional provision of places for concealment, personal security along Hoddle Street was not highly rated.

5. Conclusion

This CERS report has identified the relevant existing conditions and issues for cyclists along and across the Hoddle Street study corridor.

Hoddle Street was found to be a vehicle dominated environment, with a CERS evaluation result of "poor" to “average”, whilst the crossing routes scored slightly higher at "average".