



# PEDESTRIAN SAFETY STRATEGY

HESSE STREET, QUEENSLIFF

24 MARCH 2021

## HESSE STREET, QUEENSCLIFF

CLIENT: Borough of Queenscliffe

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## 1 INTRODUCTION

O'Brien Traffic has been engaged by the Borough of Queenscliff to undertake an assessment of traffic and pedestrian conditions and develop a pedestrian safety strategy for Hesse Street, Queenscliff.

In the course of preparing this report:

- The study area has been inspected;
- Background information, traffic data and resident correspondence has been reviewed;
- Traffic surveys and pedestrian counts have been conducted at a number of locations;
- Traffic and pedestrian issues and opportunities have been identified; and
- Recommendations have been developed for improving pedestrian safety and accessibility along Hesse Street.

## 2 PROJECT SCOPE

This strategy aims to improve pedestrian safety and amenity in the Hesse Street commercial precinct, with a focus on the operation of its two existing designated crossing points. A second focus of the study is on the range of pedestrian routes between Hesse Street and the Queenscliff-Sorrento ferry terminal, at the east end of Wharf Street.

## 3 STUDY AREA

Queenscliff is a small seaside town which sits at the end of the Bellarine Peninsula. Together with Point Lonsdale, it forms the western arm of the Port Phillip Heads, of which Point Nepean forms the eastern arm, at the southern end of Port Phillip Bay. The population of the town varies from below 3,000 during cooler months, to over 17,000 in the peak summer visitor period.

The main street of Queenscliff is Hesse Street, which runs north-south through the centre of the town's commercial precinct. It is part of the Bellarine Highway (B110) which connects the town with Geelong to the west and the ferry service to the east, providing sea passage across Port Phillip Bay to Sorrento. This study focuses on Hesse Street between Stokes Street and Symonds Street, and considers pedestrian movements between Hesse Street and the ferry terminal. The relevant section of Hesse Street is outlined in red in **Figure 1**. The general locations of pedestrian routes between Hesse Street and the ferry terminal are outlined in yellow. An aerial image of the area is shown in **Figure 2**.

The highlighted section of Hesse Street contains the majority of Queenscliff's shops and cafes as well as a number of restaurants. Consequently, in peak times it attracts high numbers of pedestrians, many of whom are visitors to the area. As the only

declared main road in the town, Hesse Street also carries a substantial proportion of the town's through-traffic.



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FIGURE 1: LOCATION OF STUDY AREA



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FIGURE 2: AERIAL PHOTO OF STUDY AREA

## 4 POLICY AND STRATEGIC CONTEXT

### 4.1 VICTORIAN ROAD SAFETY STRATEGY 2021-2030

Victoria's Road Safety Strategy 2021-2030 aims for a future free of deaths and serious injuries on our roads, with a target of a 50% reduction in road deaths by 2030. It is based on the Safe System philosophy which has four key elements:

- Safe roads
- Safe speeds

- Safe vehicles
- Safe people

In keeping with the aims of the Road Safety Strategy, the recommendations of this project are designed to reduce the potential for death and serious injury caused by incidents along Hesse Street. Specifically, in order to achieve a Safe System environment for pedestrians, it is necessary to either separate pedestrians from vehicles – using time or space – or to limit vehicle speeds to no faster than 30 km/h.

## 4.2 SAFE SYSTEM

A safe road network is critical for all road users. The Safe System approach to road safety management recognises that humans make errors, that crashes will continue to occur and that humans have a limited tolerance to impact forces<sup>1</sup> (Figure 3).

The Safe System Assessment Framework (SSAF) was developed to help assess the potential for fatal and serious (FSI) injuries in crashes, and consider the alignment of projects with the Safe System objective of eliminating death and serious injury from the road system. The framework is used to determine how well a given project aligns with this objective, and to highlight areas where safety risks remain and could be improved<sup>7</sup>. The VicRoads *Safe System Assessment Guidelines* recommend Safe System Assessment be undertaken during design stages of a project (concept, preliminary and detailed), and outline VicRoads' corporate requirements as to when SSA should be undertaken.



SOURCE: STATE OF VICTORIA<sup>2</sup>

FIGURE 3: THE SAFE SYSTEM PILLARS

## 4.3 TRANSPORT INTEGRATION ACT 2010

The Transport Integration Act aims to deliver an integrated and sustainable transport

<sup>1</sup> Safe System principles have been acknowledged in successive national road safety strategies and action plans since 2003 as the guiding principles for road safety programs in Australia. The Safe System framework is key to the National Road Safety Strategy 2011–2020 (Australian Transport Council 2011) as well as Austroads guides.

system that contributes to an inclusive, prosperous and environmentally responsible state.

The six legislated objectives are:

- social and economic inclusion;
- economic prosperity;
- environmental sustainability;
- integration of transport and land use;
- efficiency, coordination and reliability;
- safety, health and wellbeing.

#### 4.4 ROAD MANAGEMENT ACT 2004

The Road Management Act is designed to create a coordinated management system for public roads that will promote safe and efficient state and local public road networks and the responsible use of the roads within Victoria.

#### 4.5 DISABILITY DISCRIMINATION ACT 1992

A person with a disability has a right to have access to places used by the public.

The Disability Discrimination Act (DDA) makes it against the law for public places to be inaccessible to people with a disability.

#### 4.6 BOROUGH OF QUEENSLIFFE COUNCIL PLAN 2017 - 2021

The Vision of the Council Plan is:

*The Borough remains a safe haven defined by its unique heritage, rich culture and significant natural environment. It is a special and restorative place for an involved and caring community and our visitors.*

Strategies related to pedestrian safety and access under relevant strategic objectives are as follows:

##### **Strategic Objective 1: Community Wellbeing**

*Maintain the Borough's standing as a safe place for residents and visitors.*

*Support older residents to live safely and independently.*

*Develop path and trail links that encourage walking and cycling and connections to neighbouring towns and the region.*

*Support families, children and young people by facilitating access to services and community facilities.*

##### **Strategic Objective 2: Environmental Sustainability**

*Lead by example and work with the community to reduce carbon emissions.*

## Strategic Objective 4: Planning and Heritage

*Continue to enhance the Queenscliff and Point Lonsdale town centres.*

*Enhance access to and the amenity and use of the Borough's parks and foreshore reserves.*

*Ensure high quality design and construction standards in new and upgraded community infrastructure.*

## 5 EXISTING CONDITIONS

### 5.1 ROAD FUNCTION AND CROSS SECTION

#### 5.1.1 Hesse Street

Hesse Street (the B110, or Bellarine Highway) is a Department of Transport declared main road and is the main street of Queenscliff. It is subject to the urban default speed limit of 50 km/h.

Asphalt footpaths are provided on both sides of the street. Two-way vehicle traffic operates on a single carriageway with one traffic lane in each direction. Bicycle lanes are provided in both directions. On-street 45-degree angle parking is provided along most of the length of the street, with breaks in parking to accommodate bus zones, footpath extensions at intersections, and the crossing points which are the main focus of this work. The rear boundary of the angle parking is set back 1.85 m from the edge of the bicycle lane, providing a buffer between bicycle traffic and vehicles reversing from parking spaces.

Parking is restricted between 10 am and 5 pm every day, with a time limit of 1 hour between Stokes Street and Hobson Street and 2 hours between Hobson Street and Symonds Street.

Aerial views of Hesse Street are provided in **Figure 4**. Street-level views are shown in **Figure 5** and **Figure 6**.

Roundabouts are provided at all three intersections along this section of Hesse Street. The bicycle lanes do not continue through the roundabouts.





a) Between Stokes St and Hobson St



b) Between Hobson St and Symonds St

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FIGURE 4: AERIAL PHOTOS OF HESSE STREET



FIGURE 5: HESSE STREET, FACING NORTH FROM STOKES STREET INTERSECTION



FIGURE 6: HESSE STREET, FACING SOUTH FROM CROSSING POINT BETWEEN HOBSON AND SYMONDS STREETS

## 5.2 CASUALTY CRASH HISTORY

A review of the crash data available for Hesse Street and the area between Hesse Street and the ferry terminal, between 2014 and 2019, shows two casualty crashes, neither of which involved pedestrians.

## 6 KEY ISSUES

### 6.1 CROSSING POINTS ON HESSE STREET

A major focus of this strategy is to improve the operation of the two designated crossing points on Hesse Street, which were installed in 2014. These are not formal pedestrian crossings, but they include large footpath extensions to reduce crossing distance, and an at-grade transition between footpath and road level (see **Figure 7** and **Figure 8**). They are located to capture crossing movements in some of the busier shopping and dining areas of the street.

The nature of the crossing points, in combination with the usually low traffic speeds along the street and the heavily pedestrian-oriented atmosphere, has contributed to confusion between some drivers and pedestrians. The crossing points sometimes appear to give the impression – to both pedestrians and motorists – that they are formal pedestrian crossings. This is in evidence when, at times, drivers give way to pedestrians, or pedestrians begin crossing in the apparent expectation that vehicles will stop for them. This confusion becomes problematic when traffic arrives from two directions simultaneously, and two drivers have different interpretations of the nature

of the crossing points.



FIGURE 7: EXISTING CROSSING POINT – HESSE STREET BETWEEN STOKES AND HOBSON STREETS



FIGURE 8: EXISTING CROSSING POINT – HESSE STREET BETWEEN HOBSON AND SYMONDS STREETS

A number of residents and visitors to the area have communicated to the Borough their dissatisfaction with the design and operation of the crossing points. Several of the correspondents objected to the use of the ‘give way to cars’ signs and pavement markings used with the treatment (shown in **Figure 9**). Concerns included the risk that collisions and injuries could be caused by people’s differing interpretations of the intended function of the crossing points. All correspondence viewed in the preparation of this report referred to the confusing design of the crossing points and the mixed messages they would convey to road users.



**FIGURE 9: SIGNS AND LINEMARKING AT CROSSING POINTS**

It is clear that the design of the crossing points has the potential to create confusion between some pedestrians and motorists, particularly as most road users would not be familiar with the technical aspects of road design. The parallel bluestone insets across the road surface give the impression that they are the boundaries of a crossing, and work in tandem with the kerb extensions to create a scene that may appear to be intended to give pedestrians a higher degree of prominence and priority when crossing the road. The bollards at the boundary between road and footpath also draw attention to the crossing point.

No crashes have occurred at the Hesse Street crossing points and none of the provided resident and visitor communication included reports of any conflicts. Nevertheless, it is clear that the crossing points are not intended to function as standard pedestrian crossings, but appear to some road users as though they are formal crossings.

## **6.2 FERRY TERMINAL PEDESTRIAN ACCESS**

Also strategically important for pedestrian safety in Queenscliff are the routes people follow to travel between the ferry terminal and the town centre. The Queenscliff-Sorrento ferry runs once per hour in both directions across Port Phillip Bay, generally during daylight hours and into the early evening. The terminal is located at the eastern tip of the Queenscliff marina, shown circled in **Figure 10**.

Pedestrian access to and from the ferry terminal is commonly via a shared path along the south side of Wharf Street, shown as a dotted red line in Figure 10. When the path reaches Weeroona Parade, the layout of the environment invites pedestrians to choose chiefly between following the path south-west along Weeroona Parade and along Symonds Street (shown green in the figure), or via Princess Park and Citizens Park into the town centre (shown blue in the figure). An alternative route continuing along Wharf Street into Hesse Street is another option, though this requires crossing Wharf Street

from the shared path and can give the impression, to those unfamiliar with the town, of being a less inviting route.



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FIGURE 10: FERRY TERMINAL LOCATION

## 7 TRAFFIC AND PEDESTRIAN SURVEYS

### 7.1 SURVEY DESIGN

To gain an understanding of pedestrian movements along the routes identified in the previous section, O'Brien Traffic commissioned a number of pedestrian counts on Saturday 6<sup>th</sup> February, 2021 between 10 am and 2 pm. The date of the surveys was timed to avoid inclement weather and any COVID-19-related lockdowns or other restrictions.

The locations of the pedestrian counts were designed to ascertain the level of use of the Hesse Street crossing points, the crossing demand at the Hobson Street and Symonds Street intersections, and to identify pedestrian routes between the town centre and the ferry terminal.

Automatic traffic volume and speed surveys were conducted at two locations on Hesse Street from Tuesday 2<sup>nd</sup> February to Monday 15<sup>th</sup> February 2021.

All of the count locations and directions are shown in **Figure 11**.



FIGURE 11: TRAFFIC AND PEDESTRIAN COUNT LOCATIONS

## 7.2 HESSE STREET PEDESTRIAN ACTIVITY

The following surveys were conducted at the five points marked along Hesse Street. These are summarised to show where pedestrian crossing numbers are highest along and across Hesse Street.

### 7.2.1 Hesse Street Crossing Points

The count results are shown for each crossing in the two aerial images in **Figure 12**. The section of Hesse Street between Stokes and Hobson Streets is clearly the busier of the two, with approximately 240 pedestrians crossing in each direction during the four-hour survey, compared with the 60-70 in each direction north of Hobson Street. This difference accords with observations made by O'Brien Traffic during numerous visits to the town in busy tourist periods. Hesse Street south of Hobson Street attracts more people because it contains the supermarket, butcher shop, ice cream shops, newsagent, pharmacy and several other shops, as well as a higher concentration of cafes and take-away food premises. In comparison, the section north of Hobson Street includes a large empty block of land, a small number of residential properties and a higher number of unoccupied shops than the southern section.

Due to the generally low traffic speeds along Hesse Street and the high number of pedestrian attractors on both sides of the street, not all pedestrians would use the designated crossing points. Accordingly, it is expected that total crossing numbers along the street would exceed the survey totals. At a minimum, these survey results show more than one person crossing the road in each direction, every minute during the busiest period of the weekend.



a) Between Stokes St and Hobson St



b) Between Hobson St and Symonds St

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FIGURE 12: PEDESTRIAN COUNTS AT HESSE STREET CROSSING POINTS – SAT 6 FEB 10AM – 2PM

### 7.2.2 Hesse Street / Stokes Street Roundabout

Pedestrian count results for the Hesse Street / Stokes Street roundabout are shown in **Figure 13**. These show high demand for crossing Hesse Street, but lower volumes crossing Stokes Street east of Hesse Street. Volumes crossing Stokes Street on the west side of Hesse Street are higher.



FIGURE 13: PEDESTRIAN COUNTS AT HESSE STREET / STOKES STREET ROUNDABOUT – SAT 6 FEB 10AM – 2PM

### 7.2.3 Hesse Street / Hobson Street Roundabout

Pedestrian count results for the Hesse Street / Hobson Street roundabout are shown in **Figure 14**. These results show a heavy pedestrian traffic flow north and south, with over 600 people crossing in each direction on both sides of Hesse Street across the four hours. Numbers crossing Hesse Street were of a similar magnitude to those at the southern mid-block crossing point. These values demonstrate the highly pedestrianised environment around Hobson Street. In combination with the counts from the Stokes Street roundabout, these results show that the majority of pedestrian activity along Hesse Street spans the section from Stokes Street to Hobson Street.





FIGURE 14: PEDESTRIAN COUNTS AT HESSE STREET / HOBSON STREET ROUNDABOUT – SAT 6 FEB 10AM – 2PM

#### 7.2.4 Hesse Street / Symonds Street / Wharf Street Roundabout

Consistent with the pedestrian numbers at the northern crossing point on Hesse Street, the survey results at the Hesse Street / Symonds Street / Wharf Street roundabout (Figure 15) show that the northern end of Hesse Street is quieter than the section from Stokes Street to Hobson Street.



FIGURE 15: PEDESTRIAN COUNTS AT HESSE STREET / SYMONDS STREET / WHARF STREET ROUNDABOUT – SAT 6 FEB 10AM – 2PM

### 7.3 FERRY TERMINAL ACCESS

In this section are counts designed to indicate the flow of pedestrians between the ferry terminal and Hesse Street.

#### 7.3.1 Shared path at east end of Weeroona Parade

Pedestrian counts were conducted near the intersection of Wharf Street and Weeroona Parade (see **Figure 16**). Approximately similar numbers of pedestrians were counted travelling towards and away from the ferry terminal, although trips toward the ferry terminal were more prevalent on Wharf Street while trips away from the ferry terminal were higher along the gravel shared path.

It is possible that this distribution of trip directions on the two routes is due to the gravel path beginning at the exit of the ferry terminal, and naturally leading travellers along its length – the alternative route along Wharf Street would be a deviation. Similarly, when beginning a trip from the north end of Hesse Street, the route along Wharf Street appears as a more direct trip to the ferry terminal than to continue along the Symonds Street footpath toward the park and the jetty, before veering left.



FIGURE 16: PEDESTRIAN COUNTS NEAR FERRY TERMINAL – SAT 6 FEB 10AM – 2PM

From these distributions of pedestrian flows to and from the ferry terminal, it is reasonable to infer that pedestrians will travel into and out of the town centre anywhere between Wharf Street and Hobson Street. Several options are shown in **Figure 17**. Incoming ferry passengers would choose either the blue or green route to travel west to the town centre, or may visit the marina to the north of the image. At the west end of the green route, the red and yellow routes indicate the range of options for access to the town centre.



FIGURE 17: PEDESTRIAN ROUTE ALTERNATIVES BETWEEN FERRY TERMINAL AND TOWN CENTRE

O’Brien Traffic understands that the Borough of Queenscliffe is in the process of building a wombat crossing on Gellibrand Street at Hobson Street, where the yellow path in Figure 17 exits the park. In addition to this, it would be worthwhile assessing the need for other pedestrian-friendly treatments further north along Gellibrand Street

(i.e. along the red path). This would assist pedestrians across the breadth of available routes between the ferry terminal and town centre.

## 7.4 HESSE STREET TRAFFIC COUNTS

O'Brien Traffic commissioned automatic traffic counts on Hesse Street, in locations as close as practicable to the two designated crossing points. The counts were conducted for a total of two weeks, the first of which included Saturday 6<sup>th</sup> February – the day on which the pedestrian counts were conducted. A summary of the count data is provided in **Table 1**. It is clear from the data that weekend traffic volumes are more than double the weekday volumes. Traffic speeds are also lower on weekends than weekdays. These characteristics are to be expected of a town such as Queenscliff, which attracts significant numbers of tourists on weekends, and is supported by weekday and weekend observations by O'Brien Traffic across multiple visits.

LOCATION		DAILY TRAFFIC VOLUME	PEAK HOURLY TRAFFIC VOLUME	85 <sup>TH</sup> PERCENTILE SPEED (km/h)	AVERAGE SPEED (km/h)
Between Stokes St and Hobson St	Weekday	4,077	541	36.3	28.0
	Weekend	8,915	963	25.0	18.4
Between Hobson St and Symonds St	Weekday	2,829	362	42.9	34.9
	Weekend	7,335	679	34.2	24.9

TABLE 1: SUMMARY TRAFFIC DATA – HESSE STREET – 2-8 FEBRUARY, 2021

The pattern of traffic volumes across the day is similar across weekdays and weekend days, with the peak volumes tending to occur between 10 am and 3 pm. As the table shows, peak hourly flows reached nearly 1000 vehicles north of Hobson Street and nearly 700 vehicles south of Hobson Street on the weekend.

Hesse Street is currently operating under a temporary speed limit of 40 km/h in conjunction with temporary outdoor dining spaces, constructed during the COVID-19 pandemic. While these temporary limits may be influencing recorded speeds, the much lower weekend speeds – well below the posted limit – indicate a general tendency toward lower speeds in this street, rather than simply observance of the limit.

A closer examination of the data reveals the effect of the Queenscliff-Sorrento ferry service on the traffic patterns in Hesse Street. The charts in **Figure 18** and **Figure 19** show the total number of vehicles recorded in each minute of the hour, separated into the two travel directions.

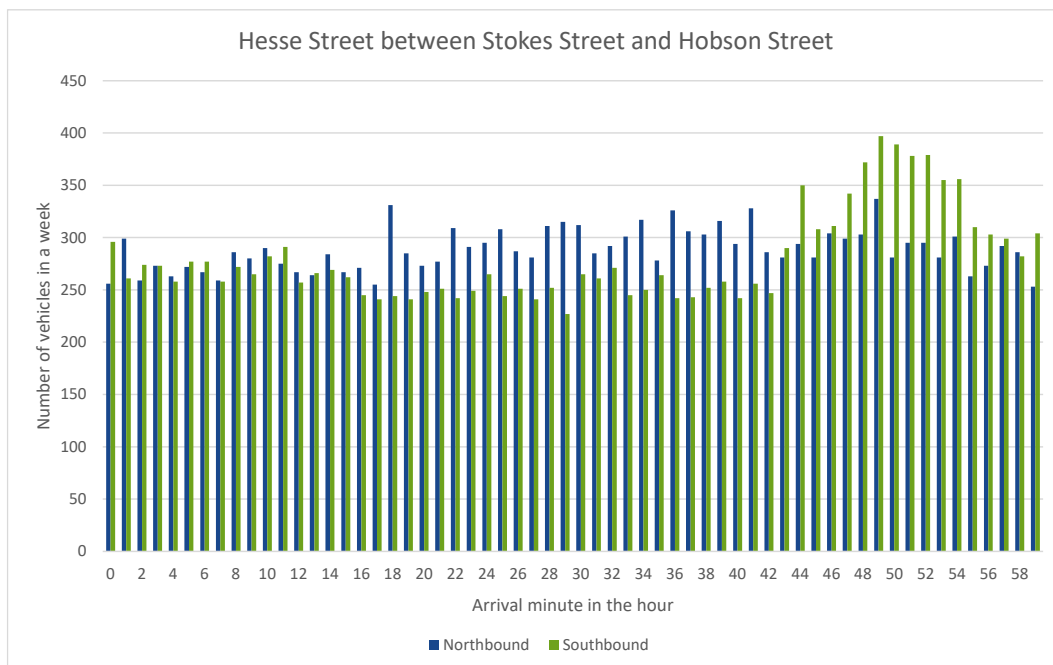


FIGURE 18: VEHICLE ARRIVAL BY MINUTE – HESSE STREET BETWEEN STOKES AND HOBSON STREETS

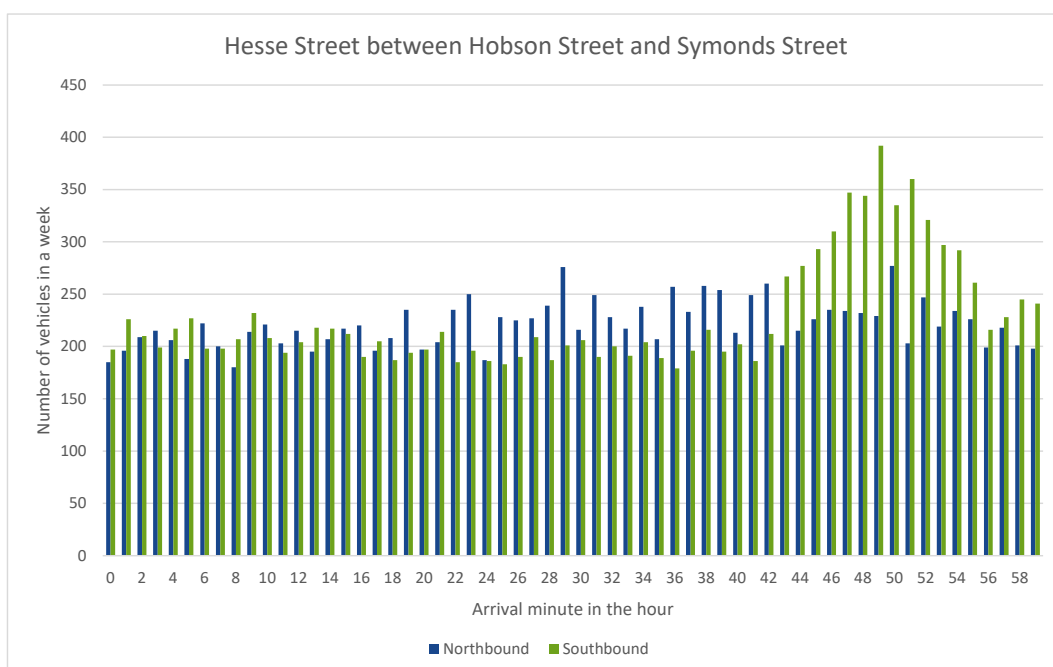


FIGURE 19: VEHICLE ARRIVAL BY MINUTE – HESSE STREET BETWEEN HOBSON AND SYMONDS STREETS

As these charts show quite clearly, vehicles arrive relatively evenly during the hour across the week. For example, the total number of vehicles passing the counters in the 5<sup>th</sup> minute of all hours of the week is likely to be similar to the total number passing in the 20<sup>th</sup> minute of all hours of the week. There are two exceptions to this observation:

- A clear surge in southbound arrival numbers between the 43<sup>rd</sup> and 55<sup>th</sup> minute of the hour (visible as a set of much taller green bars between 43 and 55 minutes)
- A sustained increase in northbound arrival numbers between the 20<sup>th</sup> and 40<sup>th</sup> minute of the hour (visible as a set of taller blue bars across this time period).

It is probable that the southbound surge in numbers is due to vehicles departing the ferry. The ferry has a capacity of approximately 80 vehicles, and usually arrives from Sorrento at 40 minutes past the hour. As vehicles leave the ferry over an approximately 10-minute period, the resultant flow is directed by signage along Wharf Street to Hesse Street, as these streets are part of the B110 Bellarine Highway, the only declared main road through Queenscliff. Observations in Hesse Street during busy weekend afternoons show that this sudden increase in traffic can make Hesse Street more difficult for pedestrians to cross.

The northbound increase in numbers through Hesse Street may be caused by vehicles travelling towards the ferry terminal to join the queue for entry to the ferry, which departs on the hour.

## 8 PEDESTRIAN SAFETY STRATEGY

### 8.1 INTRODUCTION

This Pedestrian Safety Strategy aims to improve the safety of pedestrians along Hesse Street by applying Safe System principles to its layout.

#### 8.1.1 Safe System Treatments for Pedestrians

Very low speed limits/speed environments are required to protect vulnerable road users in accordance with Safe System principles – ‘Speeds of 30 km/h are the maximum any vulnerable or unprotected road user (particularly pedestrians) can withstand without sustaining death or serious injuries’<sup>7</sup>. This is compounded due to environments in which pedestrian issues are most likely to arise – typically highly developed environments that also experience high vehicle demand and congestion, i.e. busy mixed-use environments with multiple road user types. Barriers to more effective management of pedestrian safety and amenity include<sup>2</sup>:

1. the ‘roads are built for cars’ mentality;
2. perceived costs of pedestrian safety treatments versus economic gains of vehicular traffic movement;
3. the absence of consideration of pedestrian waiting time in benefit cost analyses of road management policy;
4. ongoing expansion of vehicle capacity on roads;
5. victim-blaming; and
6. data collection problems at crashes which favour the drivers’ perspective.

The Austroads *Guide to Road Safety Part 8: Treatment of Crash Locations* identifies the following contributing factors for pedestrian crashes:

- Too much traffic for adequate gaps
- High-speed, multi-lane and two-way traffic
- Complex or unexpected traffic movements
- Traffic hidden by parked cars, other objects or excessive landscaping
- A marked crossing which is not evident to drivers
- Long signal cycles which encourage pedestrians to disobey signals

- Inappropriate device or lack of devices for mix of pedestrians (e.g. disabled)
- Inadequate lighting.

When considering needs and safety solutions for pedestrians, the following should be taken into consideration<sup>3</sup>:

- Pedestrian desire lines and accessibility needs to be taken into consideration, including the need for safe crossing points
- Footpaths should be well-maintained to maintain/improve levels of service and reduce the risk of slips, trips and falls, particularly for the elderly and people with disabilities
- Well maintained footpaths (and cycle paths) encourage greater active transport use
- On urban roads, key crash risks typically occur at:
  - Intersections
  - High active mode activity, including children and elderly on roads with a 50km/h speed limit or higher.
  - High interaction with land use (link and place), e.g. CBDs, residential streets, mixed-use arterials.
  - High travel speeds do not align well in safe, equitable, liveable and accessible cities, where walking and cycling is safe and attractive.

A Safe System approach seeks to eliminate the potential for fatal and serious injury (FSI) crashes, and where this is not possible treatments that seek to minimise the incidence and/or severity of crashes are considered. The Safe System Assessment Framework outlines a Safe System-based hierarchy of solutions, including treatments designed to reduce the risk of pedestrian crashes (**Table 2**)<sup>7</sup>.

*Implementation of Safe System involves first consideration of solutions which eliminate occurrence of fatal and serious injuries (primary solutions). In some situations, such options will not be feasible due to project constraints dictated by budget, site, conflicting road user needs, or the environment. If so, the next safest project-feasible solution needs to be identified (supporting solutions). This process requires a clear Safe System-based hierarchy of solutions.*

HIERARCHY	TREATMENT	INFLUENCE (E = EXPOSURE L = LIKELIHOOD S = SEVERITY)
Safe System options ('primary' or 'transformational' treatments)	<ul style="list-style-type: none"> <li>Separation (footpath)</li> <li>Separation (crossing point)</li> <li>Very low speed environment, especially at intersections or crossing points.</li> </ul>	E L L, S
Supporting treatments (compatible with future implementation of Safe System options)	<ul style="list-style-type: none"> <li>Reduce speed environment/speed limit</li> <li>Pedestrian refuge</li> <li>Reduce traffic volume.</li> </ul>	L, S L E, L
Supporting treatments (does not affect future implementation of Safe System options)	<ul style="list-style-type: none"> <li>Pedestrian signals</li> <li>Skid resistance improvement</li> <li>Improved sight distance to pedestrians</li> <li>Improved lighting</li> <li>Rest-on-red signals.</li> </ul>	L L L L L, S
Other considerations	<ul style="list-style-type: none"> <li>Speed enforcement.</li> </ul>	L, S

SOURCE: SAFE SYSTEM ASSESSMENT FRAMEWORK<sup>7</sup>

TABLE 2: SAFE SYSTEM TREATMENT HIERARCHY: PEDESTRIAN TREATMENTS

It is also important to consider the needs of older pedestrians. Among Victoria Walks' *Safer Road Design for Older Pedestrians* recommendations are the following<sup>3</sup>:

- Safer design standards for driveways to indicate priority for pedestrians and provide physical cues for drivers.
- Mid-block pedestrian crossings (ideally with flashing lights and raised surfaces), particularly in activity centres, in the vicinity of housing and facilities for older people and on routes that have been identified as popular with older pedestrians.
- Raised pedestrian crossings at intersections and roundabouts to reduce vehicle speeds at the crossing point, enhance priority for pedestrians and make them more conspicuous to drivers.
- Raised thresholds, which effectively extend the footpath across an intersection (usually side streets), to emphasise that drivers are required to give way when turning.
- Kerb extensions, median refuges and tighter turn radii at intersections and roundabouts to reduce vehicle speeds, distance of pedestrian exposure and complexity of crossings.
- Reduced speed limits and area wide traffic calming.

## 8.2 RECOMMENDED ACTIONS

The Strategy, based on the above Safe Systems guidance, can be achieved through relatively minor alterations to the operation of Hesse Street. Measures recommended are focused on pedestrian priority.

Over time, this approach would provide improved opportunities for walking and cycling



and greater connection between the town centre and the foreshore.

### 8.2.1 Hesse Street Pedestrian Crossings

The principal recommendation of this Strategy is the conversion of the two Hesse Street mid-block crossing points into formal pedestrian crossings. The recommended treatment would involve zebra linemarking and pedestrian crossing signs (R3-1, **Figure 20**), but no flashing lights at this stage.



FIGURE 20: SIGN R3-1

The VicRoads Supplement to *AustRoads Guide to Traffic Management Part 6 – Intersections, Interchanges and Crossings* states that a pedestrian crossing without flashing lights is not acceptable for crossing an arterial road. Hesse Street is a declared main road and functions as part of the arterial network. However, it is considered that the current operation of Hesse Street, in evidence through traffic and pedestrian counts, and supported by on-site observations, is heavily pedestrian-focused and highly amenable to the application of a pedestrian crossing without flashing lights.

Traffic speeds are close to recommended Safe System levels, with average speeds of 35 km/h on weekdays and 25 km/h on weekends. Weekday 85<sup>th</sup> percentile speeds are 43 km/h and weekends 35 km/h.

The shortcomings of the existing treatments relate not to any perceived difficulty in identifying a gap in traffic and safely crossing the road, but to the confusion created by the similarity of the treatments to actual pedestrian crossings. The crossing points are well located, provide excellent sight distance and are close to several pedestrian trip generators.

The aforementioned guidance sets out a number of requirements for the provision of a pedestrian crossing:

- Pedestrian volumes of more than 20 per hour
- Traffic volumes of more than 200 for the same hour
- Speed limit of 50 km/h or below
- 85<sup>th</sup> percentile speed no higher than 60 km/h.

The survey data summarised in Section 7 demonstrates pedestrian numbers in excess of 200 per hour during typically busy weekend days, with traffic volumes in the order of 300-950 vehicles in the same peak hour. As discussed in Section 7.4, the heaviest traffic flows occur for a short period during each hour as traffic leaves the ferry and proceeds through the town centre towards Geelong. It is during these brief periods of high traffic volumes that formal priority at the pedestrian crossing points would be of most benefit. Formalising the crossings, and thus informing motorists that they must give way to pedestrians, will address this source of confusion and reduce the risk of conflicts and collisions it might cause. This removal of ambiguity around the operation

of the crossings should improve their efficiency, reducing delays caused to both pedestrians and vehicles when the intentions of either are unclear with the present arrangement.

The Hesse Street crossing points already provide a gradual transition to footpath level. In combination with the wide footpath extensions near the crossing points and the already low traffic speeds, it is recommended that these crossings remain at their current level instead of being converted to raised crossings.

Further support for the use of a pedestrian crossing without lights is found in Point Lonsdale, approximately 5 km south of Queenscliff, where the C127 Point Lonsdale Road is provided with a raised pedestrian crossing with no lights. This crossing has been observed to function well during periods of high pedestrian and traffic activity on a typical summer weekend, illustrating that the functional classification of an arterial road need not preclude the use of this minimally obtrusive design of pedestrian crossing.

### **8.2.2 Hesse Street Speed Limit**

At present, and at the time of the Hesse Street traffic counts (see Section 7.4), Hesse Street and Hobson Street are subject to temporary 40 km/h speed limits. Given the high level of compliance with the limit, and the much lower average speeds on weekends, it is recommended that the speed limit on Hesse Street remain permanently at a maximum of 40 km/h. This lower limit will help to emphasise to drivers that Hesse Street is intended to be a highly pedestrian-friendly space, and is not designed for high-speed through traffic.

### **8.2.3 Hesse Street Roundabouts**

Pedestrian count results from the three roundabouts along Hesse Street between Stokes Street and Symonds Street showed significant numbers of pedestrians crossing all legs of each roundabout. The busiest roundabout was at Hesse Street and Hobson Street.

The operation of these roundabouts has not been the subject of complaints from residents and visitors, and the interaction of traffic and pedestrians at these roundabouts has been observed to occur in a satisfactory manner. However, it is recommended that further study be conducted in relation to the operation of these roundabouts, as well as the Hesse Street / King Street roundabout to the south of this study area. It is possible that a future provision of formal crossings on some or all legs of these roundabouts may be found to be a worthwhile modification.

### **8.2.4 Routes between Ferry Terminal and Town Centre**

Survey data from the count locations near the intersection of Wharf Street and Weeroona Parade indicated that those travelling to the ferry terminal were more likely to walk along Wharf Street, and those travelling to Queenscliff from the ferry terminal were more likely to use the gravel path along Weeroona Parade. This suggests a possible spread of access points to and from the town centre along the stretch of Gellibrand Street spanning from Hobson Street to Wharf Street.

O'Brien Traffic is aware that installation of a wombat crossing is already in progress on Gellibrand Street immediately south of Hobson Street. This will have the effect of

calming Gellibrand Street traffic in the vicinity of Hobson Street, but the distance over which this effect will last is not clear. It is recommended that further examination be made of pedestrian and vehicle interaction further north along Gellibrand Street, to the intersection with Wharf Street. Further speed reduction treatments in the northern section of the street may be helpful in improving the safety of all pedestrian routes across Gellibrand Street. This will also be of benefit to visitors to Princess Park, Citizens Park and the beach and pier.

## 9 CONCLUSION

In response to the Borough of Queenscliffe's requirement for a pedestrian safety strategy for Hesse Street and for potential pedestrian routes between the town centre and ferry terminal, this study has examined the results of pedestrian and traffic counts, crash data and community correspondence.

It is apparent that the existing designated crossing points on Hesse Street have been observed to create confusion between road users as to how the crossing points are to operate. Pedestrian numbers across and along Hesse Street are high, and the potential exists for frequent conflict between pedestrians and motorists, especially during busy weekends when Queenscliff hosts large numbers of visitors.

This pedestrian safety strategy makes four key recommendations to enhance pedestrian safety both on Hesse Street and on the range of available pedestrian routes between the town centre and the ferry terminal:

- Convert the Hesse Street crossing points into formal pedestrian crossings with signs (and without lights)
- Retain the current 40 km/h speed limit in Hesse Street as a permanent limit
- Conduct further work examining the operation of the roundabouts along the full length of Hesse Street, with a view to enhancing pedestrian provision and potentially providing crossings on the legs of the roundabouts
- Examine pedestrian and vehicle interactions along Gellibrand Street between Hobson Street and Wharf Street, to ascertain whether further speed reduction and/or additional pedestrian crossings are required in addition to the crossing already to be constructed near Hobson Street.

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