The City with Spirit

NOTICE OF MEETING

Notice is hereby given that a **Infrastructure Works and Development Committee** meeting of the Devonport City Council will be held in the Council Chambers, on Monday 13 August 2018, commencing at 5:30pm.

The meeting will be open to the public at 5:30pm.

QUALIFIED PERSONS

In accordance with Section 65 of the *Local Government Act 1993*, I confirm that the reports in this agenda contain advice, information and recommendations given by a person who has the qualifications or experience necessary to give such advice, information or recommendation.

Matthew Atkins
ACTING GENERAL MANAGER

8 August 2018

AGENDA FOR A MEETING OF THE INFRASTRUCTURE WORKS AND DEVELOPMENT COMMITTEE OF DEVONPORT CITY COUNCIL HELD ON MONDAY 13 AUGUST 2018 AT THE COUNCIL CHAMBERS AT 5:30PM

Agenda of a meeting of the Devonport City Council's **Infrastructure Works and Development Committee** to be held at the Council Chambers, 17 Fenton Way, Devonport on Monday 13, August 2018 commencing at 5:30pm.

PRESENT

		Present	Apology
Chairman	Ald L M Perry		
	Ald G F Goodwin		
	Ald A J Jarman		
	Ald L M Laycock		
	Ald J F Matthews		
	Ald A L Rockliff		

IN ATTENDANCE

All persons in attendance are advised that it is Council policy to record Council Meetings, in accordance with Council's Audio Recording Policy. The audio recording of this meeting will be made available to the public on Council's website for a minimum period of six months. Members of the public in attendance at the meeting who do not wish for their words to be recorded and/or published on the website, should contact a relevant Council Officer and advise of their wishes prior to the start of the meeting.

1.0 APOLOGIES

2.0 DECLARATIONS OF INTEREST

3.0 PROCEDURAL

3.1 PUBLIC QUESTION TIME

Members of the public are invited to ask questions in accordance with Council's Public Question Time Policy (Min No 159/17 refers):

1. Public participation shall take place at Council meetings in accordance with Regulation 31 of the *Local Government (meeting Procedures) Regulations 2015.*
2. Public participation will be the first agenda item following the formal motions: Apologies, Minutes and Declarations of Interest.
3. Questions without notice will be dependent on available time at the meeting (with a period of 30 minutes set aside at each meeting).
4. A member of the public who wishes to ask a question at the meeting is to state their name and address prior to asking their question.
5. A maximum of 2 questions per person are permitted.
6. A maximum period of 3 minutes will be allowed per person.
7. If time permits, a third question may be asked once all community members who wish to ask questions have done so. A time limit of 2 minutes will apply.
8. Questions are to be succinct and not contain lengthy preamble.
9. Questions do not have to be lodged prior to the meeting, however they will preferably be provided in writing.
10. A question by any member of the public and an answer to that question are not to be debated.
11. Questions without notice and their answers will be recorded in the minutes.
12. The Chairperson may take a question on notice in cases where the questions raised at the meeting require further research or clarification, or where a written response is specifically requested.
13. Protection of parliamentary privilege does not apply to local government and any statements or discussion in the Council Chambers, or any document produced, are subject to the laws of defamation.
14. The Chairperson may refuse to accept a question. If the Chairperson refuses to accept a question, the Chairperson is to give reason for doing so in accordance with the Public Question Time Policy.

3.2 QUESTIONS ON NOTICE FROM ALDERMEN

At the time of compilation of the agenda no questions on notice from Aldermen were received.

4.0 TENDERS

There are no tenders to consider at this meeting.

The following table details all tenders and contracts which have been entered into by Council above $100,000 for the 2018/2019 financial year.

Contract	Contract Period	Extension Options	$ Value (Excluding GST)	Contractor	Min Ref/ Meeting Date
Contract CT0220 Southern Rooke Street Renewal	January 2019 to April 2019	Not Applicable	$796,635	Kentish Construction & Engineering Co. Pty Ltd	Council 126/18 23/07/2018
Contract 1326 – Supply of Catering and Hospitality Equipment – paranaple convention centre	July-September 2018	Not Applicable	$101,583.59	Tas Hotel & Catering	GFC 47/18 Council 137/18 23/07/2018

5.0 INFRASTRUCTURE AND WORKS REPORTS

5.1 MERSEY BLUFF PRECINCT - PEDESTRIAN, PARKING AND TRAFFIC STUDY

File: 25062 D533282

RELEVANCE TO COUNCIL'S PLANS & POLICIES

Council's Strategic Plan 2009-2030:

Strategy 2.3.1 Provide and maintain roads, bridges, footpaths, bike paths and car parks to appropriate standards

SUMMARY

This report presents the pedestrian, parking and traffic study completed for the Mersey Bluff Precinct.

BACKGROUND

At its December 2017 meeting, Council considered a report on the Mersey Bluff Precinct and the development of a precinct plan. As a result, Council determined (Min 150/17 refers):

"That Council:

(a) determine not to proceed with a "Mersey Bluff Precinct Plan" as previously identified; and

(b) instead seek to engage a consultant to undertake a Traffic Impact Assessment for the broader Mersey Bluff precinct and if necessary, update the existing Urban Design Framework Plan."

Subsequently, Pitt & Sherry were engaged to undertake a pedestrian parking and traffic study (The Study) of the precinct, which for the purposes of the study was defined as the area shown in figure 1

Figure 1 - Study area

STATUTORY REQUIREMENTS

There are no Statutory requirements relevant to this report.

DISCUSSION

Road Network

The Study includes an analysis of the road network, including traffic volumes, speeds and crash data. The Study determined that the road network was effective in moving traffic around the precinct. However, there are issues with vehicle speeds on Bluff Road near Devonport Oval.

Parking

The Study includes an analysis of existing car parking spaces and occupancy surveys undertaken to measure the demand for each of the off-street car parks. The study measured the utilisation of the groups of car parks as shown in Table 1.

Car park group	Utilisation	Comment
Mersey Bluff	Moderate (38% max)	
Restaurant/Surf Club	High (100% max)	Peak in middle of day
Bluff (playground)	High (86% max)	Peak 8am-9am Saturday, less than 50% at other times
Meercroft Park/William Street	Moderate (37% max)	
Bluff Road (Devonport Oval)	High (90% max)	Peak due to Cricket use, less than 30% at other times
Bass Strait Maritime Centre	Significant (75% max)	Peak due to weeknight event

Table 1 – Car Park utilisation

Recognising that the occupancy surveys were completed outside seasonal peaks, observations were also made on a Saturday morning during the junior soccer season. It was found that nearby car parks had high utilisation and the available on-street car parking in the surrounding areas was also highly utilised.

Overall, the observations found that generally, the available parking was more than sufficient for the majority of activities in the precinct. However, at isolated peak times, demand for parking in the immediate area of the activity exceeded supply.

Pedestrians

The Study identified the area as a high pedestrian area and found that although there are pedestrian paths within and through the study area, there are some missing connections that would allow pedestrian to more easily move between the attractions in the precinct and from the available parking spaces to the attractions.

Cycling

The Study identified that the coastal pathway is Devonport's main cycling route but found that there are no links between the path and the attractions on the south side of Bluff Road and some missing links between attractions.

Public transport
The Study identified that public transport access to the precinct was limited. This access is likely to be reduced further as the Department of State Growth's review of the urban bus network is likely to move existing stops on North Street to James Street.

Signage
The study identified many signage improvements required to identify attractions within the precinct and direct road and path users to them.

Stakeholder issues
Following the consultation, which is described below, the Study identified 14 issues raised by stakeholders that align with the findings of the site investigation and require work to address. These issues are shown in Table 2 and Figure 2 below.

Issue	Detail
A	Speed issues on Bluff Road in vicinity of Meercroft Aged Care Centre
B	Issues with crossing Bluff Road in vicinity of Meercroft Aged Care Centre
C	Lack of designated bus parking in vicinity of Bass Strait Maritime Centre
D	Lack of bike racks in vicinity of Bass Strait Maritime Centre
E	No pedestrian access between BSMC and Coastal Pathway
F	Lack of wayfinding signage to key locations
G	Lack of parking in vicinity of Restaurants and Bluff Playground/ Public Open Space
H	Lack of signage for vehicles
I	Vehicle overhang of path in Bluff Car park
J	Issues with crossing Bluff Road in vicinity of Meercroft Park/Bluff Car Park including confusion as to whether speed humps are crossings
K	Lack of pedestrian paths along Bluff Access Road
L	Lack of precinct signage
M	Lack of drop off/pick up zone for Surf Club
N	Priority issues at Restaurant Car Park/Bluff Access Road intersection

Table 2 – identified issues

Figure 2 – identified issues

Study Recommendations

The Study recommends 18 initiatives delivered over four financial years with a total value of $1.2 M.

Proposed works 2018-19:

Key initiatives recommended to be delivered in 2018-19 are shown in Table 3 below:

Initiative	Description
1	Pedestrian kerb ramps across Bluff Road at Bluff Plaza
2	Creation of pedestrian priority road hump (wombat crossing) for coastal pathway on William Street
3	Pedestrian kerb ramps across Bluff Road at Clements Street
4, 5	New speed hump and extension of 40km/h zone on Bluff Road
6, 7, 12	Wayfinding signage for vehicles, pedestrians and cyclists throughout precinct
8	Precinct signage at entry points
17, 18	Bike parking and bus parking at BSMC

Table 3 – key initiatives for 2018-19

These initiatives address the major pedestrian and cyclist issues in the precinct, while the proposed signage raises the profile of each of the attractions within the precinct and encourages visitation of multiple attractions. The new signs also complement the new pedestrian crossing locations. The estimated total cost of these initiatives is $281,000. Indicative details of works proposed are shown in figure 3-5 below.

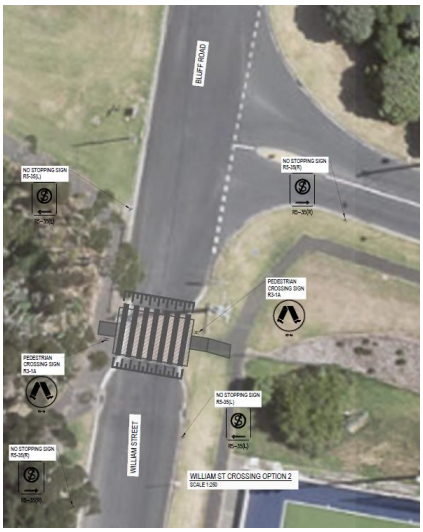

Figure 3 – wombat crossing on William Street

Figure 4 – precinct signage locations

Figure 5 – Example totem signage

Proposed Works 2019-20:

Key initiatives recommended to be delivered in 2019-20 include the construction of indented parking bays on each side of Bluff Road near Meercroft Park, which have an estimated cost of $260,000.

These initiatives will provide additional parking supply at one of the locations where the highest demand for parking is experienced.

Indicative details of work proposed is shown in Figure 6 below.

Figure 6 – indented parking – Bluff Road

Proposed Works 2020-21:
The initiatives recommended for delivery in 2020-21 are the construction of a new car park on the existing grassed area adjacent to Coles Beach Road and the construction of a path between that new car park and Coles Beach.

These initiatives will provide additional parking in reasonable proximity to the surf club and restaurants, which were observed to highly utilise the existing parking. The linking path will enable pedestrians to travel from the new car park to the beach and restaurants, but also resolves the long-standing issue of poor pedestrian access on Bluff Access Road.

The estimated cost of these initiatives is $400,000. Indicative details of work proposed is shown in Figure 7 below.

Figure 7 – new car park and linking path – Coles Beach Road

Proposed Works 2021-22:
The initiatives recommended for delivery in 2021-22 are the construction of a new roundabout where the restaurant car park accesses Bluff Access Road and the construction of linking paths from the BSMC to the adjacent path network.

The new roundabout will clarify the traffic control arrangements in this area, where there have been several near misses reported. The new linking paths will greatly improve pedestrian access to the BSMC which has been a long-standing issue.

The estimated cost of these initiatives is $265,000. Indicative details of work proposed is shown in Figures 8 and 9 below.

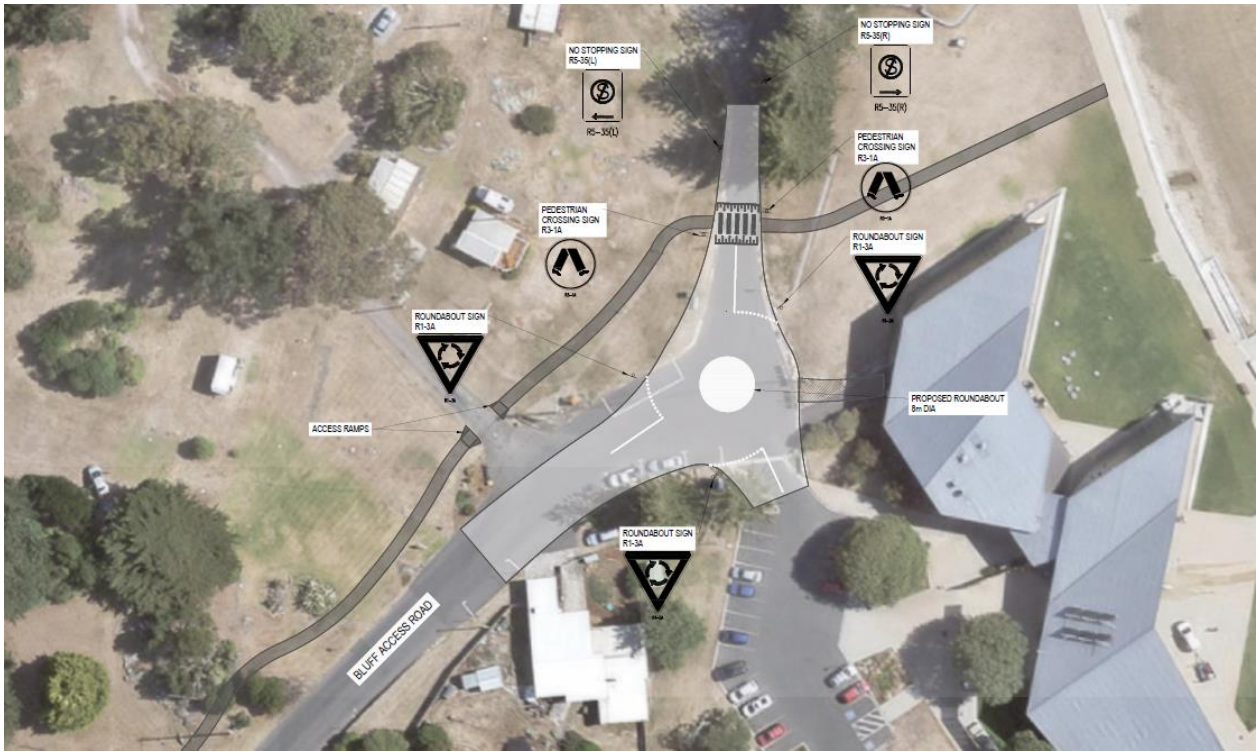

Figure 8 – new roundabout – Bluff Access Road

Figure 9 – new paths – BSMC

Future works:
The two initiatives shown in Table 4 below were not included in the cost estimates.

Initiative	Description
19	Bus routes through Mersey Bluff Precinct
20	Parking at caravan park office

Table 4 – initiatives excluded from work program

Initiative 19 has been excluded as Council is not responsible for setting public transport routes and timetables or contracting operators for the service. A bus route through the precinct may be popular at certain times of the year. It may be feasible in future for a shuttle service between the CBD and the Mersey Bluff precinct during peak tourist season, but this could be assessed after the Living City waterfront park project and the recommended Mersey Bluff precinct initiatives have been completed.

Initiative 20 has been excluded as it relies on the Mersey Bluff caravan park redevelopment being substantially completed, including the relocation of the park office to the west side of the road. If this privately funded project can be completed by the current operator, then the car park expansion can be considered, but until then it should be excluded from the work program.

The Study is attached to this report.

COMMUNITY ENGAGEMENT

Consultation with key stakeholders was undertaken as part of the Study. This group included:

- Devonport Surf Life Saving Club
- Drift restaurant
- Mrs Jones restaurant
- Tiagarra Aboriginal Cultural Centre
- Mersey Bluff Caravan Park
- Park Run
- Meercroft Park Development Committee
- Meercroft Home for the Aged
- Rotary Club of Devonport North
- Relevant Council teams (Events, Bass Strait Maritime Centre, Works, Engineering, Planning)

Details of the consultation are available in the attached Study.

It is intended that consultation will be undertaken as part of the delivery of each initiative. This consultation will require engagement with Crown Land Services, who for many of the initiatives are the landowner and the Department of State Growth who are the approval authority for road humps and speed limits.

FINANCIAL IMPLICATIONS

The Study recommends that a work package of 18 initiatives be carried out over four financial years. The total cost of these initiatives is $1,206,000. The recommended staging of the works requires budget allocations as shown in Table 5 below.

Financial year	Recommended initiatives	Recommend budget allocation
2018-19	1-8, 12, 14, 17, 18	$281,000
2019-20	9, 10	$260,000

2020-21	11,13	$400,000
2021-22	15, 16	$265,000

Table 5 – recommended budget allocations

An allocation of $75,000 was made in the 2017-18 capital works program. This allocation was carried forward to 2018-19 pending the recommendations of the Study. A further $125,000 has been allocated in 2018-19 for the implementation of the high priority actions recommended by the Study.

A total of $200,000 is available this financial year, which is sufficient to deliver the majority of the initiatives recommend for 2018-19. The best fit of initiatives within the available budget can be determined once the detailed design and construction cost estimates are complete. Outstanding initiatives can be included in the scope of work for 2019-20.

A further $1,006,000 is required over the following three financial years to deliver the remaining initiatives. Council may consider extending the roll out period over a greater time period, during it's budget deliberations.

RISK IMPLICATIONS

- Corporate and Business
  The Study has been completed to provide Council with a structured work program in the Mersey Bluff Precinct. Delivery of the recommended initiatives will ensure that the potential of the precinct is maximised and that expenditure is targeted to address known issues.
- Asset & Property Infrastructure
  Some of the initiatives involve the construction of new assets, which increase the maintenance requirements in the precinct. The detailed design of each initiative will have to include low maintenance solutions to minimise ongoing operating costs.
- Consultation and/or Communication
  The issues raised by stakeholders were considered and analysed along with data collected as part of the Study. Not all stakeholder requests were met. Project level consultation will be vital to ensure that stakeholders are aware that the work being undertaken is part of a larger package that will deliver benefits to the precinct users, and that the proposed work is a recommendation of a detailed study of the precinct.

CONCLUSION

Council engaged Pitt & Sherry to undertake a pedestrian, parking and traffic study of the Mersey Bluff precinct. The Study included analysis of the existing road network, parking supply and demand, pedestrian and cyclist facilities and signage. The Study included consultation with key stakeholders. The Study recommends the implementation of 18 initiatives over a four-year period at a total estimated cost of $1,206,000. Council has made an allocation of $200,000 in 2018-19 for these works and will require an allocation of $1,006,000 over following years to implement the remaining recommendations.

ATTACHMENTS

⇩1. Mersey Bluff traffic parking pedestrian study

RECOMMENDATION

That it be recommended to Council that the report of the City Engineer be noted and that:

1. Council utilise the funding available in 2018-19 to undertake initiatives recommended in the Study, and;
2. consider during the 2019/20 budget deliberations, the allocation of funding in the 5 year forward works program for the remaining study initiatives.

Author:	Michael Williams	Endorsed By:	Matthew Atkins
Position:	City Engineer	Position:	Deputy General Manager

Mersey Bluff, Devonport
Traffic, Parking and Pedestrian Study

transport | community | mining | industrial | food & beverage | energy



Prepared for:	Devonport City Council
Client representative:	Michael Williams
Date:	27 July 2018 Rev 00

KMH ENVIRONMENTAL
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Prepared by: ..... Date: 27 July 2018
Leenah Ali

Reviewed by: ..... Date: 27 July 2018
Rebekah Ramm

Authorised by: ..... Date: 27 July 2018
Ross Mannering

Revision History					
Rev No.	**Description**	**Prepared by**	**Reviewed by**	**Authorised by**	**Date**
A	Traffic, Parking and Pedestrian Study	L. Ali	R. Ramm	R. Mannering	20/07/2018
00	Traffic, Parking and Pedestrian Study	R. Ramm	R. Ramm	R. Mannering	27/07/2018

1. Background

The Mersey Bluff precinct is a major leisure activity precinct in Devonport. Key attractions in the precinct include the Mersey Bluff Lighthouse, Devonport Surf Club, Bluff Beach Park, Mersey Bluff Caravan Park, Tiagarra Aboriginal Cultural Centre, walking tracks, sports fields and restaurants. The precinct is used regularly by locals and tourists and hosts community and sporting events of local, national and international significance.

Devonport City Council developed the Mersey Bluff Urban Design Framework Plan in 2008 with an aim to deliver a meaningful and enduring urban design solution to ensure the Mersey Bluff precinct remains as an exciting attraction for both residents and visitors into the future. Much of this plan has been delivered, including some major deviations from the original plan, which has resulted in major improvements to the precinct and a subsequent intensification of use.

As a result of the intensification of use, issues have been raised relating to the movement of people in, within and out of the precinct. The precinct generates vehicle trips, and parking demand as a result, as well as pedestrian and bike movements through and within the precinct. Raised issues relate to the availability of parking within close proximity to some destinations, pedestrian path network connectivity and accessibility, pedestrian and vehicle wayfinding, bus access and hooning.

Devonport City Council engaged **pitt&sherry** to undertake a traffic, parking and pedestrian study for the Mersey Bluff precinct. This study considers the existing operation of the precinct from a traffic, parking and pedestrian movement perspective, addresses identified issues and develops an implementation plan which maximises the potential of the precinct. The study also delivers a prioritised list of recommendations.

The implementation plan and recommendations have been chosen so that they align with goals and strategic objectives from the *Devonport City Council Strategic Plan 2009-2030* as shown in Table 1.

Table 1: Goals and Strategic Objectives

Goal		Strategic Objective	
1	Living lightly on our environment	1.3.1	Identify and implement initiatives to educate and encourage our community on opportunities to "live lightly"
2	Building a unique city	2.3.1	Provide and maintain roads, bridges, footpaths, bike paths and car parks to appropriate standards
		2.3.4	Provide accessible and sustainable parks, gardens and open spaces to appropriate standards
3	Growing a vibrant economy	3.2.1	Support tourism through the provision of infrastructure and facilities
		3.3.1	Improve the City's physical access and connectivity
4	Building a quality of life	4.1.3	Promote passive recreational usage including walking, bike paths, trails, parks and play spaces

2. Existing Conditions

2.1 The Mersey Bluff Precinct

2.1.1 Site Location

The Mersey Bluff precinct encompasses an area of approximately 20 hectares and is located to the north of Devonport CBD and extends from the Bass Strait Maritime Centre to the Bluff Headland. The precinct is mainly accessed from either William Street or Bluff Road, with a third access off Coles Beach Road. William Street provides a connection between the Mersey Bluff precinct and the Fourways whereas Bluff Road connects the precinct to the CBD.

Figure 1 shows the location of the site in the local context.

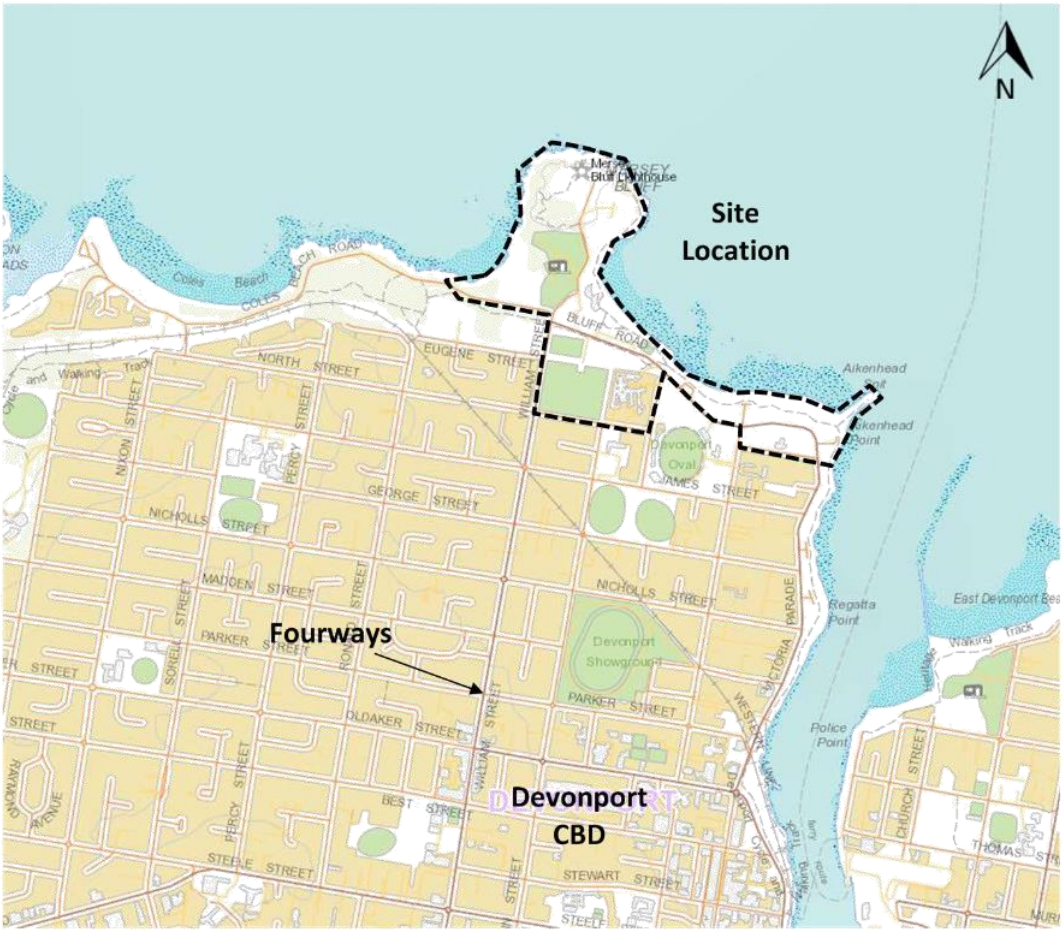

Figure 1: Locality Plan (Base Map: List Maps)

2.1.2 Land Uses and Attractions

The precinct includes dining, accommodation and recreational, sporting and cultural facilities. Key attractions in the precinct include:

- Mersey Bluff Lighthouse
- Bluff Headland Walking Track
- Mersey Bluff Caravan Park
- Devonport Surf Club and restaurants
- Bluff Beach Playground, Skate Park, Fitness Equipment and Walking Track
- Meercroft Park Sports Fields
- Bass Strait Maritime Centre
- Tiagarra Aboriginal Culture Centre (Tiagarra)
- Back Beach.

The Mersey Bluff Urban Design Framework Plan developed several projects to revitalise the precinct and deliver the vision for the precinct. A number of these projects have since been implemented leading to the Surf Life Saving Club precinct and Devonport Oval precinct redevelopments. The redevelopments include:

- A new Surf Lifesaving Club
- Two restaurants
- Landscaped civic square
- New playground
- Relocated foreshore car park
- Upgraded parking at Meercroft Park
- Upgraded parking behind the Surf Lifesaving Club
- New shelters and barbeque areas
- New sea wall
- Skate park upgrade
- Cricket net upgrade at Devonport Oval
- Victoria Parade fitness area
- Redevelopment of Bass Strait Maritime Centre.

The Mersey Bluff precinct hosts community and sporting events of local, national and international significance. As such, the precinct is popular with recreation users with the playground and skate park experiencing high usage in the summer months. Over 200 people also gather each week on Saturday mornings for the "Park Run" which is a free 5 kilometre run for people of all fitness levels with the event commencing and finishing at the precinct.

The area adjacent to the precinct incorporates various sporting activities with the Meercroft Park sports fields being used for hockey, soccer, touch football and American football. Locations of the key attractions and facilities within the precinct are shown below in Figure 2.

Figure 2: Attractions and Facilities in Mersey Bluff Precinct (Base Map: List Maps)

The precinct is zoned as 19.0 Open Space with pockets zoned as 18.0 Recreation under the *Devonport Interim Planning Scheme 2013*. Surrounding regions are zoned as 10.0 General Residential. The precinct is best described as a mixed-use community space with supporting historic, cultural and contemporary infrastructure.

Figure 3 shows the zoning of the precinct.

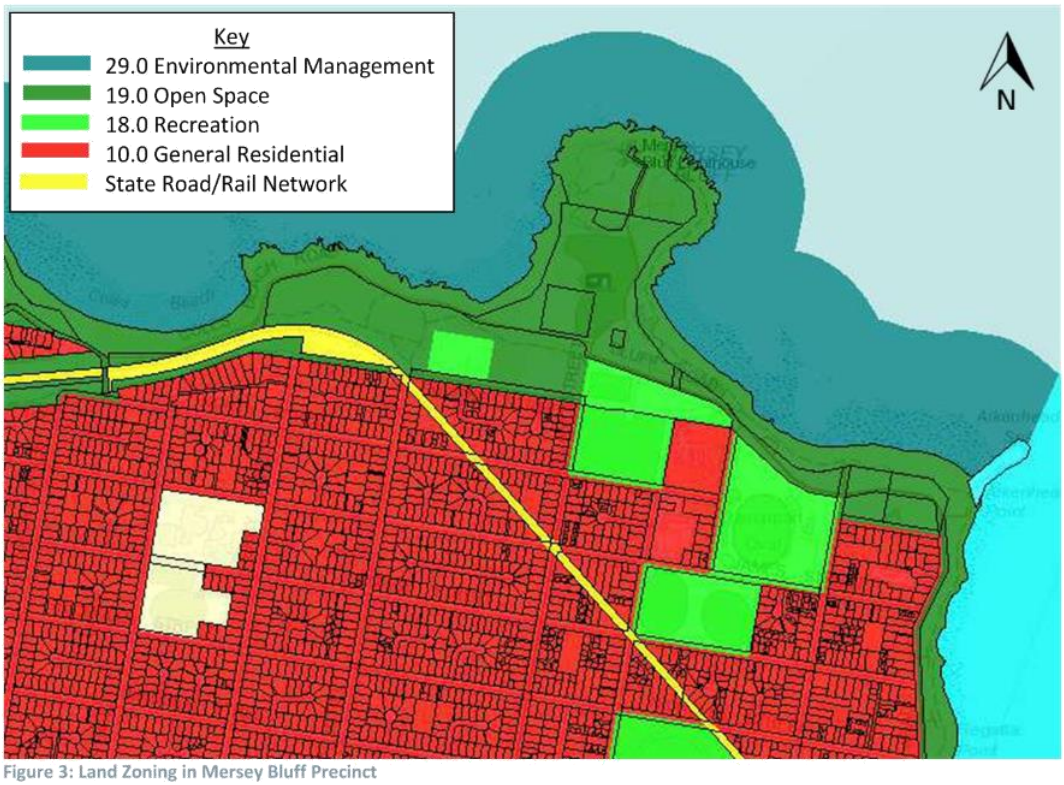

Figure 3: Land Zoning in Mersey Bluff Precinct

2.1.3 Future Projects for the Precinct

In addition to the already completed projects, the following projects have been proposed for the Mersey Bluff precinct:

- Redevelopment of the Mersey Bluff Caravan Park

  According to the Mersey Bluff Urban Design Framework Plan, it is proposed that the Caravan Park be replaced with environmentally sustainable accommodation comprising eco-cabins in a revegetated bushland setting.

- Construction of the Mersey Bluff Seawalk

  The Mersey Bluff Seawalk project is developed by the Seawalk Project Steering Committee and envisages a walkway linkage around the outside of the Devonport Bluff, incorporating views of the sea cliffs and coastline.

- Improvements at the Mersey Bluff Cemetery

  As part of the Devonport City Council Cemetery Strategy 2011 – 2030, the Mersey Bluff Cemetery is identified as a site requiring examination of current service provisions, management procedures and considerations regarding options for the future provision of cemetery services.

- Pedestrian Improvements

  As part of the Devonport City Council Strategic Plan 2009 – 2030, Mersey Bluff precinct is identified as a site requiring pedestrian infrastructure improvements to align with the strategic objectives of the Council.

2.2 Road Network

The Mersey Bluff road network is discussed below; the location of each of the roads is shown in Figure 2.

Bluff Road

Bluff Road is classified as a collector road under the *Devonport Road Network Strategy 2016*. The road runs in an east-west alignment and has a single lane in each direction. Bluff Road along with William Street and Victoria Parade form part of the Bluff Ring Road which connects the Mersey Bluff precinct with the Devonport CBD. Bluff Road has a speed limit of 40km/h through the centre of the precinct between William Street Clements Street. Speed humps were installed within the 40km/h zone in 1995 to manage traffic speeds and address speeding concerns. To the east of Clements Street the speed limit is 50km/h. Photos of Bluff Road are shown in Figure 4 and Figure 5.

Figure 4: Bluff Road near Bluff Car Park (facing east)

Figure 5: Bluff Road near Bluff Car Park (facing west)

Bluff Access Road

Bluff Access Road is a narrow two-lane local access road. It functions to provide vehicle access to the Mersey Bluff Caravan Park, the Devonport Surf Life Saving Club car park, Tiagarra Aboriginal Culture Centre and the Mersey Bluff Lighthouse which leads to many conflicting uses of the road space. Speed humps are located along the road to moderate the vehicle speeds. Photos of Bluff Access Road are shown in Figure 6 and Figure 7.

Figure 6: Bluff Access Road near Caravan Park (facing south)

Figure 7: Bluff Access Road near Caravan Park (facing north)

Coles Beach Road

Coles Beach Road is a two-lane local collector road that provides a link between the Mersey Bluff precinct and the Back Beach and Coles Beach to the west. Coles Beach Road has a speed limit of 50km/h. There is no formal provision for parking. Photos of Coles Beach Road are shown in Figure 8 and Figure 9.

Figure 8: Coles Beach Road (facing west)

Figure 9: Coles Beach Road (facing east)

William Street

William Street is a collector road operating in a north-south direction in the vicinity of the precinct. William Street acts as a connection between the Mersey Bluff precinct and the Fourways and eventually connects to the Bass Highway. The speed limit on William Street within the Mersey Bluff precinct is 40km/h. Free, unrestricted on-street parking is permitted on William Street. Photos of William Street are shown in Figure 10 and Figure 11.

Figure 10: William Street near Meercroft Park (facing north)

Figure 11: William Street near Meercroft Park (facing south)

Clements Street

Clements Street operates as a local access road and runs in a north-south direction. Its primary function is to provide access to residential properties and secondary access to Devonport Oval during events. Free, unrestricted parking is permitted on both sides of the road. Photos of Clements Street are shown in Figure 12 and Figure 13.

Figure 12: Clements Street near Meercroft Care (facing south)

Figure 13: Clements Street near Meercroft Care (facing north)

North Fenton Street

North Fenton Street is a two-way local access road operating in a north-south direction in the vicinity of the precinct. North Fenton Street predominantly provides access to residential properties and has provision for free, unrestricted parking on both sides of the street. Photos of North Fenton Street are shown in Figure 14 and Figure 15.

Figure 14: North Fenton Street near Gloucester Street Intersection (facing south)

Figure 15: North Fenton Street near Gloucester Street Intersection (facing north)

North Street

North Street is a two-way local access road that intersects with William Street. The primary function of the street is to provide access to residential properties. Free unrestricted parking is permitted on both sides of the street. Photos of North Street are shown in Figure 16 and Figure 17.

Figure 16: North Street near Meercroft Care (facing west)

Figure 17: North Street near Meercroft Care (facing east)

Gloucester Avenue

Gloucester Avenue operates as a local access road and runs in an east-west direction. Its primary function is to provide access to residential properties and the Bass Strait Maritime Centre. Free, unrestricted parking is permitted on both sides of the road. Figure 18 and Figure 19 show photos of Gloucester Avenue.

Figure 18: Gloucester Avenue Near BSMC (facing east)

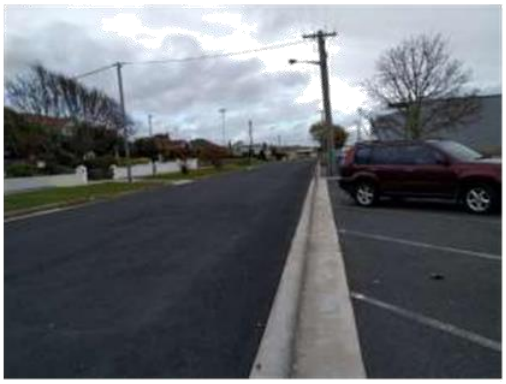

Figure 19: Gloucester Avenue near BSMC (facing west)

2.3 Car Parking

2.3.1 Overview

There are numerous car parking options within a short walking distance of the Mersey Bluff precinct and its attractions and facilities.

Devonport City Council requested that car parking surveys be undertaken at the off-street car parks and 90 degree on-street parking within the precinct. Locations of the car parking surveyed are shown in Figure 20 with parking space configurations and supply shown in Table 2. Photos taken on-site at each of the car parks is shown in Figure 21 to Figure 32.

It is noted that the car park at the rear of the Devonport Surf Life Saving Club is reserved for Mrs Jones restaurant and Draft café customers. These spaces are often used by other visitors to the precinct.

The supply of spaces in unmarked 90 degree parking areas was determined by measuring the length of the parking area and applying the assumption that all parking spaces are 2.5m wide.

In addition to the parking spaces shown in Table 2 and Figure 20, on-street parallel car parking is also permitted on the majority of roads within the precinct.

Figure 20: Existing Parking on Site

Table 2: Parking Information

Location	Parking Type	No. of Spaces	Major Parking Demand Generation
A	On-street, 90 degree unmarked bays	75	Meercroft Park
B	On-street, 45 degree marked bays	20	Bass Strait Maritime Centre
C	On-street, 90 degree marked bays	16	Bass Strait Maritime Centre
D	Off-street, 90 degree unmarked bays	10	Bass Strait Maritime Centre
E	Off-street, 90 degree unmarked bays	10	Devonport Oval, Coastal Pathway
F	On-street, 90 degree marked bays	88	Meercroft Park, Devonport Surf Live Saving Club
G	On-street, 90 degree marked bays	57	Meercroft Park
H	On-street, 90 degree marked bays	40	Devonport Surf Life Saving Club
I	On-street, 90 degree marked bays	8	Tiagarra Aboriginal Culture Centre
J	On-street, 90 degree marked bays	24	Tiagarra Aboriginal Culture Centre, Mersey Bluff Lighthouse
K	On-street, 90 degree marked bays	13	Mersey Bluff Lighthouse

Figure 21: Parking Location A

Figure 22: Parking Location B

Figure 23: Parking Location C

Figure 24: Parking Location D

Figure 25: Parking Location E

Figure 26: Parking Location F

Figure 27: Parking Location G

Figure 28: Parking Location H

Figure 29: Parking Location I

Figure 30: Parking Location J (1)

Figure 31: Parking Location J (2)

Figure 32: Parking Location K

2.3.2 March Car Parking Surveys (Off-Peak Demand)

Parking occupancy surveys were undertaken for the car parking spaces shown in Figure 20. The dates and times of the car parking surveys are shown below. Devonport City Council requested that these times be counted to represent peak usage of the precinct during the off-peak season.

- Thursday 15th March 2018 3:00pm – 7:00pm
- Saturday 17th March 2018 8:00am – 7:00pm
- Saturday 24th March 2018 8:00am – 7:00pm

The parking occupancy survey results were analysed to determine the demand and variations in demand over the survey days. In order to determine available parking for each attraction and facility within the Mersey Bluff precinct, all identified parking spaces were allocated to an attraction or facility based on the location of the space. The facilities that parking spaces were allocated to are:

- Mersey Bluff Lighthouse
- Devonport Surf Life Saving Club
- Bluff Car Park
- Meercroft Park
- Bluff Car Park Near Devonport Oval
- Bass Strait Maritime Centre

Locations and number of parking spaces allocated to each facility is shown below in Figure 33.

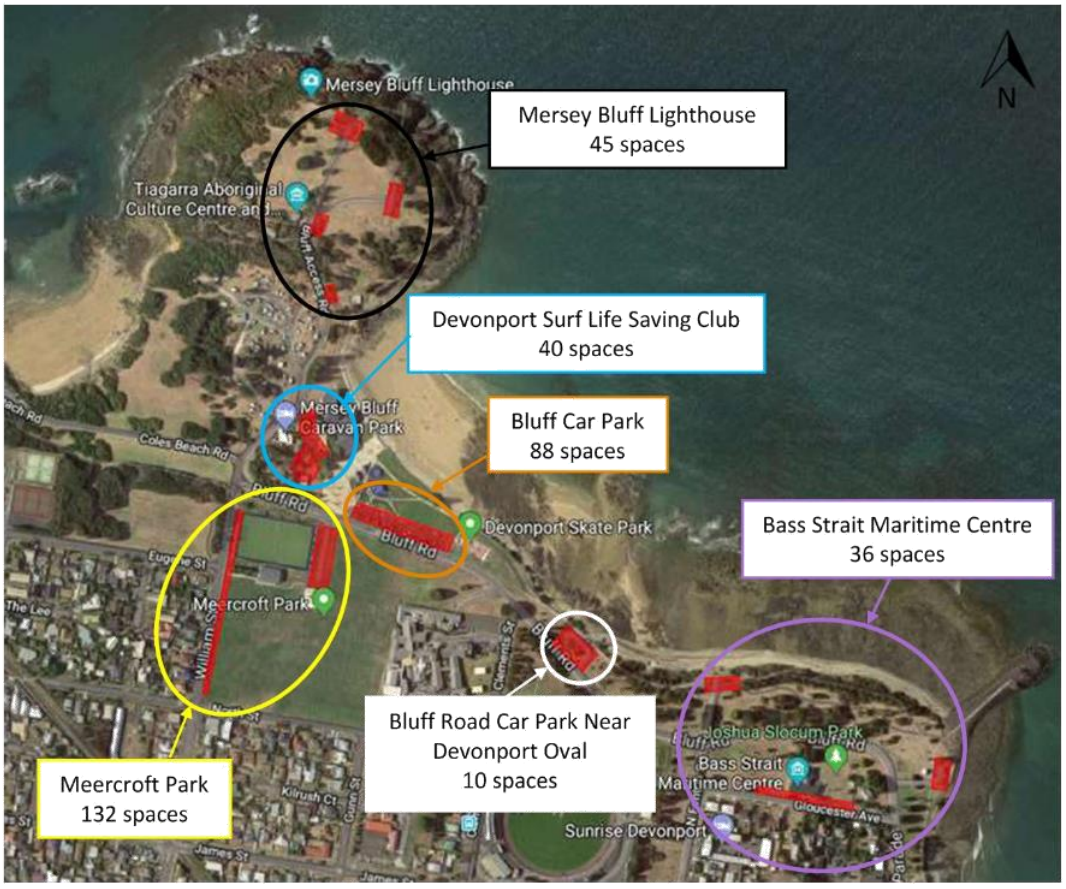

Figure 33: Parking Regions in Mersey Bluff Precinct

The car parking demand across all three survey days is discussed below. Full survey results are provided in Appendix C.

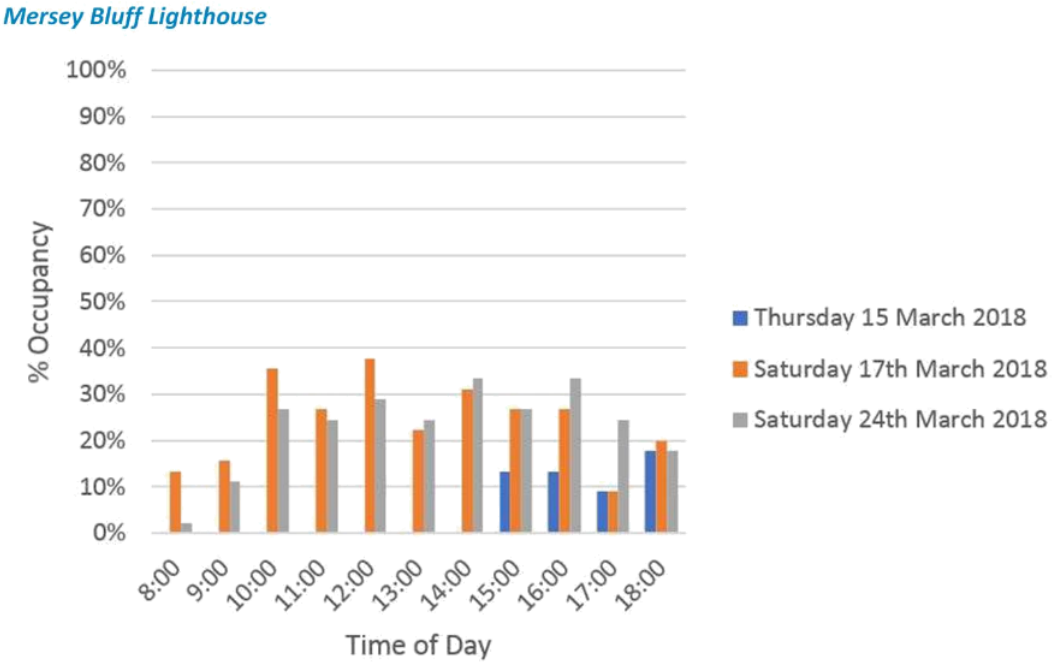

Figure 34: Mersey Bluff Lighthouse Vicinity Parking Occupancy Results

The parking occupancy survey results indicate that the utilisation of the parking in the vicinity of Mersey Bluff lighthouse is moderate, with a maximum occupancy of 38%. As a result, a minimum of 28 out of the 45 spaces were vacant at all surveyed times.

As shown in Figure 34, the utilisation of parking in the vicinity of the Mersey Bluff Lighthouse is lower on the Thursday compared to the Saturday. Thursday was recorded to have a maximum occupancy of 18%. This results in 37 of the 45 spaces being vacant on Thursday between 3pm and 7pm.

Utilisation of the parking spaces is moderate on a Saturday between 10am and 4pm. At all other surveyed times on Saturday, parking utilisation was low with a minimum of 34 spaces out of 45 spaces being vacant.

The utilisation of parking between 8am and 1pm was recorded to be higher on Saturday 17th March compared to Saturday 24th March. Utilisation on 24th March was higher between 1pm and 6pm.

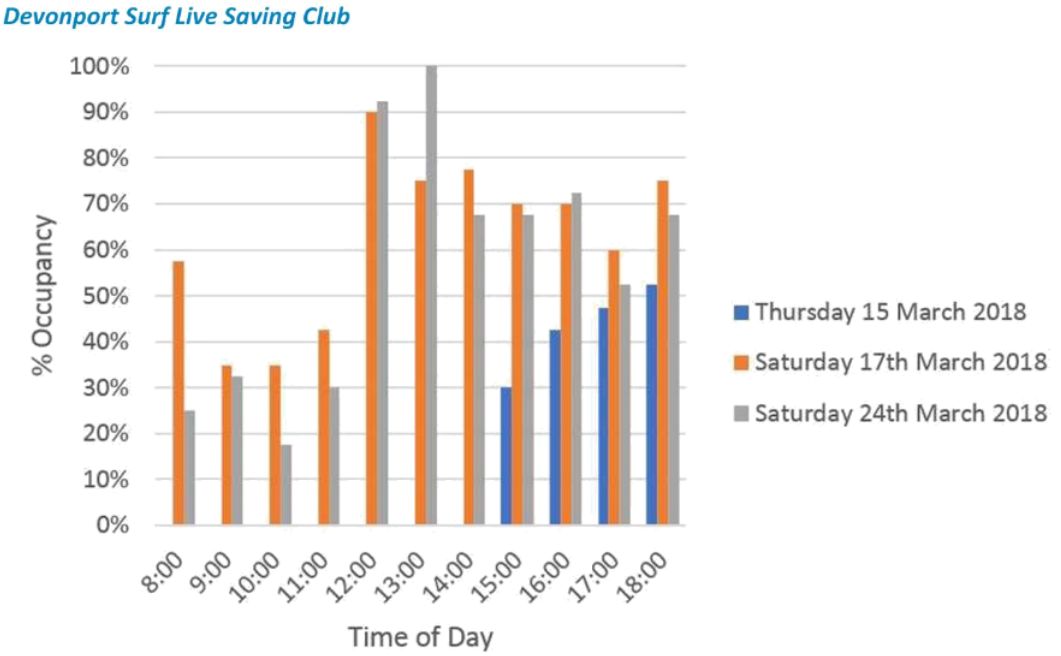

Figure 35: Devonport Surf Life Saving Club Vicinity Parking Occupancy Results

Parking in the vicinity of Devonport Surf Club is indicated to be high based on the results of the parking occupancy survey results. At times, the parking utilisation is shown to be 100%.

Based on the results shown in Figure 35, it is seen that parking utilisation is high between 12pm and 7pm on Saturdays and moderate on Thursdays during the survey period.

It is understood that training occurs at the Surf Life Saving Club on Saturdays between 12pm and 2pm resulting in an increased demand in parking during this time.

Mrs Jones restaurant opens between 12pm and 10on Wednesday to Sunday. Drift Café is open on Saturday between 8:30am and 10pm, Sunday between 9:00am and 4:00pm and on weekdays between 11:00am and 4:00pm. It is understood that both are popular on Saturdays with high patron numbers after 2pm on Saturdays. This would be expected to contribute largely to the increase parking demand in the vicinity of the Life Saving Club on Saturdays after 2pm.

The parking occupancy results on Thursdays show the occupancy increases after 3:00pm to align with the afternoon and dinner peak at Drift Café and Mrs Jones restaurant.

Figure 35 shows that the parking occupancy is moderate on Saturday 17 March at 8am but low on Saturday 24 March. This is likely contributed to by Parkrun and a hockey game on the morning of Saturday 17th March.

Bluff Car Park

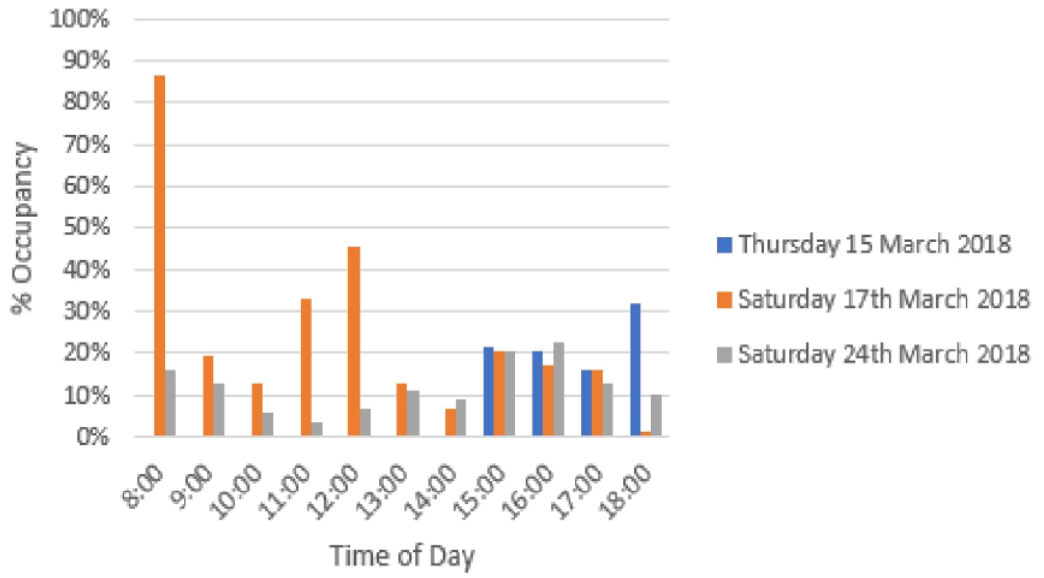

Figure 36: Bluff Car Park Occupancy Results

As shown in Figure 36, parking utilisation in Bluff Car Park is high on Saturday 17 March between 8am and 9am with a maximum occupancy of 86%. This results in a minimum of 12 of the 88 parking spaces being vacant. The increase in parking during this time is understood to be due to Parkrun and the hockey game taking place in Meercroft Park.

Parking is moderate in Bluff car park on Saturday 17 March between 12pm and 1pm. This is understood to be due to the good weather on the day attracting a higher number of people to Mersey Bluff.

At all other times and days where surveys were undertaken, parking utilisation in this car park was low with a minimum of 60 of the 88 parking spaces being vacant.

Bluff Road Car Park Near Devonport Oval

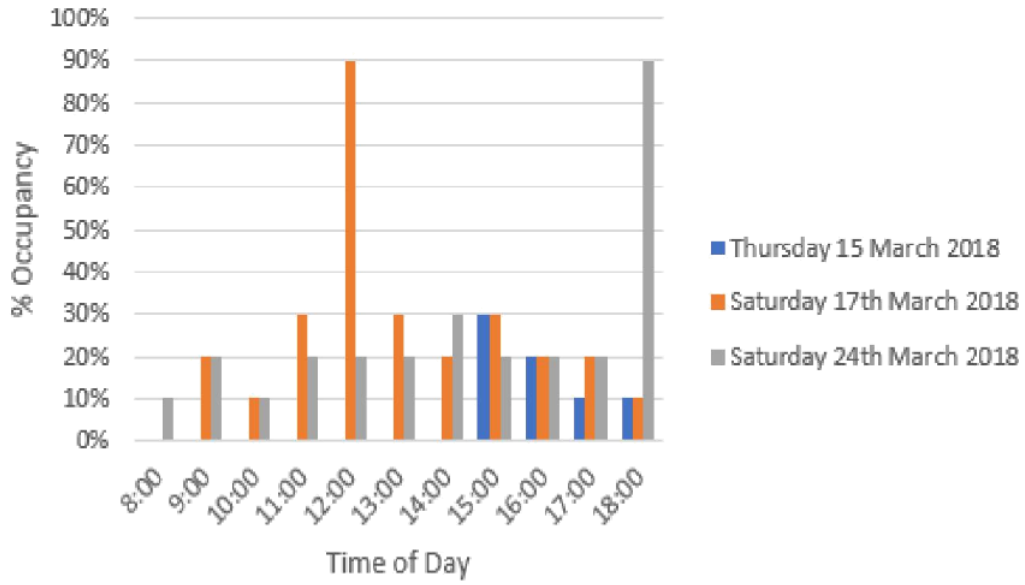

Figure 37: Bluff Road Car Park between Clements Street and North Fenton Street Occupancy Results

Figure 37 shows parking occupancy survey results for the car park on Bluff Road near Devonport Oval. The results show parking utilisation to be high on Saturday 17th March between 12pm and 1pm and on Saturday 24th March between 6pm and 7pm. The high occupancy at these times is understood to be as a result of the cricket training held at the Devonport Oval. Cricket training times were obtained from the cricket team website. The utilisation during these times is 90% with 1 out of the 10 parking spaces being vacant.

At all other surveyed times, parking occupancy was low with a maximum occupancy of 30%. This results in 7 of the 10 parking spaces being vacant.

Meercroft Park

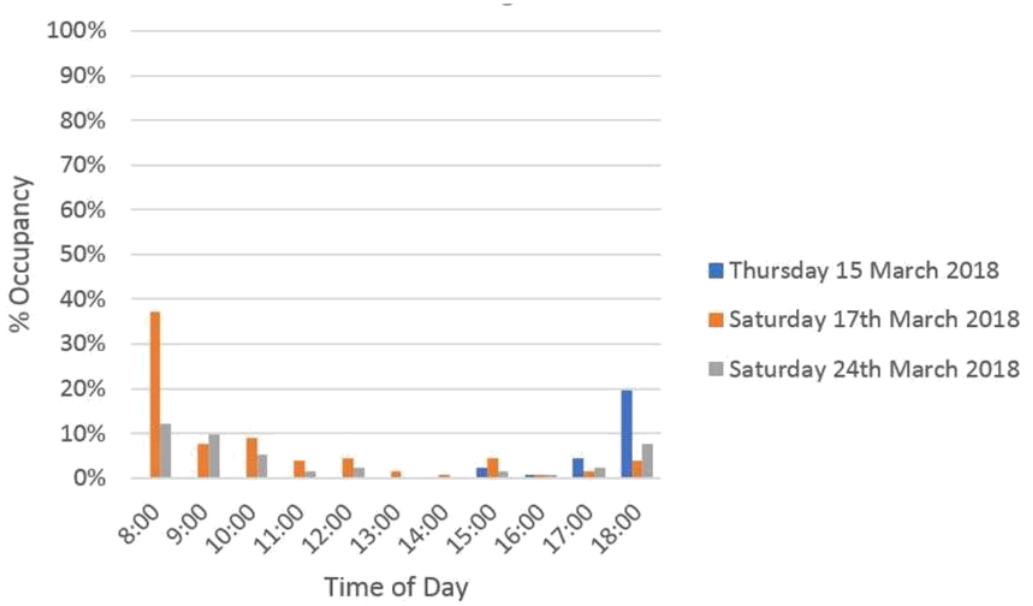

Figure 38: Meercroft Park Vicinity Parking Occupancy Results

Figure 38 shows the results of the parking occupancy surveys undertaken in the vicinity of Meercroft Park. The results show the utilisation of the car park to generally be low.

Between 8am and 9am on Saturday, the car parking utilisation is slightly higher with 49 of the 132 parking spaces recorded to be filled.

A small increase in car parking utilisation was also recorded on Thursday between 6pm and 7pm where a 20% utilisation was recorded.

In order to gain a better understanding of the car parking survey results in the vicinity of Meercroft Park, the on-street car parking spaces on the east side of William Street and the off-street car parking spaces at the North-West Hockey Centre have been analysed individually. The locations of the two car parks are shown in Figure 39 and the results of the analysis is shown in Figure 40 and Figure 41.

Figure 39: Parking Locations in Vicinity of Meercroft Park

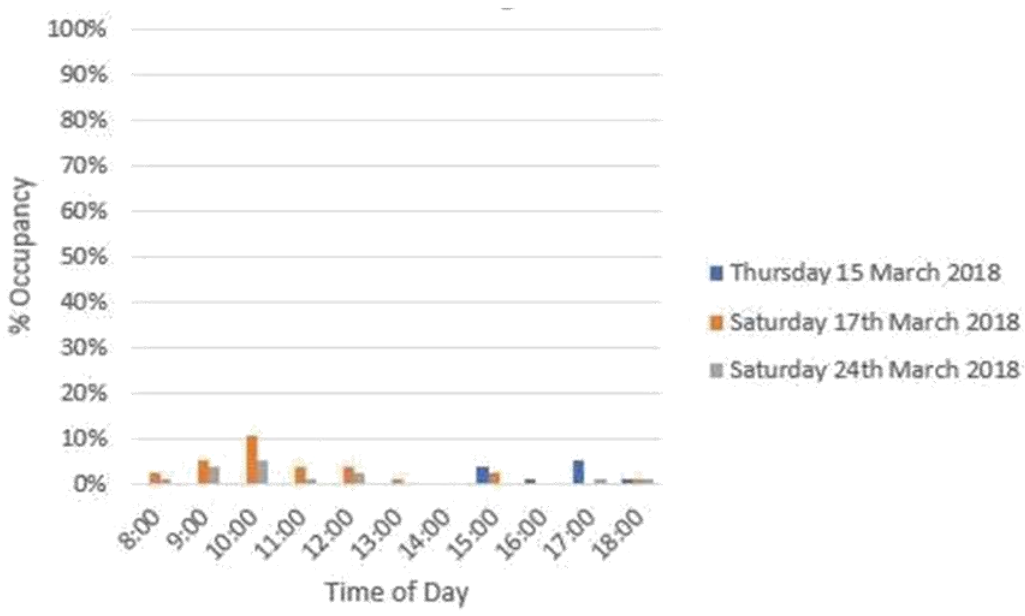

Figure 40: William Street Parking Occupancy Results

Figure 40 shows the parking occupancy survey results for the on-street car parking spaces on the east side of William Street. Based on the results, it can be seen that low utilisation rates have been recorded for the car park on all three days.

The low occupancy of this car park is understood to be as a result of the location of the car parking further away from Bluff Road and they major attractions that other parking areas. Although the car park is in the vicinity of Meercroft Park, parking on William Street requires pedestrians to walk around the block to access the Hockey Centre. The car park is also across from residential dwellings that offer off-street parking.

Survey results were also analysed for the off-street car park at the North-West Hockey Centre. The results of this survey are shown in Figure 41.

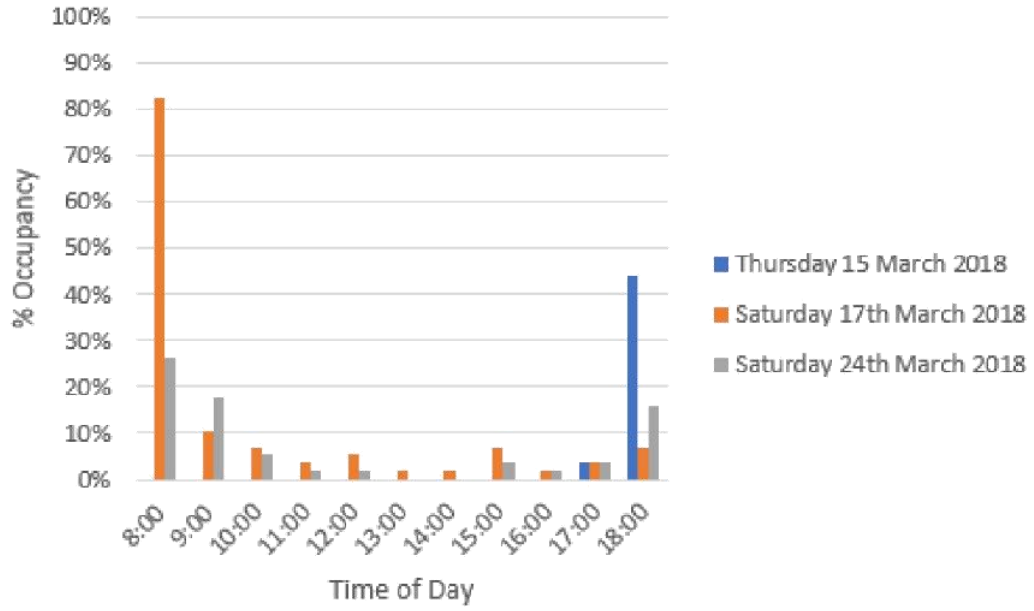

Figure 41: North-West Hockey Centre Off-Street Car Parking Occupancy Results

Based on Figure 41, it can be seen that utilisation of the off-street car park is high on Saturday 17th between 8am and 9am. This is understood to be as a result of Park Run. The utilisation rate between 8am and 9am was recorded to be 82% which results in 10 of the 57 parking spaces being vacant.

Utilisation of the car park is moderate on Thursday 15th between 6pm and 7pm with a utilisation rate of 44%. 32 of the 57 spaces are vacant at this time. This utilisation is understood to be as a result of hockey training taking place.

At all remaining times surveyed, the utilisation of the off-street car park was recorded to be low with a maximum utilisation of 26%. This resulted in 42 of the 57 parking spaces being vacant.

Bass Strait Maritime Centre

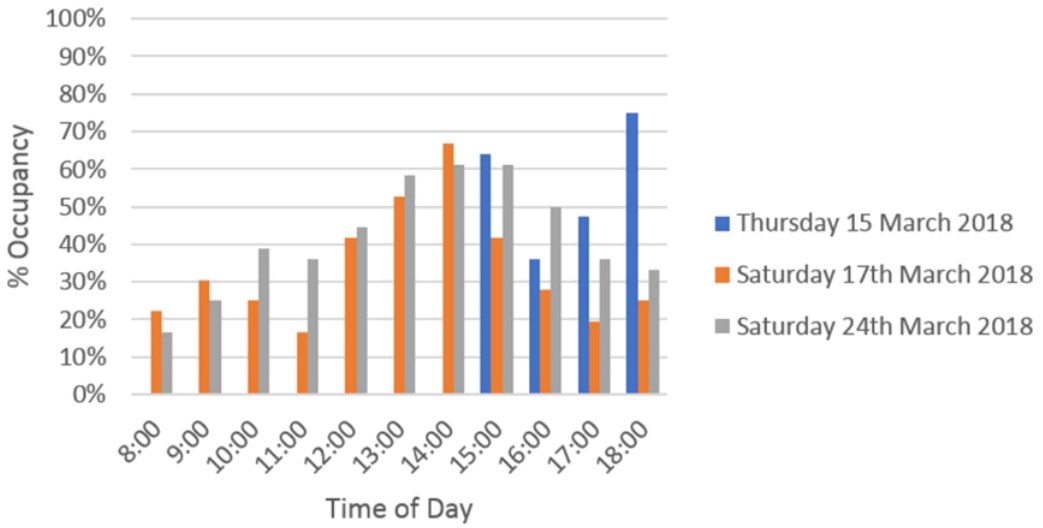

Figure 42: Bass Strait Maritime Centre Vicinity Parking Occupancy Results

The parking occupancy survey results indicate that the utilisation of the parking in the vicinity of Bass Strait Maritime Centre is typically moderate, with an average occupancy of 44%.

For the parking occupancy survey undertaken on Thursday, it is seen that car parking utilisation is high between 6pm and 7pm. This is as a result of the event occurring at the Bass Strait Maritime Centre on Thursday starting at 6pm.

2.3.3 Car Parking Demand and Observations Summary

Overall observations made from the analysis of the parking data are as follows:

- During times when Meercroft Park is not being used for soccer or hockey games or training, the off-street North West Hockey Centre car park is recorded to have low occupancy. At times where Meercroft Park is being used for games and training, the parking occupancy is recorded to be high
- Until 12pm on Saturdays, parking in the vicinity of the Devonport Surf Life Saving Club is recorded to have a low occupancy. After 12pm moderate to high occupancy is recorded at the car park
- Parking in the vicinity of Mersey Bluff Lighthouse is overall recorded to have moderate occupancy between 10am and 5pm and low occupancy at all other times. This is expected to be due to visitors accessing the Mersey Bluff Lighthouse and Tiagarra Aboriginal Culture Centre
- Bluff Car Park is recorded to have a high occupancy when Park Run is taking place. At most other times, the car park is recorded to have low occupancy
- Bluff Road Car Park near Devonport Oval is recorded to have a low occupancy at all times where events are not taking place at the Devonport Oval. At times where events are taking place, parking occupancy is recorded to be high
- Car parking spaces in the vicinity of the Bass Strait Maritime Centre are recorded to have moderate occupancy between 10am and 5pm on Saturdays with low occupancy at all other times. This is expected to be due to the increased visitor numbers to the centre during this time.

2.3.4 Peak Parking Demand

As discussed, the parking demand discussed in Section 2.3.2 represent typical busy periods at the precinct during an off-peak season. The car parking demand is higher during the junior soccer competition and in the middle of summer due to increased tourism to the area. Junior soccer competitions take place between May and September. Summer tourism is understood to be high between November and March.

In order to determine the level of car parking demand during the peak seasons, **pitt&sherry** staff undertook a site visit on Saturday 19 May 2018. The site visit coincided with junior soccer games. The following observations were made during the site visit:

- The Bluff Road Car Park (location E) was effectively full
- Vehicles were parked parallel on the southern side of Bluff Road leading to a reduced through traffic width requiring vehicles to cross the centreline, it is understood on some days vehicles park on both sides effectively reducing Bluff Road to a single lane
- 15 of the 75 spaces were vacant in the William Street on-street park (parking location A). This is a high utilisation of the car park
- There was high utilisation of on-street parallel parking on the western side of William Street between Bluff Road and North Street and on both sides of Eugene Street and North Street in the vicinity of Meercroft Park
- The Meercroft Park off street car park (location G) was effectively full.

Based on the above observations, it can be determined that the car parks in the Mersey Bluff precinct have significantly higher utilisation during the peak periods of demand.

The observations show that the car parking spaces in the vicinity are already utilised the junior soccer matches. Based on the observations, there appears to be a need for additional car parking in the vicinity.

Photos showing the car parking demand during the junior soccer matches on Saturday 19th May is shown in Figure 43 to Figure 48.

Figure 43: William Street On-Street Car Park (Location A)

Figure 44: North-West Hockey Centre Off-Street Car Park (Location G)

Figure 45: Parking Along Bluff Road

Figure 46: Parking in Bluff Car Park (Location F)

Figure 47: Parking Along Clements Street

Figure 48: Parking Along North Street

2.4 Traffic

2.4.1 Traffic Volumes

Devonport City Council provided traffic count data for various locations within the Mersey Bluff precinct. Locations of the traffic counts are shown in Figure 49 and a summary of the traffic count data is summarised in Table 3. Detailed traffic volume data is included in Appendix D.

Figure 49: Traffic Count Locations

Table 3: Traffic Count Summary

Location	Time of Count	Average Weekday Traffic (vehicles/ day)	Average Weekly Traffic (vehicles/ day)	Weekday Peak (vehicles/ day)	Weekend Peak (vehicles/ day)
Location 1	10/11/2017 – 21/12/2017	1496	1495	1629	1517
Location 2	10/11/2017 – 21/12/2017	1478	1563	1662	1796
Location 3	10/11/2017 – 21/12/2017	2524	2573	2893	2735
Location 4	10/11/2017 – 21/12/2017	2223	2312	2304	2634
Location 5	2/12/2014 – 18/12/2014	1769	1836	2020	2350
Location 6	10/11/2017 – 21/12/2017	515	476	562	390
Location 7	3/11/2011 – 18/11/2011	288	266	360	288
Location 8	10/11/2017 – 21/12/2017	2274	2344	2408	2603

Based on the above, it is seen that the Mersey Bluff precinct is a major attraction in Devonport with significant traffic volumes.

1,495 vehicles per day were recorded on Coles Beach Road (Location 1). The number of vehicles recorded on a weekday is also seen to be higher than the number of vehicles recorded on a weekend.

Bluff Access Road (Location 2) is recorded to have an average traffic volume of 1,563 vehicle per day. Weekend traffic volumes is recorded to be higher than weekday traffic.

Two different traffic counts are available on Bluff Road between William Street and Clements Street (Location 3 and Location 4). The traffic count data shows Location 3 and Location 4 to have an average daily traffic volume of 2,573 vehicle per day and 2,312 vehicles per day respectively. Location 3 is recorded to have a higher weekday volume compared to Location 4 which records a higher weekend volume.

Traffic counts are also available on Bluff Road near North Fenton Street (Location 5). However, these traffic counts were taken in 2014. Traffic volumes at the time show an average daily traffic volume of 1,836 vehicle and a higher traffic volume on a weekend compared to a weekday.

Traffic counts are also available on Clements Street and North Street (Location 6 and Location 7). Note that traffic counts on North Street were undertaken in 2011. Both Clements Street and North Street have a primary function of providing access to residential properties. As such, recorded traffic volumes on these streets are low compared to other recorded traffic volumes in the vicinity. The average daily traffic volumes in these locations are recorded to be 476 vehicles per day and 266 vehicles per day respectively. Both locations are recorded to have a higher weekday volume compared to the weekend volume.

William Street (Location 8) is recorded to have an average daily traffic volume of 2,344 vehicle per day and the weekend volume is recorded to be higher than the weekday traffic volume.

2.4.2 Traffic Speeds

It is understood that speeding has been a long-term issue in the Mersey Bluff precinct. In order to determine vehicles driving over the speed limit, traffic count data was analysed with respect to vehicle speeds. It is noted that some of the traffic counters were not operating correctly during the survey period. As such, data from days when the counters were not operating correctly has been removed from analysis.

Traffic count locations are shown in Figure 49. Summary of the vehicle speed data is shown in Table 4. Complete speed data (including data collected when traffic counters are not working correctly) is included in Appendix E.

Table 4: Vehicle Speed Summary

Location	Location Description	Speed Limit (km/h)	Percentage of Vehicles Travelling Over Speed Limit	Percentage of Vehicles Travelling > 10km/h Over Speed Limit
Location 1	Coles Beach Road	50	44.4%	8.0%
Location 2	Bluff Access Road	40	3.4%	0.3%
Location 3	Bluff Road West	40	3.0%	0.3%
Location 4	Bluff Road Middle	40	3.1%	0.2%
Location 5	Bluff Road East	50	35.3%	1.6%
Location 6	Clements Street	50	4.7%	0.7%
Location 7	North Street	50	8.9%	0.6%
Location 8	William Street	40	5.4%	0.2%

Based on the above, it is seen that out of the 8 locations analysed, less than 10% of vehicles are speeding in 6 of the locations. As such, speeding is not considered to be a major issue at these 6 locations.

Larger percentages of traffic were observed to speed at Location 1 (Coles Beach Road) and Location 5 (Bluff Road East). Further analysis of these locations is provided below.

Location 1 - Coles Beach Road

As shown in Table 4, almost 45% of vehicles were recorded travelling over the 50km/h speed limit on Coles Beach Road, with 8% observed travelling at over 60km/h. Further analysis has been undertaken into the vehicle speeds as shown in Table 5 and Figure 50.

Table 5: Coles Beach Road Speed Data

Speed Bin	% of Vehicles 13 -19 Nov 2017	% of Vehicles 20-26 Nov 2017	% of Vehicles 4-10 Dec 2017	% of Vehicles 11-17 Dec 2017
10-20	0.8	0.5	0.4	0.3
20-30	1.2	1.7	1.5	1.4
30-40	8.4	8.2	8.8	7.7
40-50	45.7	45.9	45.4	44.4
50-60	36.0	36.7	35.8	37.2
60-70	6.4	5.9	6.6	7.3
70-80	0.9	0.8	1.1	1.2
80-90	0.4	0.3	0.2	0.3
90-100	0.1	0.1	0.1	0.1
100-110	0.0	0.0	0.1	0.0
110-120	0.0	0.0	0.0	0.0

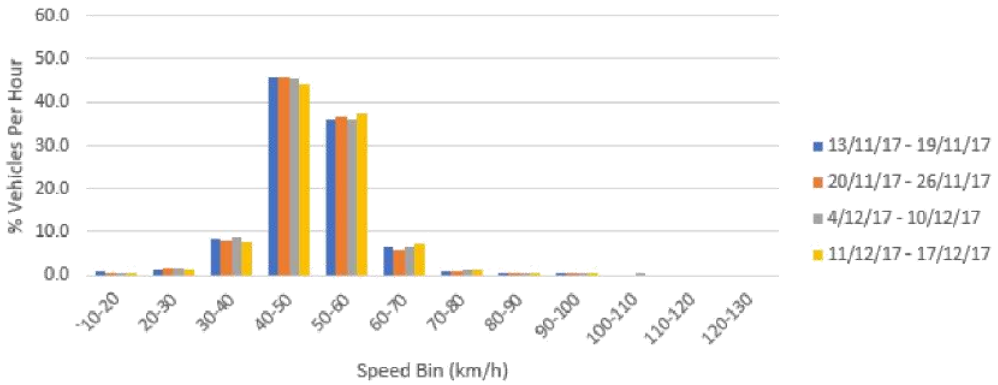

Figure 50: Coles Beach Road (Location 1) Vehicle Speed Data

Based on the above, most vehicles were recorded to travel at speeds between 40km/h and 60km/h on Coles Beach Road. 6.6% of vehicles on average are travelling at speeds between 60km/h and 70km/h and 0.1% of vehicles are travelling at speeds over 90km/h.

As discussed in Section 2.4.2, the traffic counters on Coles Beach Road were not operating correctly at some points during the survey period. While data from days when the counters were not operating correctly has been removed, some recorded speeds could be incorrect (particularly high speeds over 80km/h).

Location 5 - Bluff Road East

Table 6 and Figure 51 below show the traffic data collected at Location 5 – Bluff Road East in more details.

Table 6: Bluff Road East Speed Data

Speed Bin	% of Vehicles 5 –11 Dec 2017
10-20	0.2
20-30	1.9
30-40	11.3
40-50	51.3
50-60	32.1
60-70	2.8
70-80	0.3
80-90	0.1
90-100	0.0
100-110	0.0

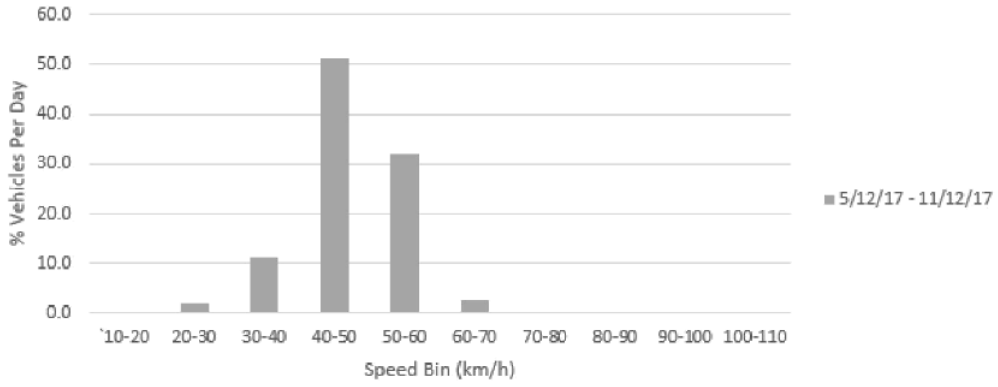

Figure 51: Bluff Road East (Location 5) Vehicle Speed Data

Based on the above, most vehicles travel at speeds between 40km/h and 60km/h. Of the 35.3% of vehicles travelling over the speed limit, 3.2% of vehicles are travelling over 60km/h and 0.1% of vehicles are travelling at speeds over 80km/h.

As discussed in Section 2.4.2, the traffic counters on Bluff Road East were not operating correctly at some points during the survey period and therefore only a week of data was considered to be valid to analyse. While data from days when the counters were not operating correctly has been removed, some recorded speeds could be incorrect (particularly high speeds over 80km/h).

2.5 Public Transport

Merseylink Buses provide the public transport services within Devonport. Merseylink operate bus services 15 and 25 within close proximity of the Mersey Bluff Precinct.

Bus route 15 operates along William Street and North Fenton Street. These bus routes operate 30 minutes between 7:30am – 9am and 2:30pm – 4:30pm. At other times, buses operate at hourly intervals. All services on bus route 15 conclude at 6:15pm.

Bus route 25 operates on North Street, James Street and Clements street at hourly intervals. All services on this route conclude at 4:30pm.

The nearest bus stops to the Mersey Bluff Precinct are located on North Street at the southern boundary of the Meercroft Aged Care facility. The distance and time taken to the various attractions in the precinct from the bus stops on North Street are shown in Table 7.

Table 7: Walking Distance and Time to Attractions from Bus Stop on North Street

Attractions	Distance (meters)	Expected walking time (minutes)[1]
Meercroft Aged Care Facility	Outside-300 (depending on entrance)	0-4 (depending on entrance)
Meercroft Park	50-400 (depending on entrance)	1-5 (depending on entrance)
North-West Hockey Centre	600	8
Bluff Playgrounds	700	9
Drift Café/ Mrs Jones Restaurant	750	9
Tiagarra Aboriginal Culture Centre and Museum	1,000	14
Mersey Bluff Lighthouse	1,500	20
Bass Strait Maritime Centre	1,500	20

Based on the walking distances and times above, the bus stops are not considered to be located within a convenient distance to the majority of attractions within the Mersey Bluff Precinct.

2.6 Pedestrian and Cycling Facilities

The North-Wet Coastal Pathway (shown in Figure 52) provides a walking and cycling pathway through the Mersey Bluff Precinct along the coastline. The pathway has regional significance as it will connect, upon completion, Devonport with several towns along the North-West Coast. The Bluff Headland Walk (shown in Figure 53) provides a walking connection between the North-West Coastal Pathway and the Mersey Bluff Lighthouse. Both paths are well used, are of a high-quality and have clear wayfinding signage. These high quality paths draw many pedestrians and cyclists to the Mersey Bluff Precinct but once off this path the pedestrian and cycling connections and wayfinding signage tend to stop.

Within the remainder of the Mersey Bluff precinct, the presence and quality of pedestrian paths is much lower with many roads not having footpaths. There is very little wayfinding signage for pedestrians located in other parts of the precinct. Footpaths are present on the southern side of North Street and Eugene Street,

[1] Expected walking time has been calculated assuming pedestrians walk on the available footpaths only

both sides of North Fenton Street and William Street and on the west side of Clements Street and Gloucester Avenue.

A location which was observed to be well used by pedestrians, particularly as walking/running route was Bluff Access Road. Bluff Access Road does not have a footpath and therefore walkers and runners were using the road. The narrow and winding nature of the road means that pedestrians are not visible to drivers around corners.

There are limited road crossing points that provide DDA access between the existing pedestrian paths and footpaths. This is particularly notable on Bluff Road which has attractions, parking and footpaths on both sides of the road but only one crossing point near the Meercroft Aged Care facility which is difficult to access and does not meet current DDA requirements.

There are several missing links between footpaths and attractions, particularly to the Bass Strait Maritime Centre.

There are no on-street bike lanes within the Mersey Bluff precinct.

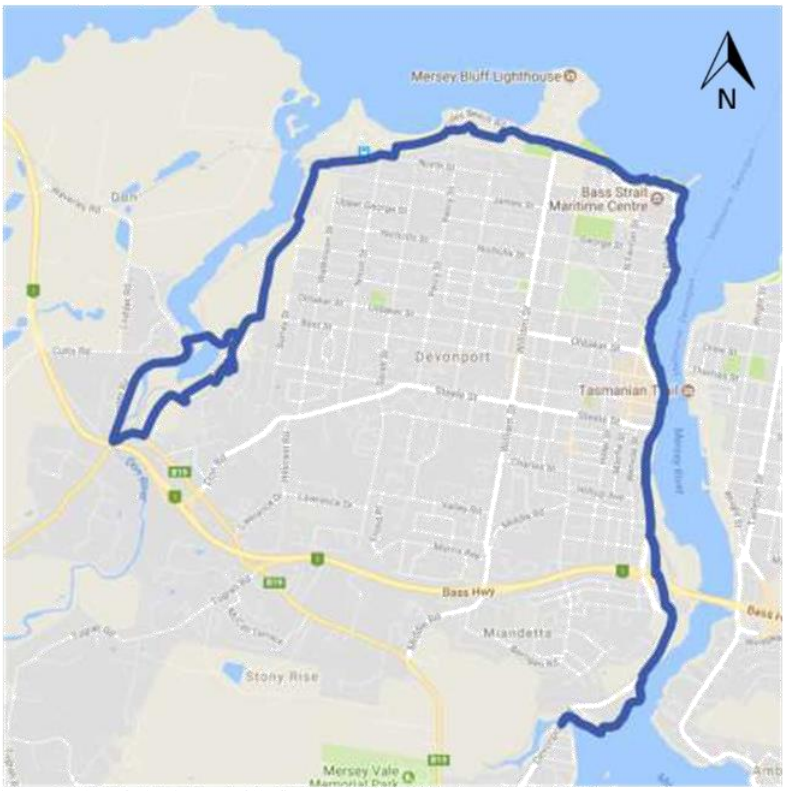

Figure 52: North-West Coastal Pathway

Figure 53: Bluff Headland Path

2.7 Crash History

The Department of State Growth has provided crash data in the vicinity of the Mersey Bluff precinct. The data provided was for the most recent 5-year period. Locations of the crashes are shown below in Figure 54 and a summary of the crashes occurring in the Mersey Bluff precinct is provided in Table 8.

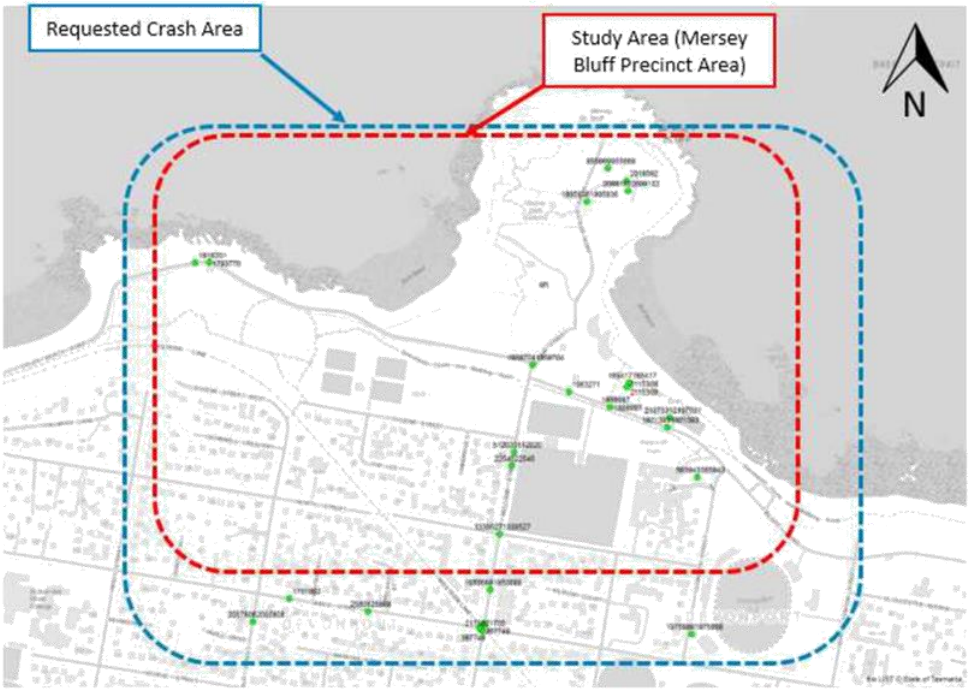

Figure 54: Crash Data Location

Table 8: Summary of Crash Data

Location	Crash Type	Severity	Count
William Street	142 – Leaving parking	Property Damage Only	1
	163 – Vehicle door	Property Damage Only	1
William Street/North Street Intersection	121 – Right through	Property Damage Only	1
Meercroft Care Car Park	144 – Leaving vehicles only	Property Damage Only	1
Coles Beach Road	189 – Other curve	Property Damage Only	2
Coles Beach Road/ William Street Intersection	110 – Cross traffic	Minor	1
Bluff Road	130 – Vehicle in same lane/rear end	Minor	1
	142 – Leaving parking	Property Damage Only	1
	179 – Other straight	Property Damage Only	1
Bluff Car Park	144 – Parking vehicles only	Property Damage Only	2
	149 – Other manoeuvring	Property Damage Only	1
Bluff Access Road Car Park	142 – Leaving parking	Property Damage Only	1
	149 – Other manoeuvring	Property Damage Only	3

The crash data above indicates that the majority of crash types recorded in the most recent five-year period have occurred once and most have resulted in property damage only. A large portion occurred within the car parks involving manoeuvring vehicles.

The two minor injury crashes are not related and there are no crash patterns observed.

Based on the above, there do not appear to be any significant crash issues within the Mersey Bluff precinct.

2.8 Wayfinding Signage

Road signage is currently present on major roads that provide directions to Mersey Bluff. However, there is currently limited signage for any of the destinations within the subject site. In areas within the subject site where signage is present, the signage is not at critical decision-making points. This can lead to confusion for users who are unfamiliar with the area.

Photos taken on site of available signage is shown in Figure 55 to Figure 74.

Figure 55: Parking Sign for Vietnam War Memorial Car Park (facing north)

Figure 56: Parking Sign for Vietnam War Memorial Car Park (facing south)

Figure 57: Mrs Jones Café Car Park Signage

Figure 58: Tiagarra Aboriginal Culture Centre Car Park Signage

Figure 59: Wayfinding for The Hat

Figure 60: Wayfinding for Bluff Headland

Figure 61: Mersey Bluff Totem Signage near Bluff Road/ Clements Street Intersection (facing east)

Figure 62: Mersey Bluff Totem Signage near Bluff Road/ Clements Street Intersection (facing west)

Figure 63: W6-7 sign along Bluff Road

Figure 64: Meercroft Park Signage along Bluff Road (facing west)

Figure 65: Mersey Bluff Totem Signage near Bluff Road/ William Street intersection (facing north)

Figure 66: Mersey Bluff Totem Signage near Bluff Road/ William Street intersection (facing south)

Figure 67: Mersey Bluff Information Sign near Bluff Playground

Figure 68: Signage for Public Toilet near Bluff Car Park

Figure 69: Mersey Bluff Information Sign near Vietnam War Memorial Park

Figure 70: Vietnam War Memorial Park Sign

Figure 71: Bluff Road Bass Strait Maritime Centre Sign

Figure 72: Victoria Parade/ Gloucester Avenue Bass Strait Maritime Centre Sign

Figure 73: Bluff Road/ North Fenton Street Bass Strait Maritime Centre Sign

Figure 74: Aged Pedestrian Sign along Bluff Road

3. Stakeholder Consultation

3.1 Consultation Findings

Stakeholder consultation was undertaken on 16 and 17 May 2018. The following points were highlighted during consultation.

Consultation with Meercroft Aged Care Facility

- Vehicles speed and hoon along Clements Street. This makes it difficult for elderly people to cross Clements Street
- Bluff Road has speed issues in area where no speed humps are present making it difficult for elderly people to cross Bluff Road
- A lot of residents have scooters and like to walk along the North-West Coastal Pathway. However, no crossings are present across Bluff Road at a convenient distance from the Aged Care facility
- Residents enjoy watching sport at the sports field
- Day time staff park along Clements Street and North Street on grassy area. The centre has plans to develop a car park on the grassy area of the site to accommodate 27 vehicles
- The centre is about to build 4 more units which will encroach on their existing car park
- They have discussed car parking on the periphery of the site with Council but 90-degree parking on North Street was not considered feasible
- The aged care facility is considering building a multi-storey car park
- Night staff park on site due to security reasons
- The centre wants to encourage anything that results in more recreational activities for residents

Consultation with Bass Strait Maritime Centre (BSMC)

- 6 cruise ship buses arrive per day during summertime for each cruise ship arriving. Buses can arrive anytime. Approximately 31 cruise ships arrive over summer
- When the café was open, breakfast buses would arrive around 7:30. This happened between September and March with approximately 12 breakfast buses a year. It is planned to reopen the café
- No designated bus parking available near the BSMC so buses park in car spots. Residents complain about noise from the buses
- Visitors to centre include foot traffic and cyclist traffic
- Currently no bike racks are present near the centre and there is no pedestrian access across the road
- There is no pedestrian access to the centre from the War Memorial Car Park where a lot of larger vehicles such as campervans park
- Approximately 20,000 visitors per year (10,000 to museum, 10,000 to café) which results in approximately 24 visitors per day
- There is adequate parking for daily operation
- Currently there are currently 4-5 staff/volunteers per day and it would be convenient to have another location for volunteer/ staff parking
- Service club meetings are held at BSMC
- When café was open, people would come from Meercroft Aged Centre but there are no convenient walking paths between the two

- Wayfinding signage needed for BSMC as the existing signage is not visible enough and people struggle to find the centre

Consultation with Mrs Jones Restaurant

- Visitors who are not using the restaurant park in parking designated for Mrs Jones Restaurant
- It is a very busy area which is overwhelmed with people during summer (November – March)
- Parking is very difficult during lunch time
- Staff park at Meercroft Park off-street car park
- Better signage needed for car parks in the area
- More parking spaces can be accommodated near the BBQ area
- Wayfinding signage is needed near the caravan park as large vehicles often become confused where to go
- People struggle to find the restaurant from the street and therefore need better wayfinding signage
- The restaurant has 200 seat capacity but typically seats 110 people
- Majority of people drive to restaurant
- Lots of people visiting the restaurant are people who are travelling on the Spirit of Tasmania
- The increased passenger numbers in the new Spirit boats to be introduced in 2020 are expected to bring more visitors to the restaurant
- The Surf Club has a function room and during events parking is limited as all surf club people park in the Mrs Jones car park
- People park on grassed area to the north of the restaurant
- Expressed interest in additional parking on Coles Beach Road

Consultation Park Run

- Park run starts at the information sign and involves a run to the post office and back along the path
- More people attend during summer with an average of 200 runners during summer and 176 runners during winter
- Most runners park at Bluff Car Park, Mrs Jones Restaurant car park and Meercroft park off-street car park
- There are currently issues with crossing Bluff Road
- Lots of people treat the speed humps as pedestrian crossing
- The run starts at 8am on Saturday and finishes at 9am
- Personal training occurs with approximately 20-30 people
- Wheels stops not present throughout Bluff car park which causes many people to park encroaching the footpath
- Shelters in the Bluff area do not provide enough shelter (specially from angled rain)
- Fork in the path results in confusion point + blind spots particularly for bikes
- No pedestrian paths are present along Bluff Access Road causing many people walk on Bluff Access Road

Consultation with DCC Events

- Devonport triathlon uses entire surf club space towards Coles Beach
- Would like more events but weather is an issue
- Drift café holds events on the grassed area
- Overflow parking currently present on grounds during events
- Bluff road car park and Meercroft park off street car park is used by marshals during the triathlon. The car park is closed to the general public
- Additional activity from school triathlon and school end of year activity days. There are up to 4 schools at a time that have events at the bluff
- Would like to encourage more event activity
- Parking is adequate – need to encourage people to utilise other car parks and walk
- People are happy to park further during events
- Need to encourage parking on south side of Bluff Road
- Improvements to the road to encourage a low speed environment would allow the road to remain open during events
- Encourage crossing at specific locations
- Provide priority to pedestrians in the precinct
- Make Meercroft Park off-street car park look like a council car park. Currently, many people think it's a private car park
- Interest in event on top of the bluff. Currently doesn't take place as it needs improved parking, truck access and DDA parking
- Pedestrian access up to the bluff. Cyclists use the path as well, so a shared path may be good idea
- Walking trail is popular during summer
- Allow pedestrian priority along Bluff Road
- New precinct signage required
- Pedestrian crossing points needed at Bluff Road/ William Street intersection

Consultation with Caravan Park and Surf Club

- Members of surf club park at Mrs Jones Restaurant car park
- Influx of caravans when the Spirit of Tasmania arrive
- Suggest installing boom gate to get up to the bluff
- People currently park on grass near Mrs Jones Restaurant
- Surf club is busy Thursday afternoons and Sunday mornings
- People go up into the bluff after 9:30 and camp for free behind the Tiagarra Aboriginal Culture Centre
- Need more speed humps on Bluff Access road before Mrs Jones Car Park
- Priority linemarking near Mrs Jones car park intersection
- Install drop off/ pick up zones for the surf club
- Wayfinding signage up to bluff and for the beach
- Pedestrian/ Vehicle conflicts at caravan park

Consultation with Drift Café (email correspondence only)

- Under-supply of car parking, visitors having difficulty finding a parking space when the visit the café
- Suggest extending the Drift and Mrs Jones car park outside the Devonport Surf Life Saving Club (see Figure 75)
- Existing paved area not fully utilised
- Issues with speeding through the precinct

Figure 75: Car Park Extension Option (concept for discussion)

Consultation with Devonport City Council Parks and Reserves

- Toilet signage could be better as people constantly ask where the toilets are
- Priority at Mrs Jones car park intersection as vehicles are confused who has right of way
- More speed humps along Bluff Access Road as vehicles are hooning
- Junction issues at right turn into Coles Beach Road
- Lots of children crossing the road by themselves
- No bus parking present.

The following businesses/groups were also contacted for consultation but no response was received:

- Rotary Club of Devonport (North Seawalk Proposal)
- Tiagarra Aboriginal Cultural Centre
- Meercroft Park Development Committee.

3.2 Consultation Summary

Based on the consultation undertaken, the following key points were identified:

- Bluff Road is difficult to cross due to limited designated crossing points
- Bus and bike parking is required in the vicinity of BSMC
- There is no signage at the start/ end of the precinct
- Pedestrian and bicycle wayfinding signage needs to be upgraded to include more locations within the Mersey Bluff precinct
- Signage could be improved at the car parks to assist with finding a space if the main car parks are full, particularly at the Meercroft Park off-street parking so it looks like a public car park
- Better pedestrian connections are required between parking and attractions/ facilities
- Pedestrians priority would be beneficial within the precinct where possible
- Additional car parking is required within the precinct
- Existing road priority issues at Mrs Jones Restaurant car park intersection with Bluff Access Road needs to be resolved
- A pick-up/drop off points is required on Bluff Road, particularly for the surf club

4. Identified Existing Issues

Based on the consultation, a number of issues were identified. These issues are shown below in Table 9. Location of the identified issues is shown in Figure 76.

Table 9: Identified Issues from Consultation

Issue No.	Issue Detail
A	Speed issues on Bluff Road in vicinity of Meercroft Aged Care Facility
B	Issues with crossing Bluff Road in vicinity of Meercroft Aged Care Facility
C	No bus parking in vicinity of Bass Strait Maritime Centre
D	No bike racks in vicinity of Bass Strait Maritime Centre
E	No pedestrian access between BSMC centre and War Memorial Car Park
F	Lack of wayfinding signage to key locations
G	Lack of parking in vicinity of Mrs Jones Restaurant and Bluff Playground/ Public Open Space
H	Lack of signage for vehicles, particularly identifying car parking locations
I	Vehicles in Bluff Car Park overhang onto the footpath
J	There are no pedestrian crossing points in vicinity of Meercroft Park/ Bluff Car Park and there is confusion as to whether speed humps are pedestrian priority crossings
K	Lack of pedestrian paths along Bluff Access Road
L	There is no signage at the start/ end of the precinct
M	There is no drop off/ pick up zone on Bluff Road for the surf club
N	Priority issues at Mrs Jones Car Park/ Bluff Access Road intersection

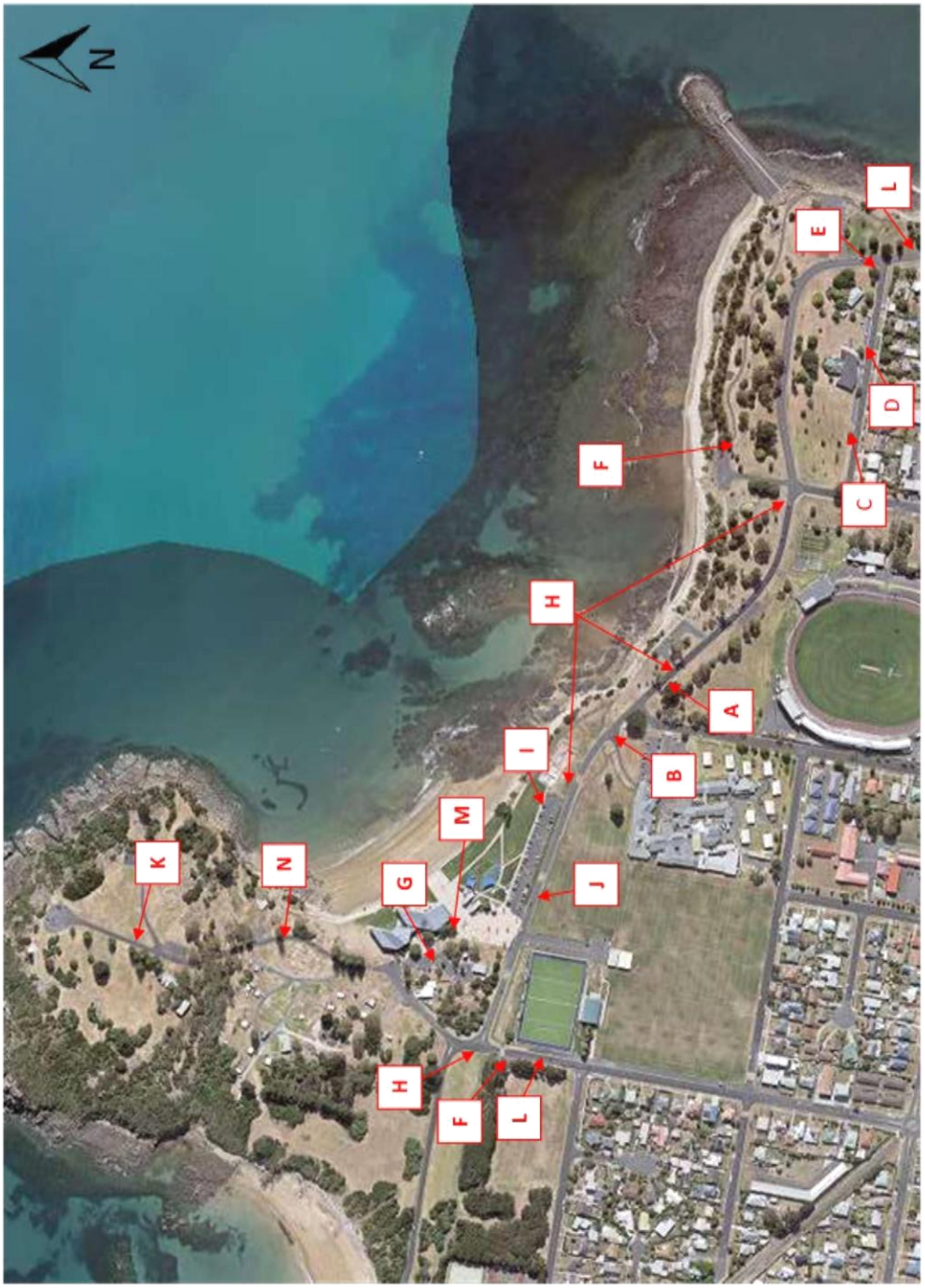

Figure 76: Identified Existing Issues

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pitt&sherry ref: H818043H001 Rep 31P Rev 00/LA/cy

5. Proposed Initiatives to Address Existing Issues

5.1 Summary

In order to address the existing issues identified during consultation, initiatives have been determined. A summary of the initiatives is provided in Table 10.

Table 10: Proposed Initiatives to Address Existing Issues

Initiative No.	Initiative Description	Issue(s) Addressed	Strategic Plan Objective Addressed
1	Provide kerb ramps on Bluff Road near Bluff Playground/ public open space	J	1.3.1 2.3.1 3.2.1 3.3.1 4.3.1
2	Provide kerb ramps or a wombat crossing on William Street near Bluff Road/ William Street intersection	J	1.3.1 2.3.1 3.2.1 3.3.1 4.3.1
3	Provide kerb ramps on northern side of Bluff Road in vicinity of Meercroft Aged Care Facility	B	1.3.1 2.3.1 3.2.1 3.3.1 4.3.1
4	Extend the 40km/h zone on Bluff Road and introduce an additional speed hump.	A	1.3.1 2.3.1 3.3.1 4.1.3
5	Replace the paved surface with asphalt on the speed humps along Bluff Road	J	1.3.1 2.3.1 3.2.1 3.3.1 4.1.3
6	Provide pedestrian and bicycle wayfinding signage in key decision-making points within Mersey Bluff precinct	F	3.2.1 3.3.1 4.1.3
7	Provide vehicle wayfinding and parking signage at key decision-making points within Mersey Bluff precinct	H	2.3.1 3.2.1 3.3.1
8	Provide Start/ End of precinct signage	L	1.3.1 3.2.1 3.3.1 4.1.3
9	Provide indented parking on Bluff Road	G	2.3.1 3.2.1 3.3.1

Initiative No.	Initiative Description	Issue(s) Addressed	Strategic Plan Objective Addressed
10	Provide drop-off/pick up zones on Bluff Road	M	2.3.1 3.3.1 4.1.3
11	Provide pedestrian path along Bluff Access Road	K	1.3.1 2.3.1 3.2.1 3.3.1 4.1.3
12	Relocate wayfinding signage for Bass Strait Maritime Centre	F	3.2.1 3.3.1 4.1.3
13	Provide off-street parking on Coles Beach Road and include a pedestrian connection to Bluff Access Road	G	2.3.1 3.2.1 3.3.1
14	Improve pedestrian width along path adjacent to Bluff Car Park to the north by widening the path or providing wheel stops in Bluff Car Park	I	2.3.1 4.1.3
15	Provide priority signage/ linemarking at Mrs Jones Restaurant Car Park/ Bluff Access Road intersection	N	2.3.1 3.3.1
16	Improve pedestrian access between Bass Strait Maritime Centre and the North-West Coastal Pathway	E	1.3.1 2.3.1 3.2.1 3.3.1 4.1.3
17	Provide bicycle parking in vicinity of Bass Strait Maritime Centre	D	1.3.1 3.2.1 3.3.1 4.1.3
18	Provide bus parking at Bass Strait Maritime Centre	C	2.3.1 3.3.1 3.2.1

5.2 Details of Initiatives

Initiative 1 – Kerb Ramps on Bluff Road

During consultation, many people raised that safety and connectivity for pedestrians would be improved with installation of a pedestrian crossing point between the Bluff Playground/ restaurants and the sportsgrounds. Benefits of a crossing point at this location include improved safety for pedestrians and better sharing of car parks (i.e. sportsground car park used when car parks near the playground and restaurant are full).

It is proposed to provide kerb ramps on Bluff Road. The kerb ramps will make crossing Bluff Road easier for mothers with prams or people with disabilities as the kerb ramp allows safer transition from the roadway to the curbed sidewalk. Installing the kerb ramps will result in the existing two parking spaces on the northern side of Bluff Road near Bluff Car Park requiring removal.

It is noted that several other crossing options were considered at this location. Each of these options could not be accommodated in accordance with the *Austroads Guide to Road Design Part 8: Local Area Traffic Management* and relevant Australian Standards. The considered options are listed below:

- A wombat crossing (raised zebra crossing) was considered to give pedestrians priority. This crossing treatment could not be accommodated as it would have been too close to the Bluff Road off-street car parks access points and therefore adequate sight distance would not have been available as discussed in the Austroads Guide. Pedestrians using the crossing would also expect right-of-way, vehicles exiting the car park would be looking toward the direction of traffic and not toward the crossing, this could increase the risk of a pedestrian-vehicle crash.
- A raised pavement treatment was considered for the whole intersection of Bluff Road and the Mersey Bluff Car Park access location. The Austroads Guide does not recommend these treatments on roads with high pedestrian volumes as pedestrians may confuse the raised crossing with having right-of-way, this could increase the risk of a pedestrian-vehicle crash.
- A pedestrian median island was considered. However, Bluff Road is too narrow to allow a pedestrian median island without significant modifications to the Bluff Road kerb alignment and footpaths.

A concept design of the kerb ramps is included in Appendix A.

Initiative 2 – Kerb Ramps/ Wombat Crossing on William Street

A pedestrian crossing is currently located on William Street near the Bluff Road/ William Street intersection. Immediately north of the pedestrian crossing is a speed hump. This may lead to confusion for pedestrians and drivers as the speed hump may be confused with a pedestrian crossing.

In order to resolve this issue, two options are proposed. Option 1 proposes to remove the existing speed hump and provide kerb ramps at the location of the speed hump.

Option 2 proposes to remove the existing speed hump and pedestrian crossing and build a wombat crossing at the location of the existing speed hump. This is not the preferred option as the *Austroads Guide to Road Design Part 8: Local Area Traffic Management* recommends wombat crossings at mid-block locations. It is noted however that the Austroads Guide states that if sight distance at an intersection is good, a wombat crossing may be installed. Based on the low crash rate at this intersection and the good sight distance, a wombat crossing may be installed.

A concept design of the kerb ramps and the wombat crossing is included in Appendix A.

Initiative 3 – Kerb Ramps Near Meercroft Aged Care Facility

It is understood that pedestrians from the Aged Care facility have difficulty crossing Bluff Road at the Bluff Road/ Clements Street intersection. A reason for this is the absence of a dedicated pedestrian crossing that connects to the footpaths at this location. During the site visit, it was noted that a kerb ramp was present on the southern side of Bluff Road, but no kerb ramps were provided on the northern side. It was also noted that there is a pedestrian crossing point with kerb ramps further east, however, it is not accessible by a footpath (unless in the units of the aged care facility along Bluff Road) and the ramps do not meet the current DDA requirements. As such, people in wheelchairs or pedestrians with walking frames find it difficult to cross Bluff Road.

In order to improve pedestrian crossing at this location, a kerb ramp on the northern side of the existing footpath near the Bluff Road/ Clements Street intersection is proposed. In addition to the kerb ramp, it is also recommended the existing footpath on the northern side be extended to reach the North-West Coastal Pathway.

By implementing this initiative, a dedicated crossing location will be provided on Bluff Road in the vicinity of Meercroft Aged Care Facility. This will allow easier access for pedestrians in turn promoting more passive recreation.

It is noted that during consultation, the Meercroft Aged Care facility representatives stated they would like a wombat crossing. This has not been considered suitable for this location due to its close proximity to the Bluff Street/ Clements Street intersection and the limited sight distance for vehicles turning left from Clements Street. A raised intersection and median island were also considered at this location but were discounted due to the physical size of the intersection and the narrow width of Bluff Road.

A concept design showing this initiative is attached in Appendix A.

Initiative 4 – Extended 40km/h Zone and Speed Hump on Bluff Road

The Meercroft Aged Care facility representatives raised an issue regarding vehicles speeding along Bluff Road in the vicinity the facility. Currently the speed along Bluff Road changes from 50km/h to 40km/h approximately 50m west of the Bluff Road/ Clements Street intersection which is located directly outside the facility. Speed data analysis, shown in Section 2.4.2, has identified that there is a history of vehicles speeding within the 50km/h zone, likely due to this section not having any speed reduction measures in place. Vehicles were not identified to be speeding along Bluff Road where the speed is 40km/h and the speed humps are in place.

It is understood that pedestrians from the Aged Care facility find it difficult to cross Bluff Road at the Bluff Road/ Clements Street intersection. One of the reasons is the 50km/h speed limit not giving pedestrians the time they need to cross.

Based on this, it is proposed that the existing 40km/h zone be extended to approximately 80 metres east of the Bluff Road/ Clements Street intersection. It is also proposed to provide a speed hump approximately 40 metres east of the Bluff Road/ Clements Street intersection to slow vehicles speeds prior to this crossing point. The presence of the speed hump will result in a reduction in vehicle speeds on Bluff Road in the vicinity of the Aged Care facility which will increase pedestrian safety.

It is noted that with the introduction of the speed hump, the existing “aged pedestrians” sign shown in Figure 74 will need to be removed. A concept design showing this initiative is attached in Appendix A.

Initiative 5 – Replace Paved Surface on Speed Humps on Bluff Road

A common concern raised during consultation related to pedestrians and drivers confusing the speed hump on Bluff Road with a pedestrian crossing. A possible cause for this confusion may be related to the brick pavers used for the platform construction of the speed humps.

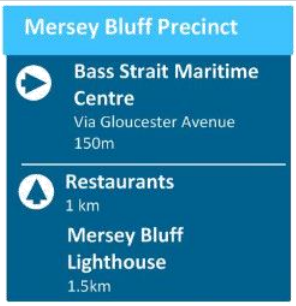
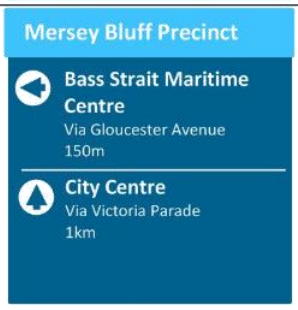
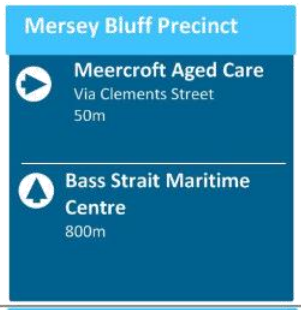
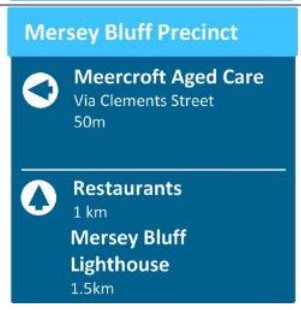
In order to reduce the confusion, it is proposed the brick paved surface be removed from the existing roundabouts and instead be replaced by an asphalt surface. It is also proposed to install pedestrian fencing near the road humps to further prevent confusion.

Initiative 6 – Pedestrian and Bicycle Wayfinding Signage

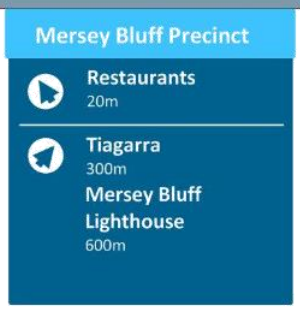
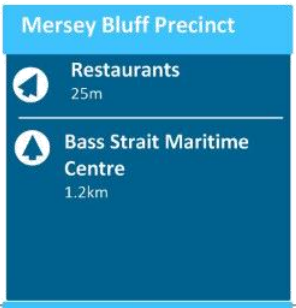
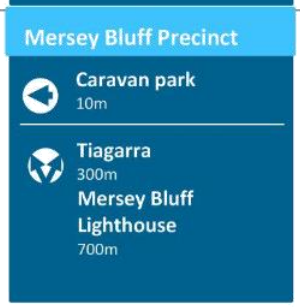
It was noted during the consultation and site visit that the existing pedestrian and bicycle wayfinding totem signs (shown in Section 2.8) have limited direction for key attractions within the Mersey Bluff. There are also some locations that would benefit from totem signage.

As such, a wayfinding signage scheme is proposed for the precinct for pedestrians and bike riders. This includes several new signs as well as amendments to existing totem signs. The proposed signage scheme is shown in Table 11.

Table 11: Mersey Bluff Precinct Proposed Signage

Sign No.	Location	Proposed Signage	Comment
1			New sign required, On same base of Sign 2
2			New sign required, On same base of Sign 1
3			Update existing sign, On same base as Sign 4
4			Update existing sign, On same base as Sign 4

Sign No.	Location	Proposed Signage	Comment
5		Mersey Bluff Precinct Restaurants 50m Caravan Park 180m Tiagarra 500m Mersey Bluff Lighthouse 700m	New sign required, On same base of Sign 6
6		Mersey Bluff Precinct Restaurants 50m Mersey Bluff Lighthouse 700m Bass Strait Maritime Centre 1.2km	New sign required, On same base of Sign 5
7		Mersey Bluff Precinct Restaurants 200m Mersey Bluff Lighthouse 900m Bass Strait Maritime Centre 1.4km	Relocate and update existing sign, On same base as Sign 8
8		Mersey Bluff Precinct Restaurants 200m Mersey Bluff Lighthouse 900m Bass Strait Maritime Centre 1.4km	Relocate and update existing sign, On same base as Sign 7

Sign No.	Location	Proposed Signage	Comment
9			New sign required
10			New sign required, On same base of Sign 11
11			New sign required, On same base of Sign 10

Initiative 7 – Vehicle Wayfinding Signage

During consultation it was noted that there could be improved wayfinding signage for vehicles, predominantly for parking and for the Mersey Bluff Lighthouse. Parking signage can improve the use of available parking spaces, particularly for tourists.

Table 12 shows vehicle wayfinding signage which could be installed within the precinct to assist drivers finding parking spaces and the Mersey Bluff Lighthouse.

Table 12: Proposed Vehicle Wayfinding Signage

Sign No.	Location	Proposed Signage (arrow direction to be changed accordingly)
1 1	  	

Sign No.	Location	Proposed Signage (arrow direction to be changed accordingly)
		
		
2		Mersey Bluff Lighthouse ➡

Initiative 8 – Start/ End of Precinct Signage

An existing issue raised during consultation related to the lack of precinct signage and awareness of heightened numbers of pedestrians and bike riders. It is proposed to install signage at the start/end points of the precinct on Victoria Parade, William Street and Coles Beach Road. The signs are not intended to show a speed limit change but simply notify road users that they are entering a recreational precinct. It is noted though that a speed limit change to 40km/h would be beneficial at the precinct entry point from Coles Beach Road. The locations for the precinct signage are shown in Figure 77. An example of similar signage is shown in Figure 78.

Figure 77: Location of Start/ End Precinct Signage

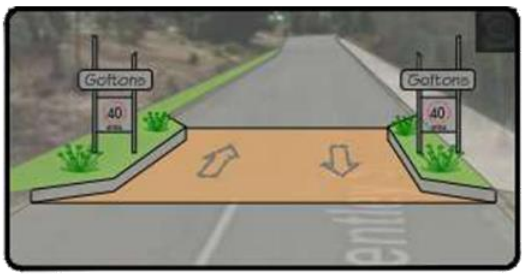


Figure 78: Example Start/End of Precinct Signage Layout

Initiative 9 –Bluff Road Indented Parking

An issue raised multiple times during consultation related to the lack of parking in the Mersey Bluff precinct. This is particularly noticeable during weekend sport and events. In order to increase the number of parking spaces available within the Mersey Bluff precinct, it is proposed to provide indented parking along Bluff Road. The parking on the southern side is proposed to be 45-degree parking resulting in up to 27 new spaces. The parking on the northern side is proposed to be parallel due to space constraints, resulting in up to 14 new spaces.

In order to install the indented parking, the existing speed hump will need to be removed. The distance between the speed bumps to the east and west of the removed speed bump would still be close enough to each other to be effective. Additional footpaths and kerb ramps are required to connect the indented parking spaces with the existing pedestrian paths. A concept plan for the proposed indented car parking and the removal of the speed hump is included in Appendix A.

Initiative 10 – Pick-up/ Drop-off Zones

It is understood that users of the Surf Life Saving Club and sportsgrounds often use the off-street car parks for pick-up and drop-off as there are no dedicated pick-up/ drop-off locations in the precinct. It is proposed that a pick-up/drop-off zone be introduced in the Bluff Road indented parking. A concept design of the proposed zone is attached in Appendix A.

Initiative 11 – Pedestrian Access along Bluff Access Road

An existing issue identified in the consultation sessions as well as during the site visit was a significant number of pedestrians walking along Bluff Access Road as there are no pedestrian paths located adjacent to the road. There are poor sight distances on Bluff Access Road and drivers sometimes need to brake suddenly when there are pedestrians walking along the road. Bluff Access Road is a popular walking/running route for locals and is used by people accessing the lighthouse and the Bluff Headland Track. It is proposed that a pedestrian path be provided on the eastern side of Bluff Access Road as shown in Figure 79.

Figure 79: Proposed Pedestrian Path along Bluff Access Road

Initiative 12 – Relocate Wayfinding Signage for Bass Strait Maritime Centre

During consultation with Bass Strait Maritime Centre, an issue was raised relating to the lack of easily visible wayfinding signage for the centre. It was observed during the site visit that there are existing signs located near the centre, however they are not located in locations that are easily visible from Bluff Road and Victoria Parade. The existing signs at the intersections of Victoria Parade/ Gloucester Avenue and Bluff Road/ North Fenton Street (shown in Figure 72 and Figure 73) are not easily visible for drivers as they are set back from the road carriageway. These signs could be moved closer to the carriageway to improve their visibility. If moved closer to the carriageway the signs should be mounted on frangible poles.

The existing sign near the Bluff Road bend (shown in Figure 71) is not located in a visible spot for road users. This sign could be relocated to the North Fenton Way/ Gloucester Street intersections to assist road users in this location.

Figure 80 shows the proposed signage amendments.

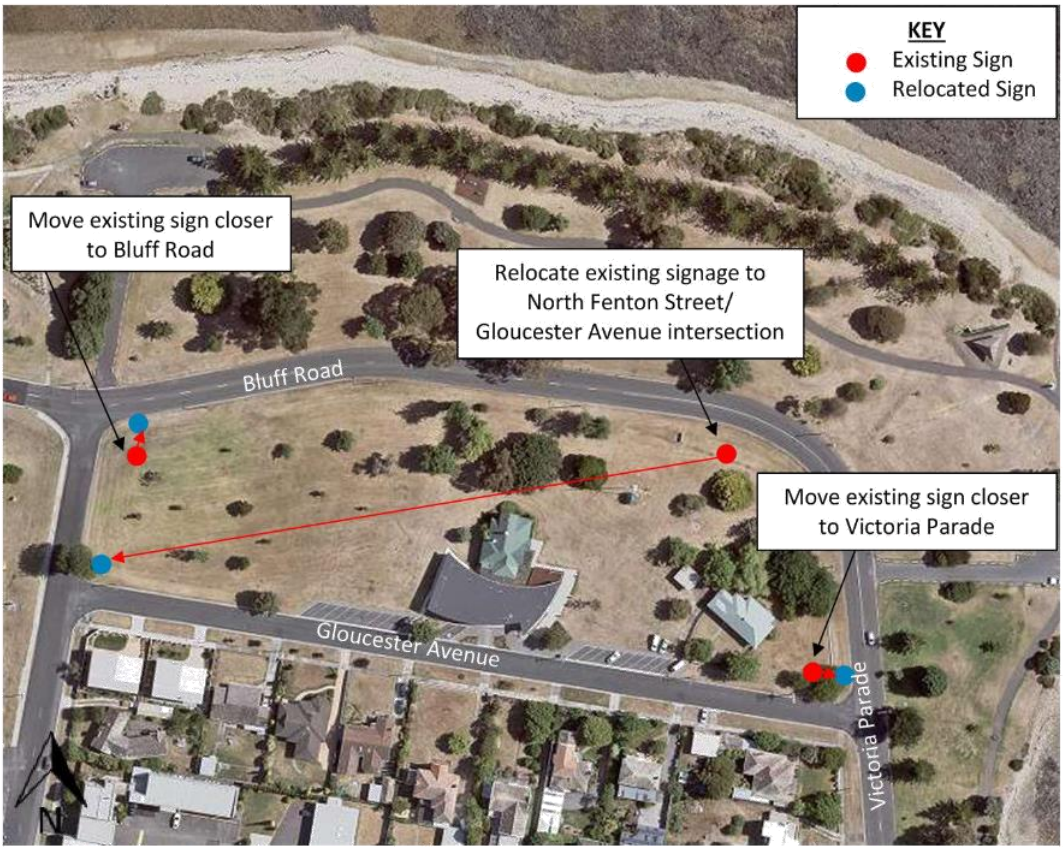


Figure 80: Bass Strait Maritime Centre Signage Relocation

Initiative 13 – Off-Street Car Park on Coles Beach Road and Pedestrian Connection

In addition to the provision of indented parking along Bluff Road, car parking could also be accommodated on the grassed area near the corner of Coles Beach Road and William Street. This area is currently not utilised and is located close to the nearby restaurants and sports fields. Vehicles would access the car park from Bluff Road.

Using the existing pedestrian paths and proposed William Street crossing, pedestrians can connect to the southern side of Bluff Road. It is also proposed to build a new pedestrian path connecting the car park with Bluff Access Road and the proposed Bluff Access Road pedestrian path. The path would run along the western side of Bluff Access Road and would include a pedestrian median crossing at Coles Beach Road and a wombat crossing at Bluff Access Road.

A concept plan for the proposed car park and pedestrian connection is included in Appendix A.

Initiative 14 – Path Widening or Wheel Stops at Bluff Car Park

It was noted during the site visit that vehicles overhang the kerb on the north side of the car park which results in them overhanging onto the pedestrian path to the north and effectively reducing the width. This path is used by many users including children and the elderly and therefore the path should remain clear. There are wheel stops on some spaces which removes this issue.

It is suggested that the issue be resolved by widening the path by 0.6m to allow for the additional overhang or installing wheel stops to prevent the overhang. It is noted that the spaces are long enough to accommodate wheel stops.

Initiative 15 – Bluff Access Road/ Restaurant Car Park Intersection Priority

It was noted during the consultation sessions that there is confusion as to who has priority at the Bluff Access Road/ restaurant car park intersection. To resolve this, it is proposed that a small roundabout is installed in this location.

A concept design for the roundabout is included in Appendix A.

Initiative 16 – Pedestrian access between Bass Strait Maritime Centre and North-West Coastal Pathway

An issue raised during consultation with the Bass Strait Maritime Centre was the absence of pedestrian paths between the North-West Coastal Pathway and the Bass Strait Maritime Centre. The centre is visited by people riding bikes along the Coastal Pathway. It is also understood that visitors arriving with larger vehicles such as campervans often park at the War Memorial Car Park next to the North-West Coastal Pathway and walk to the centre.

It is therefore suggested that two footpaths connections be provided as follows:

- A footpath connection between the centre and the War Memorial car park including a dedicated crossing point with kerb ramps at Victoria Parade
- A footpath connection between the centre and the North Fenton Street car park adjacent to the North-West Coastal Pathway

A concept design showing the proposed paths is attached in Appendix A.

Initiative 17 – Bicycle Parking at Bass Strait Maritime Centre

It is understood that many visitors to the Bass Strait Maritime Centre use the nearby North-West Coastal Pathway and arrive by bicycle. It was noted during consultation that no bicycle parking is provided at the Bass Strait Maritime Centre.

Based on the above, it is proposed that bicycle parking be provided near the front door of the Bass Strait Maritime Centre. As parking would be short-term, bike hoops as shown in Figure 81 would be a suitable treatment.

Figure 81: Hoop Top Bike Racks

Initiative 18 – Bus Parking at Bass Strait Maritime Centre

The Bass Strait Maritime Centre noted that there is no bus parking outside the centre with visiting buses parking on-street or across the marked car parking spaces. It is understood that approximately 36 cruise ship buses and 12 breakfast buses arrive per year. It is proposed that two bus parking spaces be provided in the vicinity of the Bass Strait Maritime Centre. A concept design showing the proposed bus parking is attached in Appendix A.

By providing bus parking in the vicinity of Bass Strait Maritime Centre, more parking spaces will be available for cars. The streets will also have less buses parked resulting in a safer environment. Furthermore, the provision of bus parking will also introduce the opportunity for more buses to arrive to the centre. These factors combined will encourage more visitors to the Bass Strait Maritime Centre and will support tourism in the Mersey Bluff precinct.

5.3 Future Projects for Consideration

In addition to the above initiatives, additional projects that could be implemented in the Mersey Bluff Precinct, subject to further research, have been identified below.

Bus Route through Mersey Bluff Precinct

As discussed, the existing bus routes in the vicinity of the Mersey Bluff Precinct are not convenient for accessing the majority of attractions. In order to provide a feasible alternative access mode, and in turn reduce the parking demand, a bus route could be provided through Victoria Parade, Bluff Road and William Street.

Bus timetabling options could include a permanent bus route operating throughout the year, buses operating during peak periods only or buses operating during events only.

Initiative 20 – Parking at Caravan Park Site Office

It is understood that the Caravan Park Site Office could be relocated across the road into the main Caravan Park site in the future to reduce congestion on Bluff Access Road. The site has the potential to be used for additional off-street car parking and could connect to the existing Drift café and Mrs Jones restaurant car park to avoid an additional entry point. The proposed location for the car park is shown in Figure 82.

Figure 82: Parking at Relocated Caravan Park Site Office

6. Cost Estimates

A cost estimate has been prepared for each of the initiatives identified in Section 5. The cost estimates are summarised in Table 13, with full cost estimates included in Appendix B.

Table 13: Cost Estimates

Initiative No.	Initiative Description	Cost
1	Provide kerb ramps on Bluff Road near Bluff Playground/ public open space	$35,000
2a	Provide kerb ramps on William Street near Bluff Road/ William Street intersection	$25,000
2b	Provide wombat crossing on William Street near Bluff Road/ William Street intersection	$35,000
3	Provide kerb ramps on northern side of Bluff Road in vicinity of Meercroft Aged Care Facility	$12,000
4	Extend the 40km/h zone on Bluff Road and introduce additional speed hump.	$25,000
5	Replace paved surface with asphalt on speed humps along Bluff Road	$25,000
6	Provide pedestrian and bicycle wayfinding signage in key decision-making points within Mersey Bluff precinct	$13,000
7	Provide vehicle wayfinding signage at key decision-making points within Mersey Bluff precinct	$12,000
8	Provide Start/ End of precinct signage	$54,000
9	Provide indented parking on Bluff Road	$260,000
10	Provide drop-off/pick up zones on Bluff Road	
11	Provide pedestrian path along Bluff Access Road	$100,000
12	Relocate wayfinding signage for Bass Strait Maritime Centre	$3,000
13	Provide off-street parking on Coles Beach Road and pedestrian path connection	$300,000
14a	Increase the width of the footpath adjacent to the Bluff Car Park	$15,000
14b	Provide wheel stops in Bluff Car Park	$15,000
15	Install roundabout at Mrs Jones Restaurant Car Park/ Bluff Access Road intersection	$185,000
16	Improve pedestrian access between Bass Strait Maritime Centre and North-West Coastal Pathway	$80,000
17	Provide bicycle parking in vicinity of Bass Strait Maritime Centre	$2,000
18	Provide bus parking at Bass Strait Maritime Centre	$50,000

7. Proposed Works Package

A proposed work package has been developed for the identified initiatives. The proposed work package is presented in Table 14. The locations of each of the initiatives for each works year are included in Figure 83 to Figure 86.

Table 14: Proposed Work Package

Initiative No.	Initiative Description	Yearly Cost
2018/2019		
1	Provide kerb ramps on Bluff Road near Bluff Playground/ public open space	$281,000
2[2]	Provide kerb ramps/ wombat crossing on William Street near Bluff Road/ William Street intersection	
3	Provide kerb ramps on northern side of Bluff Road in vicinity of Meercroft Aged Care Facility	
4	Extend the 40km/h zone on Bluff Road and introduce additional speed hump.	
5	Replace paved surface with asphalt on speed humps along Bluff Road	
6	Provide pedestrian and bicycle wayfinding signage in key decision-making points within Mersey Bluff precinct	
7	Provide vehicle wayfinding signage at key decision-making points within Mersey Bluff precinct	
8	Provide Start/ End of precinct signage	
12	Relocate wayfinding signage for Bass Strait Maritime Centre	
14[3]	Provide wheel stops in Bluff Car Park	
17	Provide bicycle parking in vicinity of Bass Strait Maritime Centre	
18	Provide bus parking at Bass Strait Maritime Centre	
2019/2020		
9	Provide indented parking on Bluff Road	$260,000
10	Provide drop-off/pick up zones on Bluff Road	
2020/2021		
11	Provide pedestrian path along Bluff Access Road	$400,000
13	Provide off-street parking on Coles Beach Road and pedestrian path connection	
2021/2022		
15	Install roundabout at Mrs Jones Restaurant Car Park/ Bluff Access Road intersection	$265,000
16	Improve pedestrian access between Bass Strait Maritime Centre and North-West Coastal Pathway	

[2] Assumes option 2b
[3] Assumes option 14a

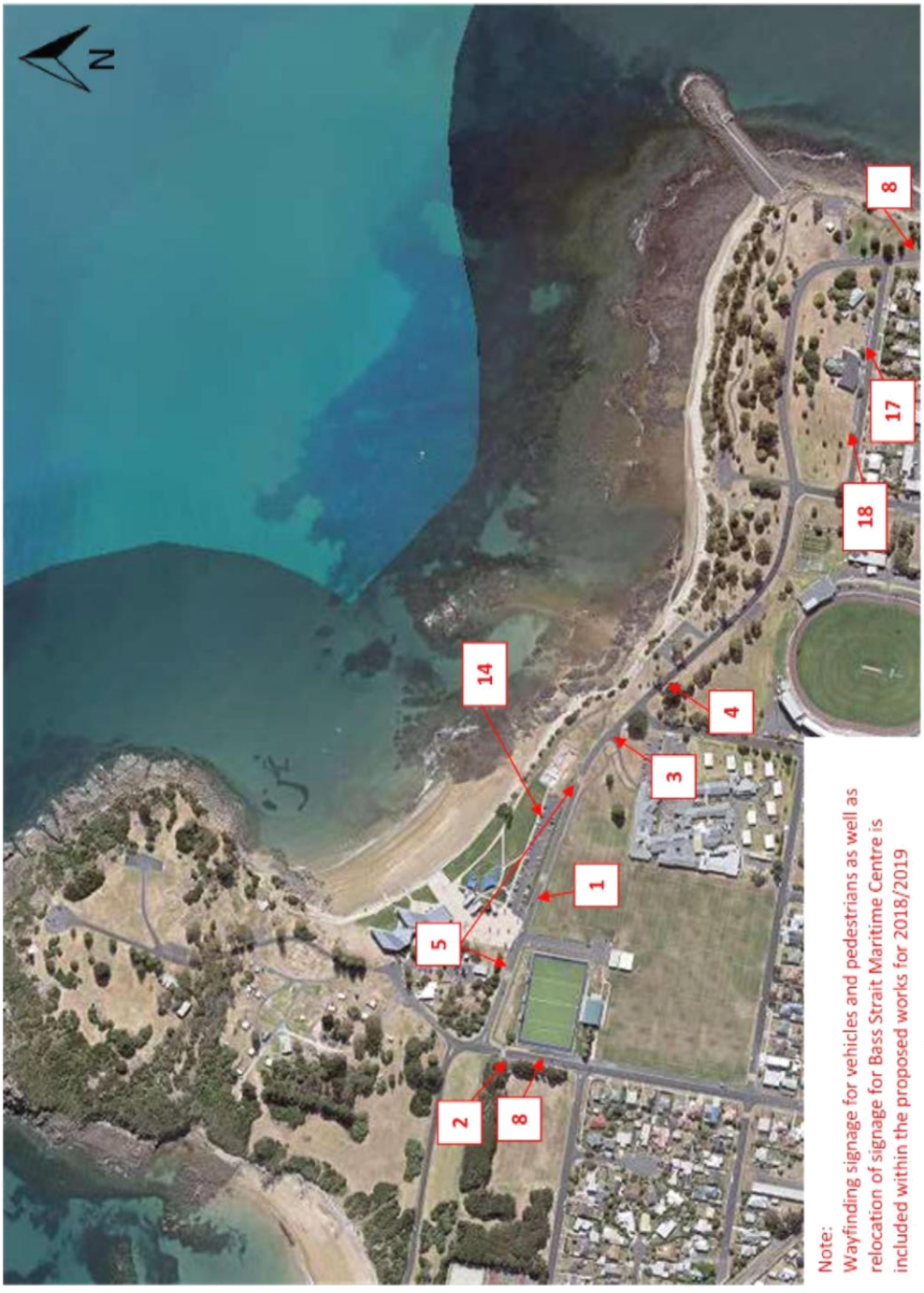
The works package has been developed with an understanding that Council has a $250,000 budget per year. As such, the proposed works have been organised with a priority to resolve major issues followed by a plan to spread the costs as evenly as possible over the 4-year duration.

As seen in Table 14, Initiatives 1 to 7 in the 2018/2019 works package have been developed to improve utilisation of parking on the south side of Bluff Road as it is currently underutilised due to the absence of dedicated crossing points. Initiatives 8, 12, 14, 17 and 18 have been included within this package because they are generally easy to implement and can be completed at a relatively low cost.

The works package 2019/2020 focuses on the on-street car parking on Bluff Road due to its central location within the precinct and close proximity to the majority of attractions.

The works package in 2020/2021 focuses on the construction of the off-street car park on Coles Beach Road. This car park was chosen to be completed second as it is located slightly further from some attractions than the Bluff Road on-street car parking spaces. Provision of a pedestrian path along Bluff Access Road has also been included in this works package due to not being able to accommodate the cost of implementation in earlier years.

The final work package for 2021/2022 includes the installation of a roundabout at Mrs Jones Restaurant car park/ Bluff Access Road intersection. This has been included in the final works package as this will require significant detailed design preparation and time to implement. Pedestrian access between Bass Strait Maritime Centre and North-West Coastal Pathway has been included in this package as it is a considered to be a low priority and was only mentioned once during the consultation sessions.



Note:
Wayfinding signage for vehicles and pedestrians as well as relocation of signage for Bass Strait Maritime Centre is included within the proposed works for 2018/2019

Figure 83: Proposed Works Package for 2018/2019

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Figure 84: Proposed Works Package for 2019/2020

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Figure 85: Proposed Works Package for 2020/2021

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Figure 86: Proposed Works Package for 2021/2022

Appendix A

Concept Design Plans

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DRAWING REVISION HISTORY

No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE
B	UPDATED CONCEPT DESIGN	B.H.	L.A.	R.M.	27/07/2018
A	CONCEPT	B.H.	L.A.	R.M.	19/07/2018

APPROVED: ORIGINAL COPY ON FILE 'A' SIGNED BY — SIGNED — DATE

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SCALE IN METRES - 1:5000

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CLIENT: DEVONPORT CITY COUNCIL

PROJECT: MERSEY BLUFF TRAFFIC, PARKING AND PEDESTRIAN STUDY

STATUS: CONCEPT

DRAWING TITLE: GENERAL LAYOUT

DATUM: AHD / MGA

CLIENT No.: -

DRAWING No.: HB18043-P01

REVISION: B

Jul. 27, '18 - 13:44 File Name: HB18043-P01.dwg Updated By: Ben Hillenhous

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DRAWING REVISION HISTORY

No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE
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A	CONCEPT	B.H.	L.A.	R.M.	19/CT/18

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CLIENT: DEVONPORT CITY COUNCIL
PROJECT: MERSEY BLUFF TRAFFIC, PARKING AND PEDESTRIAN STUDY
STATUS: **CONCEPT**

DRAWING TITLE: BLUFF ROAD INITIATIVES
DATUM: AHD / MGA
CLIENT No.: -
DRAWING No.: HB18043-P02
REVISION: B
Jul. 27, '18 - 13:46:30 Name: HB18043-P02.dwg Updated By: Ben Hillerikous

REFERENCE FILES ATTACHED: HB18043 - X110

DRAWING REVISION HISTORY

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A	CONCEPT	B.H.	L.A.	R.M.	19.07.2018

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CLIENT	DEVONPORT CITY COUNCIL
PROJECT	MERSEY BLUFF TRAFFIC, PARKING AND PEDESTRIAN STUDY
STATUS	**CONCEPT**
DRAWING TITLE	COLES BEACH ROAD INITIATIVES
DATUM	AHD / MGA
CLIENT No.	-
DRAWING No.	HB18043-P03
REVISION	B

Jul. 27, 18 - 10:46:05 Name: HB18043-P03.dwg Updated By: Ben Hillenhous


VICTORIA PARADE
BLUFF ROAD
NEW FOOTPATH
EXISTING FOOTPATH
ACCESS RAMP
NEW FOOTPATH
GLOUCESTER AVENUE
FOOTPATH TO JOIN EXISTING
BUS ZONE SIGN
BUS STOP
BUS ZONE SIGN
NORTH FENTON STREET
ACCESS RAMPS
NORTH
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MERSEY BLUFF
TRAFFIC, PARKING AND PEDESTRIAN STUDY
CONCEPT
BASS STRAIT
MARITIME CENTRE INITIATIVES
HB16043-P01
AS SHOWN (A3)
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SCALE IN METRES - 1:1000


BLUFF ROAD
NO STOPPING SIGN R5-35(R)
R5-35(R)
PEDESTRIAN CROSSING SIGN R3-1A
R3-1A
NO STOPPING SIGN R5-35(L)
R5-35(L)
WILLIAM ST CROSSING OPTION 2
SCALE 1:250
WILLIAM STREET
NO STOPPING SIGN R5-35(L)
R5-35(L)
PEDESTRIAN CROSSING SIGN R3-1A
R3-1A
NO STOPPING SIGN R5-35(R)
R5-35(R)
BLUFF ACCESS ROAD
NEW FOOTPATH TO JOIN EXISTING
WILLIAM ST CROSSING OPTION 1
WILLIAM STREET
ACCESS RAMP
EXISTING SPEED HUMP TO BE REMOVED
NORTH
DEVONPORT CITY COUNCIL
MERSEY BLUFF
TRAFFIC, PARKING AND PEDESTRIAN STUDY
CONCEPT
WILLIAM STREET
PEDESTRIAN CROSSING
HB18043-P05
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AS SHOWN (A3)
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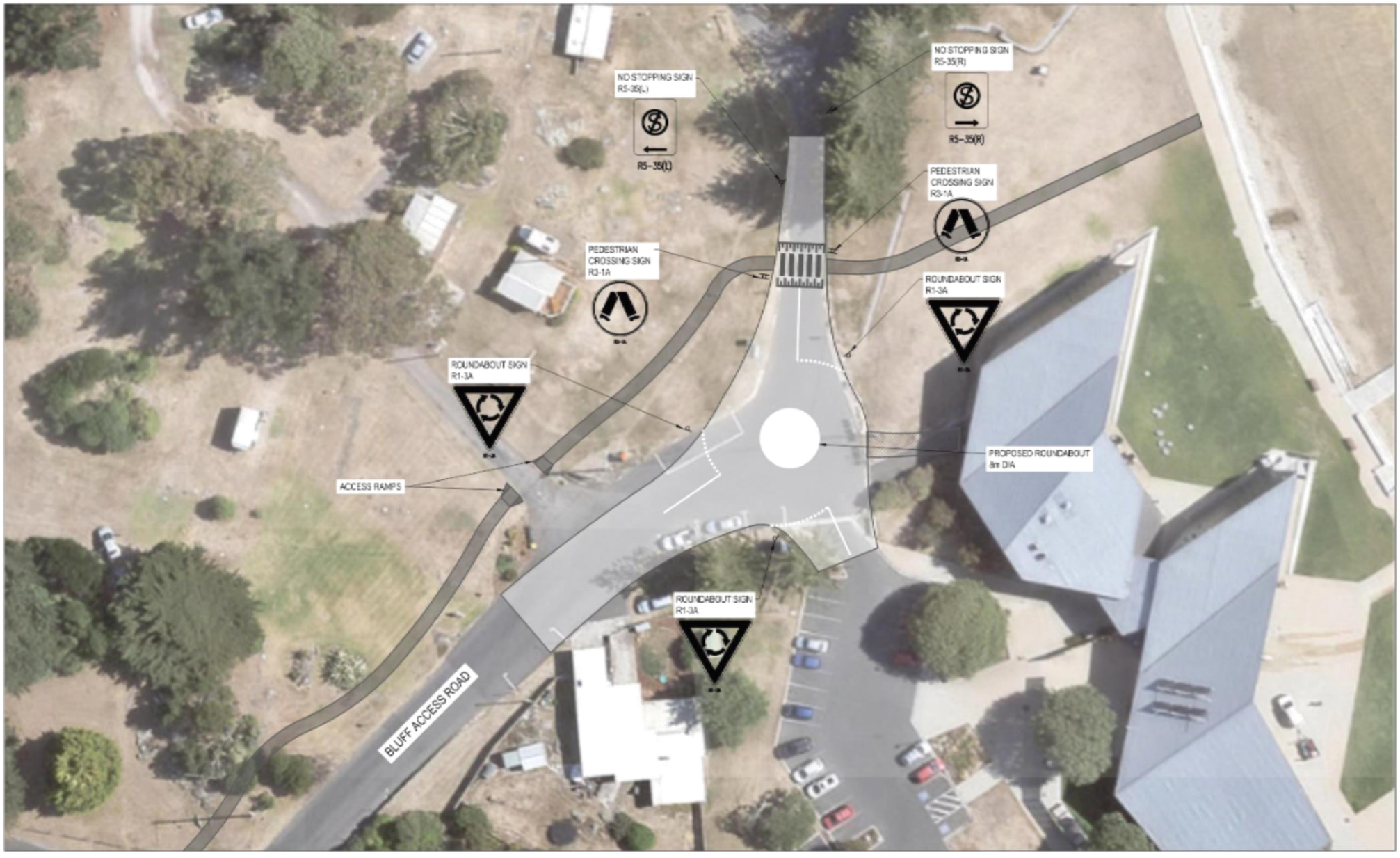
SCALE IN METRES - 1:250



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DRAWING REVISION HISTORY

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						ORIGINAL COPY ON FILE 'e' SIGNED BY
B	UPDATED CONCEPT DESIGN	B.H.	L.A.	R.M.	27/OCT/18	SIGNED
A	CONCEPT	B.H.	L.A.	R.M.	19/OCT/18	DATE

SCALE (PLOTTED FULL SIZE): AS SHOWN (A3) — SHEET SIZE: A3

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CLIENT: DEVONPORT CITY COUNCIL
PROJECT: MERSEY BLUFF TRAFFIC, PARKING AND PEDESTRIAN STUDY
STATUS: CONCEPT

DRAWING TITLE: BLUFF ACCESS ROAD ROUNDABOUT
DATUM: AHD / MGA
CLIENT No.: -
DRAWING No.: HB18043-P06
REVISION: B
Jul. 27, '18 - 13:46:20 \Name: HB18043-P06.dwg \Updated By: Ben Hillenhous

Appendix B

Concept Cost Estimates

HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 1

Description : Provide kerb ramps on Bluff Road near Bluff Playground/ public open space

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Earthworks	Site Establishment	Item	1.0	2000	$2,000		20%	$400		$2,400
	Removal of existing parallel parking	Item	1.0	5000	$5,000		20%	$1,000		$6,000
						$7,000			*$1,400*	*$8,400*
Construction Works	Kerb Ramps	No.	2.0	1000	$2,000		20%	$400		$2,400
	Kerb (Type B1 Barrier)	m	35.0	55	$1,925		20%	$400		$2,325
	Earthworks	Item	1.0	2000	$2,000		20%	$400		$2,400
	Paving	m2	51.0	85	$4,335		20%	$900		$5,235
	Landscaping	m2	54.0	25	$1,350		20%	$300		$1,650
						$11,600			*$2,400*	*$14,000*
Traffic Facilities	Traffic Management	Item	1.0	2500	$2,500		20%	$500		$3,000
						$2,500			*$500*	*$3,000*
Design	Detailed Design	Item	1.0	1500	$1,500		20%	$300		$1,800
						$1,500			*$300*	*$1,800*
				CONSTRUCTION TOTALS		**$22,600**			**$4,600**	**$27,200**
Contingency	Project Contingency		Calc	20%		*$4,520*			*$920*	*$5,440*
				TOTAL INCLUDING CONTINGENCY		**$27,120**			**$5,520**	**$32,640**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$814			$512		$1,325
						$800			*$500*	*$1,300*
					PROJECT TOTAL	**$27,920**			**$6,020**	**$33,940**

Notes

Contingency on items relates to the level of risk attributed an activity, variations in price and variations in quantities.

Project Contingency relates to the level of risk attributed to the project, unknown risks and unknown activities.

As the project progresses the level of contingency either decreases or increases. Any savings from the project are generally translated as additional works to the project scope.

Contingency on items may not vary if the risk as been allocated in the rates.

HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 2

Description : Provide Kerb Ramps on William Street near Bluff Road/ William Street intersection

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Earthworks	Site Establishment	Item	1.0	2000	$2,000		20%	$400		$2,400
	Removal of existing speed hump	Item	1.0	2000	$2,000		20%	$400		$2,400
	Removal of existing kerb ramps	Item	2.0	400	$800		20%	$200		$1,000
						$4,800			*$1,000*	*$5,800*
Construction Works	Kerb Ramps	No.	2.0	1000	$2,000		20%	$400		$2,400
	Kerb (Type B1 Barrier)	m	10.0	55	$550		20%	$100		$650
	Footpath	m2	15.0	115	$1,725		20%	$300		$2,025
						$4,300			*$800*	*$5,100*
Traffic Facilities	Traffic Management	Item	1.0	4000	$4,000		20%	$800		$4,800
						$4,000			*$800*	*$4,800*
Design	Detailed Design	Item	1.0	1500	$1,500		20%	$300		$1,800
						$1,500			*$300*	*$1,800*
				CONSTRUCTION TOTALS		**$14,600**			**$2,900**	**$17,500**
Contingency	Project Contingency		Calc	20%		*$2,920*			*$580*	*$3,500*
				TOTAL INCLUDING CONTINGENCY		**$17,520**			**$3,480**	**$21,000**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$526			$323		$848
						$500			*$300*	*$800*
				PROJECT TOTAL		**$18,020**			**$3,780**	**$21,800**

Notes

Contingency on items relates to the level of risk attributed an activity, variations in price and variations in quantities.

Project Contingency relates to the level of risk attributed to the project, unknown risks and unknown activities.

As the project progresses the level of contingency either decreases or increases. Any savings from the project are generally translated as additional works to the project scope.

Contingency on items may not vary if the risk as been allocated in the rates.

HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 2b

Description : Provide Wombat Crossing on William Street near Bluff Road/ William Street intersection

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Earthworks	Site Establishment	Item	1.0	2000	$2,000		20%	$400		$2,400
	Removal of existing speed hump	Item	1.0	2000	$2,000		20%	$400		$2,400
	Removal of existing kerb ramps	Item	2.0	400	$800		20%	$200		$1,000
						$4,800			*$1,000*	*$5,800*
Construction Works	Wombat Crossing	No.	1.0	7000	$7,000		20%	$1,400		$8,400
	Drainage	m	10.0	70	$700		20%	$100		$800
	Footpath	m2	15.0	115	$1,725		20%	$300		$2,025
						$9,400			*$1,800*	*$11,200*
Traffic Facilities	Traffic Management	Item	1.0	4000	$4,000		20%	$800		$4,800
	Signage	No.	4.0	350	$1,400		20%	$300		$1,700
						$5,400			*$1,100*	*$6,500*
Design	Detailed Design	Item	1.0	3000	$3,000		20%	$600		$3,600
						$3,000			*$600*	*$3,600*
				CONSTRUCTION TOTALS		**$22,600**			**$4,500**	**$27,100**
Contingency	Project Contingency		Calc	20%		*$4,520*			*$900*	*$5,420*
				TOTAL INCLUDING CONTINGENCY		**$27,120**			**$5,400**	**$32,520**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$814			$501		$1,314
						$800			*$500*	*$1,300*
					PROJECT TOTAL	**$27,920**			**$5,900**	**$33,820**

Notes

Contingency on items relates to the level of risk attributed an activity, variations in price and variations in quantities.

Project Contingency relates to the level of risk attributed to the project, unknown risks and unknown activities.

As the project progresses the level of contingency either decreases or increases. Any savings from the project are generally translated as additional works to the project scope.

Contingency on items may not vary if the risk as been allocated in the rates.

HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 3

Description : Provide kerb ramps on northern side of Bluff Road in vicinity of Meercroft Aged Care Facility

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Earthworks	Site Establishment	Item	1.0	2000	$2,000		20%	$400		$2,400
						$2,000			*$400*	*$2,400*
Construction Works	Kerb Ramps	No.	1.0	1000	$1,000		20%	$200		$1,200
	Kerb (Type B1 Barrier)	m	4.0	55	$220		20%	$0		$220
	Saw Cutting	m3	4.0	50	$200		20%	$0		$200
	Footpath	m2	15.0	115	$1,725		20%	$300		$2,025
						$3,100			*$500*	*$3,600*
Traffic Facilities	Traffic Management	Item	1.0	1500	$1,500		20%	$300		$1,800
						$1,500			*$300*	*$1,800*
Design	Detailed Design	Item	1.0	1500	$1,500		20%	$300		$1,800
						$1,500			*$300*	*$1,800*
				CONSTRUCTION TOTALS		**$8,100**			**$1,500**	**$9,600**
Contingency	Project Contingency		Calc	20%		*$1,620*			*$300*	*$1,920*
				TOTAL INCLUDING CONTINGENCY		**$9,720**			**$1,800**	**$11,520**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$292			$167		$459
						$300			*$200*	*$500*
				PROJECT TOTAL		**$10,020**			**$2,000**	**$12,020**

Notes

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HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 4

Description : Extend 40km/h zone and introduce speed hump along Bluff Road

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Earthworks	Site Establishment	Item	1.0	2000	$2,000		20%	$400		$2,400
						$2,000			*$400*	*$2,400*
Construction Works	Speed Hump	No.	1.0	5000	$5,000		20%	$1,000		$6,000
	Kerb and Gutter	m	10.0	70	$700		20%	$100		$800
	Drainage	m	10.0	70	$700		20%	$100		$800
	Saw Cutting	m3	10.0	10	$100		20%	$0		$100
						$6,500			*$1,200*	*$7,700*
Traffic Facilities	Traffic Management	Item	1.0	4000	$4,000		20%	$800		$4,800
	Pedestrian Fence	m	15.0	80	$1,200		20%	$200		$1,400
	40km/h Speed Sign	No.	1.0	350	$350		20%	$100		$450
	Removal and Disposal of Signage	No.	1.0	125	$125		20%	$0		$125
						$5,700			*$1,100*	*$6,800*
Design	Detailed Design	Item	1.0	3000	$3,000		20%	$600		$3,600
						$3,000			*$600*	*$3,600*
				CONSTRUCTION TOTALS		**$17,200**			**$3,300**	**$20,500**
Contingency	Project Contingency		Calc	20%		*$3,440*			*$660*	*$4,100*
				TOTAL INCLUDING CONTINGENCY		**$20,640**			**$3,960**	**$24,600**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$619			$367		$986
						$600			*$400*	*$1,000*
				PROJECT TOTAL		**$21,240**			**$4,360**	**$25,600**

Notes

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HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 5

Description : Replace Paved Surface on Speed Humps along Bluff Road

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Earthworks	Site Establishment	Item	1.0	2000	$2,000		20%	$400		$2,400
						$2,000			*$400*	*$2,400*
Construction Works	Remove Paved Surface	m2	64.0	40	$2,560		20%	$500		$3,060
	Asphalt Surface	m2	64.0	45	$2,880		20%	$600		$3,480
	Pedestrian Fence	m	100.0	80	$8,000		20%	$1,600		$9,600
						$13,400			*$2,700*	*$16,100*
Traffic Facilities	Traffic Management	Item	1.0	4000	$4,000		20%	$800		$4,800
						$4,000			*$800*	*$4,800*
					CONSTRUCTION TOTALS	**$15,400**			**$3,100**	**$18,500**
Contingency	Project Contingency		Calc	20%		*$3,080*			*$620*	*$3,700*
					TOTAL INCLUDING CONTINGENCY	**$18,480**			**$3,720**	**$22,200**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$554			$345		$899
						$600			*$400*	*$900*
					PROJECT TOTAL	**$19,080**			**$4,120**	**$23,100**

Notes

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Contingency on items may not vary if the risk as been allocated in the rates.

HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 6

Description : Install Pedestrian Wayfinding Signage

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Traffic Facilities	Update Existing Signage	No.	4.0	350	$1,400		20%	$300		$1,700
	Signage	No.	7.0	350	$2,450		20%	$500		$2,950
	Concrete Sign Panel	No.	4.0	1000	$4,000		20%	$800		$4,800
	Relocation of existing sign panel	No.	1.0	500	$500		20%	$100		$600
						$8,400			*$1,700*	*$10,100*
					CONSTRUCTION TOTALS	**$8,400**			**$1,700**	**$10,100**
Contingency	Project Contingency		Calc	20%		*$1,680*			*$340*	*$2,020*
					TOTAL INCLUDING CONTINGENCY	**$10,080**			**$2,040**	**$12,120**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$302			$189		$492
						$300			*$200*	*$500*
					PROJECT TOTAL	**$10,380**			**$2,240**	**$12,620**

Notes

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Contingency on items may not vary if the risk as been allocated in the rates.

HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 7

Description : Install Vehicle Wayfinding Signage

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Signage	Wayfinding and Parking Signs	No.	15.0	500	$7,500		20%	$1,500		$9,000
						$7,500			*$1,500*	*$9,000*
					CONSTRUCTION TOTALS	**$7,500**			**$1,500**	**$9,000**
Contingency	Project Contingency		Calc	20%		*$1,500*			*$300*	*$1,800*
					TOTAL INCLUDING CONTINGENCY	**$9,000**			**$1,800**	**$10,800**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$270			$167		$437
						$300			*$200*	*$400*
					PROJECT TOTAL	**$9,300**			**$2,000**	**$11,200**

Notes

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Contingency on items may not vary if the risk as been allocated in the rates.

HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 8

Description : Install Precinct Start/ End Signage

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Construction Works	Kerb Outstands including kerbs and landscaping	Item	6.0	5000	$30,000		20%	$6,000		$36,000
						$30,000			*$6,000*	*$36,000*
Signage	Precinct Signage	No.	6.0	1000	$6,000		20%	$1,200		$7,200
						$6,000			*$1,200*	*$7,200*
				CONSTRUCTION TOTALS		**$36,000**			**$7,200**	**$43,200**
Contingency	Project Contingency		Calc	20%		*$7,200*			*$1,440*	*$8,640*
				TOTAL INCLUDING CONTINGENCY		**$43,200**			**$8,640**	**$51,840**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$1,296			$801		$2,097
						$1,300			*$800*	*$2,100*
				PROJECT TOTAL		**$44,500**			**$9,440**	**$53,940**

Notes

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HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 9 and 10

Description : Install indented parking and pick up/ drop off zone

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Earthworks	Site Establishment	Item	1.0	3500	$3,500		20%	$700		$4,200
	Removal of existing speed hump	Item	1.0	2000	$2,000		20%	$400		$2,400
	Earthworks	m3	731.3	30	$21,938		20%	$4,400		$26,338
						$27,400			*$5,500*	*$32,900*
Construction Works	Kerb Ramps	No.	5.0	1000	$5,000		20%	$1,000		$6,000
	Kerb and Gutter (Type B1 Barrier)	m	240.0	55	$13,200		20%	$2,600		$15,800
	V Gutter	m	240.0	70	$16,800		20%	$3,400		$20,200
	Pavement and surface	m3	594.0	70	$41,580		20%	$8,300		$49,880
	Saw Cutting	m	240.0	10	$2,400		20%	$500		$2,900
	Footpath	m2	340.0	115	$39,100		20%	$7,800		$46,900
						$118,100			*$23,600*	*$141,700*
Traffic Facilities	Traffic Management	Item	1.0	4000	$4,000		20%	$800		$4,800
	Parking Linemarking	m	300.0	10	$3,000		20%	$600		$3,600
	Wheel Stops	Item	27.0	150	$4,050		20%	$800		$4,850
	Signage	No.	6.0	350	$2,100		20%	$400		$2,500
						$13,200			*$2,600*	*$15,800*
Design	Detailed Design	Item	1.0	8000	$8,000		20%	$1,600		$9,600
						$8,000			*$1,600*	*$9,600*
					CONSTRUCTION TOTALS	**$166,700**			**$33,300**	**$200,000**
Contingency	Project Contingency		Calc	20%		*$33,340*			*$6,660*	*$40,000*
					TOTAL INCLUDING CONTINGENCY	**$200,040**			**$39,960**	**$240,000**
Out-Turn	Based on 3% per annum construction cost only.									
	2019/2020		Calc	3%	$12,182			$3,705		$15,888
						$12,200			*$3,700*	*$15,900*
					PROJECT TOTAL	**$212,240**			**$43,660**	**$255,900**

Notes

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HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 11

Description : Provide pedestrian path along Bluff Access Road

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Earthworks	Site Establishment	Item	1.0	2000	$2,000		20%	$400		$2,400
	Earthworks	Item	1.0	5000	$5,000		20%	$1,000		$6,000
						$2,000			*$400*	*$8,400*
Construction Works	Footpath	m2	1050.0	50	$52,500		20%	$10,500		$63,000
	Tree Trimming	Item	2.0	500	$1,000		20%	$200		$1,200
						$53,500			*$10,700*	*$64,200*
Traffic Facilities	Traffic Management	Item	1.0	1500	$1,500		20%	$300		$1,800
						$1,500			*$300*	*$1,800*
Design	Detailed Design	Item	1.0	2000	$2,000		20%	$400		$2,400
						$2,000			*$400*	*$2,400*
					CONSTRUCTION TOTALS	**$59,000**			**$11,800**	**$76,800**
Contingency	Project Contingency		Calc	20%		*$11,800*			*$2,360*	*$15,360*
					TOTAL INCLUDING CONTINGENCY	**$70,800**			**$14,160**	**$92,160**
Out-Turn	Based on 3% per annum construction cost only.									
	2020/2021		Calc	3%	$2,124			$1,313		$3,437
						$2,100			*$1,300*	*$3,400*
					PROJECT TOTAL	**$72,900**			**$15,460**	**$95,560**

Notes

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HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 12

Description : Relcoate Wayfinding Sigange for Bass Strait Maritime Centre

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Signage	Relocate Signage	No.	3.0	500	$1,500		20%	$300		$1,800
						$1,500			*$300*	*$1,800*
					CONSTRUCTION TOTALS	**$1,500**			**$300**	**$1,800**
Contingency	Project Contingency		Calc	20%		*$300*			*$60*	*$360*
					TOTAL INCLUDING CONTINGENCY	**$1,800**			**$360**	**$2,160**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$54			$33		$87
						$100			*$0*	*$100*
					PROJECT TOTAL	**$1,900**			**$360**	**$2,260**

Notes

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HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 13

Description : Provide off-street car parking at Coles Beach Road and Footpath Connection

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Earthworks	Site Establishment	Item	1.0	2000	$2,000		20%	$400		$2,400
	Earthworks	m3	810.0	30	$24,300		20%	$4,900		$29,200
						$26,300			*$5,300*	*$31,600*
Construction Works	Drainage under access	m	10.0	500	$5,000		20%	$1,000		$6,000
	Pavement and surface	m3	810.0	70	$56,700		20%	$11,300		$68,000
	Footpath	m2	432.0	115	$49,680		20%	$9,900		$59,580
	Kerb Ramps	No.	4.0	1000	$5,000		20%	$1,000		$6,000
	Median Islands	m2	16.0	150	$5,000		20%	$1,000		$6,000
	Wombat Crossing	No.	1.0	7000	$7,000		20%	$1,400		$8,400
	Landscaping	m2	200.0	25	$5,000		20%	$1,000		$6,000
	Fence	m	50.0	80	$4,000		20%	$800		$4,800
	Fence Removal	m	20.0	15	$300		20%	$100		$400
						$137,700			*$27,500*	*$165,200*
Traffic Facilities	Traffic Management	Item	1.0	1000	$1,000		20%	$200		$1,200
	Parking Linemarking	m	800.0	10	$8,000		20%	$1,600		$9,600
	Wheel Stops	Item	65.0	150	$9,750		20%	$2,000		$11,750
	Signage	No.	4.0	350	$1,400		20%	$300		$1,700
						$20,200			*$4,100*	*$24,300*
Design	Detailed Design	Item	1.0	8000	$8,000		20%	$1,600		$9,600
						$8,000			*$1,600*	*$9,600*
				CONSTRUCTION TOTALS		**$192,200**			**$38,500**	**$230,700**
Contingency	Project Contingency		Calc	20%		*$38,440*			*$7,700*	*$46,140*
				TOTAL INCLUDING CONTINGENCY		**$230,640**			**$46,200**	**$276,840**
Out-Turn	Based on 3% per annum construction cost only.									
	2020/2021		Calc	3%	$21,387			$4,284		$25,671
						$21,400			*$4,300*	*$25,700*
				PROJECT TOTAL		**$252,040**			**$50,500**	**$302,540**

Notes

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HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 14a

Description : Widen Footpath at Bluff Car Park

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Construction Work	Footpath	m2	36.0	250	$9,000		20%	$1,800		$10,800
						$9,000			*$1,800*	*$10,800*
					CONSTRUCTION TOTALS	**$9,000**			**$1,800**	**$10,800**
Contingency	Project Contingency		Calc	20%		*$1,800*			*$360*	*$2,160*
					TOTAL INCLUDING CONTINGENCY	**$10,800**			**$2,160**	**$12,960**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$324			$200		$524
						$300			*$200*	*$500*
					PROJECT TOTAL	**$11,100**			**$2,360**	**$13,460**

Notes

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HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 14

Description : Install Wheel Stops at Bluff Car Park

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Car Park Modification	Wheel Stops	No.	65.0	150	$9,750		20%	$2,000		$11,750
						$9,800			*$2,000*	*$11,800*
					CONSTRUCTION TOTALS	**$9,800**			**$2,000**	**$11,800**
Contingency	Project Contingency		Calc	20%		*$1,960*			*$400*	*$2,360*
					TOTAL INCLUDING CONTINGENCY	**$11,760**			**$2,400**	**$14,160**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$353			$223		$575
						$400			*$200*	*$600*
					PROJECT TOTAL	**$12,160**			**$2,600**	**$14,760**

Notes

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Contingency on items may not vary if the risk as been allocated in the rates.

HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 15

Description : Provide roundabout at Mrs Jones Restaurant Car Park/ Bluff Access Road intersection

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Earthworks	Site Establishment	Item	1.0	2000	$2,000		20%	$400		$2,400
	Earthworks	m3	100.0	55	$5,500		20%	$1,100		$6,600
	Remove wall	Item	1.0	5000	$5,000		20%	$1,000		$6,000
	Tree Trimming	Item	2.0	500	$1,000		20%	$200		$1,200
						$13,500			*$2,700*	*$16,200*
Construction Works	Pavement Sub Base 1	m2	100.0	50	$5,000		20%	$1,000		$6,000
	Pavement Sub Base 2	m2	100.0	50	$5,000		20%	$1,000		$6,000
	Pavement Compact Base	m2	100.0	50	$5,000		20%	$1,000		$6,000
	Bituminous Surface	m2	750.0	30	$22,500		20%	$4,500		$27,000
	Kerb and gutter (type B1 barrier)	m	60.0	100	$6,000		20%	$1,200		$7,200
	Paved island	m2	50.0	120	$6,000		20%	$1,200		$7,200
	Retaining wall	Item	1.0	15000	$15,000		20%	$3,000		$18,000
	Water relocation	Item	1.0	5000	$5,000		20%	$1,000		$6,000
	Power pole relocation	Item	1.0	10000	$10,000		20%	$2,000		$12,000
						$79,500			*$15,900*	*$95,400*
Traffic Facilities	Traffic Management	Item	1.0	8000	$8,000		20%	$1,600		$9,600
	Hold Line	m	12.0	60	$720		20%	$100		$820
	Barrier Line	m	50.0	10	$500		20%	$100		$600
	Painted median islands	Item	3.0	250	$750		20%	$200		$950
	Signage	No.	3.0	350	$1,050		20%	$200		$1,250
						$11,000			*$2,200*	*$13,200*
Design	Detailed Design	Item	1.0	10000	$10,000		20%	$2,000		$12,000
						$10,000			*$2,000*	*$12,000*
				CONSTRUCTION TOTALS		**$114,000**			**$22,800**	**$136,800**
Contingency	Project Contingency		Calc	20%		*$22,800*			*$4,560*	*$27,360*
				TOTAL INCLUDING CONTINGENCY		**$136,800**			**$27,360**	**$164,160**
Out-Turn	Based on 3% per annum construction cost only.									
	2021/2022		Calc	3%	$17,170			$2,537		$19,707
						$17,200			*$2,500*	*$19,700*
				PROJECT TOTAL		**$154,000**			**$29,860**	**$183,860**

Notes

Contingency on items relates to the level of risk attributed an activity, variations in price and variations in quantities.

Project Contingency relates to the level of risk attributed to the project, unknown risks and unknown activities.

As the project progresses the level of contingency either decreases or increases. Any savings from the project are generally translated as additional works to the project scope.

Contingency on items may not vary if the risk as been allocated in the rates.

HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 16

Description : Improve pedestrian access between Bass Strait Maritime Centre and North-West Coastal Pathway

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Earthworks	Site Establishment	Item	1.0	2000	$2,000		20%	$400		$2,400
	Earthworks	m3	81.0	62	$5,022		20%	$1,000		$6,022
	Tree Trimming	Item	2.0	500	$1,000		20%	$200		$1,200
						$8,000			*$1,600*	*$9,600*
Construction Works	Kerb Ramps	No.	4.0	1000	$4,000		20%	$800		$4,800
	Footpath	m2	307.5	115	$35,363		20%	$7,100		$42,463
						$39,400			*$7,900*	*$47,300*
Traffic Facilities	Traffic Management	Item	1.0	1500	$1,500		20%	$300		$1,800
						$1,500			*$300*	*$1,800*
Design	Detailed Design	Item	1.0	1000	$1,000		20%	$200		$1,200
						$1,000			*$200*	*$1,200*
				CONSTRUCTION TOTALS		**$49,900**			**$10,000**	**$59,900**
Contingency	Project Contingency		Calc	20%		*$9,980*			*$2,000*	*$11,980*
				TOTAL INCLUDING CONTINGENCY		**$59,880**			**$12,000**	**$71,880**
Out-Turn	Based on 3% per annum construction cost only.									
	2021/2022		Calc	3%	$7,515			$1,113		$8,628
						$7,500			*$1,100*	*$8,600*
				PROJECT TOTAL		**$67,380**			**$13,100**	**$80,480**

Notes

Contingency on items relates to the level of risk attributed an activity, variations in price and variations in quantities.

Project Contingency relates to the level of risk attributed to the project, unknown risks and unknown activities.

As the project progresses the level of contingency either decreases or increases. Any savings from the project are generally translated as additional works to the project scope.

Contingency on items may not vary if the risk as been allocated in the rates.

HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 17

Description : Install Bicycle Parking Near Bass Strait Maritime Centre

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Bicycle Parking	Bike Hoop Installation	No.	5.0	250	$1,250		20%	$300		$1,550
						$1,300			*$300*	*$1,600*
					CONSTRUCTION TOTALS	**$1,300**			**$300**	**$1,600**
Contingency	Project Contingency		Calc	20%		*$260*			*$60*	*$320*
					TOTAL INCLUDING CONTINGENCY	**$1,560**			**$360**	**$1,920**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$47			$33		$80
						$0			*$0*	*$100*
					PROJECT TOTAL	**$1,560**			**$360**	**$2,020**

Notes

Contingency on items relates to the level of risk attributed an activity, variations in price and variations in quantities.

Project Contingency relates to the level of risk attributed to the project, unknown risks and unknown activities.

As the project progresses the level of contingency either decreases or increases. Any savings from the project are generally translated as additional works to the project scope.

Contingency on items may not vary if the risk as been allocated in the rates.

HB18043 Mersey Bluff, Devonport - Traffic, Parking and Pedestrian Study

Cost Estimate : Initiative 18

Description : Provide bus parking at Bass Strait Maritime Centre

TASK	DESCRIPTION	UNIT	Q'TY	RATE	AMOUNT	SUBTOTAL	CONT. %	CONT $	SUBTOTAL	ADJ. TOTAL
Earthworks	Site Establishment	Item	1.0	2000	$2,000		20%	$400		$2,400
	Earthworks	m3	20.3	30	$608		20%	$100		$708
	Removal of existing kerb	Item	1.0	1000	$1,000		20%	$200		$1,200
						$2,600			*$500*	*$3,100*
Construction Works	Kerb and Gutter (Type B1 Barrier)	m	40.0	55	$2,200		20%	$400		$2,600
	Pavement and surface	m3	200.0	100	$20,000		20%	$4,000		$24,000
	Saw Cutting	m	30.0	10	$300		20%	$100		$400
	V drain	m	30.0	70	$2,100		20%	$400		$2,500
	Footpath	m2	45.0	115	$5,175		20%	$1,000		$6,175
						$24,600			*$4,900*	*$29,500*
Traffic Facilities	Traffic Management	Item	1.0	2000	$2,000		20%	$400		$2,400
	Signage	No.	2.0	350	$700		20%	$100		$800
						$2,700			*$500*	*$3,200*
Design	Detailed Design	Item	1.0	3000	$3,000		20%	$600		$3,600
						$3,000			*$600*	*$3,600*
					CONSTRUCTION TOTALS	**$32,900**			**$6,500**	**$39,400**
Contingency	Project Contingency		Calc	20%		*$6,580*			*$1,300*	*$7,880*
					TOTAL INCLUDING CONTINGENCY	**$39,480**			**$7,800**	**$47,280**
Out-Turn	Based on 3% per annum construction cost only.									
	2018/2019		Calc	3%	$1,184			$723		$1,908
						$1,200			*$700*	*$1,900*
					PROJECT TOTAL	**$40,680**			**$8,500**	**$49,180**

Notes

Contingency on items relates to the level of risk attributed an activity, variations in price and variations in quantities.

Project Contingency relates to the level of risk attributed to the project, unknown risks and unknown activities.

As the project progresses the level of contingency either decreases or increases. Any savings from the project are generally translated as additional works to the project scope.

Contingency on items may not vary if the risk as been allocated in the rates.

Appendix C

Car Parking Survey Results

Parking Occupancy Survey Results

Section	Street	Between/ Location	Supply	Thursday 15th March 2018										
				8:00 - 9:00	9:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	18:00 - 19:00
A	William Street	North Street and Bluff Road	75								3	1	4	1
B	Gloucester Avenue	North Fenton Street and Victoria Parade	20								8	6	8	15
C	Victoria Parade	Gloucester Avenue and Bluff Road	16								11	5	6	5
D	North Fenton Street	Bluff Road and Great Foreshroe Ride	10								4	2	3	7
E	Bluff Road	Clements Street and North Fenton Road	10								3	2	1	1
F	Bluff Road	William Street and Clements Street	88								19	18	14	28
G	Off Street Parking	Meercroft Park	57								0	0	2	25
H	William Street	Devonport Surf Lifesaving Club	40								12	17	19	21
I	Bluff Access Road	Caravan Park and Tiagara	8								0	1	0	2
J	Bluff Access Road	Opposite Tiagara	24								1	1	2	3
K	Bluff Access Road	Mersey Bluff Lighthouse	13								5	4	2	3

Section	Street	Between/ Location	Supply	Saturday 17th March 2018										
				8:00 - 9:00	9:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	18:00 - 19:00
A	William Street	North Street and Bluff Road	75	2	4	8	3	3	1	0	2	0	0	1
B	Gloucester Avenue	North Fenton Street and Victoria Parade	20	3	0	1	0	1	10	11	3	2	3	1
C	Victoria Parade	Gloucester Avenue and Bluff Road	16	5	11	7	5	12	7	11	10	8	4	6
D	North Fenton Street	Bluff Road and Great Foreshroe Ride	10	0	0	1	1	2	2	2	2	0	0	2
E	Bluff Road	Clements Street and North Fenton Road	10	0	2	1	3	9	3	2	3	2	2	1
F	Bluff Road	William Street and Clements Street	88	76	17	11	29	40	11	6	18	15	14	1
G	Off Street Parking	Meercroft Park	57	47	6	4	2	3	1	1	4	1	2	4
H	William Street	Devonport Surf Lifesaving Club	40	23	14	14	17	36	30	31	28	28	24	30
I	Bluff Access Road	Caravan Park and Tiagara	8	3	4	5	4	6	4	2	2	0	0	1
J	Bluff Access Road	Opposite Tiagara	24	0	2	3	5	4	4	6	5	5	0	2
K	Bluff Access Road	Mersey Bluff Lighthouse	13	3	1	8	3	7	2	6	5	7	4	6

Section	Street	Between/ Location	Supply	Saturday 24th March 2018										
				8:00 - 9:00	9:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	18:00 - 19:00
A	William Street	North Street and Bluff Road	75	1	3	4	1	2	0	0	0	0	1	1
B	Gloucester Avenue	North Fenton Street and Victoria Parade	20	2	4	11	8	10	12	10	8	9	7	1
C	Victoria Parade	Gloucester Avenue and Bluff Road	16	4	4	2	5	4	8	10	10	9	2	8
D	North Fenton Street	Bluff Road and Great Foreshroe Ride	10	0	1	1	0	2	1	2	4	0	4	3
E	Bluff Road	Clements Street and North Fenton Road	10	1	2	1	2	2	2	3	2	2	2	9
F	Bluff Road	William Street and Clements Street	88	14	11	5	3	6	10	8	18	20	11	9
G	Off Street Parking	Meercroft Park	57	15	10	3	1	1	0	0	2	1	2	9
H	William Street	Devonport Surf Lifesaving Club	40	10	13	7	12	37	40	27	27	29	21	27
I	Bluff Access Road	Caravan Park and Tiagara	8	1	1	1	2	1	2	2	1	0	2	1
J	Bluff Access Road	Opposite Tiagara	24	0	2	5	3	4	5	7	6	8	3	2
K	Bluff Access Road	Mersey Bluff Lighthouse	13	0	2	6	6	8	4	6	5	7	6	5

Appendix D

Traffic Volume Data

MetroCount Traffic Executive
Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-42 -- English (ENA)

Datasets:

Site:	**[Bluff Access Rd] Just north of Coles Beach Rd**
Attribute:	
Direction:	7 - North bound A>B, South bound B>A. **Lane:** 0
Survey Duration:	9:57 Friday, 10 November 2017 => 15:05 Thursday, 21 December 2017,
Zone:	
File:	Bluff Access Rd 0 2017-12-21 1606.EC0 (Plus)
Identifier:	S130CMWG MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**9:58 Friday, 10 November 2017 => 15:05 Thursday, 21 December 2017 (41.2137)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = North, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 64950 / 65335 (99.41%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-42
Site: Bluff Access Rd.0.1NS
Description: **Just north of Coles Beach Rd**
Filter time: **9:58 Friday, 10 November 2017 => 15:05 Thursday, 21 December 2017**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	Averages 1 - 7
Hour									
0000-0100	0.5	1.0	2.7	2.3	1.4	3.3	5.3	1.6	2.4
0100-0200	0.3	1.0	0.5	0.8	1.6	0.8	2.5	0.8	1.1
0200-0300	0.7	0.3	1.2	0.3	1.0	1.3	2.7	0.7	1.1
0300-0400	2.8	3.0	3.3	2.7	3.8	4.0	1.0	3.1	2.9
0400-0500	4.7	6.0	6.7	5.5	6.2	4.0	4.0	5.8	5.3
0500-0600	10.2	8.5	9.2	10.2	13.2	13.5	6.5	10.1	10.1
0600-0700	22.7	23.7	26.2	23.0	19.8	44.0	20.2	23.2	25.8
0700-0800	43.2	42.5	46.0	46.5	38.2	49.3	39.0	43.4	43.7
0800-0900	53.5	54.3	65.2	58.8	57.8	76.7	70.3	57.9	62.5
0900-1000	66.3	70.2	79.5	72.3	65.0	85.0	103.8	70.7	77.5
1000-1100	95.5	99.8	98.5	95.5	118.3	113.0	142.7	101.5	109.0
1100-1200	**122.7**	**147.2**	**141.3**	**138.8**	**149.8**	**156.7**	**195.5**	**140.0**	**150.3**
1200-1300	**131.2**	**138.8**	**129.7**	123.8	146.2	152.5	**218.8**	**133.9**	**148.7**
1300-1400	109.7	129.7	121.8	107.7	129.5	153.8	191.7	119.7	134.8
1400-1500	130.3	111.8	121.8	112.5	126.7	151.7	170.5	120.6	132.2
1500-1600	128.8	116.7	118.0	103.8	130.3	150.2	149.2	119.5	128.1
1600-1700	112.8	106.0	122.2	169.0	145.3	138.0	119.0	129.8	129.4
1700-1800	108.8	89.5	123.5	**169.8**	**161.2**	**166.3**	104.8	129.2	131.1
1800-1900	86.5	90.0	97.0	134.0	138.7	127.2	90.3	108.4	108.5
1900-2000	61.2	67.0	82.2	85.6	86.3	75.8	69.2	76.1	75.1
2000-2100	29.8	34.7	52.7	47.0	54.0	44.5	28.2	43.5	41.4
2100-2200	10.2	18.3	22.2	24.8	40.0	40.2	10.5	23.0	23.7
2200-2300	3.5	5.2	13.2	11.6	17.8	33.0	8.0	10.2	13.2
2300-2400	2.3	3.3	3.8	4.2	9.2	10.7	0.5	4.6	4.9
Totals									
0700-1900	1189.3	1196.5	1264.5	1332.6	1407.0	1520.3	1595.7	1274.7	1355.8
0600-2200	1313.2	1340.2	1447.7	1513.0	1607.1	1724.8	1723.7	1440.5	1521.7
0600-0000	1319.0	1348.7	1464.7	1528.8	1634.1	1768.5	1732.2	1455.3	1539.8
0000-0000	1338.2	1368.5	1488.2	1550.7	1661.3	1795.5	1754.2	1477.5	1562.7
AM Peak	1100	1100	1100	1100	1100	1100	1100		
	122.7	147.2	141.3	138.8	149.8	156.7	195.5		
PM Peak	1200	1200	1200	1700	1700	1700	1200		
	131.2	138.8	129.7	169.8	161.2	166.3	218.8		

*** - No data.**

MetroCount Traffic Executive
Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-43 -- English (ENA)

Datasets:

Site:	**[Bluff Rd] Around 50m from intersection of William St**
Attribute:	Urban
Direction:	8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration:	10:42 Friday, 10 November 2017 => 9:17 Monday, 18 December 2017,
Zone:	
File:	Bluff Rd 0 2017-12-21 1547.EC0 (Plus)
Identifier:	HQ2464DB MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**10:43 Friday, 10 November 2017 => 9:17 Monday, 18 December 2017 (37.9404)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = East, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 97767 / 98251 (99.51%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-43
Site: Bluff Rd.0.1EW
Description: **Around 50m from intersection of William St**
Filter time: **10:43 Friday, 10 November 2017 => 9:17 Monday, 18 December 2017**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	Averages 1 - 7
Hour									
0000-0100	2.2	4.2	3.8	3.0	5.0	13.5	13.2	3.6	6.7
0100-0200	1.3	2.6	2.2	2.4	4.2	5.3	7.5	2.5	3.7
0200-0300	1.3	0.6	1.0	0.4	1.8	3.2	4.3	1.0	1.9
0300-0400	1.5	1.4	1.8	1.0	1.8	2.0	1.5	1.5	1.6
0400-0500	7.7	9.4	13.6	12.0	13.2	4.3	4.0	11.0	8.9
0500-0600	20.7	20.2	30.2	20.6	26.2	28.2	12.8	23.5	22.5
0600-0700	51.7	56.8	55.2	54.8	49.6	123.7	31.8	53.5	61.2
0700-0800	86.2	91.4	102.0	105.6	72.4	126.7	77.2	91.3	94.7
0800-0900	105.0	106.4	113.2	105.2	101.0	134.2	110.7	106.1	111.3
0900-1000	113.8	134.6	187.4	167.0	128.4	140.7	158.3	145.0	146.4
1000-1100	163.2	165.4	191.8	**255.0**	133.2	184.5	206.3	179.8	184.8
1100-1200	**172.6**	**187.2**	**271.8**	227.4	**182.5**	**224.0**	**256.8**	**207.3**	**217.8**
1200-1300	185.0	201.2	**254.0**	271.0	183.0	215.3	289.5	217.5	**228.5**
1300-1400	187.4	182.0	163.4	179.8	180.2	**225.0**	**295.2**	178.6	204.3
1400-1500	213.2	207.0	194.4	208.0	190.0	218.8	258.2	202.0	213.6
1500-1600	**229.4**	217.4	203.8	229.0	188.7	215.0	231.5	212.7	216.0
1600-1700	215.2	**250.6**	224.4	**287.2**	**193.2**	183.2	190.2	**232.5**	218.1
1700-1800	175.6	191.6	198.4	245.4	176.7	186.3	146.5	196.7	187.2
1800-1900	154.2	178.6	163.8	187.6	173.0	155.3	123.8	171.5	161.4
1900-2000	114.0	142.8	113.8	162.2	138.7	118.2	97.5	134.5	126.1
2000-2100	64.4	57.6	62.0	83.8	88.3	85.2	60.8	71.9	72.2
2100-2200	28.6	30.2	39.6	48.2	64.8	72.3	28.0	43.2	45.4
2200-2300	12.6	10.8	19.6	24.4	43.5	48.8	14.5	23.0	25.7
2300-2400	7.0	8.4	7.8	11.4	27.0	20.8	6.0	12.9	13.1
Totals									
0700-1900	2000.8	2113.4	2268.4	2468.2	1902.1	2209.0	2344.2	2141.2	2183.9
0600-2200	2259.5	2400.8	2539.0	2817.2	2243.6	2608.3	2562.3	2444.2	2488.8
0600-0000	2279.1	2420.0	2566.4	2853.0	2314.1	2678.0	2582.8	2480.1	2527.6
0000-0000	2313.7	2458.4	2619.0	2892.4	2366.3	2734.5	2626.2	2523.2	2572.8
AM Peak	1100	1100	1100	1000	1100	1100	1100		
	172.6	187.2	271.8	255.0	182.5	224.0	256.8		
PM Peak	1500	1600	1200	1600	1600	1300	1300		
	229.4	250.6	254.0	287.2	193.2	225.0	295.2		

*** - No data.**

MetroCount Traffic Executive
Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-44 -- English (ENA)

Datasets:

Site:	**[Bluff Rd] Around 70m West of Clements St**
Attribute:	Urban
Direction:	8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration:	12:53 Friday, 10 November 2017 => 6:32 Saturday, 16 December 2017,
Zone:	
File:	Bluff Rd 0 2017-12-21 1615.EC0 (Plus)
Identifier:	K548WHC5 MC56-6 [MC55] (c)Microcom 02/03/01
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**12:54 Friday, 10 November 2017 => 6:32 Saturday, 16 December 2017 (35.7348)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = East, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 82576 / 83062 (99.41%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-44
Site: Bluff Rd.0.1EW
Description: **Around 70m West of Clements St**
Filter time: **12:54 Friday, 10 November 2017 => 6:32 Saturday, 16 December 2017**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	Averages 1 - 7
Hour									
0000-0100	1.2	3.4	3.2	2.4	3.6	13.3	18.2	2.8	6.7
0100-0200	1.2	2.2	2.0	3.4	2.6	5.7	10.2	2.3	3.9
0200-0300	1.2	0.6	1.0	0.6	1.4	3.5	4.0	1.0	1.8
0300-0400	2.0	1.4	1.6	1.0	1.6	1.5	2.2	1.5	1.6
0400-0500	6.0	8.8	14.0	11.2	13.0	4.8	3.6	10.6	8.7
0500-0600	19.0	17.6	28.6	16.8	29.8	25.2	11.8	22.4	21.4
0600-0700	47.4	50.4	51.4	47.4	44.8	81.8	31.6	48.3	51.6
0700-0800	75.2	80.6	85.0	91.8	68.8	119.6	68.2	80.3	84.2
0800-0900	100.8	108.0	109.2	87.2	98.2	129.8	101.2	100.7	104.9
0900-1000	123.2	134.2	103.2	87.0	116.2	135.0	141.2	112.8	120.0
1000-1100	151.6	162.2	122.8	99.4	142.6	184.6	188.0	135.7	150.2
1100-1200	**170.6**	**181.6**	**143.8**	**117.0**	**171.8**	**216.8**	**228.2**	**157.0**	**175.7**
1200-1300	175.6	188.8	157.8	137.0	162.7	220.8	**274.0**	164.3	187.4
1300-1400	185.2	188.0	153.8	162.6	178.8	**237.4**	273.0	173.9	196.5
1400-1500	205.6	196.0	**197.4**	202.6	**189.3**	215.4	250.6	197.8	**207.6**
1500-1600	**217.0**	208.6	192.4	215.8	182.0	206.2	218.4	202.3	205.1
1600-1700	195.8	**209.2**	196.0	**244.2**	174.5	184.6	174.6	**202.8**	196.4
1700-1800	167.0	168.2	166.6	213.6	151.5	180.6	130.8	172.5	167.9
1800-1900	152.4	164.4	147.8	183.2	164.2	141.6	116.2	162.5	153.1
1900-2000	107.0	123.6	106.8	147.6	130.8	111.0	89.6	123.5	117.0
2000-2100	60.4	54.8	59.6	82.8	86.2	82.6	54.2	69.4	69.1
2100-2200	28.0	33.0	34.2	46.8	68.3	65.2	23.2	43.1	43.4
2200-2300	15.6	11.6	17.6	20.8	44.5	45.8	13.8	22.9	24.8
2300-2400	7.6	6.0	7.4	13.6	25.7	21.2	3.8	12.6	12.6
Totals									
0700-1900	1920.0	1989.8	1775.8	1841.4	1800.6	2172.4	2164.4	1862.6	1948.9
0600-2200	2162.8	2251.6	2027.8	2166.0	2130.7	2513.0	2363.0	2146.8	2230.0
0600-0000	2186.0	2269.2	2052.8	2200.4	2200.9	2580.0	2380.6	2182.3	2267.4
0000-0000	2216.6	2303.2	2103.2	2235.8	2252.9	2634.0	2430.6	2222.8	2311.4
AM Peak	1100	1100	1100	1100	1100	1100	1100		
	170.6	181.6	143.8	117.0	171.8	216.8	228.2		
PM Peak	1500	1600	1400	1600	1400	1300	1200		
	217.0	209.2	197.4	244.2	189.3	237.4	274.0		

*** - No data.**

MetroCount Traffic Executive
Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-45 -- English (ENA)

Datasets:

Site:	**[Bluff Rd] North Fenton - Clements**
Attribute:	Local
Direction:	8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration:	9:04 Tuesday, 2 December 2014 => 17:26 Thursday, 18 December 2014,
Zone:	
File:	Bluff Rd18Dec2014.EC0 (Plus)
Identifier:	B537RRHC MC56-1 [MC55] (c)Microcom 07/06/99
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**9:05 Tuesday, 2 December 2014 => 17:26 Thursday, 18 December 2014 (16.3484)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = East, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 30564 / 30620 (99.82%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-45
Site: Bluff Rd.0.1EW
Description: **North Fenton - Clements**
Filter time: **9:05 Tuesday, 2 December 2014 => 17:26 Thursday, 18 December 2014**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	Averages 1 - 7
Hour									
0000-0100	6.0	6.0	14.3	10.0	8.5	25.0	57.0	9.5	17.4
0100-0200	2.0	2.5	1.7	4.7	3.5	11.0	22.0	2.9	6.3
0200-0300	1.0	2.0	1.0	2.0	1.5	4.0	9.5	1.5	2.8
0300-0400	1.5	0.0	1.0	1.3	0.0	1.5	5.5	0.8	1.5
0400-0500	3.0	3.0	3.3	2.3	3.0	1.0	6.0	2.9	3.1
0500-0600	6.0	7.0	9.3	6.0	14.0	7.5	7.5	8.3	8.1
0600-0700	22.0	15.5	18.3	16.3	25.5	16.5	22.5	19.2	19.3
0700-0800	43.0	45.0	43.0	39.7	44.0	37.5	35.0	42.7	41.1
0800-0900	63.5	74.0	63.0	56.0	62.5	52.0	58.5	63.1	61.1
0900-1000	85.5	81.7	84.7	67.7	90.0	62.5	103.0	81.0	81.4
1000-1100	118.0	94.0	101.7	64.3	102.5	86.5	140.0	93.9	98.5
1100-1200	**130.0**	**115.0**	**119.0**	**72.3**	**127.5**	**108.0**	**176.5**	**110.3**	**117.8**
1200-1300	142.0	135.0	149.3	92.7	145.0	83.5	214.5	131.2	135.4
1300-1400	136.5	**164.7**	145.0	102.3	**167.5**	125.0	**250.0**	141.8	152.6
1400-1500	158.5	143.3	151.0	96.0	157.5	127.0	227.0	138.7	147.7
1500-1600	**172.5**	146.7	158.7	100.3	163.5	108.0	231.0	145.3	151.0
1600-1700	152.0	153.0	163.7	121.0	150.5	**207.5**	209.0	**147.5**	**161.8**
1700-1800	158.0	133.3	202.0	108.7	93.0	154.0	147.5	141.1	143.4
1800-1900	99.0	102.0	**202.3**	**180.5**	79.0	119.5	124.5	135.8	132.4
1900-2000	99.5	100.0	139.7	119.0	106.5	120.5	109.0	114.1	114.3
2000-2100	89.0	84.7	93.3	104.0	130.5	81.0	79.5	98.4	93.9
2100-2200	50.0	58.0	84.7	62.5	80.0	82.0	63.0	67.8	68.9
2200-2300	36.5	30.3	51.7	39.0	76.5	62.0	38.0	45.8	46.9
2300-2400	15.0	19.3	18.3	22.5	56.5	71.5	13.5	25.1	29.4
Totals									
0700-1900	1458.5	1387.7	1583.3	1101.5	1382.5	1271.0	1916.5	1372.4	1424.1
0600-2200	1719.0	1645.8	1919.3	1403.3	1725.0	1571.0	2190.5	1671.8	1720.4
0600-0000	1770.5	1695.5	1989.3	1464.8	1858.0	1704.5	2242.0	1742.8	1796.7
0000-0000	1790.0	1716.0	2020.0	1491.2	1888.5	1754.5	2349.5	1768.8	1835.9
AM Peak	1100	1100	1100	1100	1100	1100	1100		
	130.0	115.0	119.0	72.3	127.5	108.0	176.5		
PM Peak	1500	1300	1800	1800	1300	1600	1300		
	172.5	164.7	202.3	180.5	167.5	207.5	250.0		

*** - No data.**

MetroCount Traffic Executive
Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-46 -- English (ENA)

Datasets:

Site:	**[Clements St] North St - Bluff Rd**
Attribute:	urban
Direction:	7 - North bound A>B, South bound B>A. **Lane:** 0
Survey Duration:	13:23 Friday, 10 November 2017 => 14:45 Thursday, 21 December 2017,
Zone:	
File:	Clements St 0 2017-12-21 1544.EC0 (Plus)
Identifier:	S0988MAC MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**13:24 Friday, 10 November 2017 => 14:45 Thursday, 21 December 2017 (41.0563)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = North, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 19587 / 19730 (99.28%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-46
Site: Clements St.0.1NS
Description: **North St - Bluff Rd**
Filter time: **13:24 Friday, 10 November 2017 => 14:45 Thursday, 21 December 2017**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	Averages 1 - 7
Hour									
0000-0100	0.0	0.5	0.3	0.3	0.6	0.0	0.5	0.3	0.3
0100-0200	0.0	0.5	0.0	0.0	0.2	0.3	1.2	0.1	0.3
0200-0300	0.0	0.2	0.2	0.3	0.2	0.0	0.3	0.2	0.2
0300-0400	2.0	2.0	2.0	1.8	2.0	1.7	0.2	2.0	1.7
0400-0500	3.7	3.8	3.2	3.7	2.6	2.0	2.7	3.4	3.1
0500-0600	15.3	13.3	17.2	16.3	20.0	14.5	14.2	16.3	15.7
0600-0700	16.7	20.0	19.2	17.3	16.0	19.7	10.3	17.9	17.0
0700-0800	18.0	20.5	24.5	20.2	19.2	13.2	8.8	20.5	17.7
0800-0900	29.5	31.0	35.8	37.2	26.0	17.3	19.5	32.1	28.1
0900-1000	32.3	33.5	38.8	46.5	33.6	29.7	22.7	37.1	33.9
1000-1100	35.8	**44.2**	**54.0**	**51.3**	32.2	**35.7**	**35.0**	**43.9**	**41.4**
1100-1200	**37.5**	33.8	45.2	44.8	**34.2**	32.5	30.0	39.3	36.9
1200-1300	39.3	47.3	**52.8**	**50.5**	38.0	27.7	38.8	45.9	42.2
1300-1400	44.8	**48.0**	49.2	47.3	43.0	**36.2**	**45.2**	46.5	44.8
1400-1500	**51.7**	46.7	52.0	45.3	**51.2**	35.5	41.5	**49.4**	**46.3**
1500-1600	41.0	41.7	42.7	42.6	36.2	26.5	34.2	40.8	37.7
1600-1700	32.7	35.0	33.0	38.4	26.3	16.0	22.8	32.9	29.0
1700-1800	21.2	30.2	25.7	31.6	22.5	14.8	18.7	26.0	23.3
1800-1900	21.8	28.2	26.8	22.2	17.3	14.5	14.8	23.3	20.8
1900-2000	13.3	12.5	15.0	12.6	14.2	7.5	9.5	13.6	12.1
2000-2100	5.2	8.3	9.3	7.0	6.7	7.5	4.5	7.3	6.9
2100-2200	8.8	9.5	7.5	7.8	11.0	9.7	8.0	9.0	8.9
2200-2300	5.7	5.3	6.8	7.0	7.7	6.8	5.7	6.5	6.4
2300-2400	0.7	0.2	0.5	0.4	1.8	1.8	0.2	0.7	0.8
Totals									
0700-1900	405.7	440.0	480.5	478.0	379.7	299.5	332.0	437.6	402.0
0600-2200	449.7	490.3	531.5	522.7	427.5	343.8	364.3	485.3	447.0
0600-0000	456.0	495.8	538.8	530.1	437.0	352.5	370.2	492.5	454.2
0000-0000	477.0	516.2	561.7	552.6	462.6	371.0	389.2	514.8	475.5
AM Peak	1100	1000	1000	1000	1100	1000	1000		
	37.5	44.2	54.0	51.3	34.2	35.7	35.0		
PM Peak	1400	1300	1200	1200	1400	1300	1300		
	51.7	48.0	52.8	50.5	51.2	36.2	45.2		

*** - No data.**

MetroCount Traffic Executive
Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-47 -- English (ENA)

Datasets:

Site:	**[Coles Beach Rd] Around 100m -150m from William St intersection**
Attribute:	Local
Direction:	8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration:	10:24 Friday, 10 November 2017 => 15:23 Thursday, 21 December 2017,
Zone:	
File:	Coles Beach Rd 0 2017-12-21 1622.EC0 (Plus)
Identifier:	BH193HRP MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**10:25 Friday, 10 November 2017 => 15:23 Thursday, 21 December 2017 (41.2071)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = East, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 62007 / 62206 (99.68%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-47
Site: Coles Beach Rd.0.1EW
Description: **Around 100m -150m from William St intersection**
Filter time: **10:25 Friday, 10 November 2017 => 15:23 Thursday, 21 December 2017**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	Averages 1 - 7
Hour									
0000-0100	1.5	2.8	1.2	1.8	1.8	8.0	5.3	1.8	3.2
0100-0200	0.8	1.5	1.0	2.5	1.2	2.3	2.7	1.4	1.7
0200-0300	0.2	0.5	0.5	0.8	1.0	1.8	0.8	0.6	0.8
0300-0400	0.3	0.3	0.7	1.3	0.4	0.5	1.3	0.6	0.7
0400-0500	4.3	5.0	6.8	8.3	5.8	2.5	2.7	6.1	5.0
0500-0600	11.7	12.0	15.8	10.0	13.2	15.5	7.0	12.5	12.1
0600-0700	37.2	38.7	36.7	41.3	38.4	41.3	18.7	38.4	36.0
0700-0800	60.7	61.5	65.8	56.3	52.8	56.5	48.8	59.7	57.6
0800-0900	66.3	66.0	61.0	60.5	58.0	76.5	66.8	62.5	65.2
0900-1000	73.2	75.0	119.0	108.8	82.4	86.3	90.5	92.0	91.0
1000-1100	96.2	97.3	117.3	**166.3**	86.3	101.5	109.2	112.7	110.6
1100-1200	**101.2**	**106.0**	**167.3**	133.3	**110.0**	**118.7**	**127.5**	**123.6**	**123.4**
1200-1300	121.8	115.3	**168.5**	**160.2**	113.5	121.3	154.8	**135.9**	**136.5**
1300-1400	117.0	111.7	111.8	89.5	101.8	132.7	**159.7**	106.4	117.7
1400-1500	124.0	120.7	123.5	107.5	112.3	131.8	154.5	117.6	124.9
1500-1600	129.8	135.2	125.3	105.7	118.2	**134.3**	145.7	122.8	127.7
1600-1700	**141.3**	**138.8**	137.2	140.4	**118.3**	101.8	123.5	135.0	128.5
1700-1800	110.0	109.2	115.7	119.8	89.3	92.3	93.5	108.4	103.9
1800-1900	105.2	97.2	92.5	110.2	81.2	76.0	81.5	96.8	91.5
1900-2000	79.7	69.3	75.0	82.8	72.2	65.8	64.8	75.6	72.6
2000-2100	41.7	38.5	41.7	47.2	46.0	43.8	34.5	42.9	41.8
2100-2200	20.8	18.8	23.8	25.6	29.7	27.8	14.3	23.7	22.9
2200-2300	6.8	6.7	14.7	12.4	20.3	20.7	6.8	12.2	12.6
2300-2400	3.7	3.3	5.8	7.2	12.7	9.2	1.7	6.5	6.2
Totals									
0700-1900	1246.7	1233.8	1405.0	1358.6	1124.2	1229.8	1356.0	1273.3	1278.5
0600-2200	1426.0	1399.2	1582.2	1555.5	1310.4	1408.7	1488.3	1453.9	1451.8
0600-0000	1436.5	1409.2	1602.7	1575.1	1343.4	1438.5	1496.8	1472.6	1470.6
0000-0000	1455.3	1431.3	1628.7	1599.9	1366.8	1469.2	1516.7	1495.6	1494.3
AM Peak	1100	1100	1100	1000	1100	1100	1100		
	101.2	106.0	167.3	166.3	110.0	118.7	127.5		
PM Peak	1600	1600	1200	1200	1600	1500	1300		
	141.3	138.8	168.5	160.2	118.3	134.3	159.7		

*** - No data.**

MetroCount Traffic Executive
Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-48 -- English (ENA)

Datasets:

Site:	**[North St] Gunn - Clements**
Attribute:	Local
Direction:	8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration:	17:00 Thursday, 3 November 2011 => 14:34 Friday, 18 November 2011,
Zone:	
File:	North St18Nov2011.EC0 (Plus)
Identifier:	S0988MAC MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**17:00 Thursday, 3 November 2011 => 14:34 Friday, 18 November 2011 (14.8991)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = East, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 3938 / 3981 (98.92%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-48
Site: North St.0.1EW
Description: **Gunn - Clements**
Filter time: **17:00 Thursday, 3 November 2011 => 14:34 Friday, 18 November 2011**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	Averages 1 - 7
Hour									
0000-0100	0.0	1.0	1.5	0.0	0.3	0.0	0.0	0.5	0.4
0100-0200	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.1
0200-0300	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0300-0400	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.1
0400-0500	0.0	0.0	0.0	0.0	0.0	1.0	0.5	0.0	0.2
0500-0600	0.5	2.0	2.0	1.0	1.7	0.5	2.0	1.5	1.4
0600-0700	10.5	13.0	13.5	11.0	11.3	9.5	6.5	11.8	10.8
0700-0800	6.5	15.0	16.0	16.0	10.7	4.0	9.5	12.6	11.1
0800-0900	14.0	22.0	**19.5**	20.0	15.3	13.5	7.0	17.9	15.9
0900-1000	15.0	20.0	18.5	22.5	**27.0**	12.5	10.0	21.2	18.5
1000-1100	16.5	17.0	10.5	**22.5**	18.3	16.5	18.5	17.1	17.2
1100-1200	**24.0**	**25.5**	14.0	21.5	22.0	**18.0**	**22.5**	**21.5**	**21.1**
1200-1300	11.5	23.5	14.0	22.5	20.3	15.5	13.0	18.5	17.4
1300-1400	25.0	26.0	14.5	20.5	22.7	23.5	18.0	21.8	21.5
1400-1500	20.0	24.5	11.0	23.0	19.0	18.0	**19.5**	19.5	19.3
1500-1600	**29.5**	**30.5**	17.5	43.0	**39.5**	**25.0**	18.5	**32.0**	**29.1**
1600-1700	21.5	25.0	13.0	42.5	21.0	15.5	11.5	24.6	21.4
1700-1800	15.0	26.0	**17.5**	**44.3**	12.5	10.0	14.0	25.0	21.5
1800-1900	6.5	22.5	16.5	23.0	15.0	11.5	6.5	17.3	15.1
1900-2000	7.5	13.0	8.5	12.7	8.5	8.5	6.5	10.3	9.5
2000-2100	3.5	9.0	3.5	5.0	7.0	3.0	3.5	5.5	4.9
2100-2200	2.5	2.5	6.0	2.7	2.0	1.5	5.0	3.1	3.1
2200-2300	5.0	2.5	5.0	4.3	5.0	4.0	6.0	4.4	4.5
2300-2400	1.0	1.5	1.5	1.7	2.5	2.0	2.0	1.6	1.7
Totals									
0700-1900	205.0	277.5	182.5	321.3	243.3	183.5	168.5	249.0	229.1
0600-2200	229.0	315.0	214.0	352.7	272.2	206.0	190.0	279.7	257.5
0600-0000	235.0	319.0	220.5	358.7	279.7	212.0	198.0	285.7	263.8
0000-0000	235.5	322.0	224.5	359.7	282.0	213.5	200.5	287.9	265.9
AM Peak	1100	1100	0800	1000	0900	1100	1100		
	24.0	25.5	19.5	22.5	27.0	18.0	22.5		
PM Peak	1500	1500	1700	1700	1500	1500	1400		
	29.5	30.5	17.5	44.3	39.5	25.0	19.5		

*** - No data.**

MetroCount Traffic Executive
Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-49 -- English (ENA)

Datasets:

Site:	**[William St] Eugene St - Bluff Rd**
Attribute:	Urban
Direction:	7 - North bound A>B, South bound B>A. **Lane:** 0
Survey Duration:	12:17 Friday, 10 November 2017 => 15:00 Thursday, 21 December 2017,
Zone:	
File:	William St 0 2017-12-21 1559.EC0 (Plus)
Identifier:	HQ9294PS MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**12:18 Friday, 10 November 2017 => 15:00 Thursday, 21 December 2017 (41.1129)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = North, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 96852 / 96983 (99.86%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-49
Site: William St.0.1NS
Description: **Eugene St - Bluff Rd**
Filter time: **12:18 Friday, 10 November 2017 => 15:00 Thursday, 21 December 2017**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	Averages 1 - 7
Hour									
0000-0100	2.2	2.7	4.0	3.7	3.8	11.8	12.3	3.2	5.8
0100-0200	1.2	2.7	2.0	2.3	3.0	4.3	7.7	2.2	3.3
0200-0300	1.8	1.0	1.2	1.0	1.4	3.5	3.7	1.3	2.0
0300-0400	3.0	3.2	3.2	3.5	4.0	4.0	1.8	3.3	3.2
0400-0500	7.3	10.3	12.7	6.3	10.4	4.5	3.7	9.4	7.8
0500-0600	18.0	16.0	23.3	12.8	25.8	19.8	9.0	19.0	17.6
0600-0700	39.3	44.3	47.0	40.7	40.0	121.3	32.2	42.3	52.4
0700-0800	86.2	79.0	100.8	88.5	74.0	118.7	61.2	86.1	87.2
0800-0900	103.2	100.7	126.5	110.5	102.2	123.3	96.5	108.8	109.1
0900-1000	126.3	120.7	133.2	102.2	130.0	139.0	143.8	122.2	127.8
1000-1100	153.5	153.8	128.5	120.5	153.8	173.5	182.2	141.6	152.2
1100-1200	**181.3**	**189.8**	**164.0**	**155.7**	**201.8**	**207.8**	**247.8**	**177.7**	**192.4**
1200-1300	190.5	188.2	138.3	152.2	184.3	202.7	**268.7**	170.7	189.3
1300-1400	172.2	168.3	156.5	160.2	170.5	**209.5**	263.3	165.5	185.8
1400-1500	194.2	175.8	157.8	166.2	175.3	200.5	247.7	173.9	188.2
1500-1600	**216.2**	194.3	152.3	183.5	175.2	204.2	214.2	184.3	191.4
1600-1700	215.8	**235.0**	**193.5**	**298.4**	196.8	176.2	178.2	**225.5**	**211.3**
1700-1800	180.8	192.8	180.2	272.4	**198.2**	182.5	155.2	202.6	192.7
1800-1900	153.8	152.8	146.2	206.6	164.5	150.3	117.7	163.3	154.8
1900-2000	102.7	127.0	109.0	149.4	128.2	108.2	88.3	122.3	115.3
2000-2100	64.2	67.0	67.5	89.0	89.0	85.8	52.0	74.9	73.1
2100-2200	30.3	31.5	38.8	46.2	64.0	76.0	25.5	42.0	44.6
2200-2300	9.8	9.3	17.2	25.8	44.3	55.7	15.3	21.1	25.3
2300-2400	6.3	7.0	6.5	10.2	22.3	19.5	5.3	10.5	11.0
Totals									
0700-1900	1974.0	1951.3	1777.8	2016.7	1926.6	2088.2	2176.3	1922.3	1982.3
0600-2200	2210.5	2221.2	2040.2	2342.0	2247.8	2479.5	2374.3	2203.8	2267.7
0600-0000	2226.7	2237.5	2063.8	2378.0	2314.5	2554.7	2395.0	2235.5	2304.1
0000-0000	2260.2	2273.3	2110.2	2407.7	2362.9	2602.7	2433.2	2273.9	2343.8
AM Peak	1100	1100	1100	1100	1100	1100	1100		
	181.3	189.8	164.0	155.7	201.8	207.8	247.8		
PM Peak	1500	1600	1600	1600	1700	1300	1200		
	216.2	235.0	193.5	298.4	198.2	209.5	268.7		

*** - No data.**

Appendix E

Traffic Speed Data

MetroCount Traffic Executive
Speed Statistics

SpeedStat-34 -- English (ENA)

Datasets:

Site:	**[Bluff Access Rd] Just north of Coles Beach Rd**
Attribute:	
Direction:	7 - North bound A>B, South bound B>A. **Lane:** 0
Survey Duration:	9:57 Friday, 10 November 2017 => 15:05 Thursday, 21 December 2017,
Zone:	
File:	Bluff Access Rd 0 2017-12-21 1606.EC0 (Plus)
Identifier:	S130CMWG MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**9:58 Friday, 10 November 2017 => 15:05 Thursday, 21 December 2017 (41.2137)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = North, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 64950 / 65335 (99.41%)

Speed Statistics

SpeedStat-34
Site: Bluff Access Rd.0.1NS
Description: **Just north of Coles Beach Rd**
Filter time: **9:58 Friday, 10 November 2017 => 15:05 Thursday, 21 December 2017**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Vehicles = 64950
Posted speed limit = 60 km/h, Exceeding = 1154 (1.78%), Mean Exceeding = 98.99 km/h
Maximum = 156.2 km/h, **Minimum** = 10.0 km/h, **Mean** = 29.2 km/h
85% Speed = 34.80 km/h, **95% Speed** = 40.94 km/h, **Median** = 27.63 km/h
20 km/h Pace = 18 - 38, **Number in Pace** = 55555 (85.54%)
Variance = 143.51, **Standard Deviation** = 11.98 km/h

Speed Bins (Partial days)

Speed	Bin		Below		Above		Energy	vMult	n * vMult
0 - 10	0	0.0%	0	0.0%	64950	100.0%	0.00	0.00	0.00
10 - 20	7147	11.0%	7147	11.0%	57803	89.0%	0.00	0.00	0.00
20 - 30	34112	52.5%	41259	63.5%	23691	36.5%	0.00	0.00	0.00
30 - 40	19845	30.6%	61104	94.1%	3846	5.9%	0.00	0.00	0.00
40 - 50	2316	3.6%	63420	97.6%	1530	2.4%	0.00	0.00	0.00
50 - 60	376	0.6%	63796	98.2%	1154	1.8%	0.00	0.00	0.00
60 - 70	137	0.2%	63933	98.4%	1017	1.6%	0.00	0.00	0.00
70 - 80	217	0.3%	64150	98.8%	800	1.2%	0.00	0.00	0.00
80 - 90	105	0.2%	64255	98.9%	695	1.1%	0.00	0.00	0.00
90 - 100	23	0.0%	64278	99.0%	672	1.0%	0.00	0.00	0.00
100 - 110	288	0.4%	64566	99.4%	384	0.6%	0.00	0.00	0.00
110 - 120	189	0.3%	64755	99.7%	195	0.3%	0.00	0.00	0.00
120 - 130	1	0.0%	64756	99.7%	194	0.3%	0.00	0.00	0.00
130 - 140	191	0.3%	64947	100.0%	3	0.0%	0.00	0.00	0.00
140 - 150	1	0.0%	64948	100.0%	2	0.0%	0.00	0.00	0.00
150 - 160	2	0.0%	64950	100.0%	0	0.0%	0.00	0.00	0.00
160 - 170	0	0.0%	64950	100.0%	0	0.0%	0.00	0.00	0.00
170 - 180	0	0.0%	64950	100.0%	0	0.0%	0.00	0.00	0.00
180 - 190	0	0.0%	64950	100.0%	0	0.0%	0.00	0.00	0.00
190 - 200	0	0.0%	64950	100.0%	0	0.0%	0.00	0.00	0.00

Total Speed Rating = 0.00
Total Moving Energy (Estimated) = 0.00

Speed limit fields (Partial days)

	Limit	Below		Above	
0	60 (PSL)	63796	98.2%	1154	1.8%

MetroCount Traffic Executive
Speed Statistics

SpeedStat-35 -- English (ENA)

Datasets:

Site:	**[Bluff Rd] Around 50m from intersection of William St**
Attribute:	Urban
Direction:	8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration:	10:42 Friday, 10 November 2017 => 9:17 Monday, 18 December 2017,
Zone:	
File:	Bluff Rd 0 2017-12-21 1547.EC0 (Plus)
Identifier:	HQ2464DB MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**10:43 Friday, 10 November 2017 => 9:17 Monday, 18 December 2017 (37.9404)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = East, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 97767 / 98251 (99.51%)

Speed Statistics

SpeedStat-35
Site: Bluff Rd.0.1EW
Description: **Around 50m from intersection of William St**
Filter time: **10:43 Friday, 10 November 2017 => 9:17 Monday, 18 December 2017**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Vehicles = 97767
Posted speed limit = 60 km/h, Exceeding = 57 (0.06%), Mean Exceeding = 68.40 km/h
Maximum = 141.4 km/h, **Minimum** = 10.0 km/h, **Mean** = 26.2 km/h
85% Speed = 32.36 km/h, **95% Speed** = 37.19 km/h, **Median** = 25.56 km/h
20 km/h Pace = 16 - 36, **Number in Pace** = 87160 (89.15%)
Variance = 41.70, **Standard Deviation** = 6.46 km/h

Speed Bins (Partial days)

Speed	Bin		Below		Above		Energy	vMult	n * vMult
0 - 10	0	0.0%	0	0.0%	97767	100.0%	0.00	0.00	0.00
10 - 20	15567	15.9%	15567	15.9%	82200	84.1%	0.00	0.00	0.00
20 - 30	57505	58.8%	73072	74.7%	24695	25.3%	0.00	0.00	0.00
30 - 40	22094	22.6%	95166	97.3%	2601	2.7%	0.00	0.00	0.00
40 - 50	2322	2.4%	97488	99.7%	279	0.3%	0.00	0.00	0.00
50 - 60	222	0.2%	97710	99.9%	57	0.1%	0.00	0.00	0.00
60 - 70	43	0.0%	97753	100.0%	14	0.0%	0.00	0.00	0.00
70 - 80	10	0.0%	97763	100.0%	4	0.0%	0.00	0.00	0.00
80 - 90	1	0.0%	97764	100.0%	3	0.0%	0.00	0.00	0.00
90 - 100	2	0.0%	97766	100.0%	1	0.0%	0.00	0.00	0.00
100 - 110	0	0.0%	97766	100.0%	1	0.0%	0.00	0.00	0.00
110 - 120	0	0.0%	97766	100.0%	1	0.0%	0.00	0.00	0.00
120 - 130	0	0.0%	97766	100.0%	1	0.0%	0.00	0.00	0.00
130 - 140	0	0.0%	97766	100.0%	1	0.0%	0.00	0.00	0.00
140 - 150	1	0.0%	97767	100.0%	0	0.0%	0.00	0.00	0.00
150 - 160	0	0.0%	97767	100.0%	0	0.0%	0.00	0.00	0.00
160 - 170	0	0.0%	97767	100.0%	0	0.0%	0.00	0.00	0.00
170 - 180	0	0.0%	97767	100.0%	0	0.0%	0.00	0.00	0.00
180 - 190	0	0.0%	97767	100.0%	0	0.0%	0.00	0.00	0.00
190 - 200	0	0.0%	97767	100.0%	0	0.0%	0.00	0.00	0.00

Total Speed Rating = 0.00
Total Moving Energy (Estimated) = 0.00

Speed limit fields (Partial days)

	Limit	Below		Above	
0	60 (PSL)	97710	99.9%	57	0.1%

MetroCount Traffic Executive
Speed Statistics

SpeedStat-36 -- English (ENA)

Datasets:

Site:	**[Bluff Rd] Around 70m West of Clements St**
Attribute:	Urban
Direction:	8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration:	12:53 Friday, 10 November 2017 => 6:32 Saturday, 16 December 2017,
Zone:	
File:	Bluff Rd 0 2017-12-21 1615.EC0 (Plus)
Identifier:	K548WHC5 MC56-6 [MC55] (c)Microcom 02/03/01
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**12:54 Friday, 10 November 2017 => 6:32 Saturday, 16 December 2017 (35.7348)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = East, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 82576 / 83062 (99.41%)

Speed Statistics

SpeedStat-36
Site: Bluff Rd.0.1EW
Description: **Around 70m West of Clements St**
Filter time: **12:54 Friday, 10 November 2017 => 6:32 Saturday, 16 December 2017**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Vehicles = 82576
Posted speed limit = 60 km/h, Exceeding = 337 (0.41%), Mean Exceeding = 94.24 km/h
Maximum = 159.2 km/h, **Minimum** = 10.0 km/h, **Mean** = 26.0 km/h
85% Speed = 32.48 km/h, **95% Speed** = 37.83 km/h, **Median** = 24.93 km/h
20 km/h Pace = 16 - 36, **Number in Pace** = 71329 (86.38%)
Variance = 69.01, **Standard Deviation** = 8.31 km/h

Speed Bins (Partial days)

Speed	Bin		Below		Above		Energy	vMult	n * vMult
0 - 10	0	0.0%	0	0.0%	82576	100.0%	0.00	0.00	0.00
10 - 20	16417	19.9%	16417	19.9%	66159	80.1%	0.00	0.00	0.00
20 - 30	45861	55.5%	62278	75.4%	20298	24.6%	0.00	0.00	0.00
30 - 40	17581	21.3%	79859	96.7%	2717	3.3%	0.00	0.00	0.00
40 - 50	2120	2.6%	81979	99.3%	597	0.7%	0.00	0.00	0.00
50 - 60	260	0.3%	82239	99.6%	337	0.4%	0.00	0.00	0.00
60 - 70	77	0.1%	82316	99.7%	260	0.3%	0.00	0.00	0.00
70 - 80	65	0.1%	82381	99.8%	195	0.2%	0.00	0.00	0.00
80 - 90	32	0.0%	82413	99.8%	163	0.2%	0.00	0.00	0.00
90 - 100	50	0.1%	82463	99.9%	113	0.1%	0.00	0.00	0.00
100 - 110	37	0.0%	82500	99.9%	76	0.1%	0.00	0.00	0.00
110 - 120	9	0.0%	82509	99.9%	67	0.1%	0.00	0.00	0.00
120 - 130	19	0.0%	82528	99.9%	48	0.1%	0.00	0.00	0.00
130 - 140	5	0.0%	82533	99.9%	43	0.1%	0.00	0.00	0.00
140 - 150	10	0.0%	82543	100.0%	33	0.0%	0.00	0.00	0.00
150 - 160	33	0.0%	82576	100.0%	0	0.0%	0.00	0.00	0.00
160 - 170	0	0.0%	82576	100.0%	0	0.0%	0.00	0.00	0.00
170 - 180	0	0.0%	82576	100.0%	0	0.0%	0.00	0.00	0.00
180 - 190	0	0.0%	82576	100.0%	0	0.0%	0.00	0.00	0.00
190 - 200	0	0.0%	82576	100.0%	0	0.0%	0.00	0.00	0.00

Total Speed Rating = 0.00
Total Moving Energy (Estimated) = 0.00

Speed limit fields (Partial days)

	Limit	Below		Above	
0	60 (PSL)	82239	99.6%	337	0.4%

MetroCount Traffic Executive
Speed Statistics

SpeedStat-37 -- English (ENA)

Datasets:

Site:	**[Bluff Rd] North Fenton - Clements**
Attribute:	Local
Direction:	8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration:	9:04 Tuesday, 2 December 2014 => 17:26 Thursday, 18 December 2014,
Zone:	
File:	Bluff Rd18Dec2014.EC0 (Plus)
Identifier:	B537RRHC MC56-1 [MC55] (c)Microcom 07/06/99
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**9:05 Tuesday, 2 December 2014 => 17:26 Thursday, 18 December 2014 (16.3484)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = East, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 30564 / 30620 (99.82%)

Speed Statistics

SpeedStat-37
Site: Bluff Rd.0.1EW
Description: **North Fenton - Clements**
Filter time: **9:05 Tuesday, 2 December 2014 => 17:26 Thursday, 18 December 2014**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Vehicles = 30564
Posted speed limit = 60 km/h, Exceeding = 889 (2.91%), Mean Exceeding = 64.38 km/h
Maximum = 104.9 km/h, **Minimum** = 10.1 km/h, **Mean** = 47.0 km/h
85% Speed = 53.69 km/h, **95% Speed** = 57.92 km/h, **Median** = 47.61 km/h
20 km/h Pace = 38 - 58, **Number in Pace** = 25941 (84.87%)
Variance = 61.04, **Standard Deviation** = 7.81 km/h

Speed Bins (Partial days)

Speed	Bin		Below		Above		Energy	vMult	n * vMult
0 - 10	0	0.0%	0	0.0%	30564	100.0%	0.00	0.00	0.00
10 - 20	266	0.9%	266	0.9%	30298	99.1%	0.00	0.00	0.00
20 - 30	669	2.2%	935	3.1%	29629	96.9%	0.00	0.00	0.00
30 - 40	3427	11.2%	4362	14.3%	26202	85.7%	0.00	0.00	0.00
40 - 50	15562	50.9%	19924	65.2%	10640	34.8%	0.00	0.00	0.00
50 - 60	9751	31.9%	29675	97.1%	889	2.9%	0.00	0.00	0.00
60 - 70	795	2.6%	30470	99.7%	94	0.3%	0.00	0.00	0.00
70 - 80	69	0.2%	30539	99.9%	25	0.1%	0.00	0.00	0.00
80 - 90	19	0.1%	30558	100.0%	6	0.0%	0.00	0.00	0.00
90 - 100	4	0.0%	30562	100.0%	2	0.0%	0.00	0.00	0.00
100 - 110	2	0.0%	30564	100.0%	0	0.0%	0.00	0.00	0.00
110 - 120	0	0.0%	30564	100.0%	0	0.0%	0.00	0.00	0.00
120 - 130	0	0.0%	30564	100.0%	0	0.0%	0.00	0.00	0.00
130 - 140	0	0.0%	30564	100.0%	0	0.0%	0.00	0.00	0.00
140 - 150	0	0.0%	30564	100.0%	0	0.0%	0.00	0.00	0.00
150 - 160	0	0.0%	30564	100.0%	0	0.0%	0.00	0.00	0.00
160 - 170	0	0.0%	30564	100.0%	0	0.0%	0.00	0.00	0.00
170 - 180	0	0.0%	30564	100.0%	0	0.0%	0.00	0.00	0.00
180 - 190	0	0.0%	30564	100.0%	0	0.0%	0.00	0.00	0.00
190 - 200	0	0.0%	30564	100.0%	0	0.0%	0.00	0.00	0.00

Total Speed Rating = 0.00
Total Moving Energy (Estimated) = 0.00

Speed limit fields (Partial days)

	Limit	Below		Above	
0	60 (PSL)	29675	97.1%	889	2.9%

MetroCount Traffic Executive
Speed Statistics

SpeedStat-38 -- English (ENA)

Datasets:

Site:	**[Clements St] North St - Bluff Rd**
Attribute:	urban
Direction:	7 - North bound A>B, South bound B>A. **Lane:** 0
Survey Duration:	13:23 Friday, 10 November 2017 => 14:45 Thursday, 21 December 2017,
Zone:	
File:	Clements St 0 2017-12-21 1544.EC0 (Plus)
Identifier:	S0988MAC MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**13:24 Friday, 10 November 2017 => 14:45 Thursday, 21 December 2017 (41.0563)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = North, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 19587 / 19730 (99.28%)

Speed Statistics

SpeedStat-38
Site: Clements St.0.1NS
Description: **North St - Bluff Rd**
Filter time: **13:24 Friday, 10 November 2017 => 14:45 Thursday, 21 December 2017**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Vehicles = 19587
Posted speed limit = 60 km/h, Exceeding = 136 (0.69%), Mean Exceeding = 66.83 km/h
Maximum = 93.4 km/h, **Minimum** = 10.1 km/h, **Mean** = 36.7 km/h
85% Speed = 44.60 km/h, **95% Speed** = 49.43 km/h, **Median** = 36.72 km/h
20 km/h Pace = 27 - 47, **Number in Pace** = 15353 (78.38%)
Variance = 74.61, **Standard Deviation** = 8.64 km/h

Speed Bins (Partial days)

Speed	Bin		Below		Above		Energy	vMult	n * vMult
0 - 10	0	0.0%	0	0.0%	19587	100.0%	0.00	0.00	0.00
10 - 20	710	3.6%	710	3.6%	18877	96.4%	0.00	0.00	0.00
20 - 30	3106	15.9%	3816	19.5%	15771	80.5%	0.00	0.00	0.00
30 - 40	8986	45.9%	12802	65.4%	6785	34.6%	0.00	0.00	0.00
40 - 50	5870	30.0%	18672	95.3%	915	4.7%	0.00	0.00	0.00
50 - 60	779	4.0%	19451	99.3%	136	0.7%	0.00	0.00	0.00
60 - 70	98	0.5%	19549	99.8%	38	0.2%	0.00	0.00	0.00
70 - 80	32	0.2%	19581	100.0%	6	0.0%	0.00	0.00	0.00
80 - 90	5	0.0%	19586	100.0%	1	0.0%	0.00	0.00	0.00
90 - 100	1	0.0%	19587	100.0%	0	0.0%	0.00	0.00	0.00
100 - 110	0	0.0%	19587	100.0%	0	0.0%	0.00	0.00	0.00
110 - 120	0	0.0%	19587	100.0%	0	0.0%	0.00	0.00	0.00
120 - 130	0	0.0%	19587	100.0%	0	0.0%	0.00	0.00	0.00
130 - 140	0	0.0%	19587	100.0%	0	0.0%	0.00	0.00	0.00
140 - 150	0	0.0%	19587	100.0%	0	0.0%	0.00	0.00	0.00
150 - 160	0	0.0%	19587	100.0%	0	0.0%	0.00	0.00	0.00
160 - 170	0	0.0%	19587	100.0%	0	0.0%	0.00	0.00	0.00
170 - 180	0	0.0%	19587	100.0%	0	0.0%	0.00	0.00	0.00
180 - 190	0	0.0%	19587	100.0%	0	0.0%	0.00	0.00	0.00
190 - 200	0	0.0%	19587	100.0%	0	0.0%	0.00	0.00	0.00

Total Speed Rating = 0.00
Total Moving Energy (Estimated) = 0.00

Speed limit fields (Partial days)

	Limit	Below		Above	
0	60 (PSL)	19451	99.3%	136	0.7%

MetroCount Traffic Executive
Speed Statistics

SpeedStat-39 -- English (ENA)

Datasets:

Site:	**[Coles Beach Rd] Around 100m -150m from William St intersection**
Attribute:	Local
Direction:	8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration:	10:24 Friday, 10 November 2017 => 15:23 Thursday, 21 December 2017,
Zone:	
File:	Coles Beach Rd 0 2017-12-21 1622.EC0 (Plus)
Identifier:	BH193HRP MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**10:25 Friday, 10 November 2017 => 15:23 Thursday, 21 December 2017 (41.2071)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = East, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 62007 / 62206 (99.68%)

Speed Statistics

SpeedStat-39
Site: Coles Beach Rd.0.1EW
Description: **Around 100m -150m from William St intersection**
Filter time: **10:25 Friday, 10 November 2017 => 15:23 Thursday, 21 December 2017**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Vehicles = 62007
Posted speed limit = 60 km/h, Exceeding = 4655 (7.51%), Mean Exceeding = 66.49 km/h
Maximum = 136.3 km/h, **Minimum** = 10.3 km/h, **Mean** = 47.9 km/h
85% Speed = 56.12 km/h, **95% Speed** = 62.03 km/h, **Median** = 48.24 km/h
20 km/h Pace = 39 - 59, **Number in Pace** = 48354 (77.98%)
Variance = 101.89, **Standard Deviation** = 10.09 km/h

Speed Bins (Partial days)

Speed	Bin		Below		Above		Energy	vMult	n * vMult
0 - 10	0	0.0%	0	0.0%	62007	100.0%	0.00	0.00	0.00
10 - 20	998	1.6%	998	1.6%	61009	98.4%	0.00	0.00	0.00
20 - 30	2719	4.4%	3717	6.0%	58290	94.0%	0.00	0.00	0.00
30 - 40	5402	8.7%	9119	14.7%	52888	85.3%	0.00	0.00	0.00
40 - 50	26994	43.5%	36113	58.2%	25894	41.8%	0.00	0.00	0.00
50 - 60	21239	34.3%	57352	92.5%	4655	7.5%	0.00	0.00	0.00
60 - 70	3777	6.1%	61129	98.6%	878	1.4%	0.00	0.00	0.00
70 - 80	567	0.9%	61696	99.5%	311	0.5%	0.00	0.00	0.00
80 - 90	192	0.3%	61888	99.8%	119	0.2%	0.00	0.00	0.00
90 - 100	77	0.1%	61965	99.9%	42	0.1%	0.00	0.00	0.00
100 - 110	25	0.0%	61990	100.0%	17	0.0%	0.00	0.00	0.00
110 - 120	10	0.0%	62000	100.0%	7	0.0%	0.00	0.00	0.00
120 - 130	5	0.0%	62005	100.0%	2	0.0%	0.00	0.00	0.00
130 - 140	2	0.0%	62007	100.0%	0	0.0%	0.00	0.00	0.00
140 - 150	0	0.0%	62007	100.0%	0	0.0%	0.00	0.00	0.00
150 - 160	0	0.0%	62007	100.0%	0	0.0%	0.00	0.00	0.00
160 - 170	0	0.0%	62007	100.0%	0	0.0%	0.00	0.00	0.00
170 - 180	0	0.0%	62007	100.0%	0	0.0%	0.00	0.00	0.00
180 - 190	0	0.0%	62007	100.0%	0	0.0%	0.00	0.00	0.00
190 - 200	0	0.0%	62007	100.0%	0	0.0%	0.00	0.00	0.00

Total Speed Rating = 0.00
Total Moving Energy (Estimated) = 0.00

Speed limit fields (Partial days)

	Limit	Below		Above	
0	60 (PSL)	57352	92.5%	4655	7.5%

MetroCount Traffic Executive
Speed Statistics

SpeedStat-40 -- English (ENA)

Datasets:

Site:	**[North St] Gunn - Clements**
Attribute:	Local
Direction:	8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration:	17:00 Thursday, 3 November 2011 => 14:34 Friday, 18 November 2011,
Zone:	
File:	North St18Nov2011.EC0 (Plus)
Identifier:	S0988MAC MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**17:00 Thursday, 3 November 2011 => 14:34 Friday, 18 November 2011 (14.8991)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = East, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 3938 / 3981 (98.92%)

Speed Statistics

SpeedStat-40
Site: North St.0.1EW
Description: **Gunn - Clements**
Filter time: **17:00 Thursday, 3 November 2011 => 14:34 Friday, 18 November 2011**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Vehicles = 3938
Posted speed limit = 60 km/h, Exceeding = 25 (0.63%), Mean Exceeding = 65.59 km/h
Maximum = 81.1 km/h, **Minimum** = 10.2 km/h, **Mean** = 37.9 km/h
85% Speed = 47.01 km/h, **95% Speed** = 51.85 km/h, **Median** = 38.79 km/h
20 km/h Pace = 31 - 51, **Number in Pace** = 2772 (70.39%)
Variance = 93.46, **Standard Deviation** = 9.67 km/h

Speed Bins (Partial days)

Speed	Bin		Below		Above		Energy	vMult	n * vMult
0 - 10	0	0.0%	0	0.0%	3938	100.0%	0.00	0.00	0.00
10 - 20	185	4.7%	185	4.7%	3753	95.3%	0.00	0.00	0.00
20 - 30	637	16.2%	822	20.9%	3116	79.1%	0.00	0.00	0.00
30 - 40	1338	34.0%	2160	54.9%	1778	45.1%	0.00	0.00	0.00
40 - 50	1425	36.2%	3585	91.0%	353	9.0%	0.00	0.00	0.00
50 - 60	328	8.3%	3913	99.4%	25	0.6%	0.00	0.00	0.00
60 - 70	20	0.5%	3933	99.9%	5	0.1%	0.00	0.00	0.00
70 - 80	4	0.1%	3937	100.0%	1	0.0%	0.00	0.00	0.00
80 - 90	1	0.0%	3938	100.0%	0	0.0%	0.00	0.00	0.00
90 - 100	0	0.0%	3938	100.0%	0	0.0%	0.00	0.00	0.00
100 - 110	0	0.0%	3938	100.0%	0	0.0%	0.00	0.00	0.00
110 - 120	0	0.0%	3938	100.0%	0	0.0%	0.00	0.00	0.00
120 - 130	0	0.0%	3938	100.0%	0	0.0%	0.00	0.00	0.00
130 - 140	0	0.0%	3938	100.0%	0	0.0%	0.00	0.00	0.00
140 - 150	0	0.0%	3938	100.0%	0	0.0%	0.00	0.00	0.00
150 - 160	0	0.0%	3938	100.0%	0	0.0%	0.00	0.00	0.00
160 - 170	0	0.0%	3938	100.0%	0	0.0%	0.00	0.00	0.00
170 - 180	0	0.0%	3938	100.0%	0	0.0%	0.00	0.00	0.00
180 - 190	0	0.0%	3938	100.0%	0	0.0%	0.00	0.00	0.00
190 - 200	0	0.0%	3938	100.0%	0	0.0%	0.00	0.00	0.00

Total Speed Rating = 0.00
Total Moving Energy (Estimated) = 0.00

Speed limit fields (Partial days)

	Limit	Below		Above	
0	60 (PSL)	3913	99.4%	25	0.6%

MetroCount Traffic Executive
Speed Statistics

SpeedStat-41 -- English (ENA)

Datasets:

Site:	**[William St] Eugene St - Bluff Rd**
Attribute:	Urban
Direction:	7 - North bound A>B, South bound B>A. **Lane:** 0
Survey Duration:	12:17 Friday, 10 November 2017 => 15:00 Thursday, 21 December 2017,
Zone:	
File:	William St 0 2017-12-21 1559.EC0 (Plus)
Identifier:	HQ9294PS MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**12:18 Friday, 10 November 2017 => 15:00 Thursday, 21 December 2017 (41.1129)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = North, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 96852 / 96983 (99.86%)

Speed Statistics

SpeedStat-41
Site: William St.0.1NS
Description: **Eugene St - Bluff Rd**
Filter time: **12:18 Friday, 10 November 2017 => 15:00 Thursday, 21 December 2017**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Vehicles = 96852
Posted speed limit = 60 km/h, Exceeding = 46 (0.05%), Mean Exceeding = 71.76 km/h
Maximum = 133.6 km/h, **Minimum** = 10.0 km/h, **Mean** = 31.4 km/h
85% Speed = 36.37 km/h, **95% Speed** = 40.02 km/h, **Median** = 31.05 km/h
20 km/h Pace = 22 - 42, **Number in Pace** = 90880 (93.83%)
Variance = 29.32, **Standard Deviation** = 5.41 km/h

Speed Bins (Partial days)

Speed	Bin		Below		Above		Energy	vMult	n * vMult
0 - 10	0	0.0%	0	0.0%	96852	100.0%	0.00	0.00	0.00
10 - 20	1640	1.7%	1640	1.7%	95212	98.3%	0.00	0.00	0.00
20 - 30	36657	37.8%	38297	39.5%	58555	60.5%	0.00	0.00	0.00
30 - 40	53270	55.0%	91567	94.5%	5285	5.5%	0.00	0.00	0.00
40 - 50	5028	5.2%	96595	99.7%	257	0.3%	0.00	0.00	0.00
50 - 60	211	0.2%	96806	100.0%	46	0.0%	0.00	0.00	0.00
60 - 70	29	0.0%	96835	100.0%	17	0.0%	0.00	0.00	0.00
70 - 80	10	0.0%	96845	100.0%	7	0.0%	0.00	0.00	0.00
80 - 90	4	0.0%	96849	100.0%	3	0.0%	0.00	0.00	0.00
90 - 100	1	0.0%	96850	100.0%	2	0.0%	0.00	0.00	0.00
100 - 110	0	0.0%	96850	100.0%	2	0.0%	0.00	0.00	0.00
110 - 120	1	0.0%	96851	100.0%	1	0.0%	0.00	0.00	0.00
120 - 130	0	0.0%	96851	100.0%	1	0.0%	0.00	0.00	0.00
130 - 140	1	0.0%	96852	100.0%	0	0.0%	0.00	0.00	0.00
140 - 150	0	0.0%	96852	100.0%	0	0.0%	0.00	0.00	0.00
150 - 160	0	0.0%	96852	100.0%	0	0.0%	0.00	0.00	0.00
160 - 170	0	0.0%	96852	100.0%	0	0.0%	0.00	0.00	0.00
170 - 180	0	0.0%	96852	100.0%	0	0.0%	0.00	0.00	0.00
180 - 190	0	0.0%	96852	100.0%	0	0.0%	0.00	0.00	0.00
190 - 200	0	0.0%	96852	100.0%	0	0.0%	0.00	0.00	0.00

Total Speed Rating = 0.00
Total Moving Energy (Estimated) = 0.00

Speed limit fields (Partial days)

	Limit	Below		Above	
0	60 (PSL)	96806	100.0%	46	0.0%

Contact

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incorporated as
Pitt & Sherry (Operations) Pty Ltd
ABN 67 140 184 309

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Now part of the pitt&sherry group

pitt&sherry

5.2 PUBLIC LIGHTING STRATEGY - YEAR 4 STATUS

File: 27349 D533284

RELEVANCE TO COUNCIL'S PLANS & POLICIES
Council's Strategic Plan 2009-2030:

Strategy 2.3.1 Provide and maintain roads, bridges, footpaths, bike paths and car parks to appropriate standards

SUMMARY
To report to Council on the progress of the actions outlined in the Devonport City Council Public Lighting Strategy.

BACKGROUND
Council's Public Lighting Strategy was adopted in May 2014 (Min 126/14 refers). The objective of the Strategy is "*To provide public lighting across Devonport using a consistent and equitable approach, whilst being environmentally and financially responsible.*" The Strategy contains an action plan which consists of 13 actions to deliver the four key outcomes:

- Long term improvement in lighting levels to meet the relevant Australian Standard,
- Long term improvement in energy efficiency,
- Long term financial sustainability, and
- Strong asset management practices.

The Public Lighting Strategy is available from Council's website:

http://www.devonport.tas.gov.au/Council/Publications-Plans-Reports/Council-Plans-Strategies

STATUTORY REQUIREMENTS
Section 21 of the *Local Government (Highways) Act 1982* states:

(1) Subject to this Act, the corporation of a municipality is charged with the duty of maintaining the local highways in the municipality that are maintainable by the corporation as shown on its municipal map, and, in any particular case, it shall discharge that duty in such manner as, having regard to all the circumstances of the case, it considers practicable and appropriate.

Section 32 of the *Local Government (Highways) Act 1982* states:

(2) The corporation of a municipality may light, or arrange for the lighting of, a local highway within the municipality or a public place in the municipality that is not a local highway.

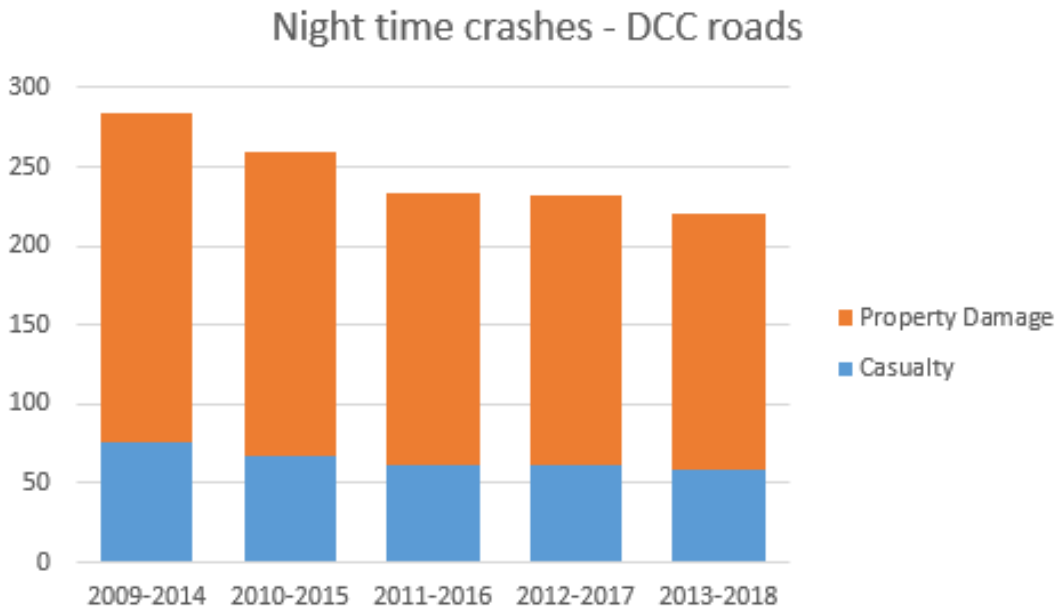
Both these sections explain that Council is responsible for the lighting of roads and public places.

DISCUSSION
Substantial progress has been made on the 13 actions in the Public Lighting Strategy Action Plan. Four actions have been completed, five are ongoing throughout the life of the strategy and three are underway. One is yet to commence. Details of the status of each action are attached to this report.

Key developments in the last year include:

- Action 4: Following the receipt of a report analysing lighting at intersections with a history of night crashes, priority upgrade projects have been included in Council's forward capital works program. $35,000 has been allocated in 2018-19 for renewal and upgrade projects.
- Action 5: A review of night time crash data was completed in June 2018. The review included comparison of the number of night crashes that have occurred since the adoption of the Strategy in 2014.
    - Total crashes reduced by 22% since 2014 (284 to 221*).
    - Casualty crashes reduced by 22% since 2014 (76 to 59*).
    - Percentage of crashes resulting in fatality or serious injury (%FSI) increased by 28% (1.76% of total to 2.26% of total*).

    * Crash totals compared are five-year totals to June 2014 and June 2018.



This data indicates that the number of night time crashes has reduced significantly, and the number of casualty crashes have reduced proportionally. While the %FSI crashes has increased, the number of these crashes was unchanged.

The reduction in total crashes is likely to be at least in part related to Council's investment in road safety projects. Inclusion of additional projects at night time crash locations in Council's forward capital works program may provide further reductions. There may also be opportunities to implement proactive projects.

- Action 8: Since 2014, more efficient light types have been added to the list of options available from Tas Networks, including light emitting diodes (LEDs).

  Through scheduled and reactive renewal of public lights by Tas Networks, Council's public lighting inventory has increased in efficiency by around 10% (reduction in average watts/light) and now includes 6.3% LEDs (209 total). This is expected to increase to around 70% by 2022.

  The increase in efficiency does not directly translate to costs savings as energy use is only one component of street lighting costs. There is also an expectation that the total

number of lights will increase as new subdivisions are constructed and lighting upgrade projects are undertaken in other areas to comply with Australian Standards.

- Action 9: Council considered a bulk street light changeover in 2017, with an estimated rollout cost of $1.6M and an outcome where Council owns the public lighting inventory. Council resolved to continue with the current Tas Networks ownership model (Min IWC 37/17 refers).

The only action yet to commence is Action 7, related to grant funding. Relevant grant programs have not been available for public lighting since the adoption of the Strategy.

COMMUNITY ENGAGEMENT

Community engagement was undertaken to assist with the development of the Strategy.

FINANCIAL IMPLICATIONS

Most actions that are underway or ongoing can be progressed within existing operational budget allocations. Actions that require a specific allocation will be prioritised and proposed for consideration as part of future budget deliberations.

RISK IMPLICATIONS

Continued progress on the Public Lighting Strategy Action Plan ensures Council appropriately manages risks associated with public lighting, notably by improving asset management practices and improving energy efficiency.

CONCLUSION

Substantial progress has been made to implement the actions listed in the Devonport City Council Public Lighting Strategy, since its adoption in May 2014.

ATTACHMENTS

⇩1. Public Lighting Strategy - Action List - year 4 Status

RECOMMENDATION

That it be recommended to Council that the report of the City Engineer be received and Council note the status of actions listed in the Devonport City Council Public Lighting Strategy.

Author:	Michael Williams	Endorsed By:	Matthew Atkins
Position:	City Engineer	Position:	Deputy General Manager

PUBLIC LIGHTING STRATEGY – YEAR 4 STATUS

Timeframes:

OG Ongoing – day to day tasks which are budgeted for annually

ST Short Term – 1 to 2 years,

MT Medium Term – 2 to 5 years,

LT Long Term – 5 to 15 years

Resources Required:

A-OPEX – Annual Operational Expenditure

F-OPEX – Future Operational Expenditure

F/A CAPEX –Capital Expenditure

No.	Action	Resources	Responsibility	Timeframe	Status
1	Adopt a minimum site classification from AS1158 for each road and open space hierarchy level that will be the base level for all new work and relevant upgrade work.	A-OPEX	IWD / CS	ST	Underway – a draft document has been developed for internal review.
2	Develop a tool to compare and assess the benefit of each competing project. Projects are to be prioritised in a fair and transparent way.	A-OPEX	IWD	ST	Underway – a draft document has been developed for internal review.
3	Compile and maintain a register of all projects initiated and the assigned priority ranking. Projects are to be identified through: • Initial consultation process • Action requests • Investigations attached to capital projects • Investigations related to crash data • Formal and informal liaison with committees and community groups	A-OPEX	IWD	ST	Ongoing – utilising existing tools including forward capital works program and action request system.

4	Engage a consultant to analyse the lighting levels at the 14 intersections and 21 links identified and to determine the scope of works required to Achieve AS1158 compliance at each site. Prioritise these works using the priority ranking tool.	F-OPEX	IWD	ST	Completed in 2017. Refer to IWC12/17. Priority projects have been included in in the forward capital works program.
5	Monitor night time crash data on a quarterly basis to identify new key sites.	A-OPEX	IWD	OG	Ongoing. Data to June 2018 shows a 22% reduction in night time crashes since adoption of the Strategy. However, % Fatal and Serious (%FSI) crashes has increased, which requires ongoing monitoring and investigation of specific sites.
6	Review the capital project design brief to ensure it is consistent with the strategic outcomes and adopted standards.	A-OPEX	IWD	ST	Completed in 2016. Improvements made in 2018, when following LEAN training, project charters are being developed for each project which clearly defines the project scope and exclusions from the scope.
7	Identify and pursue grant funding that may be available for bulk replacement of lights or other works that align with the outcomes of this Strategy.	A-OPEX	IWD	OG	No grant funding opportunities have become available.
8	Identify and utilise technological improvements that can increase efficiency and reduce costs.	A-OPEX	IWD	OG	Ongoing - DCC public lighting inventory is now 10% more efficient (average watts /lamp) than at adoption of Strategy. 6.3% of lights are now LED.
9	Review energy supply and service agreements when available.	A-OPEX	IWD	OG	Ongoing – Council has entered into a statewide energy supply agreement managed by LGAT, saving up to 5% on street lighting costs. Council considered a bulk

					replacement option proposed through LGAT but resolved to continue with the existing model. Tas Networks have a replacement programmed scheduled for 2019-2022 at no additional cost to Council.
10	Review the existing public lighting asset data and address identified areas for improvement.	A-OPEX	IWD	MT	Completed in 2018 – high confidence in DCC asset data. To be maintained using normal processes.
11	Review the inspection and maintenance regime of public lighting assets and address identified areas for improvement.	A-OPEX	IWD	MT	Completed in 2016. Inspection program integrated into service level document and future budget projections.
12	Develop, implement and maintain an Asset Management Plan (AM Plan) for public lighting assets, either as a separate asset group or within each existing asset group.	A-OPEX	IWD	MT	Underway – Asset management plans in development. Lighting assets, notably poles are included in AM Plan for each class.
13	Continue to provide capital funds annually for upgrade and renewal projects. Budget to consider depreciation costs.	F/A – CAPEX	IWD	OG	Ongoing – the adopted 2018-19 and budget includes $35,000 for street lighting improvements and renewals.

5.3 ROAD NETWORK STRATEGY - YEAR 3 STATUS

File: 28041 D533285

RELEVANCE TO COUNCIL'S PLANS & POLICIES
Council's Strategic Plan 2009-2030:

Strategy 2.3.1 Provide and maintain roads, bridges, footpaths, bike paths and car parks to appropriate standards

SUMMARY
To report to Council on the progress of the actions outlined in the Devonport City Council Road Network Strategy.

BACKGROUND
Council's Road Network Strategy 2014 was adopted in April 2015 and was amended in April 2016 to incorporate the Tasmanian Local Government Road Hierarchy. The amended document is known as the Road Network Strategy 2016 (the Strategy).

The objective of the Strategy is to provide a road network suitable for all road users, balancing efficiency, safety and amenity. The Strategy identifies 7 outcomes and the action plan identifies 22 actions to deliver the outcomes:

- Improve access to and from the Bass Highway
- Improved access to the CBD
- Maintain the road hierarchy
- Maintain the 'Ring Road' system
- Improve traffic management arrangements
- Address road safety concerns
- Improve asset management and maintenance

The Strategy is available from Council's website:

http://www.devonport.tas.gov.au/Council/Publications-Plans-Reports/Council-Plans-Strategies

STATUTORY REQUIREMENTS
Section 21 of the *Local Government (Highways) Act 1982* describes Council's responsibilities regarding road maintenance on local roads.

"*(1) Subject to this Act, the corporation of a municipality is charged with the duty of maintaining the local highways in the municipality that are maintainable by the corporation as shown on its municipal map, and, in any particular case, it shall discharge that duty in such manner as, having regard to all the circumstances of the case, it considers practicable and appropriate.*

(2) For the purposes of the discharge of its duties under this section in respect of a highway, a corporation may carry out such works as it considers necessary for the maintenance or renewal of any bridge, embankment, or other work carrying, or otherwise associated with, the highway."

Section 11 of the *Roads and Jetties Act 1935* describes Council's responsibilities State Highways, where the State Government has primary responsibility.

"Where in a city, town or village there is a footpath on one side or both of a State highway or subsidiary road –

(a) the Minister is required to maintain and reconstruct –

(i) the carriageways and the surface lying between them, in the case of 2 paved carriageways divided by a median strip;

(ii) the carriageway and the overtaking lane, in the case of a single paved carriageway incorporating an overtaking lane;

(iii) a paved carriageway not exceeding 7·4 metres in width, in the case of a single undivided paved carriageway;

(iv) a paved carriageway not exceeding 4·3 metres in width, in the case of a carriageway providing a traffic lane to a traffic interchange; and

(v) the culverts and bridges over which the State highway or subsidiary road runs; and

(b) the remainder of the State highway or subsidiary road, including drainage and shoulders but not culverts and bridges, shall be maintained and reconstructed by the local authority."

DISCUSSION

Implementation of the Strategy is largely the responsibility of the Infrastructure and Works Department, with input from internal and external stakeholders.

Of the 22 actions, 9 are underway or ongoing, 8 are complete and 5 yet to commence. Details of the status of each action are attached to this report.

Key developments in the last year include:

- Action 1: Key road safety indicators show downward trends in crash data:
  - Total crashes reduced by 1.5% in the last year (1040 to 1024*).
  - Casualty crashes reduced by 3.9% (254 to 244*).
  - Percentage of crashes resulting in fatality or serious injury (%FSI) reduced by 5.9% (1.35% of total to 1.27% of total*).

  * Crash totals compared are five-year totals to June 2017 and June 2018.

  This data indicates that the significant investment in road safety projects is reducing crashes and reducing the severity of crashes that will inevitably occur due to driver error. This is supported by data from specific sites where road safety projects have been completed. For example, there hasn't been a crash reported at the Middle Road and Stony Rise Road roundabout since construction was completed in 2015, compared with 30 reported in the five years before construction.
- Action 3: Work is complete on the Freight and Heavy Plan. This plan highlights the importance of heavy vehicle movements to the local economy and identifies key routes for these vehicles. The plan aligns with the work completed with the National Heavy Vehicle Regulator (NHVR) and the Department of State Growth to provide appropriate access to the local road network. Access has been granted under legal notices to avoid the NHVR permit process where possible. Networks for oversize and over mass vehicles, b-doubles, high mass limit vehicles and cranes have been expanded following an assessment of key transport assets including bridges.

- Action 7: Middle Road interchange. Council completed construction of ramp widening on behalf the Department of State Growth who funded the works as an interim measure to reduce queue lengths on the ramp. Regular traffic counts are undertaken at the site to monitor volumes and to assist in the development of long term improvements.

Middle Road west bound off ramp widening under construction (October 2017)

- Action 8.2: Wright Street and Norton Way. An assessment was made of different options for the layout of the intersection of Wright Street and Norton Way, East Devonport. The assessment found that the existing layout was the best option and an asset renewal project was completed in May 2017.

Wright Street at Norton Way

- Action 8.4: A report into traffic, parking and pedestrian movement in the Mersey Bluff precinct has been delivered and the high priority actions will be completed in 2018-19 utilising the $200,000 budget allocation.
- Action 8.6: Work at the intersection of Tarleton Street and Wright Street, East Devonport was completed in June 2018. This project delivered a road safety benefit and an efficiency benefit.

Intersection of Tarleton Street and Wright Street

- Action 8.8: Council are working with the Department of State Growth to improve traffic management and road safety in Watkinson Street near Don College. The project is programmed to be completed before the new bus routes commence in January 2019, with the Department of State Growth funding the construction works.
- Action 10: Identify and pursue grant funding. A total of $231,000 of grant funding was allocated to road safety projects in 2017/2018 including:
    - Oldaker and Ronald Street Black Spot Project ($140,000)
    - Forbes Street pedestrian facilities ($48,000)
    - Forth Road pedestrian facilities ($43,000)

Forth Road project nearing completion (June 2018)

A number of grant submissions are planned for 2018/2019.

The outstanding actions that are still relevant will be undertaken prior to the next review of the Strategy scheduled for 2019.

COMMUNITY ENGAGEMENT

No community engagement has been undertaken in the preparation of this report. However, consultation with relevant stakeholders is undertaken as part of the investigation of road network issues and the implementation of projects when appropriate.

Multiple requests and enquiries regarding management of the road network are received by Council. Each request is responded to based on its merits using the Strategy as a guide.

FINANCIAL IMPLICATIONS

There are no financial implications resulting from this report.

RISK IMPLICATIONS

Implementation of the Strategy action plan will ensure that the road network meets the requirements of the community into the future.

CONCLUSION

Progress has been made to implement the actions listed in the Devonport City Council Road Network Strategy since its adoption in April 2015.

ATTACHMENTS

⇩1. Road Network Strategy 2016 - Year 3 Status

RECOMMENDATION

That it be recommended to Council that the report of the City Engineer be received and that the status of actions listed in the Road Network Strategy 2016 be noted.

Author:	Michael Williams	Endorsed By:	Matthew Atkins
Position:	City Engineer	Position:	Deputy General Manager

ROAD NETWORK STRATEGY 2016 – YEAR 3 STATUS

Definitions:

IW&D – Infrastructure, Works and Development

Timeframes

OG Ongoing – day to day tasks which are budgeted for annually

ST Short Term – 1 to 2 years, MT Medium Term – 2 to 5 years, LT Long Term – 5 to 15 years

Resources required

A-OPEX -Annual Operational Expenditure – staffing or operational resource allocated as part of the annual plan

F-OPEX -Future Operational Expenditure – identified increased requirements for future consideration in annual allocation

F-CAPEX –Future Capital Expenditure – identified infrastructure requirements

No.	Action	Resources	Responsibility	Timeframe	Status
1	Monitor crash data quarterly. Investigate and develop solutions for high crash locations.	A-OPEX	IW&D Engineering	OG	Ongoing –total crashes have reduced by 1.5%, casualty crashes have reduced by 3.9% in last year.
2	Collect and monitor traffic volumes and intersection turning counts. Investigate and develop solutions.	A-OPEX	IW&D Engineering	OG	Ongoing - data being collected in accordance with program - approx-imately 25 locations per year.
3	Develop Council's Freight and Heavy Vehicle Plan.	A-OPEX	IW&D Engineering	ST	Complete – internal document developed. Key points to be incorporated into next strategy review.
4	Develop Council's Public Transport Plan.	A-OPEX	IW&D Engineering (with Community Services)	ST	Underway – development on hold pending outcome of bus route review by State Government.
5	Review ring road signage and imple-ment clear consistent signage scheme.	F-CAPEX	IW&D Engineering	ST	Complete – installation work completed in 2016.
6	Facilitate construction works associated with future fringe ring road.	F-CAPEX	IW&D	LT	Yet to commence. Dependent on major development.

7	Continue to monitor traffic volumes at Middle Road interchange. Work with Department of State Growth to investigate and develop solutions.	A-OPEX	IW&D Engineering	MT	Ongoing – ramp widening completed in 2017. Traffic volumes monitored annually.
8.1	Investigate and develop improved traffic management arrangement at the Don Road intersections with Watkinson Street and Hillcrest Road.	A-OPEX	IW&D Engineering	ST	Complete – construction work completed in 2015.
8.2	Investigate and develop improved traffic management arrangement at Wright Street and Norton Way.	A-OPEX	IW&D Engineering	ST	Complete – construction work completed in 2017.
8.3	Investigate and develop improved traffic management arrangement at the Formby Road intersection with Elizabeth Street.	A-OPEX	IW&D Engineering	MT	Complete – no action recommended. Refer to IWC 08/16.
8.4	Investigate and develop improved traffic management arrangement at William Street and Bluff Road.	A-OPEX	IW&D Engineering	MT	Underway - road humps installed on William Street in 2016. Additional work proposed in Mersey Bluff Precinct Plan to be constructed in 2018-19.
8.5	Investigate and develop improved traffic management arrangement at the Stony Rise Road intersection with Mersey Road and Devonport Road.	A-OPEX	IW&D Engineering	MT	Yet to commence.
8.6	Investigate and develop improved traffic management arrangement at the Tarleton Street intersection with Wright Street.	A-OPEX	IW&D Engineering	MT	Complete – construction work and signal upgrade completed in 2018.
8.7	Investigate and develop improved traffic management arrangement at the Mersey Road intersection with Kelcey Tier Road.	A-OPEX	IW&D Engineering	MT	Complete – construction work completed in 2016.

8.8	Investigate and develop improved traffic management arrangement in Watkinson Street near Don College.	A-OPEX	IW&D Engineering	MT	Underway – work in conjunction with bus route review by State Government. Implementation scheduled for 2018.
8.9	Investigate and develop improved traffic management arrangement at the Steele Street intersection with Forbes Street.	A-OPEX	IW&D Engineering	MT	Complete – no action recommended. Refer to IWC13/17.
8.10	Investigate and develop improved traffic management arrangement at the Mersey Road intersection with Sheffield Road.	A-OPEX	IW&D Engineering	LT	Unlikely to progress as both roads are managed by State Government.
8.11	Investigate and develop improved traffic management arrangement at Spreyton Primary School.	A-OPEX	IW&D Engineering	LT	Yet to commence.
8.12	Investigate and develop improved traffic management arrangement at the William Street intersection with Middle Road.	A-OPEX	IW&D Engineering	LT	Yet to commence.
8.13	Investigate and develop improved traffic management arrangement on Stony Rise Road between the lawn cemetery and Tugrah Road.	A-OPEX	IW&D Engineering	LT	Underway – investigation has commenced.
9	Continue to undertake traffic management improvement projects as part of the capital works program, prioritizing projects in a consistent and transparent way in line with sound engineering principles	A-CAPEX	IW&D Engineering	OG	Ongoing – multiple projects in each year of forward capital works program.
10	Identify and pursue grants and other external funding that may be avail-able for projects that align with this strategy	A-OPEX	IW&D Engineering	OG	Ongoing - $231,000 of grant funding obtained for 3 projects in 2017-18.

5.4 NORTH WEST COASTAL PATHWAY - PROJECT UPDATE

File: 32188 D534933

RELEVANCE TO COUNCIL'S PLANS & POLICIES

Council's Strategic Plan 2009-2030:

Strategy 2.3.1 Provide and maintain roads, bridges, footpaths, bike paths and car parks to appropriate standards

SUMMARY

To provide an update on the North West Coastal Pathway project.

BACKGROUND

Cradle Coast Authority (CCA) completed the North West Coastal Pathway (NWCP) Plan in 2010. The NWCP Plan outlines indicative routes for 110km of path linking communities on the North West Coast. It identifies links to be constructed from Devonport to Leith to the west, Port Sorell to the east and Latrobe to the south.

In February 2016 Council considered a report outlining options for path routes between Leith and Don and resolved that the preferred route included a new bridge over the Don River, then via Don Heads Road, Waverley Road, a highway underpass near Waverley Road, then adjacent to the Western Line and the Bass Highway to an existing underpass at Leith (Min IWC 03/16 refers). This alignment is shown in Figure 1 below.

Figure 1 – path alignment - 2016 design

In August 2017, Council agreed to contribute to the cost of a consultant to progress the project to a development ready stage. Subsequently, CCA engaged Pitt & Sherry to undertake this work.

Pitt & Sherry have completed development plans for three sections of the pathway:

- Wivenhoe to Heybridge
- Penguin to Ulverstone
- Leith to Don

The link between Devonport and Latrobe has not been considered as part of this project. However, a development plan for that section is likely to be delivered in coming months.

The three development plans have been provided to CCA and Councils have received the plans relevant to their areas.

STATUTORY REQUIREMENTS

Section 11 of the *Roads and Jetties Act 1935* describes the delineation of maintenance responsibilities between State and Local Governments on State roads.

> *"11. Maintenance of State highways, &c., in cities, &c.*
>
> *Where in a city, town or village there is a footpath on one side or both of a State highway or subsidiary road –*
>
> *(a) the Minister is required to maintain and reconstruct –*
>
> *(i) the carriageways and the surface lying between them, in the case of 2 paved carriageways divided by a median strip;*
>
> *(ii) the carriageway and the overtaking lane, in the case of a single paved carriageway incorporating an overtaking lane;*
>
> *(iii) a paved carriageway not exceeding 7·4 metres in width, in the case of a single undivided paved carriageway;*
>
> *(iv) a paved carriageway not exceeding 4·3 metres in width, in the case of a carriageway providing a traffic lane to a traffic interchange; and*
>
> *(v) the culverts and bridges over which the State highway or subsidiary road runs; and*
>
> *(b) the remainder of the State highway or subsidiary road, including drainage and shoulders but not culverts and bridges, shall be maintained and reconstructed by the local authority."*

Importantly this is only stated to apply in a city, town or village.

DISCUSSION

The objectives of the development plan are:

- To summarise the preferred route alignment as agreed with Councils
- To outline the key engineering challenges of the concept design
- To highlight any potential environmental or geoscientific challenges
- To summarise preliminary feedback from key stakeholders
- To provide a budget cost estimate for the works
- To outline the next steps to progress the project to construction stage

The development plan considered the alignment endorsed by Council in 2016 but proposes some changes for various technical, safety and user amenity reasons.

From the East, the route is the same, as the plan proposes a new bridge over the Don River, then following Don Heads Road and Waverley Road to reach the Bass Highway. The path then utilises an existing stock underpass to travel under the Bass Highway, then travelling on the west side of the Bass Highway until also reaching the southern side of the western (rail) line as described in the alignment endorsed in 2016.

However, from this point, the development plan recommends constructing a new underpass beneath the western (rail) line, with the path then travelling to a viewing area before heading downhill toward Lillico straight and being parallel to the Bass Highway until Lillico Road. The plan identifies that the alignment adjacent to the railway would technically be problematic due to steep embankments and landslip issues. Additionally, the viewing area may become one of the features of the route. A comparison of the two alignments for this section is shown in Figure 2.

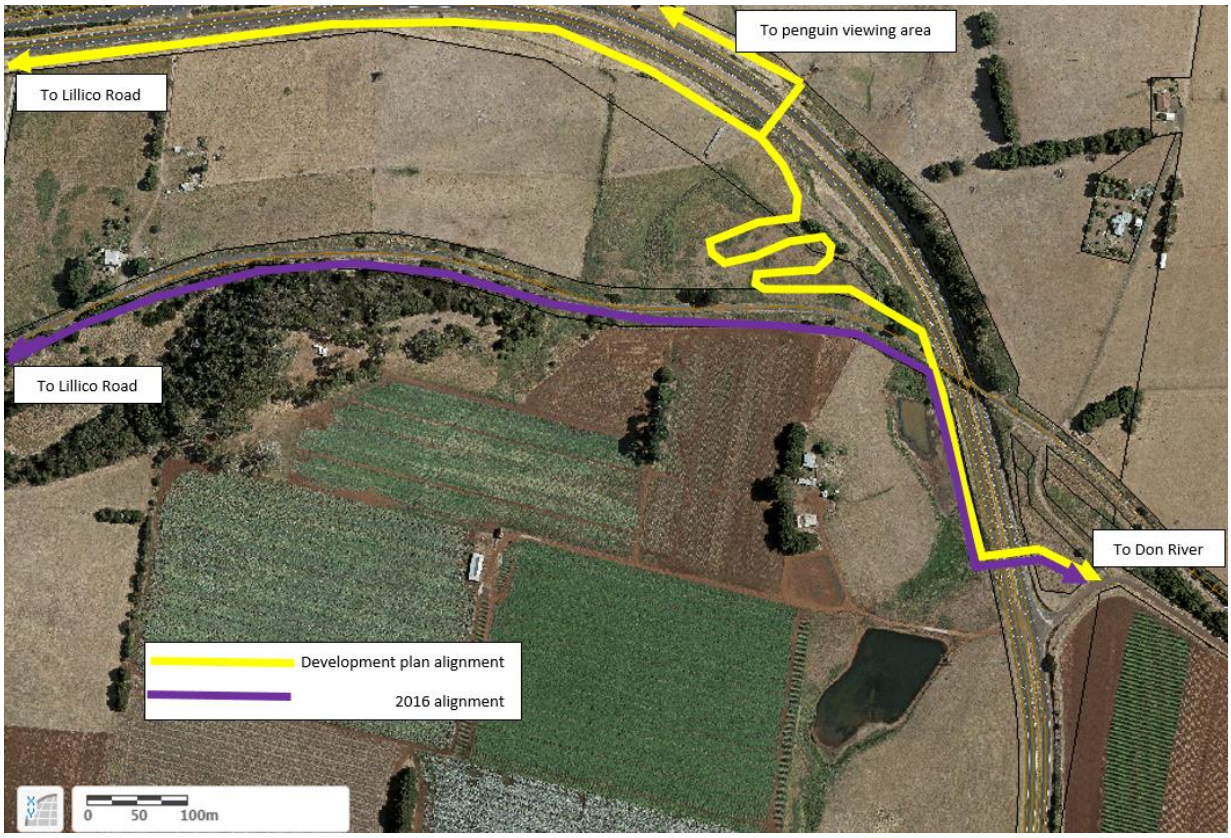


Figure 2 – path alignment – East of Lillico Road

The alignment then reverts to being parallel with the Western line, via a short section of pathway adjacent to Lillico Road.

Figure 3 – path alignment – Lillico Road

At the Western end of Lillico Straight the development plan alignment deviates again from the alignment endorsed in 2016. The development plan proposes an alignment which is constructed part way up the Leith headland, several metres above the level of the Bass Highway. This provides separation from the Bass Highway traffic and offers an excellent view of the local area but does present some construction challenges. However, this section is within the Central Coast Council municipal area and finalisation of the route is a decision for that Council.

The development plan describes the stakeholder consultation undertaken, identifies some key risks to the project and provides cost estimates which are summarised in the relevant sections of this report below.

The development plan also describes the next steps for the project which include:

- Development of a funding model for the project
- Further stakeholder consultation to reach written agreement
- Environmental assessments as required
- Detailed design
- Third party approvals and work permits
- Procurement
- Construction

The development plan implies that these steps are to be considered by Council and CCA and that budget allocations are required to complete these steps.

COMMUNITY ENGAGEMENT

The development plan includes consultation with key stakeholders including:

- Department of State Growth
- TasRail
- Crown Land Services & DPIPWE
- Parks & Wildlife Service
- Adjacent Private Landowners
- Lobby groups and project supporters
- Council officers

Details of the consultation are available in the attached plan.

FINANCIAL IMPLICATIONS

The development plan includes a review of the cost estimate for the path. The estimated cost of the development plan alignment is $4,150,000 of which around $400,000 is for work outside the Devonport City Council municipal boundary. Therefore, the total cost for the path within Devonport City Council municipal boundary is $3,750,000. This is higher than the 2016 estimate, but similar to estimates of the previous NWCP alignment.

The notable items in the development plan estimate are:

- $1,560,000 for new path
- $870,000 for a new bridge over the Don River
- $570,000 for a new underpass under the rail line
- $285,000 for earthworks
- $200,000 for the spur to the Lillico penguin viewing area
- $100,000 for works associated with the existing highway underpass near Waverley Road
- $75,000 for fencing of various types
- $38,000 for a viewing area and shelter at the Eastern end of Lillico Straight

There is no allowance for the construction of the coastal pathway in Council's forward capital works program. Some funds have been allocated to projects with scope yet to be determined from 2019-20 onwards but are well below the $3,750,000 required to deliver Devonport's section of the coastal pathway.

There have been some recent funding announcements regarding the coastal pathway from State and Federal Governments and Opposition parties. However, there is no funding guaranteed for the section between Leith and Don.

Based on Council's average maintenance expenditure on transport assets, the pathway from Don to Council's Western boundary will cost $55,000 annually. This doesn't include the potential increase in maintenance in the Bass Highway road reserve described later in this report and doesn't include any additional or specialised plant that may be required for the maintenance workload. It should also be noted that the expected level of service for these assets will be high and that they are relatively remote from most of Council's other high-profile areas.

Depreciation is expected to increase by around $50,000 annually as all assets are new and are expected to last between 20 and 100 years.

RISK IMPLICATIONS

Some risks to the project have already been controlled as part of the development plan, notably:

- The significant geotechnical risk identified on the route endorsed in 2016 have been controlled by changing the alignment.
- Most environmental risks to the project have been identified as low risk based on the outcomes of the desktop study in the development plan.
- Approval of the design of sections of the path in the Bass Highway reserve are required from the Department of State Growth. This should be achievable based on the current route.
- Some of the major risks associated with stakeholders have been reduced by the consultation completed to date. However, specific higher risks are described below.

The key risks to the project identified in the plan are:

- The utilisation of the existing railway level crossing on Lillico Road for the pathway is subject to the outcome of a risk assessment to be conducted by Tasrail and other relevant parties. If the outcome of this risk assessment was that a level crossing was unsuitable, then a grade separated crossing would be required at significant additional cost.
- The development plan identifies that Council's Planners have not been engaged and that Planning Scheme requirements may be a risk to elements of the project. Subsequently, Council planners have reviewed the development plan and whilst a discretionary planning permit will be required, it is likely that the applicable development standards can be satisfied, and a positive recommendation can be attached to the development application.
- The environmental risks to the project, including threatened flora and fauna will require additional assessment and approvals from State and Federal Governments. This has the potential to delay the project as this process can be long.
- Initial discussions with the property who uses the stock crossings under the Bass Highway have been positive, suggesting that an agreement could be reached to use

the underpasses as part of the route. However, if an agreement cannot be reached, there would be significant changes required to the route, which would result in a major cost increase.

- The Department of State Growth have indicated that using the two existing stock underpasses would be acceptable, provided agreement can be reached with the adjacent property owner. Failure to gain access to these underpasses would require significant changes to the route, which would result in a major cost increase.
- The issue of transfer of maintenance responsibility of part of the Bass Highway road reserve to Council is a major risk for Council. The advice from the Department of State Growth appears to be at odds with the *Roads and Jetties Act 1935*, in that paths outside a city, town or village do not result in a transfer of maintenance responsibility to the local authority. This issue would need to be resolved before progressing with the project as the ongoing operational costs to Council would be significant.

Other risks to Council:

- As described in the financial implications section of this report, there are insufficient allocations in Council's forward capital works program for the project and there is no guaranteed external funding at the time of this report. Unless external funding is secured, a major re-allocation of funding in Council's forward capital works program would be required to deliver this project, likely at the expense of other projects.
- The section of coastal pathway from Leith to Don includes sections within both Devonport and Central Coast municipal areas. Therefore, cooperation and coordination between the two Councils is required to successfully deliver the project. If the two Councils don't prioritise the project in the same way or would prefer to deliver the project at different times, then delivery of the project becomes more difficult. This risk is conceivable as Central Coast Council have received a development plan for the Penguin to Ulverstone section which is entirely within their municipality and a project that Council may prefer to pursue as a priority.
- The development plan estimate includes a contingency of 15%, or around $500,000. This is likely to be suitable to deliver the project. However, any major variations to the scope of the project or other unforeseen issues create a risk that the estimated project cost could be exceeded.
- The construction of this section of coastal pathway requires an increase in Council's operational budget of around $105,000 annually to fund maintenance and depreciation. This is a significant increase that would have to be considered before the project proceeded.
- Whilst Council has only received the development plan for the Leith to Don section of the Coastal Pathway, two other plans have been delivered to CCA and relevant Councils. No assessment has been made on prioritising the construction of each section of the pathway. However, it would appear the Leith to Don section is not the priority. This means that CCA or Council will be unlikely to attract external funding for the project until other sections have been constructed, potentially delaying the start of work by an extended period.

CONCLUSION

The development plan is a significant step forward for the Coastal Pathway. A more detailed assessment of the route has been completed with some changes made to ensure constructability. Initial stakeholder consultation was positive, but more work is required to reach agreements with a number of other entities. The estimated cost of the pathway

between Leith and Don is now $4,150,000, with $3,750,000 of that for work within the Devonport City Council municipal area. There are still several risks that have the potential to prevent the project progressing. The most notable issue is a lack of committed funding for the project. Determining the funding model for the project is a key next step to delivering the project.

ATTACHMENTS

⇩1. North West Coastal Pathway Development Plan - Don to Leith Rev00

RECOMMENDATION

That it be recommended to Council that the report of the City Engineer on the status of the North West Coastal Pathway be noted.

Author:	Michael Williams	Endorsed By:	Matthew Atkins
Position:	City Engineer	Position:	Deputy General Manager

North West Coastal Pathway Development Plan: Don to Leith

transport | community | mining | industrial | food & beverage | carbon & energy

Prepared for:	**Cradle Coast Authority (CCA)**
Client representative:	**Nani Clark**
Date:	**5 July 2018** **Rev00**

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the challenges of a changing world.

pitt&sherry

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Appendix A: Preferred Alignment Maps
Appendix B: TasRail Fencing Guidelines
Appendix C: Shared Roadway Safety Improvement Measures
Appendix D: Budget Cost Estimate

Prepared by: ..... Ben Hart Date: 28 June 2018

Reviewed by: ..... Sven Rand Date: 4 July 2018

Authorised by: ..... Ben Hart Date: 5 July 2018

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Rev No.	**Description**	**Prepared by**	**Reviewed by**	**Authorised by**	**Date**
00	Draft for comment	BJH	SR	BJH	9/1/17
01	Concept Design Report	BJH	SR	BJH	11/1/17

pitt&sherry ref: DV17103d001 Don to Leith Rep 31P Rev00.docx/BJH/tn

1. Introduction

1.1 Background and Objectives

Pitt & Sherry have been engaged to progress three sections of the North West Coastal Pathway to proof of concept / likely compliance stage. The high-level route alignments for each of the three sections have been previously agreed with the relevant Councils as follows:

- Wivenhoe to Heybridge – generally following the Bass Highway
- Penguin to Ulverstone – generally following the Old Coast Rd
- Leith to Don – The route identified by Devonport City Council in their report 'North West Coastal Pathway – Don to Leith' dated 8th February 2016.

In January 2018, a concept design report for each of the three sections were presented to CCA and the relevant Councils, providing a summary of the technical assumptions used in developing the concept design, and maps of the proposed alignment options. Within each alignment there were small sections of pathway where alternative routes were possible, and these options were provided to Council for consideration and feedback.

On 16th January 2018, Pitt & Sherry met with Michael Mouat and Michael Williams from Devonport City Council on site to discuss the route and determine the preferred alignment, which is described in this report.

The objectives of this Development Plan are as follows:

- To summarise the preferred route alignment as agreed with Councils
- To outline the key engineering challenges of the concept design
- To highlight any potential environmental or geoscientific challenges
- To summarise preliminary feedback from key stakeholders
- To provide a budget cost estimate for the works
- To outline the next steps to progress the project to construction stage

The pathway needs to do more than simply provide a link between the major towns along the north west coast. Where possible, the pathway needs to connect smaller communities in the area, as well as linking into existing tourist facilities (eg. Lillico penguin viewing area). This means that the route is not necessarily the most direct, and will have some connecting link tracks to improve community access in the region.

While in most locations there was a clear preferred alignment, in some locations, while the solutions vary in complexity, there remain two options that are both considered valid. These options are identified in the maps in Appendix A, and are intended to be discussed with Council to obtain their thoughts before the final alignment is determined.

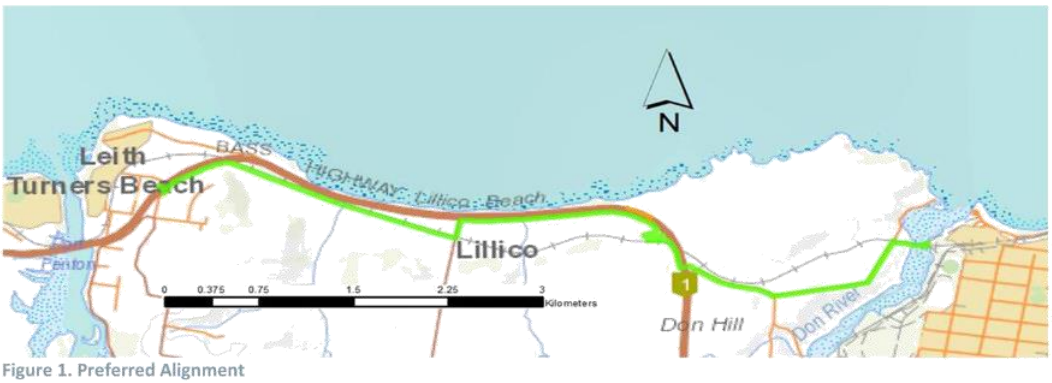


Figure 1. Preferred Alignment

2. Route Description

2.1 Preferred Alignment

The preferred alignment is provided in Appendix A, and is largely as per Council's recommended pathway alignment in their report 'North West Coastal Pathway – Don to Leith' dated 8th February 2016.

This route is predominantly within the Devonport City Council limits, with a small section of pathway at the western end within Central Coast Council.

At the eastern end, the pathway begins with a new bridge crossing of the Don River, to the southern side of the existing rail bridge. The route continues west along the rail reserve until Don Heads Road, and then the path is shared with this low volume road until Waverley Road.

The path then continues west along Waverley Road to the Bass Highway intersection. At this stage the pathway along Waverley Road is assumed to be a separate pathway, however there is an option to have this section of pathway shared with road traffic similar to Don Heads Road, noting that traffic volumes on Waverley Road are significantly higher Don Heads Rd.

The path then utilises an existing stock underpass to cross beneath the Bass Highway. Initial contact has been made with the landowner (Robinson) who uses the stock underpass about converting the structure for shared stock/pedestrian/cyclist use. The proposed approach would be a gated system that allows access for either pedestrians/cyclists or stock, but not both at the same time.

The path then continues north to meet the rail track, and at this location a new rail underpass would be required to cross to the northern side of the track. As stated in our previous report, it is technically difficult to remain on the southern side of the railway track heading west due to steep embankments and landslip issues.

The path then stops at a viewing area, before heading down the hill (using switchbacks where necessary) along the southern side of the Bass Highway until Lillico Road, with an optional extension into the Lillico Penguin Viewing area via another existing stock underpass (same landowner). An alternative alignment to following the southern road reserve of the Bass Highway is to run the path to the northern side of the railway track to Lillico road, however this approach is more difficult due to it passing within metres of an existing landowner dwelling and may require their driveway access to become the shared path or the removal of a number of their olive trees.

Along Lillico Road, a separate shared pathway would be provided down the eastern side until the existing rail level crossing, which would be reused subject to a risk assessment process being undertaken with TasRail. The path then follows the southern side of the railway track heading west until it reaches the Leith headland and the Bass Highway.

Two alternatives were considered for traversing the Leith Headland, one option at road level alongside the Bass Highway, and the other at higher level along an existing bench. The preferred option is the high-level bench based on initial geotechnical assessments (see section 6). From here the path transitions into an existing pedestrian underpass at Leith to complete the path alignment.

2.2 Safety in Design

A safety in design philosophy has been adopted in the formulation of the pathway routes outlined in this report. Throughout this document reference has been made to various aspects of the concept design and how safety has shaped the outcomes. Of course, as the detailed design of the coastal pathway proceeds, more specific issues with respect to safety in design will need to be considered and addressed.

2.3 Reference Documents

The following reference documents were used in the development of the proposed routes:

- Austroads Guide to Road Design Part 6A – Paths for Walking and Cycling
- Australian Standard AS2156:2001 – Walking Tracks
- Australian Standard AS5100:2017 - Bridge Design
- Brief Dutch Design Manual for Bicycle and Pedestrian Bridges (BDDM)

3. Path Details

3.1 Path Widths

After review of the Austroads guidelines as well as the BDDM, it is considered that the following path widths would be appropriate for a shared pedestrian and cycle path:

- Regional paths or local access paths with lower volumes - 2.5m
- Urban paths or paths with reduced sight distance (eg. curved) and/or higher volumes – 3.0m

Whilst wider path widths are considered desirable by Austroads, the above widths are considered reasonable for the expected path volumes. In some locations, due to existing constraints, the path width may need to be reduced below the widths indicated above. Where necessary additional signage should be provided to manage this risk. Blind corners should be avoided.

Initial discussions with Council indicated that line marking is not beneficial in general, however in locations with poor sight distance and sharp corners a marked centerline may be appropriate.

3.2 Path Gradients

The Austroads design guide recommends a gradient no greater than 5% unless unavoidable. Due to the undulating nature of the coastline and the need to utilize existing infrastructure where possible (eg. existing highway underpasses), there is a need to exceed this 5% slope on occasions. The BDDM recognizes this will occur and recommends distance limits for these excessive gradients. For example, slopes can reach up to 10% but over a maximum distance of 20m. The concept design has endeavored to meet the BDDM guidelines.

Where these guidelines can't be met, adequate sight distance should be provided with warning signs as recommended by Austroads.

DDA compliant gradients are unable to be achieved in some locations due to the natural topography and the constraints of existing infrastructure. The Act requires DDA to be complied with as far as possible, however complying in some cases may then mean the introduction of things like switchbacks or rest areas, which can be problematic from a cycling point of view. So, in many cases a compromise position is needed to be found based on the expected usage profile for the path location. Compliance will need to be assessed on a case by case basis during the detailed design in conjunction with Council's advice.

3.3 Path Materials

Initial discussions with Council infrastructure managers have recommended:

- Concrete paths are generally preferable in urban areas and residential frontages
- Asphalt paths are generally preferable in rural and recreational areas.
- Where traffic volumes are lower (eg. outside urban areas) and path users are likely to be more competent, some relaxation of paths standards (eg. gradients, widths, surfacing, corner radii) may be permitted.

- In some rural or lower volume locations with access difficulties or possible ground movement, gravel surfaced paths will be considered
- Galvanized steel barriers are generally preferred except in high corrosion environments where stainless steel or timber may be appropriate
- In some locations, specifically the Don River bridge crossing, it may be appropriate to install a low-level bridge with railings that lay down in a flood, thus minimizing the damage and enabling them to be re-erected after the flood.
- Barriers that are inclined so that the top rail protrudes slightly into the path are a commonly preferred design.
- An initial review of the alignment for Don to Leith indicates that throw screens are unlikely to be required.

These issues will be confirmed during the detailed design.

4. Interaction with Railway Infrastructure

4.1 Pathway Crossing Rail Infrastructure

Much of the proposed coastal pathway is near railway infrastructure, owned by TasRail. In many cases it is necessary for the pathway to cross the TasRail tracks. This can be done in one of three ways:

- Crossing at grade (ie. a level crossing). The most cost-effective option but least preferred by TasRail.
- Crossing beneath the rail (ie. an underpass). Alternative preferred by TasRail but significantly increased cost compared with a level crossing.
- Crossing above the rail (ie. an overpass). Alternative also preferred by TasRail, but significantly increased cost compared with a level crossing, and usually higher cost when compared to an underpass.

It is possible to apply for a level crossing license through TasRail, however history has shown that these licenses are rarely granted without satisfying the rail safety regulator, and a clear demonstration that no other alternative crossing is possible.

The preferred route has adopted the following guidelines to improve the likelihood of receiving TasRail approval:

- An at grade level crossing will only occur where an existing authorized level crossing is already in place. The existing level crossing may be an existing road or pedestrian level crossing. We have attempted to use existing level crossings wherever possible to reduce costs (eg. Lillico Road), however additional signage, tactiles and line marking is likely to be required to improved pedestrian and cyclist safety;
- Where it is not possible to use existing level crossings, a railway underpass has been proposed. This occurs at one location (eastern end of Lillico Straight adjacent to Don Overpass Rail Bridge).
- In no cases was a railway overpass considered practical or cost effective for the proposed path routes.

4.2 Pathway Adjacent to Rail Infrastructure

Much of the proposed coastal pathway is near railway infrastructure, owned by TasRail. In many cases it is necessary for the pathway to be positioned parallel and adjacent to the existing track.

TasRail have advised that any shared path should be located a minimum 5.7m clear of the nearest rail. In addition, a 1800mm high plain chain link fence is required to separate the shared path from the railway corridor. Further details are provided in the TasRail Fencing Standard in Appendix C.

TasRail have indicated that a reduction of the 5.7m clearance may be permitted on a case by case basis. Furthermore, where the rail reserve boundary does not extend 5.7m from the nearest rail, there is also scope to begin the path on the rail reserve boundary with less than 5.7m clearance providing it is safe to do so.

5. Interaction with Road Network

Whenever possible it is preferable to provide a separated, standalone shared cycle and pedestrian pathway that is not part of the road network.

However, in certain situations interaction with the road network is inevitable. This will occur in one of three ways:

- Sharing of roadway by cyclists and pedestrians on low volume, lower risk roads;
- Separated shared pathway adjacent to high volume higher risk roads;
- Separated shared pathway crossing a road.

5.1 Shared Roadway - Lower Volume, Lower Risk Roads

This approach can work on low volume roads where appropriate measures are undertaken to minimize the risk to road users. Signage and possible vehicle speed limit reductions are required to reduce safety risks.

For the Don to Leith pathway, it is proposed to adopt this approach on Don Heads Road from the intersection of Waverley Road to the existing rail level crossing at Don Heads. It is also possible to continue the shared roadway further west along Waverley road to reduce path construction costs.

Examples of measures to minimize the risk to road users are provided in Appendix C. We have reviewed these mitigation measures and agree that options 1-4 are generally most appropriate for this project. In addition, speed humps may also be adopted on some roads to help control vehicle speeds.

5.2 Adjacent Separated Pathway - Higher Volume, Higher Risk Roads

For high volume, high speed roads such as the Bass Highway, having cycle or pedestrian traffic sharing with road traffic is not considered appropriate or safe. Furthermore, any shared path that is located adjacent to the highway should be protected by a traffic safety barrier and pathway fencing as appropriate, however where the path is located outside the 'clear zone' as defined in the Austroads Guide (typically 7.5-10.5m clear of nearest traffic lane), or when there is natural protection provided by a cutting, then barriers may not be required. The need for barriers will be determined on a case by case basis during detailed design.

5.3 Intersections

Crossing high volume high speed roads such as the Bass Highway at grade is not generally appropriate, and a grade separated crossing, most likely an underpass, will be used.

Two underpasses are proposed beneath the Bass Highway, one at the junction of Waverley Road and the Bass Highway, and the other the (optional) pathway extension to the Lillico Penguin viewing area. In both cases, existing stock underpasses are proposed to be reused, and are considered structurally and dimensionally adequate. Negotiations will be required with the current user of the stock underpasses (Robinson). Initial discussions have begun and an agreement to use the underpasses looks likely (refer Stakeholders section below).

On low volume, lower speed roads, the design of safe crossing points at intersections will be assessed on a case by case basis. Likely road level crossings are at Waverley Road.

There is also the requirement to cross driveway accesses to businesses or residences. It is generally considered prudent to establish whether the vehicle or path user has right of way by using 'Give Way' signs or similar.

6. Path Structures

6.1 Underpass Structures

As discussed above, at many locations it is unsafe or would result in significant traffic disruption to cross a road or railway line at grade. In these situations an underpass is often the preferred option to provide grade separation for pedestrians/cyclists and road or rail traffic.

Underpass structures are more suitable than overpass structures in most cases because the required clearance for an underpass structure is typically 2.5m, where the required clearance for an overpass structure is 5.75m (rail) and 5.6m (road). This increased clearance for overpasses means approach ramps are significantly longer than an equivalent underpass, with the resulting cost increase. An overpass is also not the preferred option for road and rail authorities as there is the potential for vehicle impact and items to be thrown onto the road or rail track.

In some cases, there are existing stock underpasses or disused underpasses that are suitable for incorporation into the pathway network. This is an ideal outcome in terms of reduced project construction costs, and reduced impact on road/rail users during construction.

For the Don to Leith alignment, three existing underpass structures have been identified for reuse:

- DSG Asset No. 5149 – Existing stock underpass crossing the Bass Highway at the western end of Waverley Road
- DSG Asset No. 5133 – Existing pedestrian underpass under the Bass Highway at Leith
- DSG Asset No. 5149 – Existing stock underpass under the Bass Highway adjacent to the Lillico Penguin viewing area.

These structures have been inspected and are considered to be structurally adequate for their intended future use as part of the shared pathway. They have 2.4m vertical clearance which is less than the required 2.5m, however it is considered that the structures will be usable. Each of these underpasses are below the Bass Highway and after consultation with DSG it is confirmed that they are the owners of these assets. Consultation with DSG has begun – refer Stakeholder section.

In addition, it is proposed that one new underpass is required crossing beneath the railway line to the west of the Don Overpass rail bridge. It should be noted that the original DCC route plan assumed the path would continue along the southern side of the railway track along Lillico Straight, which would remove the need for a new underpass. However unfortunately there are a number of significant landslip issues on this side of the rail, as well as steep embankments that makes this route unfeasible. The benefit of crossing to the northern side of the rail track is that the connection to the Lillico penguin viewing area now becomes more feasible.

In general, underpasses should be well lit and have security features where necessary to discourage loitering and unsociable behaviour.

6.2 Bridge Structures

Only one major new bridge structure is proposed for the Don to Leith route. This would be over the Don River, located either immediately upstream or downstream of the existing Don River Rail bridge.

The bridge is expected to be approximately 110m long, comprising 6 spans of 18.3m to match the existing pier layout of the rail bridge. The bridge will be located in a highly corrosive area adjacent to the Bass Strait, and additional durability measures will be required.

The level of the existing rail bridge is very high, and it is expected this bridge would be better suited as a low-level bridge that is designed to be inundated during significant flood events, but shall be designed to be easily returned to service.

Four smaller bridges or culverts of up to 5m span would also be required along small water courses at various other locations along the path way.

6.3 Retaining Walls

Various small retaining wall structures are anticipated along the route, however most are expected to be less than 1.5m in height. The most significant retaining wall structure would be located around the high-level bench at Leith Headland

6.4 Other Structures

A viewing area is proposed at the eastern end of Lillico straight at the top of the hill near the northern entrance of the rail underpass.

Council expressed a preference for some shelters to be constructed along the route for path users, suggesting a shelter would be useful at the viewing area, and also on the western side of the Don River bridge.

6.5 Drainage

Various small culverts will be required along the route so as not to disrupt existing drainage flows. In particular, the section of pathway along Lillico Straight is in a low lying, swampy area which does not drain well, particularly in winter. Additional fill will be required to raise the path in these locations.

6.6 Geotechnical

As mentioned previously, the preferred route is to use the existing high-level bench around Leith Headland on the southern side of the Bass Highway as an alternative to a new low-level pathway adjacent to the highway which would require significant earthworks, traffic barriers and retaining wall. A high-level site review of the bench has been undertaken and initial indications are this route would be suitable. However, a number of measures would need to be taken to protect path users.

A summary of the findings of the Geotech investigation of the Leith Headland is as follows:

Location and length of path

- southern side of the Bass Highway to the east of the Short Street Junction
- approximately 300m

Ground Slope

- between 15° and 35°

Geology and Landslide Mapping (from Mineral Resources Tasmania)

- located on deeply weather Basalt
- landslides close by have occurred previously
- site is vulnerable to landslides in the future

- Development subject to planning controls

Possible Path Location and Description

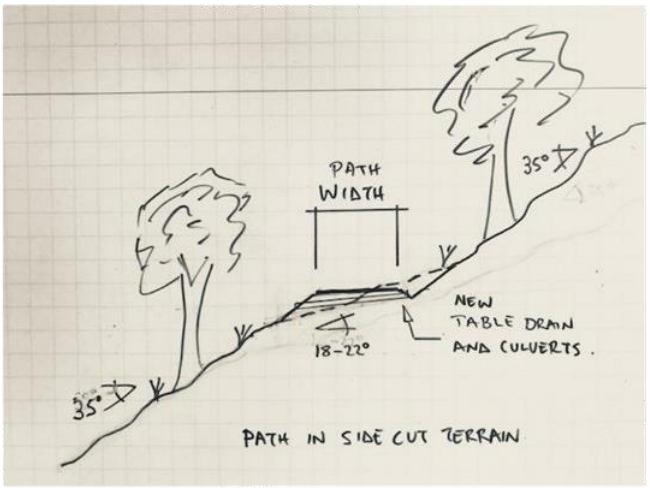
- Near road level either end of site
- Grade up to a high point at about 15m above road level.
- Construct the path on a flatter part of the slope. The flatter slope is about 22° and up to 8m wide.
- Gravel path would be more able to accommodate ground movements and tree roots at this location without cracking, if this is an acceptable surface.
- Vegetation should remain intact as much as possible to improve slope stability
- Note – there is a bench below an existing stone retaining wall and this is not wide enough to construct a path.

Risks

- The site will continue to be vulnerable to landslide in the future. Construction of the path could increase the vulnerability, however, the increase has not been quantified.
- It is possible that small slumps (landslides with a volume less than $5m^3$) will slide onto the path and the soil will need to be removed and the slide surface supported.
- Uncontrolled stormwater runoff will be detrimental to the stability of the slope and care should be taken to effectively manage drainage around the path.
- It is possible that a large landslide could occur and could run out onto the Bass Highway. This risk would apply to both a high-level path and the alternative low-level path alongside the Bass Highway.

Path design

The path would be constructed in site cut terrain and a typical section is shown in the sketch below. It will be important that drainage is maintained and that stormwater runoff does not pool.



Ongoing maintenance

- It is possible that small slumps will slide onto the path and these will require repair or removal
- This section of path will require regular inspections and ensure drainage is kept clear.

Feasibility

- It is feasible to construct a path in this terrain.
- Only small plant and equipment are suitable for construction at this site.

7. Environmental

Desktop environmental assessment, in conjunction with preliminary site reconnaissance investigation has been undertaken for the potential alignments. A range of publicly available spatial datasets including the Tasmanian Natural Values atlas (DPIPWE) were searched for environmental values within proximity of the potential pathway alignments. The key findings are summarised below. More details of these assessments can be provided upon request. Environmental assessment has identified a broad range of issues and features which must be considered in detailed design including likely presence of threatened flora, habitat for threatened fauna and geoscientific issues including landslip susceptibility. The issues identified will require further on ground detail and specialist assessments but are considered manageable with appropriate risk assessment, mitigation plans and appropriate permits.

7.1 Threatened Flora

Threatened flora has previously been identified and reported in proximity to the proposed alignment. An occurrence of Showy willowherb is noted in proximity to the junction of Waverley Road and Don Heads road.

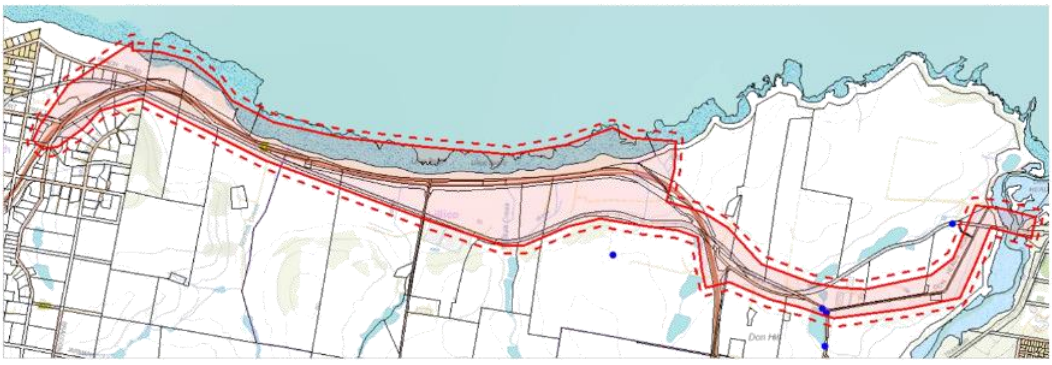


Figure 2. Threatened flora in proximity of alignment

During detailed design an on-ground survey will be required to undertake a risk assessment for threatened flora species with permits to disturb/take required if identified.

7.2 Threatened Fauna

The proposed alignment is in close proximity to a number of locations where threatened fauna has been sighted. All recorded sightings within the area investigated are adjacent to the Bass Highway. Species observed include:

- Spotted-tail quoll, eastern barred bandicoot, Tasmanian devil, white-bellied sea eagle and shy albatross.
- While not reported in the vicinity of the proposed pathway alignments, the locations potentially contain habitat, based on potential range boundaries, for a further 13 threatened fauna species.

Threatened fauna within 100 metres

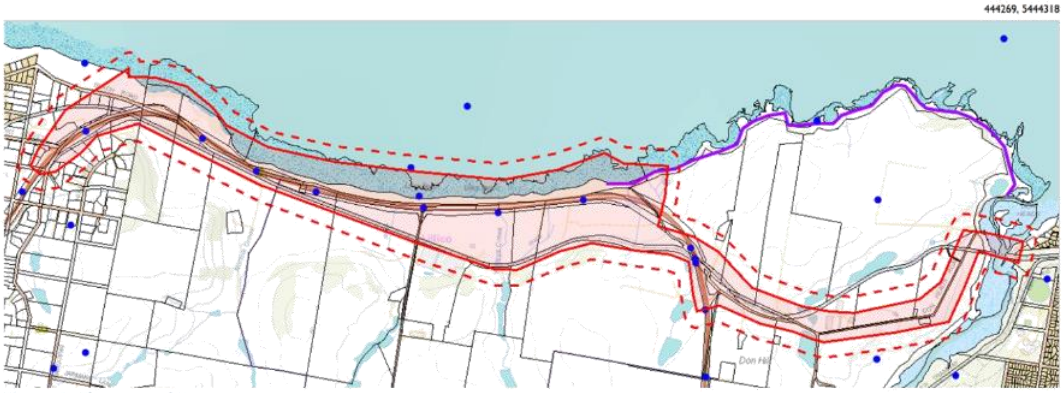


Figure 3. Threatened Fauna

Works undertaken for the pathway development will require habitat assessments during detailed design to determine any potential impact on the threatened fauna.

7.3 Declared weeds

A range of declared weeds have been identified and reported in proximity to the potential pathway alignment. These include bridal creeper, boneseed, pampas grass, Spanish heath, fennel, montpelier broom, perforated St Johns wart, blackberry and gorse.

A weed management plan will be required during detailed design to support any development proposal.

Tas Management Act Weeds within 50 m

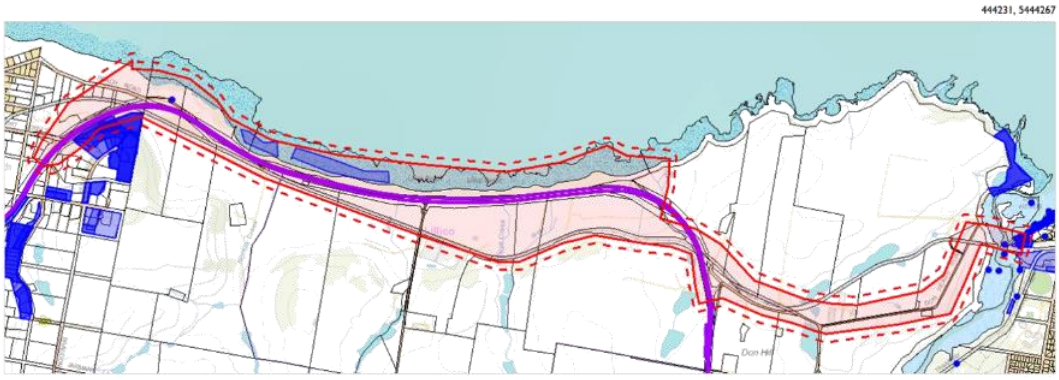


Figure 4. Declared weeds

Acid Sulfate Soils within 200 metres

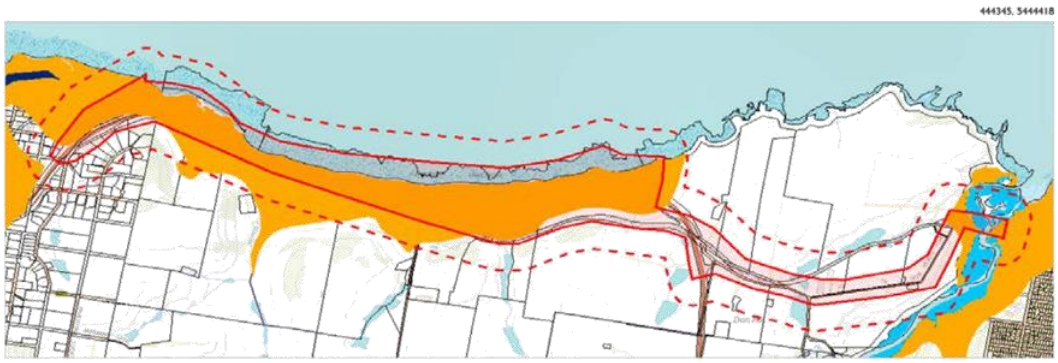


Figure 5. Acid Sulphate Soils

7.4 Threatened vegetation communities

NVA mapping indicates the presence of a Eucalyptus Viminalis wet forest community near the Bass Highway/Beach Road intersection near Leith (number 25 in Figure 6). The proposed pathway alignment will not impact on the vegetation community.

Threatened Communities (TNVC 2014) within 200 metres

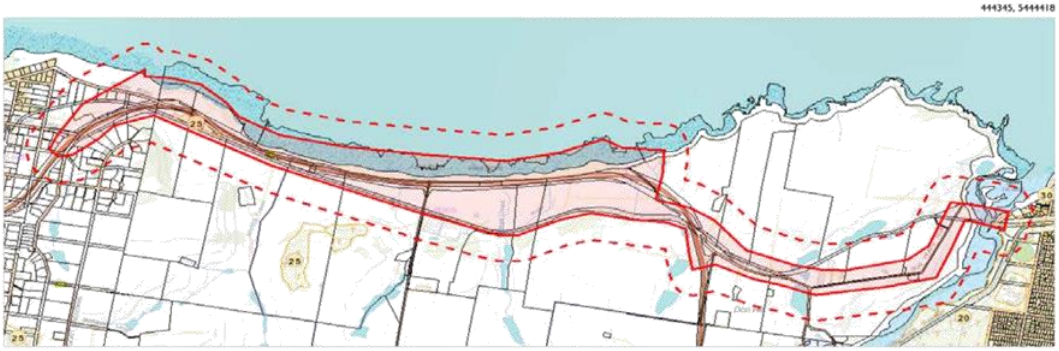
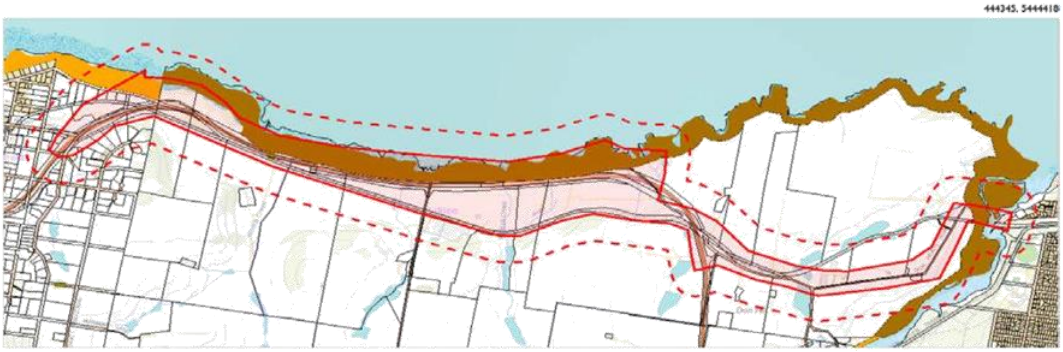


Figure 6. Threatened vegetation communities

7.5 Reserves

The potential alignment traverses the Don Heads Conservation Area at the mouth of the Don River. The Lillico Beach Conservation Area is located to the north of the potential pathway alignment and will not be traversed.

Reserves within 200 metres



8. Geoscientific issues

8.1 Geoconservation sites

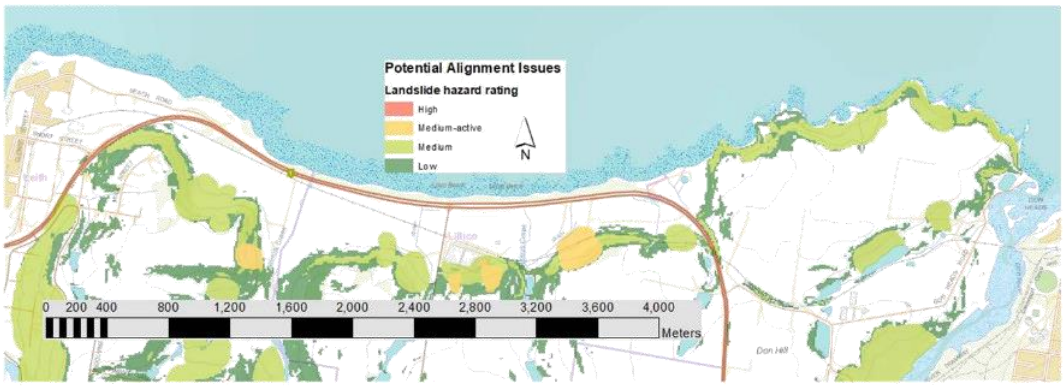
Two geoscientific features of conservation significance have been mapped near the potential pathway alignment.

Notable examples of the Don Heads basalt and landforms are mapped around the northern end of the Don headland (Figure 7). The potential pathway alignment does not impact on the features.

Figure 7. Geoconservation significance areas

8.2 Geotechnical / Landslip potential

The potential alignment will traverse sections of the coast for which landslide hazards exist. Mapping indicates that the section of road cutting adjacent to the Leith turnoff comprises a mixture of low to medium rated risk areas. The section of railway track traversing between Lillico road and the Bass Highway overpass traverses an extensive section of low to medium rated risk sections and included some sections for which the risk is identified as medium-active.



Indications of active landslide features have been identified during the reconnaissance visits and the detailed design is likely to require a landslide risk assessment and report. Refer further details in section 6.

8.3 Acid Sulphate Soils

Acid Sulphate Soils (ASS) are common to Tasmania's coastal regions. The areas of low topography adjacent to the Bass Strait coast have been mapped as low probability of occurrence of ASS. However, the intertidal estuarine environment at the mouth of the Don River is indicated to have high probability of occurrence. Construction of a new bridge across the Don River will traverse the mapped area. A monitoring and management plan will be required during construction to ensure any potential for disturbance is identified and appropriate mitigation plans are in place to support development.

8.4 Coastal Vulnerability

The pathway will require a crossing of the Don River and consequently must address the Development standard requirements of the Devonport City Council interim planning scheme section 10.6 of the E10 Water and Waterways Code.

The development will require assessment to ensure a minimised risk to the function and values of the Don River watercourse for a variety of issues including hydraulic performance, potential impacts on amenity and aesthetic appearance. The development must also minimise immediate or cumulative adverse effects including for on coastal landforms, water movement processes and quality. Further the development must minimise adverse effects for risks from natural hazards including coastal erosion (Figure 8), sea level rise, storm surge and potential inundation because of climate change.

While most of the potential alignment is situated at topographic levels and distances sufficient to avoid any risk to waterways and will not adversely impact coastal waters or shoreline areas, the bridge crossing over the Don River will require further detailed assessment. A suitable design matching the location adjacent to the existing railway bridge across the Don River will be required to minimise potential impacts.

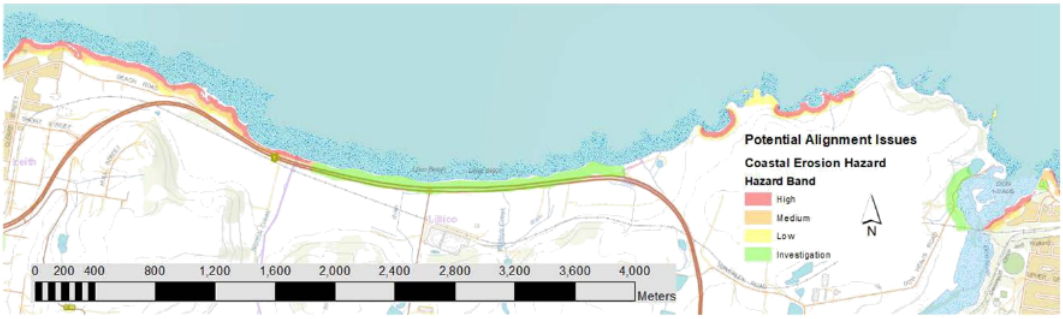


Figure 8. Coastal erosion hazards

9. Stakeholders

The length of this section of pathway means that inevitably a number of stakeholders will be affected by the development. These include:

- Department of State Growth (Nick Brown, Lucy Thorne)
- TasRail (Jennifer Jarvis)
- Crown Land Services & DPIPWE (Anne Maginnity)
- Parks & Wildlife Service (Anne-Maree Smith)
- Adjacent Private Landowners (Residential and Commercial)
- Safer Roads for Cyclists Tasmania (Keith Price)
- Coastal Pathway Coalition (Andrew Leary)
- Bicycle Network (Alison Hetherington)
- The communities connected by the proposed infrastructure
- Relevant Councils (including engineering and planning departments)

In developing the proposed routes, we have tried to utilise Council and State Government infrastructure as much as possible, which is expected to provide the 'path of least resistance' to achieving the required stakeholder approvals.

Initial discussions have been had with key stakeholders to better understand their requirements and concerns. In general, these stakeholders have provided preliminary feedback only, and reserve the right to provide more feedback when the development application and detailed design are completed.

The feedback from these stakeholders has been taken into account when preparing the cost estimate for the works in the next section.

9.1 Department of State Growth

Feedback was received by email from Lucy Thorne on 29th March 2018.

General Comments

- Although it is understood that maintenance of the path itself will be the responsibility of the path "owner"/manager, it (the path) is not only likely to result in an increased maintenance expectations from the general public but will (via Section 11 of the Roads and Jetties Act 1935) alter the maintenance responsibilities in the State Road corridor significantly (i.e., State Growth will only be responsible for maintaining the central 7.4m). Confirmation that this is Council's expectation also will be required.
- A Roads and Jetties Act 1935 works permit will be required to be obtained prior to commencing works
- Design details which will require approval at the works permit stage will include; under-bridge crossing details; and access arrangements for operations and maintenance.
- A Crown land licence will be required to be entered into
- Designs will be required to comply with State Growth specifications and Austroads guidelines
- Safe Systems Principles will be required to be applied at locations where the path is in close proximity to the highway, although separation will be required where possible.

Site Specific Comments

- Existing Stock Underpass at Waverly Road Intersection - Use of B5730 Robinsons Stock Underpass is subject to discussions with adjacent land owner/s. Stock underpass can be unsafe for access if it is not properly maintained and cleaned by the farmer.
- Existing Stock Underpass near Lillico Penguin Viewing Area - Same issue for B5149 Bass Highway Stock Underpass as described above.
- Bass Hwy near Waverly Road Junction - The Department's first preference is for the cycle path to be outside of the road reserve here. If it is not possible, you will need to demonstrate that the path will be adequately protected from the traffic.
- Bass Hwy at Lillico Road - The designer will need to provide detail of the route of the path at this location. The Google alignment shows the path crossing the U-turn facility twice. Ideally, this should be avoided with the path following the fence line and avoiding crossing the road at all. If for any reason crossings cannot be avoided, the designer will need to demonstrate that the crossings comply with relevant guidelines and will operate safely.

P&S Follow up comments

- Councils may be already aware of the onerous requirements of the Roads and Jetties Act, which means that Council would need to maintain not only the path itself but the surrounding areas of road reserve. This maintenance liability can be reduced where possible by locating the path outside the road reserve (eg. acquiring private farmland), but this requirement will be unavoidable in many cases and Council will need to understand the maintenance liability they are taking on.
- Crown licenses and work permit approvals are required. Also works to be undertaken to State Growth specs which are often a higher standard than LGAT specs, resulting in increased costs. An allowance for these increased costs has been made in the cost estimate.
- Safe systems principles will require barriers or grade separation where the path is within a minimum distance to the Bass Highway, and this work has been allowed for in the cost estimates.
- DSG's comments on Farmer (Robinson) approval for shared use of existing stock underpasses B5730 and B5149 is noted. A subsequent meeting with adjacent landowners (Robinson) appears promising although no firm commitments made (refer Stakeholders section). Regarding maintenance of stock underpasses, it is correct that some dirt will enter the underpass via stock movements (which are irregular), however this will need to be managed by warning signage and occasional Council maintenance. A gate system is proposed at each end of the underpass to allow entry to either stock or cyclists/pedestrians, but not both at the same time. Therefore, path users may be required to wait a few minutes during stock movements.
- Bass Hwy near Waverly Road Junction - The Department's first preference is for the cycle path to be outside of the road reserve here. After discussions with landowners they appear happy to cut across a small section of their land to avoid the road reserve at this location and satisfy DSG.
- Bass Hwy at Lillico Road - The preferred alignment does do cut across the U-turn facility and hence will satisfy DSG's concern.

9.2 TasRail

Meeting with Jennifer Jarvis, Property Manager for Tasrail, at TasRail offices on 6th March 2018. The following verbal feedback was provided.

- Pathways parallel and alongside the rail are generally acceptable provided there are no disruptions to train operations during construction, and the clearance to the pathway meets the TasRail fencing guidelines (refer appendix B). The required clearance is 5.7m, but at certain locations the clearance reduces to as little as 4.7m, and this may be acceptable to TasRail and would be assessed on a case by case basis.
- Level Crossings – Each existing level crossing that is proposed to be used as part of the shared pathway would need a risk assessment, involving Council, TasRail, designer and possibly the rail regulator. If the risk assessment finds the use of these level crossings an acceptable risk, then they would be permitted on a case by case basis. If not, then new grade separated crossings would be required. No new level crossings are permitted.

P&S Follow up comments

- The fencing guidelines provided by TasRail are reasonable, and the required 5.7m clearance (sometimes reducing to 4.7m) has been allowed for in the concept design and cost estimate.
- The level crossing issue is a risk for the project. The current concept design and cost estimate assumes the risk assessment process will find that all existing level crossings are able to be reused, which we consider the most likely outcome given they are already level crossings used

by the public. However, if new grade separated crossings are required they will cost approx. $350k each, and this has not been allowed for in the cost estimate. In addition, there are some locations where a new crossing of the rail track is required as no level crossing currently exists. In these cases, the cost of a new grade separated rail track crocking has been allowed for in the cost estimate.

9.3 Crown Land Services & DPIPWE

P&S discussed the project with Anne Maginnity from DPIPWE. We were informed that there is little point sending through any information to them at this stage until a development application is ready to go as they won't look at it. However, she commented that in her previous experience there are generally no 'showstoppers' for a pathway such as this provided the normal environmental checks have been done and aboriginal heritage has been consulted.

9.4 Parks & Wildlife Service (PWS)

P&S discussed the project with Anne-Maree Smith from PWS as well as the Ranger-in-Charge, Ben Hill. Advice was received in emails on 15th March 2018 and again on 6th June 2018. The proposed route was reviewed by PWS and they concluded that the routes did not cover any PWS managed land except for the proposed access into the Lillico penguin Viewing Area.

PWS outlined the following concerns with this proposal:

- The access track from the underpass to the Lillico car park will need barriers to protect path users;
- The access track through road reserve will cross a driveway into a private residence;
- The plan will need to incorporate a sign plan for the car park to deal with bicycle and car interactions in a small space;
- The plan will need to show how the bicycles are to the parked at Lillico, we can't afford to lose any carpark spots … I think a separate bicycle parking area should be developed on the grass verge in the road reserve to the east of the exit point form the car park.

It should be noted that bicycle visitation to the reserve will be mainly to utilise the viewing platform to the view the coastline and as an access point to the beach, whereas penguin viewing is undertaken at night time when the cycle way will not be used by bikes.

In summary, it does require some issues to be resolved, and from a PWS we are not prepared to take on the maintenance of any new asset, and the construction and maintenance of all assets derived from this process should be funded from a non-PWS source.

9.5 Private Landowners (Residential and Commercial)

As agreed with CCA, most private landowners have not been consulted at this stage, but this will need to occur prior to the development application proceeding.

However, one key landowner for this section is BA Robinson (10363 Bass Hwy), who agreement would need to be reached with respect to shared use of the two existing stock underpasses (as mentioned previously).

P&S met with Bruce and Kym Robinson on 7th June 2018, and while no firm commitments were given, they seemed happy with the proposed path route and Kym was looking forward to using the path to ride all the way to Ulverstone and Devonport.

They seemed open to shared use of the cattle underpasses. They are also amenable to cut across their land to the eastern end of the Waverley Road underpass, which addresses a concern raised by DSG (above).

9.6 Coastal Pathway Coalition

CCA and P&S met with Andrew Leary and Ben Kearney on 15th February 2018, and provided an outline of the project. The project concept was met favorably with no specific objections.

9.7 Bicycle Network & Safer Roads for Cyclists Tasmania

CCA and P&S met with these groups on 23rd May 2018, and provided an outline of the project. The project concept was met favorably by Alison and Keith with no specific objections. Details were verbally then discussed at a broader SRFC meeting, and the feedback from Keith was that the proposals were met very favorably.

9.8 Councils

While P&S has worked with the technical (engineering) departments of the relevant Councils throughout the concept design process, to our knowledge there has been little engagement with the planning departments of the relevant Councils. Therefore, it is recommended that this development report be provided to the planning department of each Council for comment, prior to work beginning on the Development Applications.

10. Cost Estimate

A budget cost estimate has been developed based on the concept design for the preferred route as described in this report. The cost estimate is provided in Appendix D.

A previous cost estimate was developed by Devonport City Council for the preferred route at that time. This cost estimate totalled $3.1M. We have reviewed this estimate and believe it is generally reasonable, with the following comments:

- The path construction rate per square metre was reduced from $90/m2 to $60/m2 to achieve this cost estimate, which is quite a low rate for path construction. If the path rate was $90/m2 which is considered more feasible, this increases the cost estimate by approximately $500,000
- Insufficient allowance was made for the difficulties is dealing with steep embankments and landslip areas alongside the railway line east of Lillico Road (note the preferred option no longer uses this alignment). We considered an additional allowance of $300,000 would have been realistic.
- The estimate for the new Don bridge is considered to be approximately $300,000 less than required.

Since that cost estimate was produced by DCC, the following changes have been proposed for the current preferred alignment as detailed in this report:

- Redirecting the pathway alongside the Bass Hwy between Don Rail Bridge and Lillico Road, including a new rail underpass – the net difference is cost for this approach is an additional $430,000
- Having a high level path around the Leith Headland rather than a path adjacent to the Bass Highway – cost estimate is considered similar for both options.
- Revised cost estimate for Don River Bridge - $300,000
- Having an (optional) linkage to the Lillico Penguin Viewing area – additional $160,000
- Having the (optional) separate pathway along Waverley Road rather than sharing with road traffic – additional $150,000

Thus, the total estimated cost for the preferred alignment is $3.95M. With the removal of the separate Waverley Road path option the estimate reduces to $3.8M.

With the inclusion of the optional extension to Lillico Viewing area this increases the cost estimate by $150,000.

If other options are chosen, or the Tasrail risk assessment process finds that some rail level crossings can't be used, then the cost estimate will change.

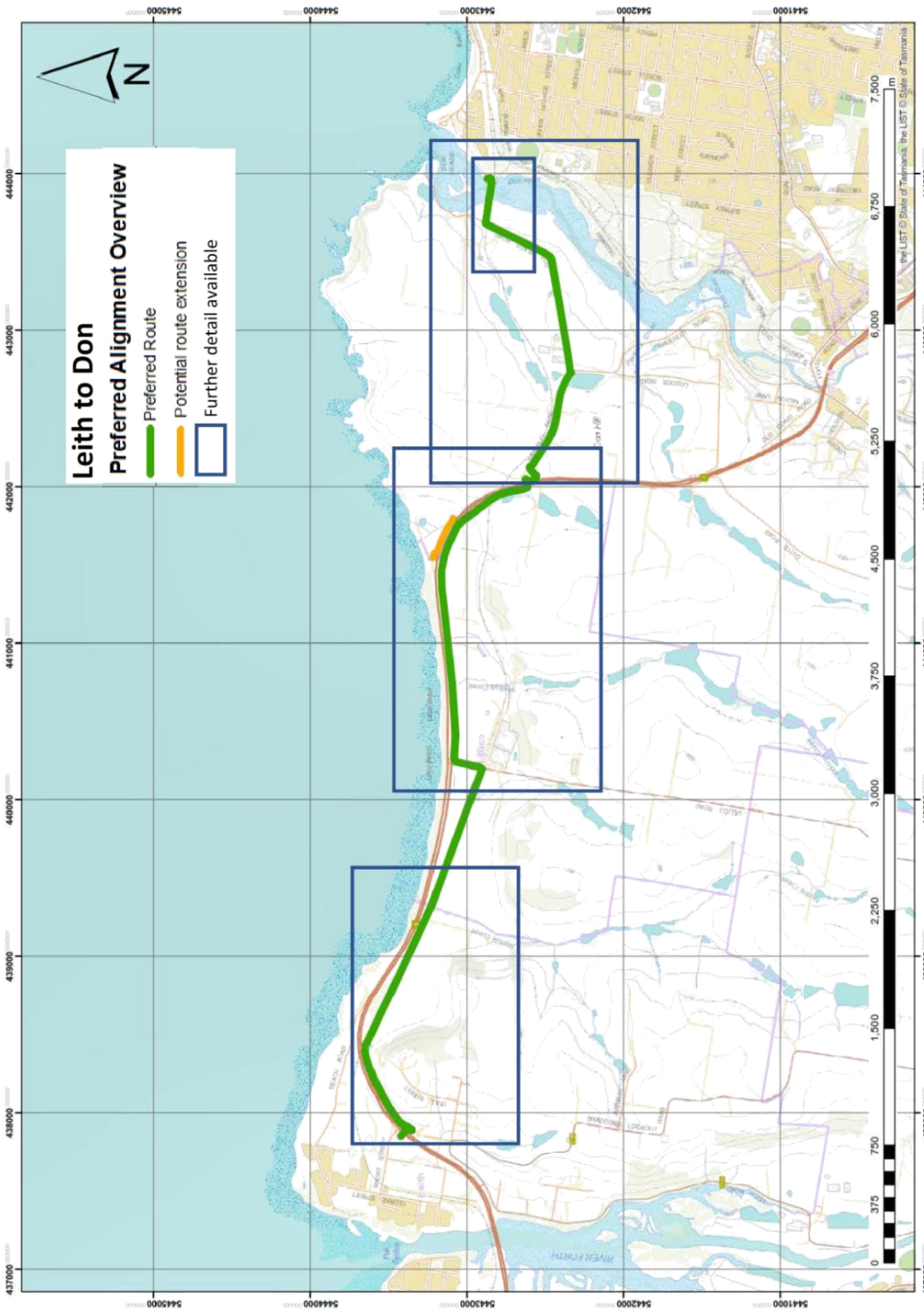
11. Next Steps

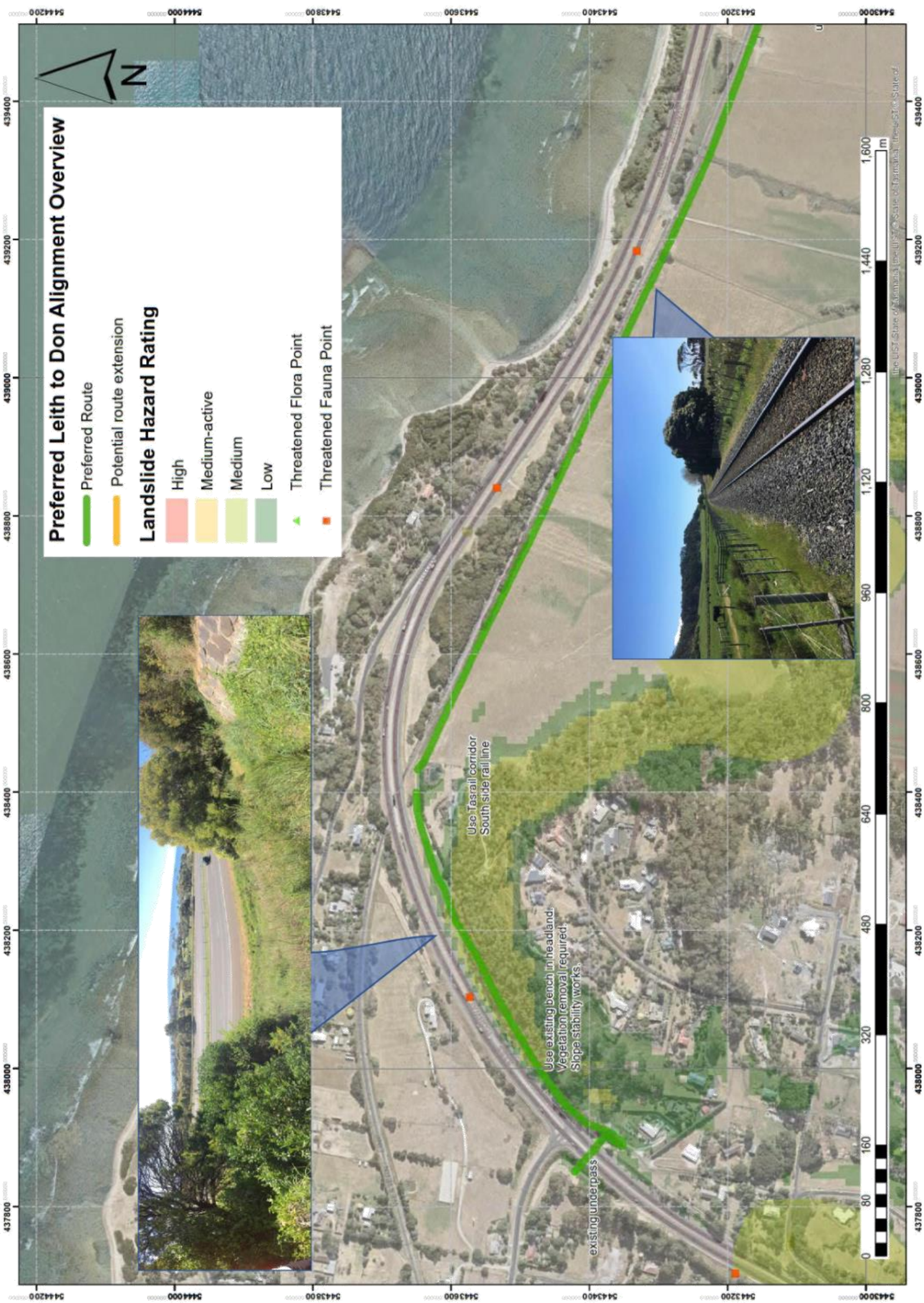
The following steps are now required to complete the project:

- Funding to be committed by local, state and federal governments;
- Confirm the unresolved path options;
- Continue stakeholder engagement: confirm property boundaries, complete risk assessments and negotiations with TasRail, further discussion with State Growth, approach key landowners, discussions with affected utilities (Tas Networks, TasWater), further discussion with cycling groups as appropriate.
- Site aboriginal/environmental assessments (if required);
- Prepare a Development Application to the relevant Councils and accompanying Crown Land/DPIPWE submission, noting the recommendation to provide this Development Plan to the Planning Department of Councils beforehand so they are aware of the project and can identify any potential issues with the project;
- Upon approval of the Development Application, make any changes to the concept design as required by the planning permit;
- Undertake the required geotechnical and hydraulic assessments;
- Complete the detailed design of the project and provide an updated cost estimate for the works for approval by Council;
- Procure the construction of the detailed design. This may be done in one package or multiple packages with some works done by Council in-house;
- Supervision and administration of the construction contract including defects liability period.

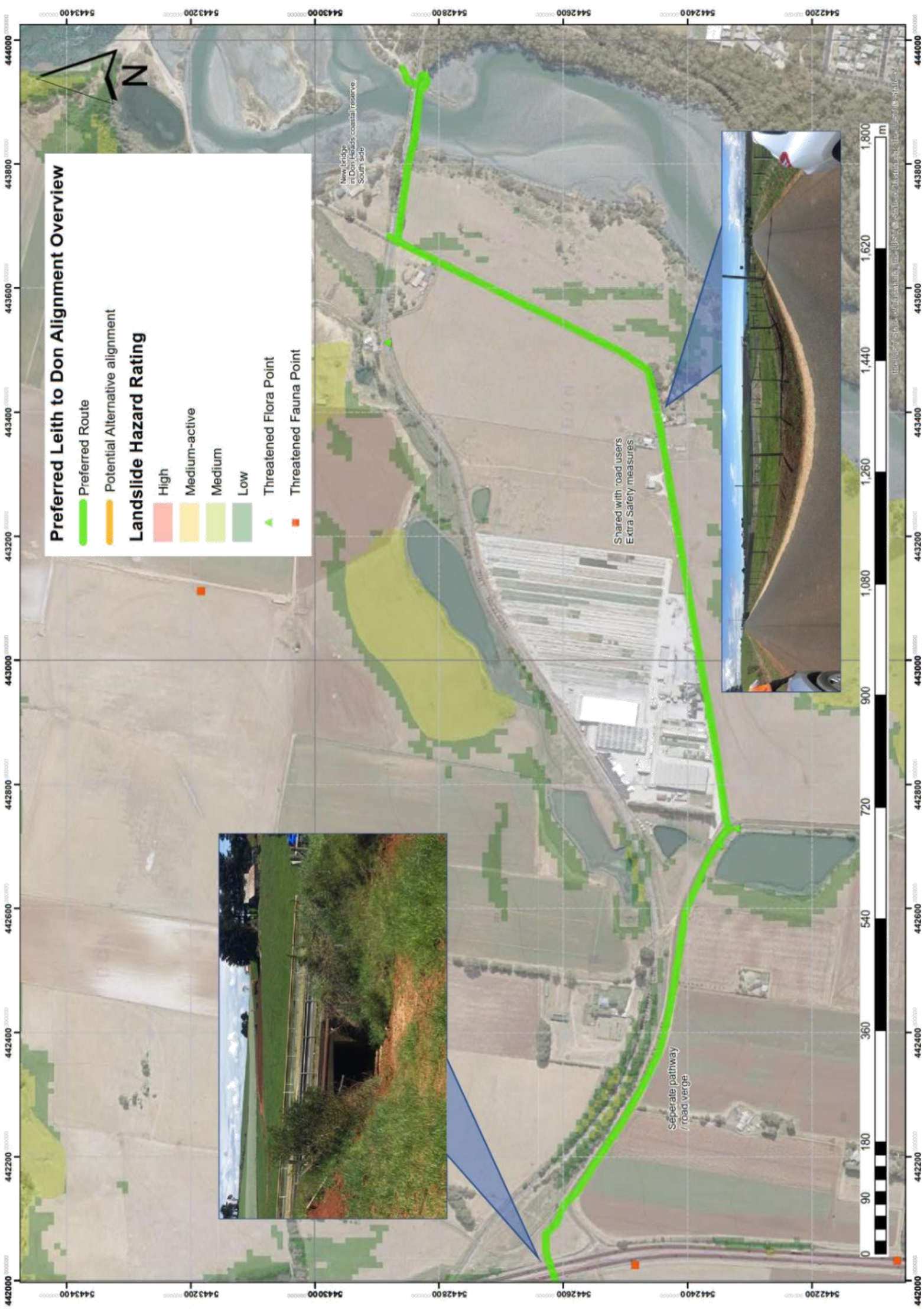
Appendix A

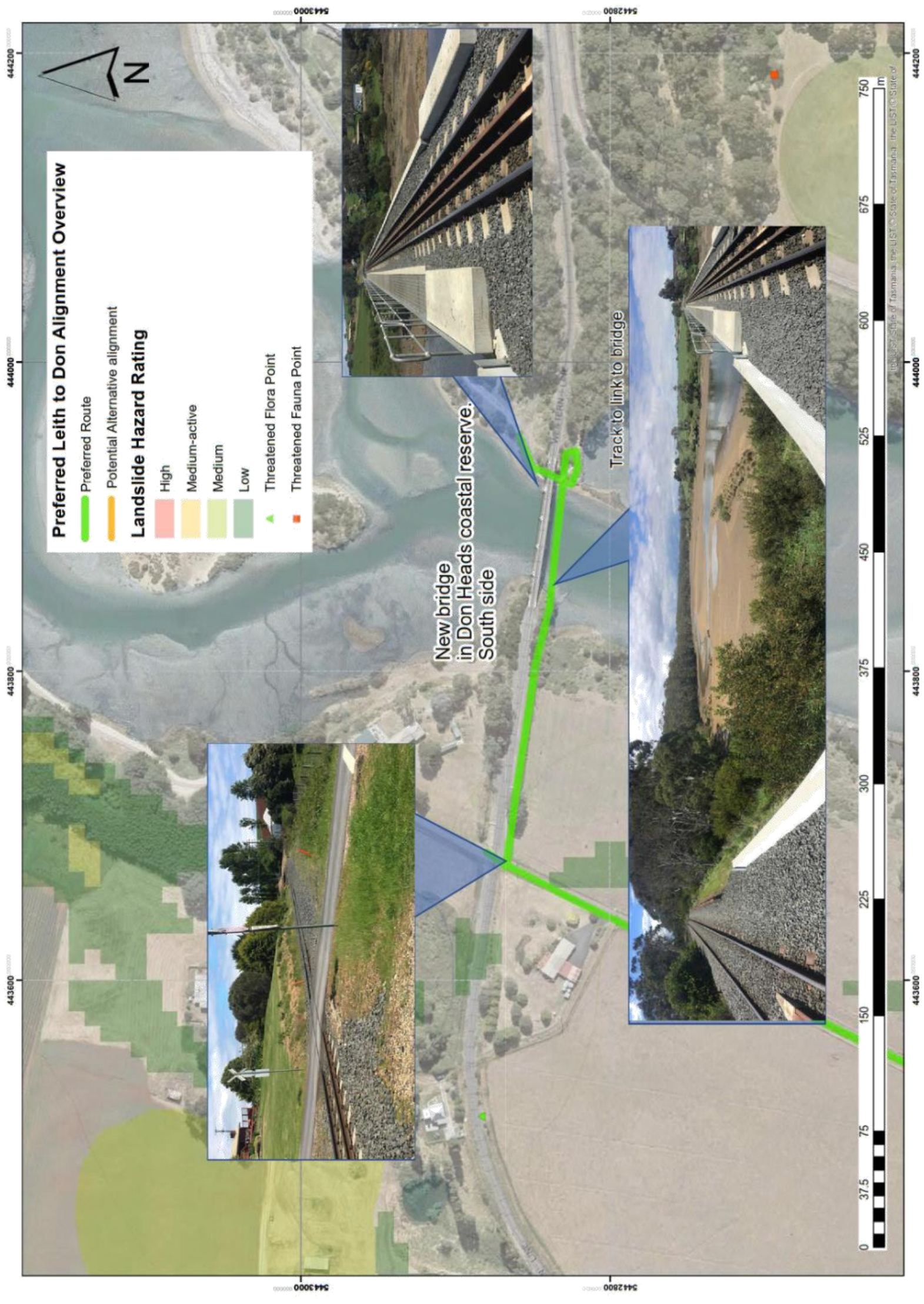
Preferred Alignment Maps


Leith to Don
Preferred Alignment Overview
Preferred Route
Potential route extension
Further detail available
N
5445000
5444000
5443000
5442000
5441000
444000
443000
442000
441000
440000
439000
438000
437000
7,500
6,750
6,000
5,250
4,500
3,750
3,000
2,250
1,500
750
375
0
m
the LIST © State of Tasmania


Preferred Leith to Don Alignment Overview
Preferred Route
Potential route extension
Landslide Hazard Rating
High
Medium-active
Medium
Low
Threatened Flora Point
Threatened Fauna Point
N
Use Tasrail corridor
South side rail line
Use existing bench in headland.
Vegetation removal required.
Slope stability works.
existing underpass
0
80
160
320
480
640
800
960
1,120
1,280
1,440
1,600
m


Preferred Leith to Don Alignment Overview
Preferred Route
Potential Alternative alignment
Landslide Hazard Rating
High
Medium-active
Medium
Low
Threatened Flora Point
Threatened Fauna Point
N
Optional linkage to Lillico penguin viewing area
Use existing underpass to link to penguins
Steep Gradient. Switchbacks required
Viewing platform and shelter
New rail underpass west of existing bridge
Path on top of embankment required. landowner consent required
existing underpass. DSG owned landowner consent preferred
Path in S road reserve. Adequate width avail. minimal private property use.
Separate path east side of Lillico Road
Rail crossing at existing (Lillico Road) crossing point. TasRail consultation
0
90
180
360
540
720
900
1,080
1,260
1,440
1,620
1,800
m
the LIST State of Tasmania, the LIST © State of Tasmania, the LIST © State of


Preferred Leith to Don Alignment Overview
Preferred Route
Potential Alternative alignment
Landslide Hazard Rating
High
Medium-active
Medium
Low
Threatened Flora Point
Threatened Fauna Point
N
New bridge in Don Heads coastal reserve, South side
Shared with road users Extra Safety measures
Seperate pathway / road verge
m


Preferred Leith to Don Alignment Overview
Preferred Route
Potential Alternative alignment
Landslide Hazard Rating
High
Medium-active
Medium
Low
Threatened Flora Point
Threatened Fauna Point
N
New bridge
in Don Heads coastal reserve.
South side
Track to link to bridge
544800
544300
444200
444000
443800
443600
0
37.5
75
150
225
300
375
450
525
600
675
750
m

Appendix B

TasRail Fencing Guidelines

INF-TS-501 Fencing Standards
Accountable Manager: Group Property and Compliance

TASRAIL STANDARD - FENCING

INTERIM FENCING STANDARD v1.0
Boundary Fences

Tasmanian Railway Pty Ltd
ACN 139 383 761
ABN 83 139 383 761

INF-TS-501 Fencing Standards
Accountable Manager: Group Property and Compliance

CONTENTS:

INF-TS-501 Fencing Standards
Accountable Manager: Group Property and Compliance

1 Purpose

This document specifies the requirements for the design and installation of boundary fences on or bordering TasRail Managed Property.

Boundary fences are to:

- provide a measure of security and safety by restricting unauthorised access to the rail corridor and rail infrastructure amenities and services;
- discourage stock from entering the rail corridor;
- mark the boundary to define the rail corridor and adjoining properties; and
- discourage and limit illegal access to TasRail's managed network.

Boundary fences shall be established, when required and at the discretion of TasRail, to separate land adjoining TasRail's managed network with the exception of locations where natural boundaries exist.

New fences shall be designed and constructed in accordance with this Standard.
Existing fences that do not comply with the design requirements are to be upgraded when the fence is due for renewal, or when enhancement is required as determined by a risk assessment by TasRail.

2 References

2.1 Australian Standards

AS 1725 - 2003 Chain-link fabric security fences and gates
AS 2423 - 2002 Coated steel wire fencing products for terrestrial, aquatic and general use

2.2 Other References

Section 6 of the *Boundary Fences Act 1908* (Rail Land is Crown and therefore TasRail is not liable to contribute towards the cost of boundary fences).

3 Definitions

Rail Corridor – the entire parcel of land with which contains a portion of track;
TasRail Managed Network – as described under the *Rail Infrastructure Act 2007*.

4 Standard Designs – (Fencing Types)

4.1 General

Adjoining land owners and other land users shall restrict access to the rail corridor and rail services by the provision of appropriate fencing.

There are three (3) types of fences:

- Rural Fencing
- Residential/Urban Fencing
- Cycleway/Walking Track Fencing (Pedestrian Separation Fencing)

There will be locations that require a site specific design and construction method. The design and construction methods used in the location shall be equivalent to or will exceed the prescribed performance levels detailed in this standard.

TasRail reserves the right to accept or reject any fencing proposals.

4.2 Rural Fencing

This standard is applicable to private lands or properties adjoining the rail corridor anywhere in Tasmania and shall apply only to rural areas and will not apply in suburban, built-up or within city precincts.

TasRail is **NOT** responsible for any cost or associated costs with rural corridor fencing, the full cost of fencing or any associated costs are the sole responsibility of the land owner or lease holder.

General Specification:

- The type of fencing required should be of a suitable type and standard that will enable stock to be contained away from and kept off the rail corridor;
- The fencing will generally be of a consistent standard;
- Typically a farm type stock fence;
- Being of a minimum 6 strand single wire with barb-wire on a 7th top strand; or,
- Alternatively use of Ring-Loc wire may be used;
- All wires to be fixed and fully supported with appropriate strainers and bridging droppers to enable adequate tensioning so not to allow any area of the fencing to collapse and render it ineffective. This will include sustainability for inclement weather conditions;

While there will be several variables that need to be considered, (ie: type of stock - cattle, sheep, pigs, deer, etc) when deciding to erect or replace any of the rural fencing. These variables will need to be determined on a case by case basis through agreement with TasRail.

A fundamental requirement is that TasRail expect that any rural fencing is of sufficient design and quality to contain stock under any conditions.

4.3 Residential/Urban Fencing

This standard is applicable to private lands or properties adjoining the rail corridor anywhere in Tasmania and shall apply only to Residential/Urban areas and will not apply in rural areas.

TasRail is **NOT** responsible for any cost or associated costs with residential/urban fencing, the full cost of fencing or any associated costs are the sole responsibility of the land owner or lease holder.

General Specification:

- Standard residential/urban fence is a hardwood timber paling fence, or
- A colorbond steel fence in accordance with manufacturers specifications may also be used,
- Other fence designs may be considered, subject to TasRail assessment and approval
- Residential/Urban fences shall be a minimum of 1800mm high.

While there will be several variables that need to be considered when deciding to erect or replace any of the residential/urban fencing. These variables will need to be determined on a case by case basis through agreement with TasRail.

A fundamental requirement is that TasRail expect that any residential/urban fencing is of sufficient design and quality to restrict access under any conditions.

4.4 Cycleway/Walking Track Fencing (Separation Fencing)

This standard is applicable to Cycleways/Walking Track proposals that adjoin or form part of TasRail's managed Network anywhere in Tasmania and may require further approvals and consultation from an authorised TasRail representative.

TasRail is **NOT** responsible for any cost or associated costs with rail corridor fencing, the full cost of fencing or any associated costs are the sole responsibility of the land owner or lease holder.

General Specification: ***Operational Network***

- 1800mm high chain mesh fence with a minimum offset from the outer most rail of 5.7m, so an adequate safety refuge can be provided for rail persons and rail operations can be undertaken within the corridor. ., The 1800mm high plain chain-link fence is to be in accordance with AS 1725, that offers four (4) standard configurations including;

  - Rail-less
  - Top rail only
  - Bottom rail only
  - Top and bottom rail.

  For fencing without a top rail, bracing panels or bracing stays shall be used on all ends, corners and gateposts.

- Any (Separation Fencing) within the Operational Network that is to be proposed within **5.7m** must be negotiated on a case by case basis and additional approval by TasRail management must be sought. The building of a fence within 5.7m will be considered to impact negatively on rail and maintenance operations and potentially expose TasRail to increased risk and liability.

General Specification: ***Non - Operational Network***

- 1200mm high chain mesh fence;
- To be installed no closer than **5.7m** from the outer most rail;
- If the line becomes operational a 600mm ridged bar extension and chainmesh infill shall be installed giving a total height of 1800mm (as per operational Specifications and at installers/lessees cost).
- Any (High Volume Pedestrian Fencing) within the Non-Operational Network that is to be proposed within **5.7m** must be negotiated on a case by case basis and additional approval by TasRail management must be sought.

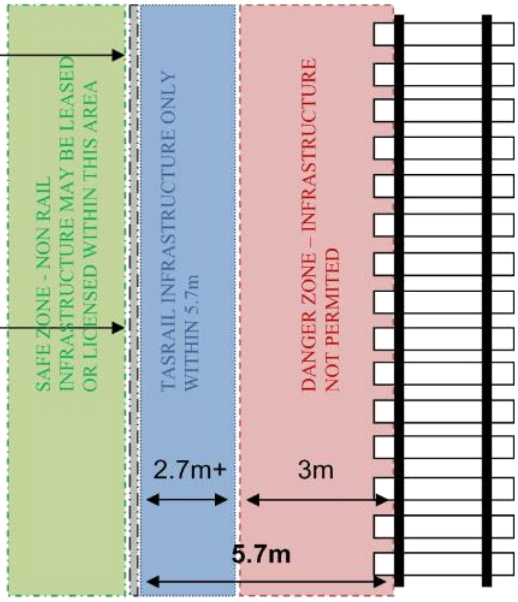
See diagram 4.5 for required fencing details between an operational and non operational line and Cycleway or (High Volume Pedestrian Separation Fence).

*Please note this fencing standard does not automatically mean your cycleway/walking track proposal will be approved by TasRail. Separate approval/authorisation must be sought via Licence Application.

4.5 Fencing Distances Diagram

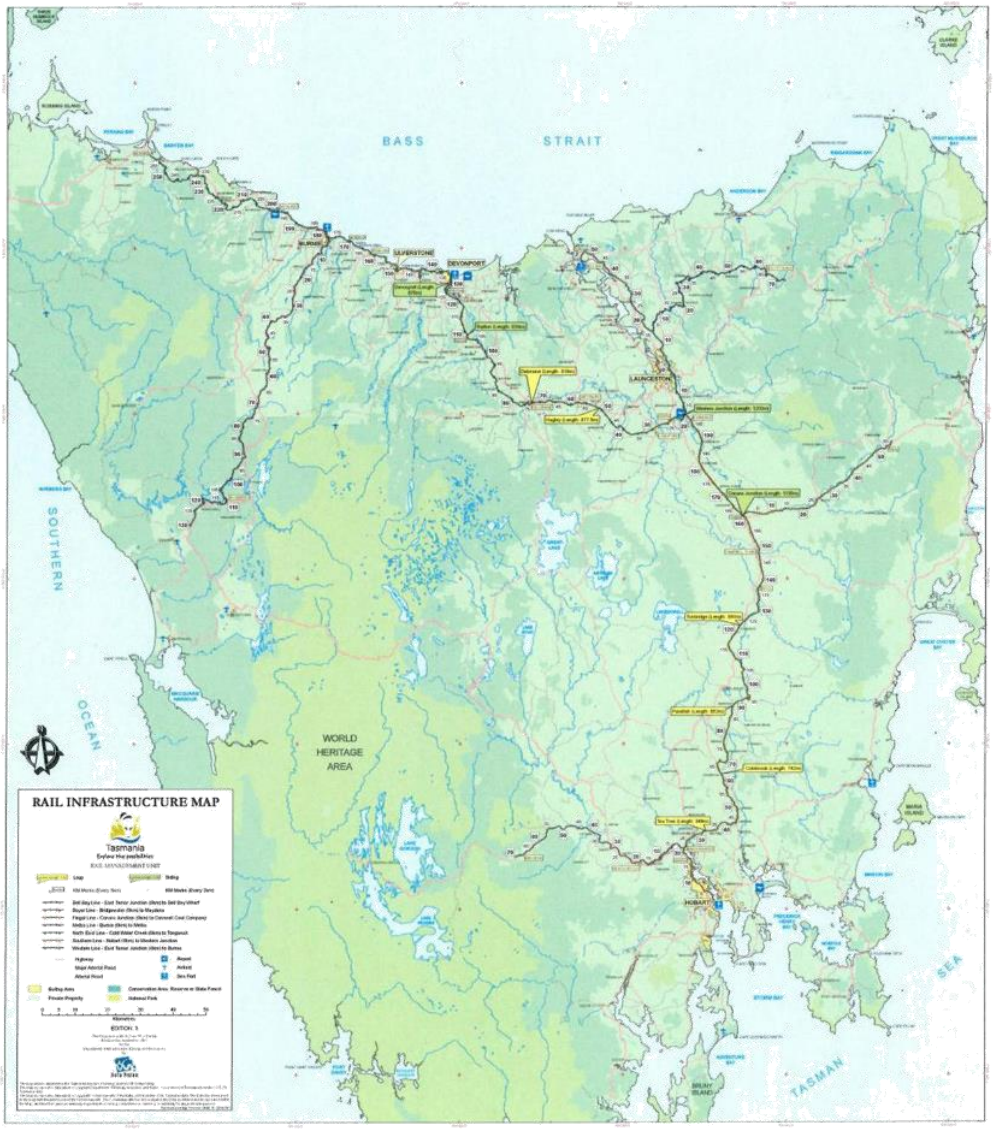
Non-Operational
A 1200mm high chain mesh fence, if line becomes operational a 600mm ridged bar extension with chainmesh infill, giving a total height of 1800mm must be added.

Operational
1800mm high plain chain-link fence in accordance with AS 1725.



INF-TS-501 Fencing Standards
Accountable Manager: Group Property and Compliance

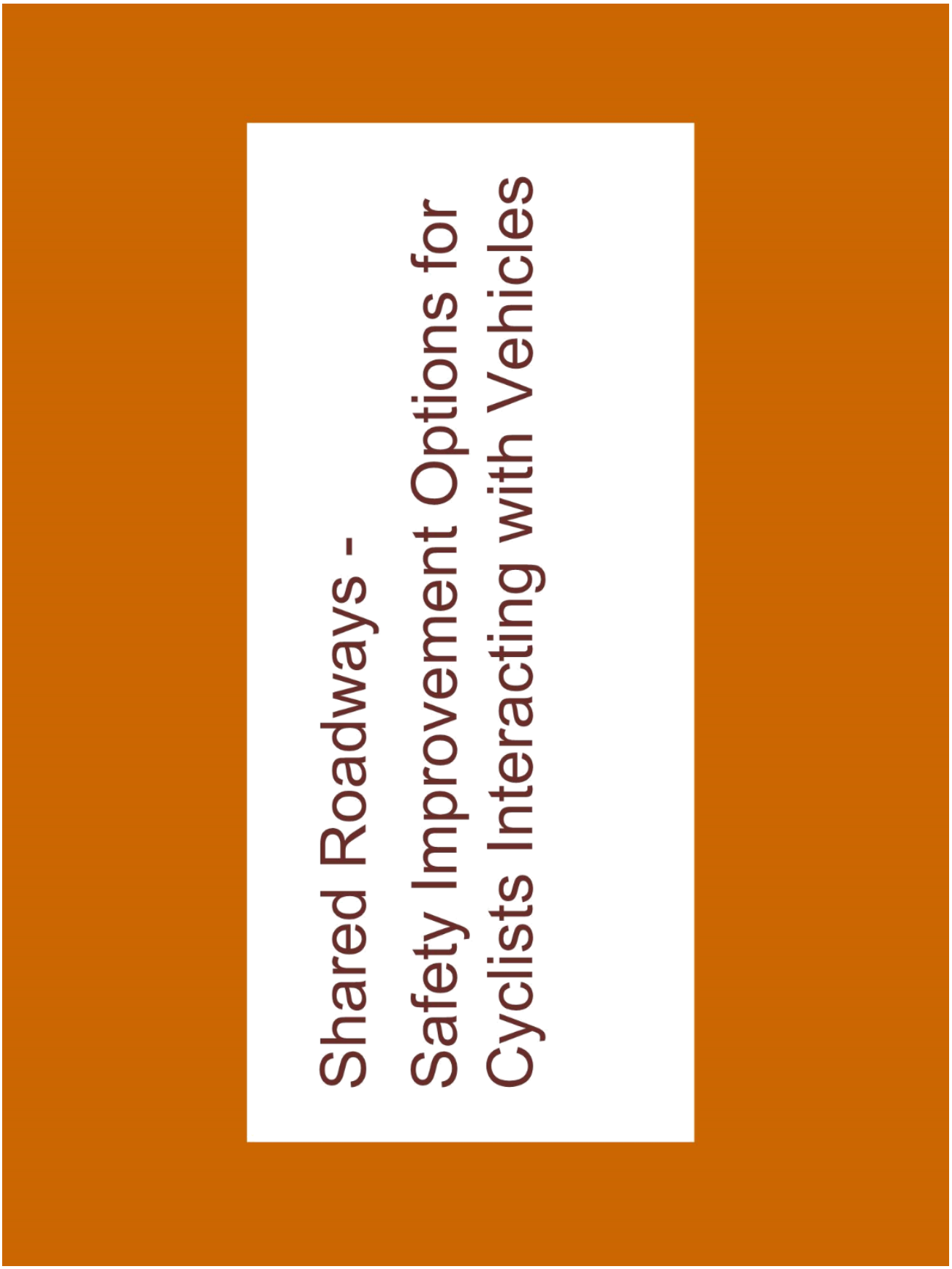
5. TasRail Managed Network – Map



Appendix C

Shared Pathway Safety Improvement Measures

pitt&sherry ref: DV17103d001 Don to Leith Rep 31P Rev00.docx/BJH/tn


Shared Roadways -
Safety Improvement Options for
Cyclists Interacting with Vehicles

Option 1 – Cyclists on Road signs

Pros

-Very low cost ($500 per sign – supply and install)

-Easy to install

-Easy to maintain

-Make drivers aware of the presence of cyclists on road

Cons

-No separation between cyclists and vehicles

-If cyclist numbers are low drivers may ignore signs

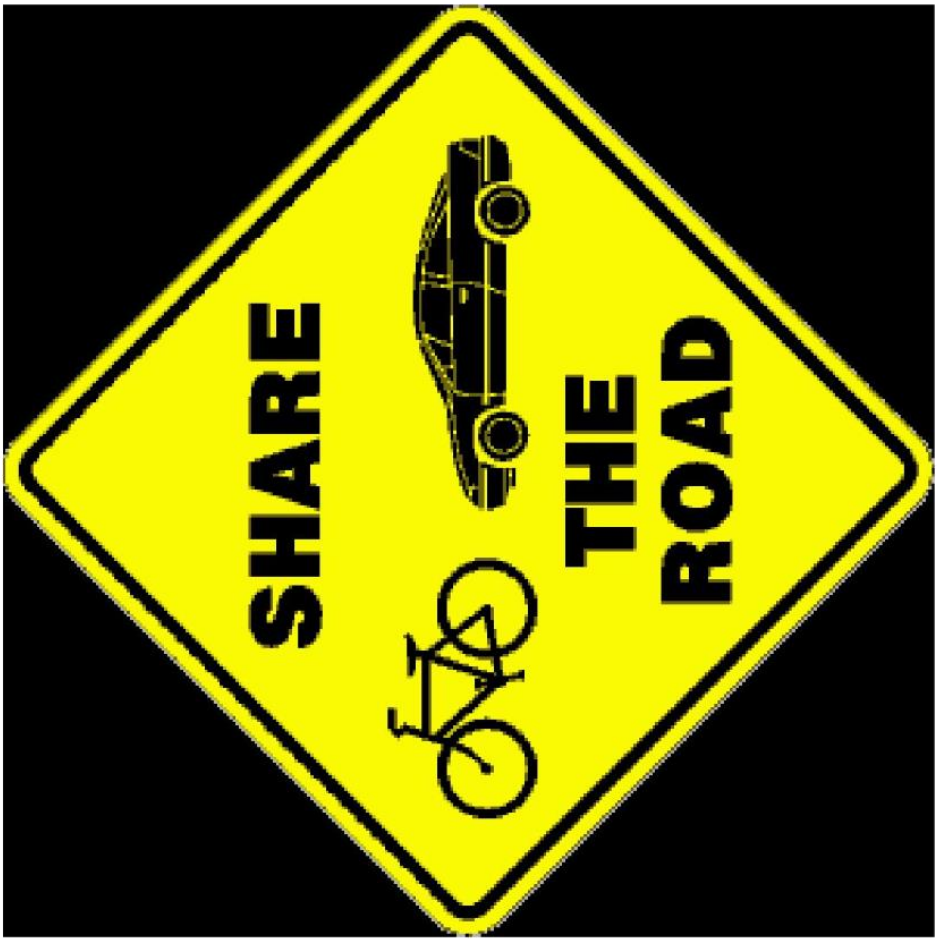
Option 1 – Installation of signs

Option 1 – Installation of signs

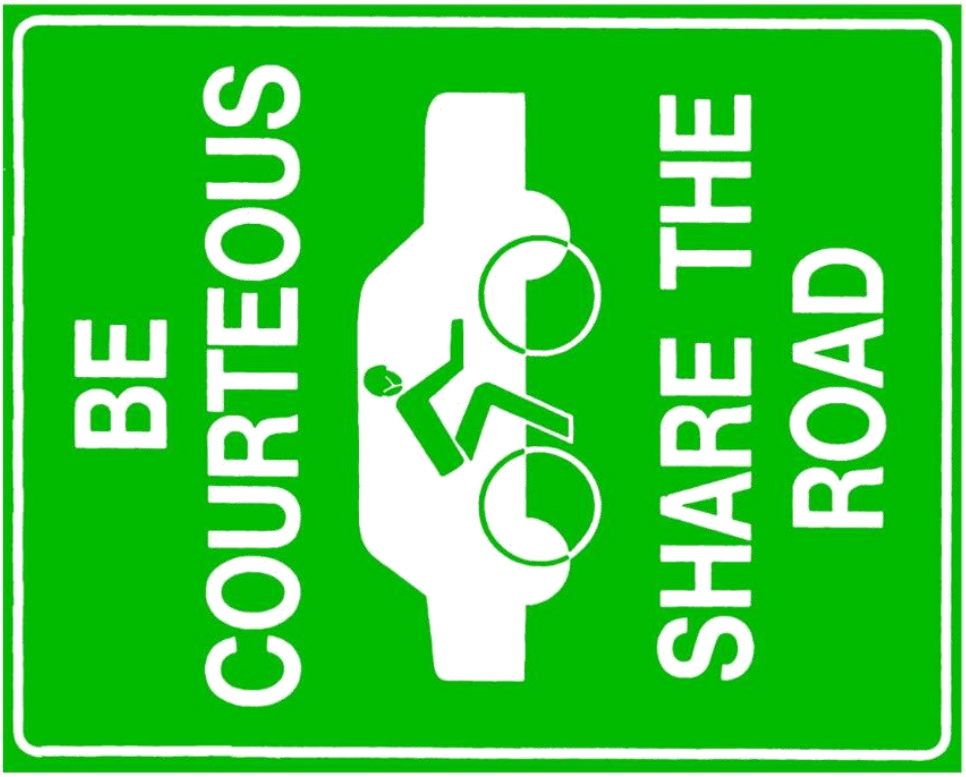
Option 1 – Installation of signs

Option 1 – Installation of signs

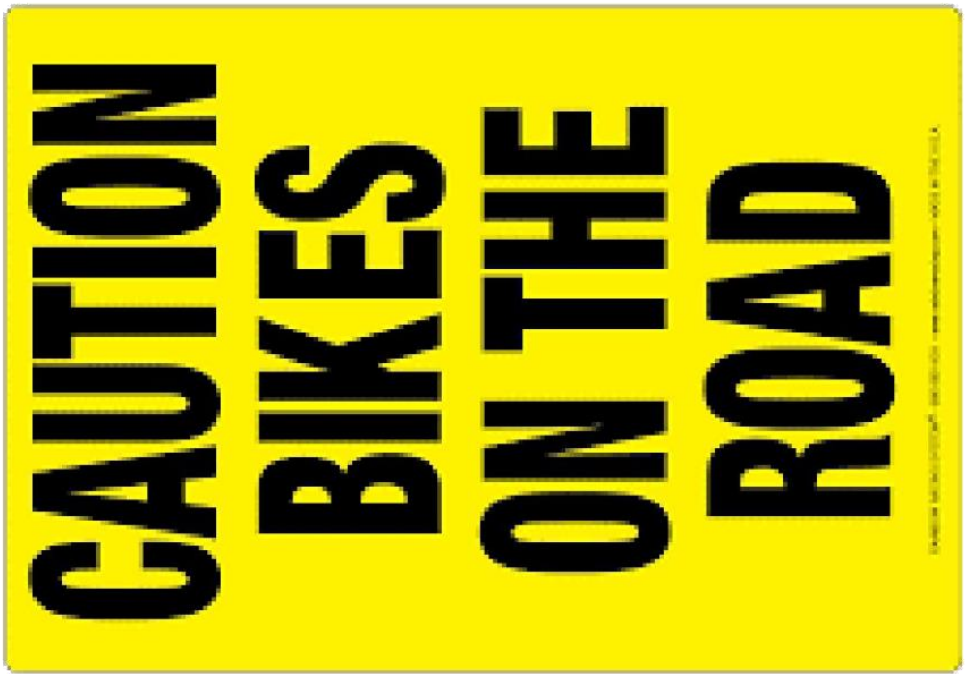
Option 1 – Installation of signs



Option 1 – Installation of signs



Option 1 – Installation of signs



Option 2 – Speed limit reduction

Pros

-Very low cost ($500 per sign)

-Easy to implement

-Likelihood and Consequences of a crash is reduced

Cons

-No separation between cyclists and vehicles

-Hard to patrol & drivers may choose to ignore

-DSG approval required

-Negative driver feedback (already a letter to the editor)

Option 2 – Speed limit reduction

Option 3 – Speed humps

Pros

-Low cost

-Easy to implement

-Helps to ensure lower speeds are maintained

Cons

-No separation between cyclists and vehicles

-Negative feedback from vehicle users likely

-DSG approval required

Option 3 – Speed humps

Option 4 – Combination of Cyclists Signs, Reduced Speed Limits and Speed Humps

Pros

-Very low cost

-Easy to install

-Consequences of a crash is reduced

-Make drivers aware of the presence of cyclists on road

Cons

-No separation between cyclists and vehicles

-Hard to patrol & drivers may choose to ignore

-Negative feedback for vehicle users

Option 5 – Passing Bays

Pros

-Relatively low cost ($15,000 - $40,000 per bay)

-Space away from thoroughfare for cyclists to giveway

-Safer option

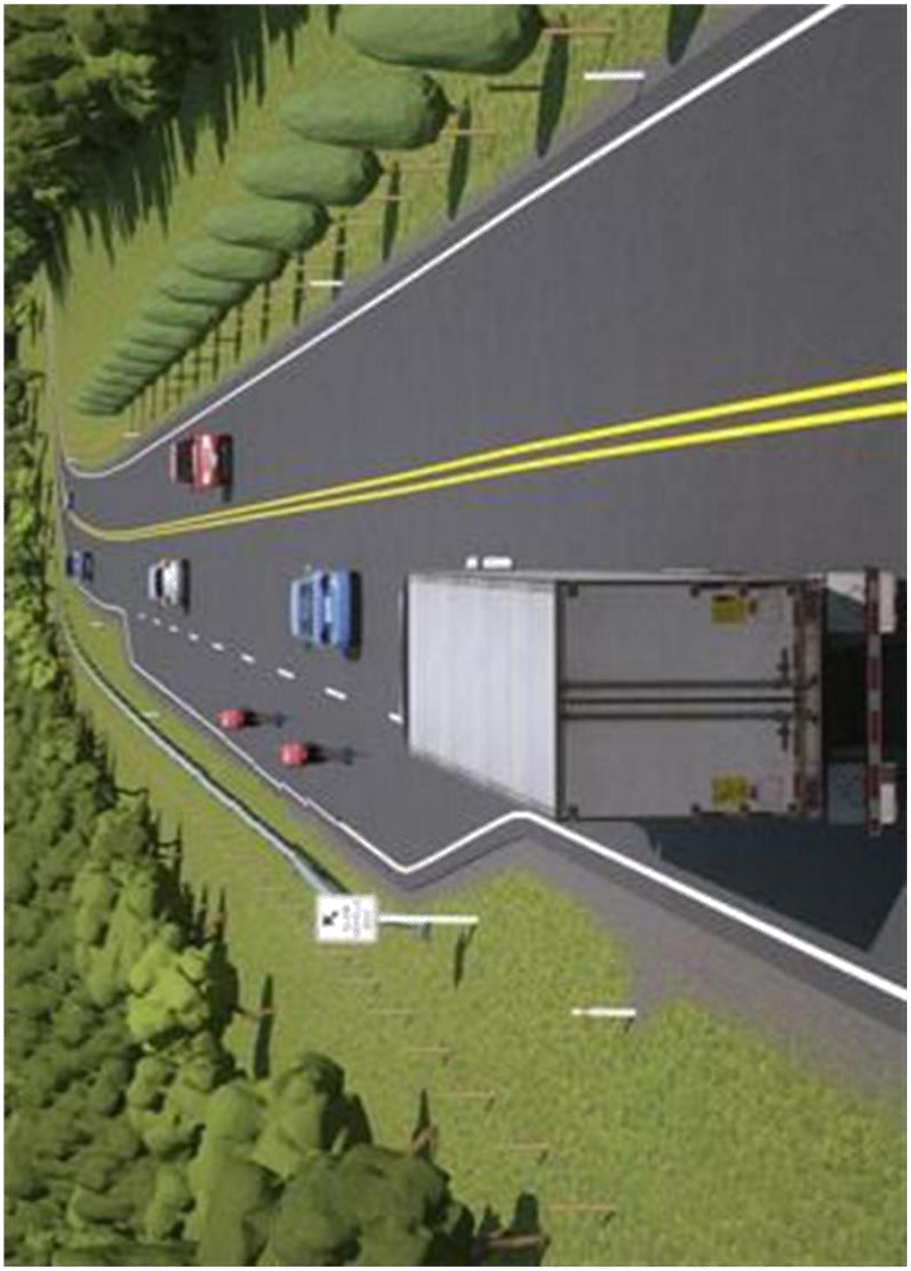
Cons

-Westbound lane has restricted width due to hill

-Cyclists might choose not to use the bay

-No separation between cyclists and vehicles on other sections

Option 5 – Passing Bays



Option 5 – Passing Bays

Option 5 – Passing Bays

Sign legend could be “ Cyclists allow overtaking”

Option 6 – Dutch bike lanes

Pros

-Relatively low cost ($25,000 per km)

-Separate lane for cyclists

-Naturally reduced speed

Cons

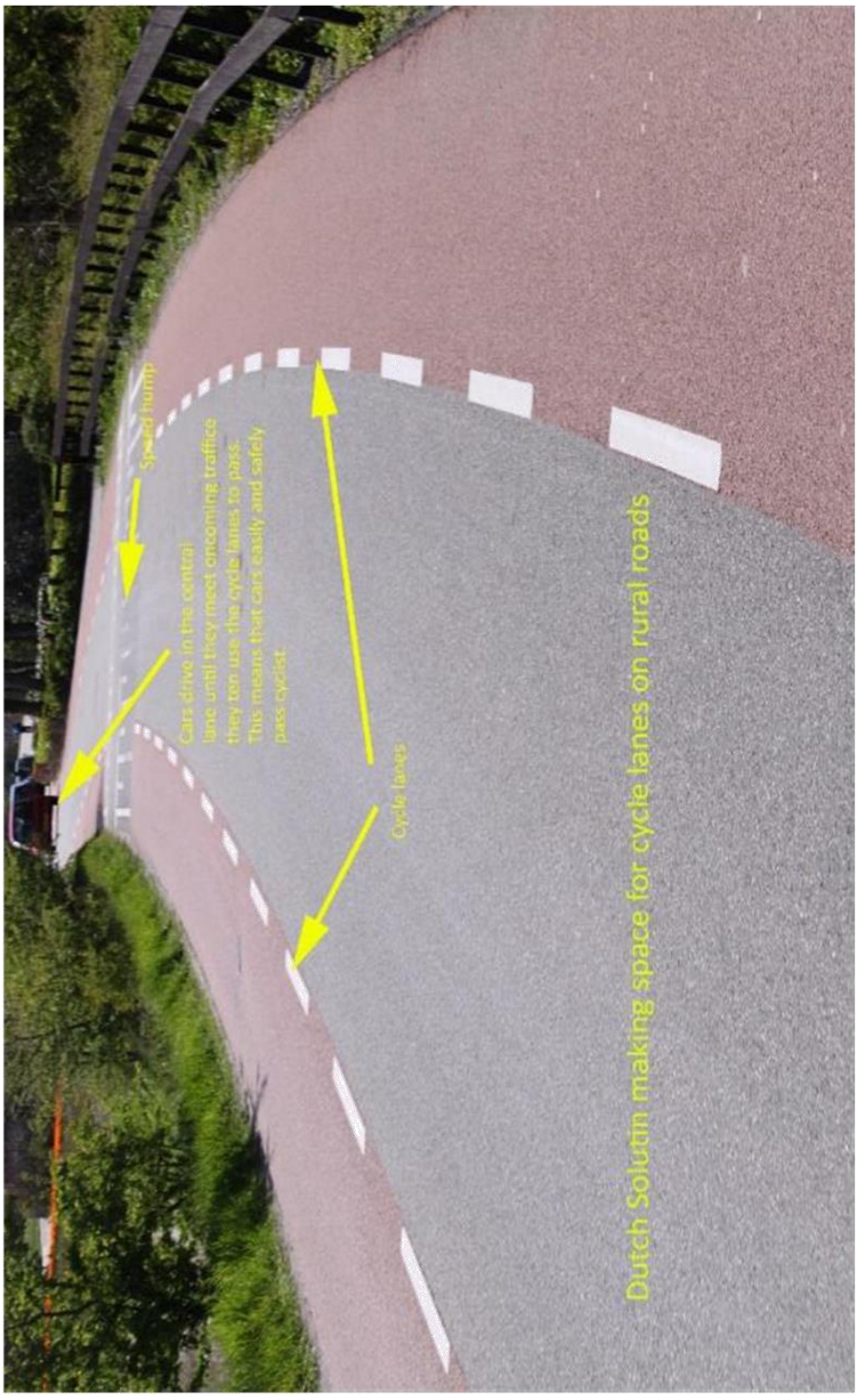
-Possible public rejection

-Confusion when introduced. System not used in Tasmania

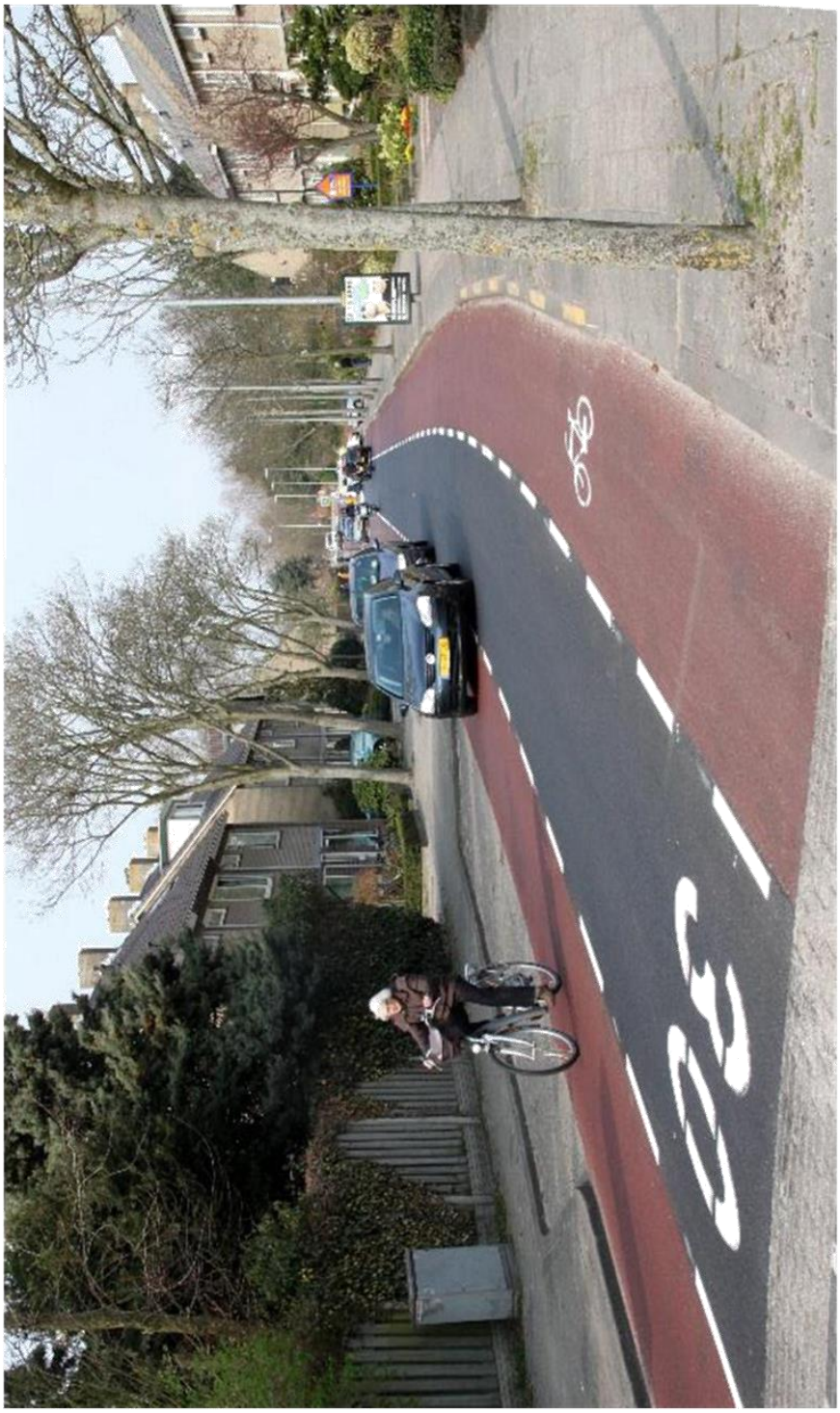
-Sight distances at corners

-Vehicle use expected to be much higher than cycle use

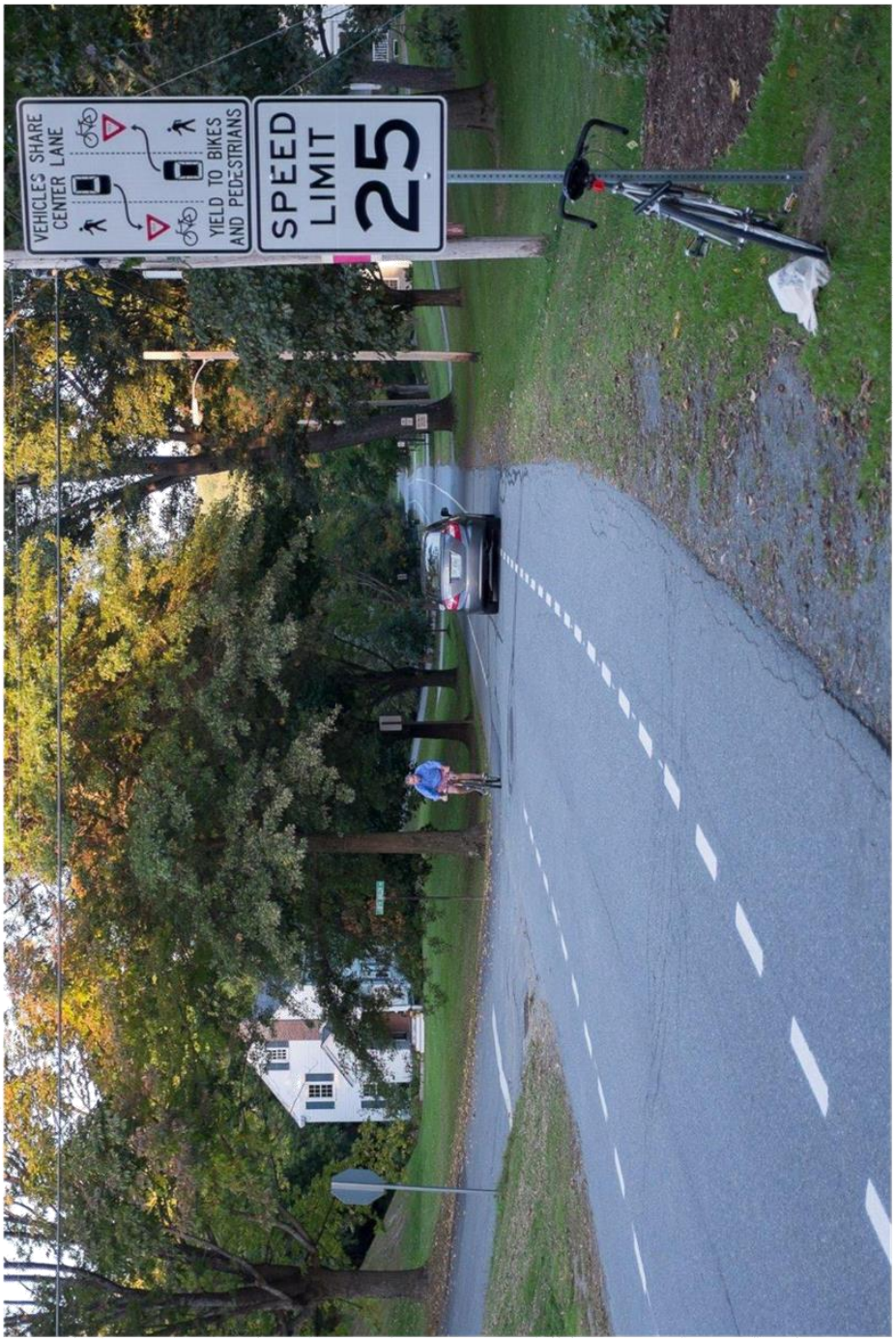
Option 6 – Dutch bike lanes



Option 6 – Dutch bike lanes



Option 6 – Dutch bike lanes



Option 7 – Bicycle activated warning signs

Pros

-Make drivers aware of the presence of cyclists on road

-Draw driver attention more

-Activated by cyclists (manually or by sensors)

-Unlike regular signs provide live (current) information to drivers

Option 7 – Bicycle activated warning signs

Cons

-High cost (around $40,000 per site, more investigation needed)

- Multiple signs needed along route for significant safety improvement

-Possible electrical or mechanical failure

-As a result of above, possible lack of activation

-Motorists could become dependant

-Risk of vandalism

-Regular maintenance

Option 7 – Bicycle activated warning signs

Munna Point Bridge, Noosa Heads, QLD

Option 7 – Bicycle activated warning signs

State Hwy 1, Spring Creek, Marlborough, NZ

Appendix D

Budget Cost Estimate

North West Coastal Pathway - Don to Leith
Preferred Alignment Budget Cost Estimate

Date 31/05/2018
Estimatec B. Hart

	Description	Unit	Qty	Rate	Amount
Section 1: Leith Underpass to Western Line					
	Improvements at southern end of underpass	item	1	$35,000	$35,000
	Earthworks	item	1	$50,000	$50,000
	Path construction 2.5m wide	m2	1500	$90	$135,000
	Barrier - jersey or similar	m	0	$300	$0
	fencing	m	400	$75	$30,000
	signs	item	1	$10,000	$10,000
	vegetation clearance	item	1	$30,000	$30,000
	drainage of path	item	1	$30,000	$30,000
					$0
				SUB TOTAL	**$320,000**

	Description	Unit	Qty	Rate	Amount
Section 2: Western Line - Lillico Straight					
	Earthworks - and raising path level with fill	item	1	$90,000	$90,000
	Path construction 2.5m wide	m2	4750	$90	$427,500
	Barrier - pedestrian	m	0	$80	$0
	fencing	m	1800	$15	$27,000
	stormwater	item	1	$20,000	$20,000
	Tasrail supervision	item	1	$20,000	$20,000
	level crossing adjustments	item	1	$25,000	$25,000
	signs	item	1	$10,000	$10,000
					$0
				SUB TOTAL	**$619,500**

	Description	Unit	Qty	Rate	Amount
Section 3: Bass Highway, Lillico Straight to Waverley underpass					
	Barrier adjacent to highway	m	175	$180	$31,500
	Earthworks - and raising path level with fill	item	1	$60,000	$60,000
	switchcback construction	item	1	$25,000	$25,000
	Drainage and retaining walls	item	1	$20,000	$20,000
	Path construction 2.5m wide	m2	5500	$90	$495,000
	signs, viewing platform and shelter	item	1	$30,000	$30,000
	New rail underpass including wingwalls	item	1	$90,000	$450,000
					$0
				SUB TOTAL	**$1,111,500**

	Description	Unit	Qty	Rate	Amount
Section 4: Bass Highway, Reuse Existing Waverley underpass					
	lighting	item	1	$15,000	$15,000
	stormwater	item	1	$20,000	$20,000
	approach works	item	1	$20,000	$20,000
	landowner costs	item	1	$25,000	$25,000
				SUB TOTAL	**$80,000**

	Description	Unit	Qty	Rate	Amount
Section 5: Waverley - underpass to Don Heads Rd					
	Path construction 2.5m wide	m2	1700	$90	$153,000
	signs	item	1	$10,000	$10,000
					$0
					$0
				SUB TOTAL	$163,000

	Description	Unit	Qty	Rate	Amount
Section 6: Don Head Road to river including new bridge					
	Path construction 2.5m wide	m2	260	$90	$23,400
	tasrail	item	1	$20,000	$20,000
	earthworks	item	1	$25,000	$25,000
	Fencing	m	110	$25	$2,750
	new low level bridge crossing and approach works	m2	275	$2,500	$687,500
	level crossing at Waverley rd intersection	item	1	$10,000	$10,000
	improvements on east side of Don River	item	1	$35,000	$35,000
	signs, shelter as requested by DCC email 5/1/18	item	1	$20,000	$20,000
					$0
				SUB TOTAL	$823,650

	Description	Unit	Qty	Rate	Amount
Section 7: Optional Extra - spur path into Lillico Penguin Viewing Area					
	signs	item	1	$10,000	$10,000
	facilities upgrade at car park end	item	1	$20,000	$15,000
	Path construction 2.5m wide	m2	620	$90	$55,800
	Upgrade existing underpass to be suitable	item	1	$80,000	$80,000
					$0
					$0
				SUB TOTAL	$160,800

				SECTION TOTALS	$3,278,450
	Planning and approvals inc Aborigianl /enviro (1.5%), design (5.5%), contract admin and mgmt (4.5%) and project mgmt (1.5%) - Total 11.5%	11.50%			$377,022
	Contingency & Risk (10%)	15.00%			$491,768
				GRAND TOTAL EXCLUDING LINK TO PENGUIN VIEWING AREA	$3,943,827
				GRAND TOTAL INCLUDING LINK TO PENGUIN VIEWING AREA	$4,147,239

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CONSULT AUSTRALIA
Member Firm

pitt&sherry

5.5 TRANSPORT ASSET MANAGEMENT PLAN

File: 31707 D538435

RELEVANCE TO COUNCIL'S PLANS & POLICIES
Council's Strategic Plan 2009-2030:

Strategy 2.3.5 Develop and maintain long term Strategic Asset Management Plans and Capital Improvement Program

SUMMARY
To present the Transport Asset Management Plan 2017 (TAMP) to Council for adoption.

BACKGROUND
Asset management planning is a comprehensive process to ensure delivery of services from infrastructure is provided in a financially sustainable manner.

Council's transport infrastructure assets have a combined replacement value of $285M with an annual depreciation cost of over $3.7M. Transport assets represent approximately 41% of total Council assets.

Council originally adopted service & asset management plans in December 2010. The current version of the Transport Service & Asset Management Plan was last revised in November 2011.

Council determined at its meeting on 25 June 2018 (Min No 115/18 refers) to endorse the draft TAMP for a 30 day consultation period. This is now concluded and the TAMP is presented for adoption.

STATUTORY REQUIREMENTS
Section 70B of the *Local Government Act 1993* relates to Council's requirement to have long term strategic asset management plans for major asset classes.

Local Government (Content of Plans and Strategies) Order 2014 specifies the matters that are required to be included in strategies under the *Local Government Act 1993*.

DISCUSSION
The TAMP has been developed utilising a template from the Institute of Public Works Engineering, Australia. The TAMP has been prepared as a 'core' asset management plan over a 10-year period. Core asset management is a 'top-down' approach where analysis is applied at the system or network level. An 'advanced' asset management approach uses a 'bottom up' approach for gathering detailed asset information for individual assets. Council does not currently have systems in place to progress to an 'advanced' asset management approach.

The TAMP details 12 actions required for the management of transport assets (and services provided from these assets), compliance with regulatory requirements, and funding needed to provide the required levels of service over a 10 year planning period.

It is intended that the TAMP will be reviewed annually during the annual budget planning process and amended to show any material changes in service levels and/or resources available to provide those services as a result of budget decisions. A status update report on the progress of the actions from the improvement plan will be reported to Council annually.

COMMUNITY ENGAGEMENT

Invitation to comment on the draft Strategy was provided to the public through Council's on-line engagement portal, Speak Up Devonport, from 26 June to 26 July inclusive. One submission was received. The unedited comment with Council officer response is detailed below.

Comment	Response
Firstly the plan should represent best value for money not lowest lifecycle cost. Call me if you cannot understand the difference and I will explain.	The Asset Management Plan has been prepared in accordance with national asset management standards through the Institute of Public Works Engineering, Australia. Best value for money is achieved through managing assets in a financially sustainable manner.

Invitation to comment on the draft Strategy was also provided through Council's Facebook page and a media release. No further submissions were received.

FINANCIAL IMPLICATIONS

Ideally the TAMP informs the forward works program and in turn the Long Term Financial Plan. Any shortfall in funding from the required expenditure identified in the TAMP, increases the risk of assets not delivering the full service potential defined in the TAMP. The 2018 Long Term Financial Plan includes capital and operational expenditure on transport assets in excess of that identified in the TAMP.

Future revisions of the TAMP will improve the connection between the documents and align future renewal and upgrade requirements with budget allocations.

The actions detailed in the TAMP will need to be funded in future operational budgets from existing resources. Any additional resources required to be funded will be considered on an annual basis as part of Council's budgetary process.

RISK IMPLICATIONS

Section 6 of the TAMP details the identified critical risks associated with the transport assets. Future versions of the TAMP will consider undertaking risk assessments at an asset class level and measuring infrastructure resilience.

Failure to adequately fund the renewal of existing assets may impact on the level of service delivered to the community into the future.

CONCLUSION

Asset management plans are important strategic planning documents which assist Council to manage community services and assets and focus on long term sustainability.

The draft Transport Asset Management Plan was released for a 30 day consultation period. Only one submission was received. No changes were made to the Plan as a result of the consultation.

ATTACHMENTS

⇩1. Asset Management Plan - Transport - 2017-2022

RECOMMENDATION

That it be recommended to Council that in relation to the Transport Asset Management Plan 2017:

a) it be noted that no modifications to the original document have been made as a result of community feedback; and

b) the Plan be adopted.

Author:	Kylie Lunson	Endorsed By:	Matthew Atkins
Position:	Infrastructure & Works Manager	Position:	Deputy General Manager

Devonport City Council

Transport Asset Management Plan 2017-2022

Next Date of Review:	July 2022
Document Controller:	Infrastructure & Works Manager
Document Reviewer:	Technical Support Supervisor
Date Adopted by Council:	

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY

This asset management plan (AM Plan) details information about transport infrastructure assets including actions required to provide an agreed level of service in the most cost-effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide the services over a 10-year planning period.

The transport network comprises the following assets (as at 31 October 2017):

- Bridges: 15
- Footpaths: 263km
- Formations: 85km
- Kerb & Channel: 323km
- Parking Equipment: 320 items
- Pavements: 799,109m³
- Wearing Surfaces: 265km
- Other Transport Infrastructure Assets: (retaining walls, signage, traffic control, light poles)

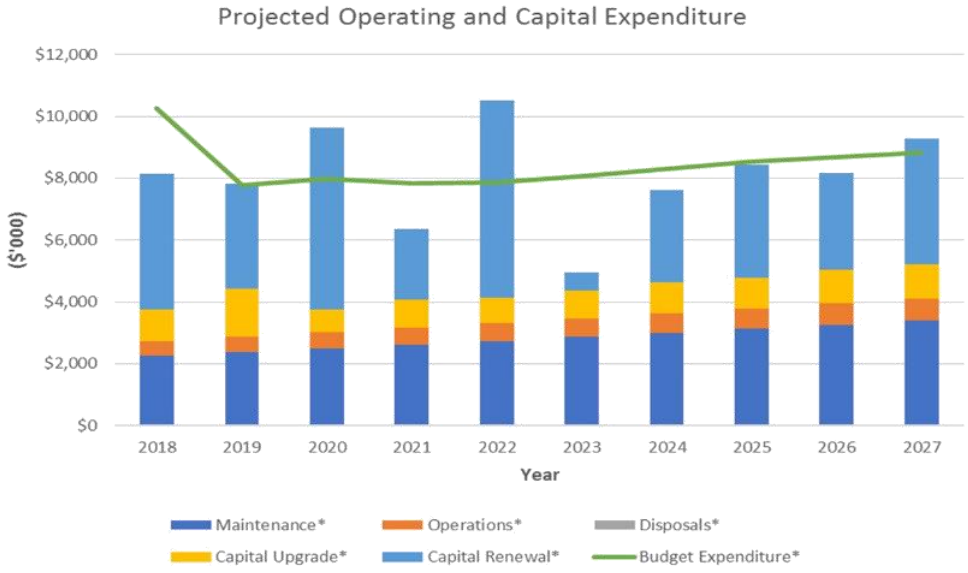
These transport infrastructure assets have a combined replacement value of $285,231,426.

Our present funding levels for transport assets are sufficient to continue to provide existing transport services at current levels in the medium term.

The projected outlays necessary to provide the services covered by this AM Plan includes operations, maintenance, renewal and upgrade of existing assets over the 10-year planning period is $80,918,000 or $8,092,000 on average per year.

Estimated available funding for this period is $84,103,000 or $8,410,000 on average per year as per the long term financial plan or budget forecast. This is $104% of the cost to sustain the current level of service at the lowest lifecycle cost.

The allocated funding for assets leaves a surplus of $318,000 on average per year of the projected expenditure required to provide transport services in the AM Plan compared with planned expenditure currently included in the Long Term Financial Plan. This is shown in the figure below (the values in the figure are in current, real dollars).



We plan to provide transport services for the following:

- Operation, maintenance, renewal and upgrade of bridges, footpaths, formations, kerb & channel, parking equipment, pavements, wearing surface and other infrastructure associated with transport services to meet service levels set in the annual budget.
- Major capital works in the 5 year planning period greater than $300,000 include annual reseal program, Don Road/Nixon Street Traffic signals, Formby Road – Best Street/Stewart Street renewal, Holyman Street renewal, CBD streetscape improvements, William Street – Valley Road/Middle Road pavement reconstruction, North Fenton Street – Madden Street/Parker Street reconstruction, Torquay Road – west of John Street reconstruction.

We currently allocate enough funding to sustain these services at the desired standard or to provide all new services being sought.

The systems Council uses to manage assets include:

- Technology One Finance System
- Technology One Enterprise Suite - Asset

Assets requiring renewal/replacement are identified using the Asset Register data to project the renewal costs using acquisition year and useful life to determine the renewal year.

The next step resulting from this AM Plan to improve asset management practices is to implement an asset management system.

2. INTRODUCTION

2.1 Background

Asset management planning is a comprehensive process to ensure delivery of services from infrastructure is provided in a financially sustainable manner.

This AM Plan communicates the actions required for the management of transport assets (and services provided from these assets), compliance with regulatory requirements, and funding needed to provide the required levels of service over a 10-year planning period.

The AM Plan is to be read in conjunction with the Devonport City Council's key planning documents:

- Asset Management Policy
- Asset Management Strategy
- Road Network Strategy 2016
- Pedestrian Strategy 2016-2021
- Bike Riding Strategy 2015-2020
- Public Lighting Strategy
- Parking Strategy 2016
- Roads and Stormwater Service Level Document

The infrastructure assets covered by this AM plan are shown in Table 2.1. (as at 31 October 2017)

Table 2.1: Assets covered by this Plan

Asset Category	Dimension	Replacement Value
Bridges	15	$3,804,000
Footpaths	263km	$66,525,000
Formations	85km	$21,518,000
Kerb & Channel	323km	$43,788,000
Parking Equipment	320 items	$1,317,000
Pavements	799,109m3	$114,155,000
Wearing Surfaces	265km	$19,811,000
Other Infrastructure (retaining walls, signage, traffic control, light poles)	Various	$14,313,000
TOTAL		**$285,231,000**

2.2 Goals and Objectives of Asset Ownership

Council's goal in managing transport assets is to meet the defined level of service (as amended from time to time) in a financially sustainable manner. The key elements of infrastructure asset management are:

- Defining a level of service
- Monitoring performance
- Managing the impact of growth of the asset base and increased demand for services
- Managing whole of life costs
- Identifying, assessing and appropriately controlling risks
- Linking to Council's Long Term Financial Plan

Other references to the benefits, fundamentals principles and objectives of asset management are:

- International Infrastructure Management Manual 2015 1
- ISO 55000 Asset Management – Overview, principles and terminology

2.3 Core and Advanced Asset Management

This AM Plan is prepared as a 'core' asset management plan over a 10-year planning period. Core asset management is a 'top down' approach where analysis is applied at the system or network level. An 'advanced' asset management approach uses a 'bottom up' approach for gathering detailed asset information for individual assets.

[1] Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2| 13

3. LEVELS OF SERVICE

3.1 Community Research and Expectations

The Local Government Association of Tasmania (LGAT) conduct Community Satisfaction Surveys on a semi-regular basis. The last survey was conducted in 2013. The results compare community satisfaction from each Local Government areas for several services.

To complement the LGAT survey and gain a more detailed understanding of the expectations of the Devonport Community, Council have conducted their own Community Satisfaction Surveys. The last survey was conducted in 2014. At that time maintaining local roads rated high for important to local residence (4.65 out of 5) and above average for satisfaction rating (3.16 out of 5).

Prior to the annual budget deliberations, Council seeks input from the community. This gives the community an opportunity to provide feedback regarding where they would like Council to allocate budget funding. This feedback is for both new and renewal projects as well as maintenance funding.

Collection of community expectation and satisfaction levels on a regular basis will improve Council's understanding of the community requirements and expectations of Council's transport assets. Reviewing the questions asked for the budget consultation will give Council an annual indication if the Community's expectation regarding service delivery is being met.

Improvement:

- Review the questions for the budget consultation to gain an annual understanding of the community's expectation of service delivery relating to transport assets.

3.2 Strategic and Corporate Goals

This AM Plan is prepared under the direction of Devonport City Council's vision, mission, goals and objectives.

Our vision is:

"*Devonport will be a thriving and welcoming regional City, living lightly by river and sea.*"

Our mission is:

"*A commitment to excellence in leadership and service.*"

Relevant goals and objectives and how these are addressed in this asset management plan are:

Table 3.2: Goals and how these are addressed in this Plan

Goal No.	Goal	Strategy No.	Strategy	AM Plan Context
1	Living lightly on our environment	1.1.1	Lead and actively promote the adoption of practices that support the sustainable use of energy and other natural resources by Council, businesses and the community.	Natural resource input will be a consideration in selection of asset management decisions related to transport assets.
2	Building a unique city	2.3.1	Provide and maintain roads, bridges, footpaths, bike paths and car parks to appropriate standards.	Transport assets will be provided and maintained to balance community expectations, technical requirements and long term financial sustainability.

5	Practicing excellence in governance	5.5.2	Ensure comprehensive financial planning to meet sustainability requirements.	This asset management plan will be used to inform Council's long term financial plan.

3.3 Legislative Requirements

There are many legislative requirements relating to the management of transport assets. These include:

Table 3.3: Legislative Requirements

Legislation	Requirement
Local Government Act, 1993, Section 70B	Long-term strategic asset management plans (1) A council is to prepare a long-term strategic asset management plan for the municipal area. (2) A long-term strategic asset management plan is to relate to all assets that are within a class of assets specified in an order under section 70F(3) to be major assets. (3) A long-term strategic asset management plan is to be in respect of at least a 10 year period. (4) A long-term strategic asset management plan for a municipal area is to – (a) be consistent with the strategic plan for the municipal area; and (b) refer to the long-term financial management plan for the municipal area; and (c) contain at least the matters that are specified in an order made under section 70F as required to be included in a long-term strategic asset management plan.
Local Government Act, 1993, Section 70F	Orders determining minimum contents of plans, &c., and classes of assets (1) The Minister, by order, may specify the matters that are required to be included in – (a) a long-term financial management plan; or (b) a long-term strategic asset management plan; or (c) a financial management strategy; or (d) an asset management strategy; or (e) an asset management policy. (2) A matter may be included in a plan, policy or strategy referred to in subsection (1), even though the matter is not specified in an order under subsection (1) as required to be included in such a plan, policy or strategy. (3) The Minister, by order, may specify the classes of assets that are to be taken to be major assets for the purposes of section 70B. (4) The Minister is to consult with councils as to the matters to be included in an order under this section.
Local Government Highways Act 1982, Section 21	General responsibility of corporations (1) Subject to this Act, the corporation of a municipality is charged with the duty of maintaining the local highways in the municipality that are maintainable by the corporation as shown on its municipal map, and, in any particular case, it shall discharge that duty in such manner as, having regard to all the circumstances of the case, it considers practicable and appropriate.

Legislation	Requirement
Roads and Jetties Act 1935, Section 11	Where in a city, town or village there is a footpath on one side or both of a State highway or subsidiary road – (a) the Minister is required to maintain and reconstruct – (i) the carriageways and the surface lying between them, in the case of 2 paved carriageways divided by a median strip; (ii) the carriageway and the overtaking lane, in the case of a single paved carriageway incorporating an overtaking lane; (iii) a paved carriageway not exceeding 7·4 metres in width, in the case of a single undivided paved carriageway; (iv) a paved carriageway not exceeding 4·3 metres in width, in the case of a carriageway providing a traffic lane to a traffic interchange; and (v) the culverts and bridges over which the State highway or subsidiary road runs; and (b) the remainder of the State highway or subsidiary road, including drainage and shoulders but not culverts and bridges, shall be maintained and reconstructed by the local authority.
Heavy Vehicle National Law (Tasmania) Act 2013, Section 16	The following are declared to be the road manager for a road in this jurisdiction for the purposes of the Heavy Vehicle National Law (Tasmania): (a) for a State highway or subsidiary road within the meaning of the *Roads and Jetties Act 1935*, the Minister administering that Act; (b) for a road controlled by a local government authority, the local government authority.

3.4 Customer Levels of Service

Customer Levels of Service measure how the customer receives the service and whether value to the customer is provided. Council has defined some customer levels of service in the following documents:

- Road Network Strategy 2016
- Pedestrian Strategy 2016-2021
- Public Lighting Strategy
- Roads and Stormwater Service Level Document

However, the customer levels of service are not fully defined and have not been matched with community expectations in a formal way.

The levels of service measures in these documents include:

Quality How good is the service … *what is the condition or quality of the service? eg road condition*

Function Is it suitable for its intended purpose …. *Is it the right service? eg footpath grades and crossfall*

Capacity/Use Is the service over or under used … *do we need more or less of these assets? eg footpath widths, CBD parking supply*

Formalisation of Customer Levels of Service and assessment of the assets against these levels of service to identify over or under servicing will better align the services provided by transport assets with community expectation and needs and assist in prioritizing provision of new and upgraded assets.

Improvement:

- Formalise Customer Levels of Service across Transport assets
- Implement a program of assessment against Customer Levels of Service

3.5 Technical Levels of Service

Technical Levels of Service are the technical measurements and specifications relating to allocation of resources and physical work to best achieve the desired customer outcomes and demonstrate effective performance.

Council often refers to these as 'Service Levels' or 'Maintenance Service Levels'

Technical levels of service are achieved through work under Council's capital and operational budgets, including:

- Operations – the regular activities to provide services (eg inspections, street sweeping, street lighting energy costs),
- Maintenance – activities that enable an asset to provide service for its planned life and may be proactive (eg unsealed road grading) or reactive (eg patching),
- Renewal – activities that return the service capability of an asset up to that which it had originally (eg road resurfacing and pavement reconstruction), and
- New – the activities to provide a higher level of service (eg widening a road, sealing an unsealed road) or a new service that did not exist previously (eg a new footpath).

Operations and Maintenance are carried out under Council's operational budget. Renewal and new project work is carried out under Council's capital works program.

Council's technical levels of service for operations and maintenance are defined in the Roads and Stormwater Service Level Document and are reviewed annually.

4. FUTURE DEMAND

4.1 Demand Drivers

Demand drivers that may impact future service delivery and use of assets were identified and are documented as:

- Total population
- Car ownership and driver's licence ownership rates
- Crash data (current and future)
- Public transport availability and utilisation
- Change of land use
- Local economic conditions, including unemployment rate and fuel price

4.2 Demand Forecasts

Only some types of transport assets are impacted by changes in demand. These are shown in table 4.2 below.

Table 4.2: Demand Forecasts on Transport Assets

Asset Category	Impacted by changes in demand	Demand Forecast
Bridges	Yes	1% cumulative traffic growth, increased axle loads
Footpaths	Yes	unknown
Formations	No	
Kerb & Channel	No	
Parking Equipment	No	
Pavements	Yes	1% cumulative traffic growth
Wearing Surfaces	Yes	1% cumulative traffic growth
Other Infrastructure (retaining walls, signage, traffic control, light poles)	No	

Council undertakes traffic counts and modelling of major intersections to determine the current performance of the road network and identify locations where demand (traffic volume) is approaching the capacity of the road or intersection.

Developing an improved system of demand data collection and management will enable more accurate forecasting of changes in demand for key transport assets. It is likely that this can be incorporated into an asset management system.

Improvement:

- Implement an asset management system

4.3 Demand Management Plan

Demand for most of Council's transport assets is nowhere near the capacity that the assets provide. Traffic on most roads is generally free flowing and most intersections operate a level of service A or B[2]. However, monitoring of major roads and intersections have identified the following locations that may require a demand management in future:

[2] Guide to Traffic Management Part 3: Traffic Studies and Analysis, Austroads 2013.

Roads:

- Formby Road
- William Street
- Steele Street
- Devonport Road (including Horsehead Creek bridge)
- Tarleton Street (including Bishton Creek culvert)

Intersections:

- Formby Road and Steele Street
- Formby Road and Stewart Street
- Formby Road and Best Street
- Formby Road, Oldaker Street, Rooke Street and Victoria Parade
- William Street and Middle Road
- William Street and Steele Street
- William Street and Best Street
- William Street and Oldaker Street
- Steele Street and Rooke Street
- All interfaces with the State Government road network

A demand management plan will be required once these key assets reach capacity. The plan should identify strategies that will delay or defer the need for new/upgrade projects while minimising the effect on the customer levels of service provided. If the threshold for a new/ upgrade project is met, then work to meet the increased demand is shown in Table 4.3.

Table 4.3: Possible responses to increased demand

Asset Category	Demand Forecast	Possible DCC response
Bridges	1% cumulative traffic growth, increased axle loads	Increase strength
Footpaths	unknown	Increase width
Pavements	1% cumulative traffic growth	Increase strength (thickness), Increase width (for extra lane)
Wearing Surfaces	1% cumulative traffic growth	Increase durability (renew) Increase width (for extra lane)

Improvement:

- Develop a demand management plan (as required)

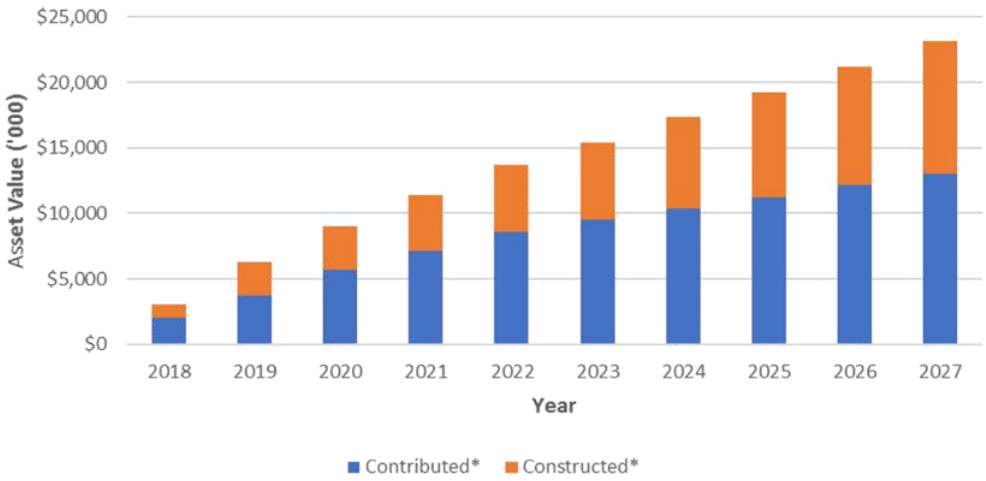
4.4 Asset Programs to meet Demand

The new assets required to meet demand can be constructed as part of Council's capital works program or may be donated or acquired from private developers.

The projection of the cumulative value of additional asset is shown in Figure 1. This projection is based on:

- Contributed assets - as an average of past subdivisional assets donated to Council.
- Constructed assets - the projected capital upgrades and new assets detailed in the forward capital works program.

Figure 1: Upgrade and New Assets to meet Demand – (Cumulative)



- Figure 1 represents the expected value on a cumulative basis of new assets that will be contributed and constructed and upgraded. Contributed assets, generally donated subdivisions are based on the average donations from 2013 – 2017 in years one to three and minimal growth past this at 0.3%. Expected minimal growth in population (figures used from LIVING CITY proposals). Values are in current (real) dollars.

Acquiring these new assets will commit ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long term financial plan further in Section 5.

5. LIFECYCLE MANAGEMENT PLAN

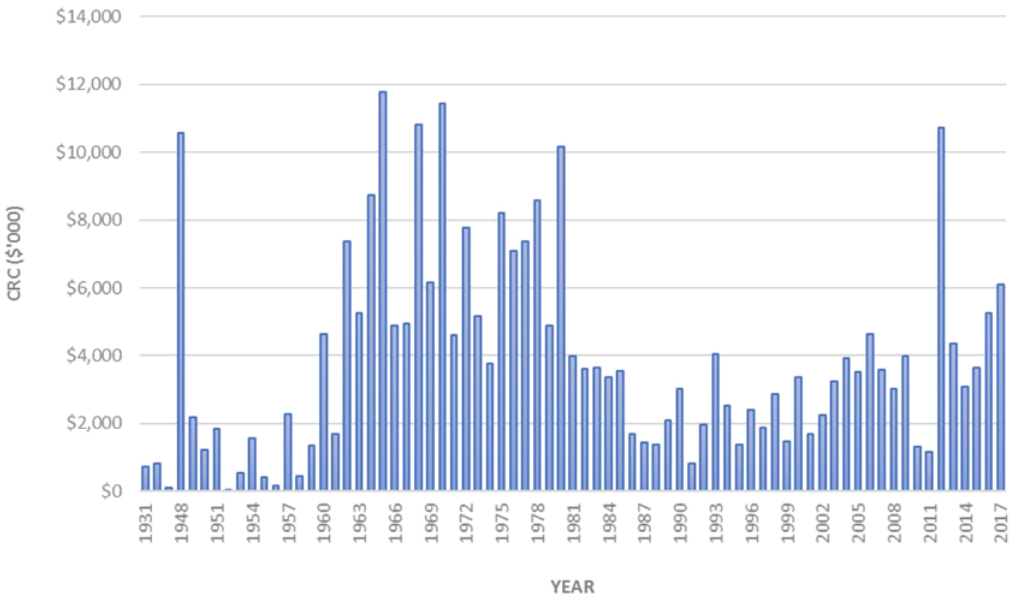
The lifecycle management plan details how Council plans to manage and operate the assets at the agreed levels of service (defined in Section 3) while managing life cycle costs.

5.1 Background Data

5.1.1 Physical parameters

Council's transport assets include a mixture of medium and long-life assets. The age profile of the assets included in this AM Plan are shown in Figure 2 (values are in current dollars).

Figure 2: Asset Age Profile



The 'spike' in 1948 represents the older assets with an unknown commission date assumed to be 1948 or earlier. The peak between 1960 and 1980 is reflective of a period of population growth for Devonport. The peak in 2011 represents the renewal of Formby Road, which was a large project carried out over and above the regular capital expenditure budget of that era.

5.1.2 Asset capacity and performance

Council has adopted some key performance criteria for transport assets in strategic documents, which are reflective of Customer Levels of Service including;

- Road Network Strategy 2016 (road widths, lane widths etc)
- Pedestrian Strategy 2016-2021 (footpath widths, crossfalls, grades etc)
- Bike Riding Strategy 2015-2020 (bike lanes, path widths etc)
- Public Lighting Strategy (lighting levels)

A small number of assessments have been undertaken including;

- Public lighting levels at night time crash locations
- Pedestrian facilities in the CBD

Development of a more comprehensive assessment program to identify deficiencies against Customer Levels of Service will allow improved comparison and prioritisation of projects competing for 'new' project funding in Council's capital works program.

An asset management system is required to effectively manage data related to Customer Levels of Service.

Improvement:

- Implement an asset management system

5.1.3 Asset condition

Asset condition data is collected as part of various programs on certain asset types (retaining walls, poles, major pavement assets). Condition data is not managed in any meaningful way and is not used effectively to inform asset renewal programs.

Implementation of an asset management system will allow storage, interrogation and management of key asset data, including condition.

Development of a full program of asset condition assessments will result in major improvements in the reliability of asset data, notably projected renewal dates. Therefore, the projected asset renewal funding requirements in the forward capital works program will be more accurate. This then improves the reliability of Council's Long Term Financial Plan.

Asset condition assessment processes should be developed using IPWEA practice notes where available.

Improvement:

- Implement an asset management system
- Implement a program of asset condition assessments

5.2 Operations and Maintenance Plan

Operations include regular activities to provide services such as safety and amenity (eg inspections, street sweeping, street lighting energy costs).

Maintenance includes activities that enable an asset to provide service for its planned life and may be proactive (eg unsealed road grading) or reactive (eg patching).

Operations and maintenance expenditure is shown in Table 5.2.1.

Table 5.2.1: Operations and Maintenance Expenditure Trends

Year	Operations and Maintenance Budget $
2016-17	$2,616,694
2017-18	$2,694,312
2018-19	$2,775,141

Operational and maintenance expenditure levels appear to be sufficient to meet projected service levels. However, no objective assessment of funding levels has been undertaken. To confirm required projected operational and maintenance expenditure the following activities need to be completed over a 2 - 3 year period;

- Completion of maintenance inspections in accordance with Council's Service Level Documents
- Generation of work requests resultant from maintenance inspections
- Performance reporting on completion of work requests in timeframes specified by Council's Service Level Document
- Implementation of program of asset condition assessments to determine overall condition of asset class

Inadequate funding of operations and maintenance, inefficient use of resources, or incorrect prioritisation of work can result in asset condition deteriorating beyond a level where it can be addressed through maintenance. Beyond this point, more expensive capital renewal is required. This creates an overall reduction in asset condition or requires increased expenditure, neither of which is a desired outcome.

Until these processes are embedded, and reporting can be provided consistently, there is uncertainty around the adequacy of current funding of operations and maintenance levels and future projection of required funding.

Improvement:

- Objectively assess operations and maintenance funding levels

5.2.2 Summary of future operations and maintenance expenditures

Future operations and maintenance expenditure is shown in Figure 4. This graph shows an increase as it assumes that the asset base will increase (as shown in Figure 1).

Figure 4: Projected Operations and Maintenance Expenditure

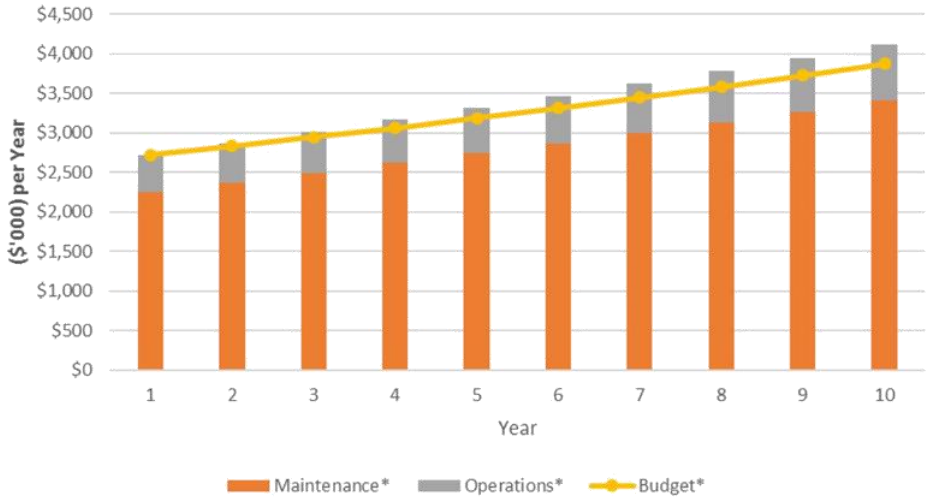
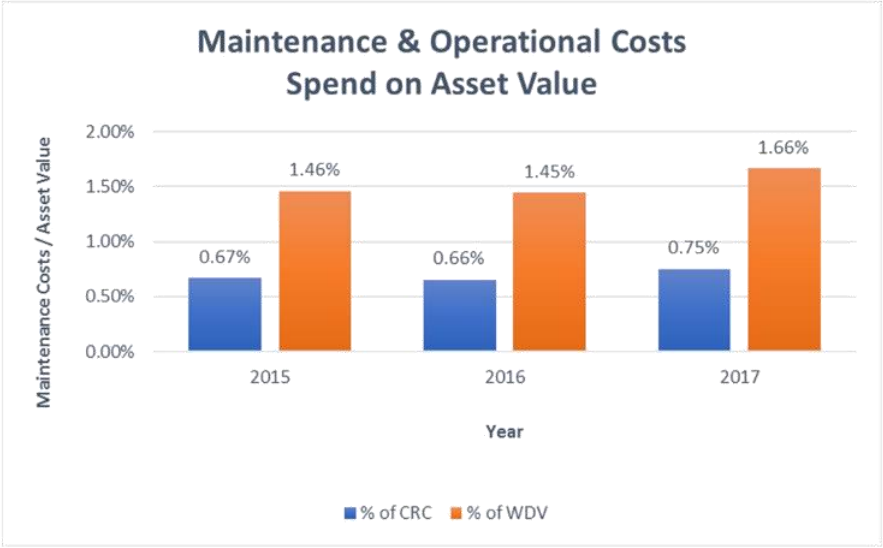
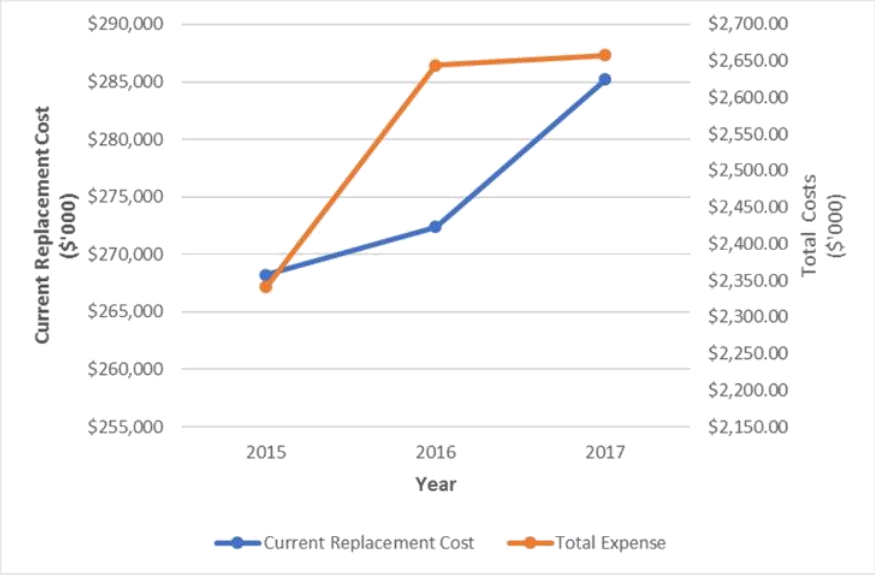


Figure Values are in current (real) dollars.

Maintenance and operational cost as a percentage of total asset value; current replacement cost and written down value is show in the following graphs. The shows funding trends in context of a growing asset base.





5.2.3 Deferred Maintenance

Deferred maintenance is work that is required to meet Council's technical levels of service but is unable to be completed within the required timeframe due to budget constraints.

Council does not defer maintenance in normal circumstances. However, it may be required following natural disasters (flood, fire etc) or following periods of accelerated deterioration (eg an extended wet period which facilitates pavement and wearing surface damage).

Council has a number of options in these situations including:

- Deferring the identified maintenance, temporarily lowering the level of service
- Reprioritising maintenance work, resulting in different maintenance work being deferred
- Increasing the maintenance budget
- Funding the work from the capital budget, if the required thresholds can be met

The most appropriate option depends on the type of work and the risks of each option should be assessed.

5.3 'Renewal' Projects

Renewal expenditure is major work which restores, rehabilitates, replaces or renews an existing asset to its original condition.

Council's renewal projects have three main drivers:

- Asset renewal – based on condition (but may include 'new' elements to increase capacity)
- Safety and Risk – assets are renewed to address a specific risk (these projects may also have 'new' elements)
- Prioritisation – high profile projects that may have local or regional significance (these projects may also have 'new' elements)

Renewal projects in Council's forward capital works program are identified by the main project driver.

Currently, Council uses Asset Register data to project the renewal costs using acquisition year and useful life to determine the renewal year. Assets are inspected and expiry date adjusted once they are within 5 years of their nominal expiry date.

In future, moving to a system that uses capital renewal expenditure projections from external condition modelling systems (like an asset management system), will streamline the identification and prioritisation of renewal projects.

Council's current renewal plan – the forward capital works program – is only a five-year program. Extending this program to 10 years will provide more reliable data to Council's Long Term Financial Plan, as long as it is based on accurate asset condition and age data.

Improvement:

- Implement an asset management system
- Extend forward capital works program from 5 years to 10 years
- Refine forecast renewal and new/upgrade works in the forward works program
- Align forward works program to asset class

5.3.1 Renewal ranking criteria

Asset renewal and replacement is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (eg replacing a bridge to avoid reducing the load limit and impacting heavy vehicle operators), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (eg renewing pavement and seal to address the roughness of a road).

Council does not use 'Renewal Priority Ranking Criteria' to prioritise renewal and replacement proposals. Instead, the following factors are considered, and engineering judgement applied:

- Asset condition
- Position in relevant asset hierarchy
- Risk to public safety
- Forecast future maintenance

Development of 'Renewal and Replacement Priority Ranking Criteria' that can compare and prioritise transport renewal projects of different types will improve the consistency and transparency of the forward capital works program.

Improvement:

- Develop and implement 'Renewal and Replacement Priority Ranking Criteria'

5.3.2 Summary of future renewal expenditure

The projected expenditure on renewal projects is shown in Figure 5. This data reflects the value of assets requiring renewal over the next 10 years, as listed in the asset register. In the long term, renewal expenditures are forecast to increase over time when the asset stock increases.

Variances will occur from year to year depending on the specific assets requiring renewal each year. It may also be preferable to 'smooth expenditure' to reduce large variances and ensure consistent and manageable workloads.

The projected capital renewal program is shown in Appendix A.

Figure 5: Projected Capital Renewal and Replacement Expenditure

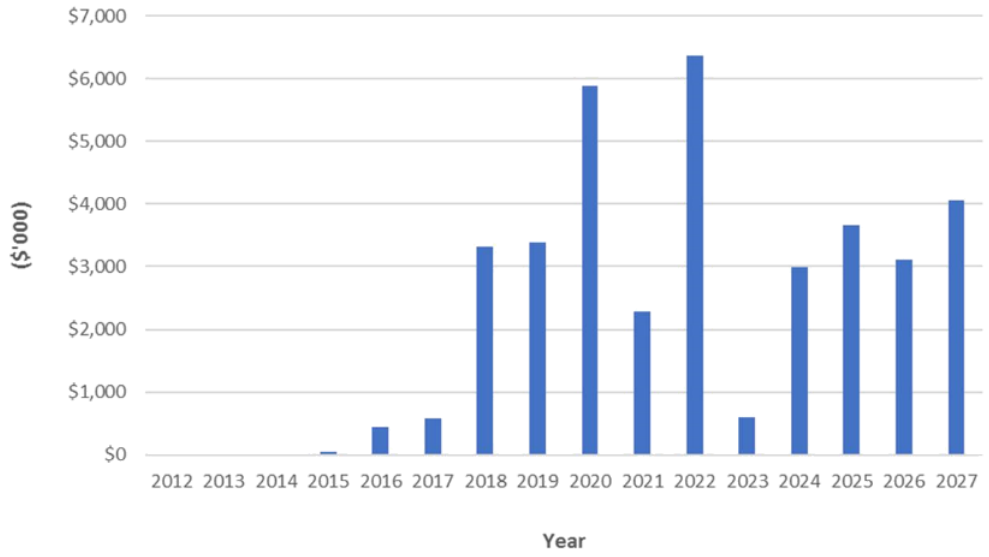


Figure 5 shows the projected capital renewal expenditure based on current replacement cost and on the data from Councils' asset register of useful life and resultant expiry date. All figures are shown in real values.

The remaining assets are still in service and therefore have a remaining useful life. Work to assess the condition of these assets and input this condition data into an asset management system will allow the expiry dates of these assets to be recalculated, vastly improving the accuracy of the projected capital renewal expenditure.

Improvement:

- Implement an asset management system

5.3.3 Deferred Renewal Projects

Deferred renewal projects are projects that are required to meet Council's technical levels of service but are unable to be completed within the required timeframe due to budget constraints.

Council does not defer renewal projects in normal circumstances, however it may be required following natural disasters (flood, fire etc).

Council has a number of options in these situations including;

- Deferring the identified project, temporarily lowering the level of service.
- Reprioritising renewal work, resulting in different renewal work being deferred
- Increasing the capital budget

The most appropriate option depends on the type of work and the risks of each option should be assessed.

Renewals and replacement expenditure in the capital works program will be accommodated in the long term financial plan. This is further discussed in Section 7.

5.4 'New' Projects

'New' projects are those that create a new asset that did not previously exist or works which will upgrade or improve an existing asset beyond its existing capacity.

Council's 'New' projects have three main drivers:

- Asset renewal – based on condition (but may include 'new' elements to increase capacity)
- Safety and Risk – new assets are created to address a specific risk (these projects may also have 'renewal' elements)
- Prioritisation – high profile projects that may have local or regional significance (these projects may also have 'renewal' elements)

'New' projects in Council's forward capital works program are identified by the main project driver.

5.4.1 Selection criteria

'New' projects are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Candidate proposals are inspected to verify need and to develop a preliminary renewal estimate:

- Position in relevant asset hierarchy
- Value for money for Council (benefit cost ratio or similar)
- Projected utilisation

Development of 'New Project Priority Ranking Criteria' that can compare and prioritise 'new' transport projects of different types will improve the consistency and transparency of the forward capital works program.

Improvement:

- Develop and implement 'New Project Priority Ranking Criteria'
- Align forward works program to asset class

5.4.2 Summary of future 'new' project expenditure

Projected 'new' project expenditures are summarised in Figure 6. The projected upgrade/new capital works program is shown in Appendix A.

Figure 6: Projected Capital Upgrade/New Asset Expenditure

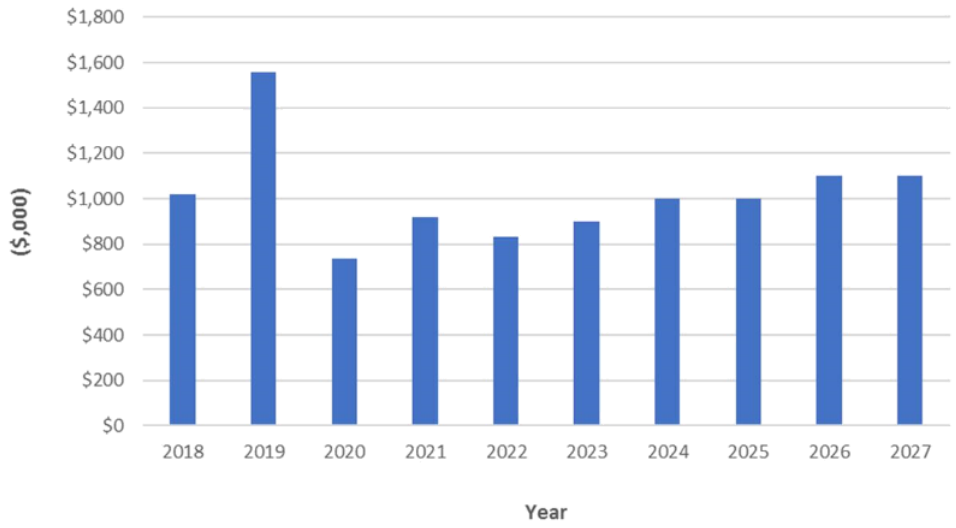


Figure 6 shows the projected capital upgrade/new asset expenditure detailed in the Forward Capital Works Program. All amounts are shown in real values (net of inflation). Values are in current (real) dollars.

The projected 'spike' in 2019 is largely due to CBD streetscape upgrades programmed for that year. The programming of this type of project is driven by outside factors, including political

motivations, community expectations, availability of external funding and Council's overall financial position.

Projects can be added, deleted, deferred and brought forward during annual budget deliberations, sometimes without consideration for the long term financial plan. Therefore Figure 6 may not be a reliable projection.

Construction of new assets will commit the funding of ongoing operations, maintenance and renewal costs.

Council's current 'new' project plan – the forward capital works program – is only a 5-year program. Extending this program to 10 years will provide more reliable data to Council's Long Term Financial Plan.

Improvement:

- Extend forward capital works program from 5-years to 10-years

5.5 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation.

Council has identified the following Transport asset for disposal:

- Best Street car park (excluding salvageable items) – due to sale of land

5.6 Combined Projected Expenditure

Projected operating and capital expenditures are summarised in Figure 7.

Figure 7: Projected Operating and Capital Expenditure

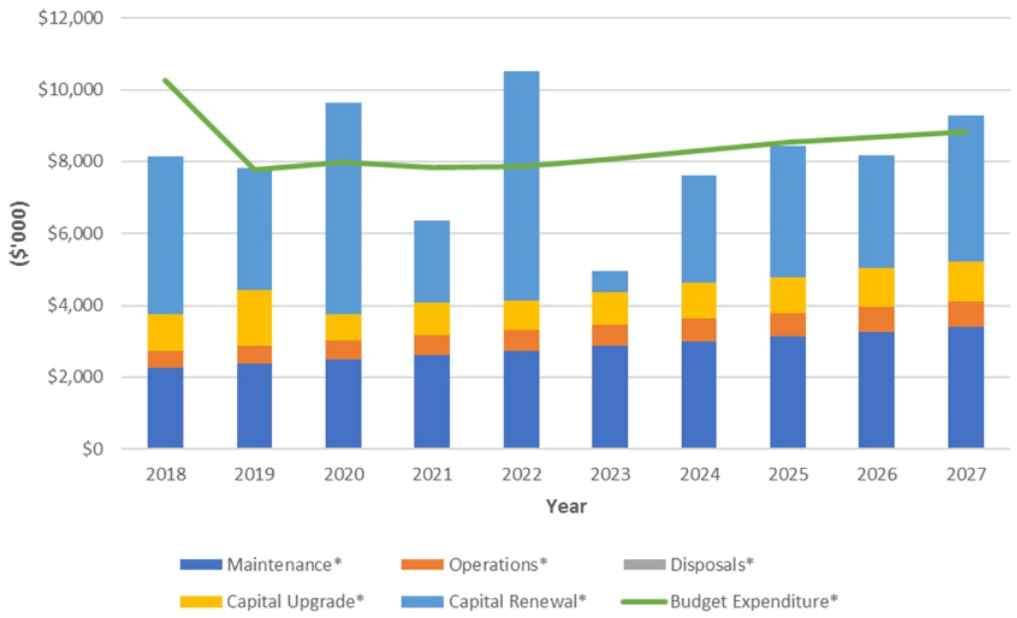


Figure 7 shows the total of projected operating (maintenance and operating) and capital (upgrade/new and renewal) expenditure. The year to year variance is a result of the yearly movements in the projected renewal value, whereas the maintenance and operating expenditure increases marginally each year allowing for contributed and new assets. Figure Values are in current (real) dollars.

6. RISK MANAGEMENT PLAN

The purpose of infrastructure risk management is to document the results and recommendations resulting from the periodic identification, assessment and treatment of risks associated with providing services from infrastructure, using the fundamentals of International Standard ISO 31000:2009 Risk Management – Principles and guidelines.

Risk Management is defined in ISO 31000:2009 as: 'coordinated activities to direct and control with regard to risk'[3].

An assessment of risks associated with service delivery from infrastructure assets can identify critical risks that will result in loss or reduction in service from infrastructure assets or a 'financial shock'. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

6.1 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Similarly, critical failure modes are those which have the highest consequences.

Critical assets have been identified as;

Critical Asset(s)	Failure Mode	Impact
Pavement and wearing surface – all arterial roads	Pavement failure	Customer dissatisfaction and financial loss
All Bridges	Failure of bridge/overflow of river banks	Financial loss for bridge replacement, public confidence loss
Off-street parking machines	Machine breakdown/out of order	Financial loss of parking fees and fines

By identifying critical assets and failure modes, investigative activities, condition inspection programs, maintenance and capital expenditure plans can be targeted at the critical areas.

6.2 Risk Assessment

Council does not undertake risk assessments at an asset class level. Future revisions of this AM Plan will consider undertaking risk assessments at an asset class level.

6.3 Infrastructure Resilience Approach

Council does not measure infrastructure resilience. Future revisions of this AM Plan may consider measuring infrastructure resilience.

6.4 Service and Risk Trade-Offs

Council does not analyse service and risk trade-offs. This AM Plan is based on balancing service performance, cost and risk to provide an agreed level of service from available resources in the long-term financial plan.

[3] ISO 31000:2009, p 2

7. FINANCIAL SUMMARY

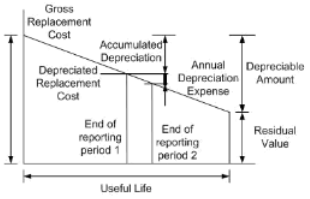
This section contains the financial requirements resulting from all the information presented in the previous sections of this AM Plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset performance.

7.1 Financial Statements and Projections

7.1.1 Asset valuations

The best available estimate of the value of assets included in this AM Plan are shown below. Transport assets are valued at fair value.

Gross Replacement Cost	$285,231,000
Depreciable Amount	$285,231,000
Depreciated Replacement Cost[4]	$128,494,000
Annual Average Asset Consumption	$4,004,000



7.1.2 Sustainability of service delivery

Two key indicators for service delivery sustainability that have been considered in the analysis of the services provided by Council's transport assets, these being the:

- asset renewal funding ratio, and
- medium term budgeted expenditures/projected expenditure (over 10 years of the planning period).

Asset Renewal Funding Ratio
Asset Renewal Funding Ratio[5] 103%

The Asset Renewal Funding Ratio is an important indicator and compares the forecasted renewal funding requirements identified in the AM Plan, to the funds included in the Long Term Financial Plan over the next 10 year period. The benchmark established by the Tasmanian Audit Office for the ratio is in a range between 90% and 100%.

The result above indicates Council is forecasting to provide for over 100% of asset renewal requirements based on the current asset data.

The renewal funding provided for in the 5-year capital program often reflects funding at a summary level, rather than at a detailed listing. Further refinement of the asset management process will allow Council to identify individual capital works in future years.

Medium term – 10-year financial planning period
This AM Plan identifies the projected operations, maintenance and capital renewal expenditures required to provide an agreed level of service to the community over a 10 year period. This provides input into 10-year financial and funding plans aimed at providing the required services in a sustainable manner.

These projected expenditures may be compared to budgeted expenditures in the 10-year period to identify any funding shortfall. In a core asset management plan, a gap is generally due to increasing asset renewals for ageing assets.

The projected operations, maintenance and capital renewal expenditure required over the 10 year planning period is $7,076,000 on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is $7,444,000 on average per year giving a 10 year funding surplus of $368,000 per year. This surplus may not be

[4] Also reported as Written Down Value, Carrying or Net Book Value.
[5] AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

accurate as projects included in the forward works program and budgeted capital renewals are based on estimated costs and include some other asset classes, ie stormwater pipes, pits, manholes in an entire road reconstruction. Other costs may be included in the capital budget that cannot or will not be capitalised. Continued development of the forward works program is required for an accurate classification of these renewals.

This indicates 105% of the projected expenditures needed to provide the services documented in the AM Plan. This excludes upgrade/new assets.

Providing services from infrastructure in a sustainable manner requires the matching and managing of service levels, risks, projected expenditures and financing to achieve a financial indicator of approximately 1.0 for the first years of the AM Plan and ideally over the 10-year life of the Long Term Financial Plan.

Improvement:

- refer to section 8.2

7.1.3 Projected expenditures for long term financial plan

Table 7.1.2 shows the projected expenditures for the 10 year Long Term Financial Plan.

Expenditure projections are in 2017 real values.

Table 7.1.2: Projected Expenditures for Long Term Financial Plan ($000)

Year	Operations ($000)	Maintenance ($000)	Projected Capital Renewal ($000)	Capital Upgrade/ New ($000)	Disposals ($000)
2018	$470	$2,251	$4,416	$1,017	$0
2019	$495	$2,370	$3,388	$1,558	$0
2020	$521	$2,494	$5,879	$736	$0
2021	$547	$2,618	$2,279	$919	$0
2022	$572	$2,742	$6,367	$831	$0
2023	$599	$2,869	$ 588	$900	$0
2024	$625	$2,996	$2,990	$1,000	$0
2025	$653	$3,127	$3,668	$1,000	$0
2026	$681	$3,264	$3,115	$1,100	$0
2027	$711	$3,406	$4,056	$1,100	$0

7.2 Funding Strategy

Funding for assets is provided from Council's operational budget and Long Term Financial Plan.

Council's financial strategy determines how funding will be provided, whereas the AM Plan communicates how and when this will be spent, along with the service and risk consequences of differing options.

7.3 Valuation Forecasts

Asset values are forecast to increase as additional assets are added.

Additional assets will generally add to the operations and maintenance needs in the longer term, as well as the need for future renewal. Additional assets will also add to future depreciation forecasts.

7.4 Key Assumptions Made in Financial Forecasts

This section details the key assumptions made in presenting the information contained in this AM Plan. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions made in this AM Plan are:

- Asset age is inversely proportional to asset condition. That is, condition deteriorates linearly over from 'new' to 'failure' over the designated standard asset life.
- Standard assets lives applied to transport assets are a reasonable approximation of the average life of the assets.
- The inventory of assets in the asset register is a reasonable approximation of the asset stock (ie there are not a significant number of assets missing from the register)

7.5 Forecast Reliability and Confidence

The expenditure and valuations projections in this AM Plan are based on best available data. Currency and accuracy of data is critical to effective asset and financial management. Data confidence is classified on a 5 level scale[6] in accordance with Table 7.5.

Table 7.5: Data Confidence Grading System

Confidence Grade	Description
A Highly reliable	Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete and estimated to be accurate ± 2%
B Reliable	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate ± 10%
C Uncertain	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated ± 25%
D Very Uncertain	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete, and most data is estimated or extrapolated. Accuracy ± 40%
E Unknown	None or very little data held.

The estimated confidence level for reliability of data used in this AM Plan is considered to be **C – uncertain**. Asset data held in the asset register including financial and attribute data is reliable, however limited condition assessment data has been collected, analysed and documented, therefore uncertain or unknown.

Improved confidence will be delivered through the establishment and delivery of an asset condition assessment program and management of condition data in an asset management system.

Improvement:

- Implement an asset management system
- Establish an asset condition assessment program

[6] IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

8. PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices[7]

8.1.1 Accounting and financial data sources

The asset data sources used for the development of this AM Plan included Council's finance system, forward works program and budgets.

8.1.2 Asset management data sources

The asset data sources used for the development of this AM Plan included Council's finance system and asset management register Technology One.

8.2 Improvement Plan

The asset management improvement plan generated from AM Plan is shown in Table 8.1.

Table 8.1: Improvement Plan

Action No	Action	AM Plan Section	Responsibility	Resources Required	Timeline
1	Implement an asset management system	4.2 5.1.2 5.1.3 5.3 5.3.2 7.5	Infrastructure & Works	Opex	Year 1
2	Inspect 'expired' assets still in service	5.3.2	Infrastructure & Works	Opex	Year 1
3	Establish an asset condition assessment program	5.1.3 7.5	Infrastructure & Works	Opex	Year 1-2
4	Extend forward capital works program to 10 years	5.3 5.4.2	Infrastructure & Works	Opex	Year 2
5	Develop forward capital works program to classify renewals and new into all asset classes	7.1.1	Infrastructure & Works	Opex	
6	Develop and implement 'Renewal Priority Ranking Criteria'	5.3.1	Infrastructure & Works	Opex	Year 2-3
7	Develop and implement 'New Project Priority Ranking Criteria'	5.4.1	Infrastructure & Works	Opex	Year 2-3
8	Implement program of customer research activities	3.1	Infrastructure & Works	Opex	Year 2-3
9	Formalise Customer Levels of Service across Transport assets	3.4	Infrastructure & Works	Opex	Year 3-4
10	Objectively assess operations and maintenance funding levels	5.2	Infrastructure & Works	Opex	Year 4-5
11	Implement a program of assessment against Customer Levels of Service	3.4 5.1.2	Infrastructure & Works	Opex	Year 4-5
12	Develop a demand management plan (as required)	4.3	Infrastructure & Works	Opex	Year 5-10

[7] ISO 55000 Refers to this the Asset Management System

8.3 Monitoring and Review Procedures

This AM Plan will be reviewed during annual budget planning processes and amended to show any material changes in service levels and/or resources available to provide those services as a result of budget decisions. A status update report on the progress of the actions from section 8.2 Improvement plan will be reported to Council annually.

The AM Plan will be updated annually to ensure it represents the current service level, asset values, projected operations, maintenance, capital renewal and replacement, capital upgrade/new and asset disposal expenditures and projected expenditure values incorporated into the long term financial plan.

The AM Plan has a life of 5-years.

8.4 Performance Measures

The effectiveness of the AM Plan can be measured in the following ways:

- The degree to which the required projected expenditures identified in this AM Plan is incorporated into the Long Term Financial Plan,
- The degree to which 1-5 year detailed works programs, budgets, business plans and corporate structures take into account the 'global' works program trends provided by the AM Plan,
- The degree to which the existing and projected service levels and service consequences (what we cannot do), risks and residual risks are incorporated into the Strategic Plan and associated plans,
- The Asset Renewal Funding Ratio achieving the target of 1.0.

9. REFERENCES

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- IPWEA, 2012 LTFP Practice Note 6 PN Long Term Financial Plan, Institute of Public Works Engineering Australasia, Sydney
- Strategic Plan 2009 – 2030 (2014 review)
- Asset Management Policy
- Asset Management Strategy
- Road Network Strategy 2016
- Pedestrian Strategy 2016-2021
- Public Lighting Strategy
- Parking Strategy 2016
- Roads and Stormwater Service Level Document

10. APPENDICES

Appendix A Forward Works Program

Appendix B Budgeted Expenditures Accommodated in Long Term Finance Plan

Appendix A - Forward Works Program

Appendix B - Budgeted Expenditures Accommodated in Long Term Finance Plan

NAMS.PLUS3 Asset Management **Devonport CC**

Transport 2018_S1_V2 **Asset Management Plan**

IPWEA INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALASIA JRA

First year of expenditure projections **2018** (financial yr ending)

Transport 2018

Asset values at start of planning period

Current replacement cost	$285,231	(000)	Calc CRC from Asset Register $285,231 (000)
Depreciable amount	$285,231	(000)	This is a check for you.
Depreciated replacement cost	$128,494	(000)	
Annual depreciation expense	$4,004	(000)	

Operations and Maintenance Costs for New Assets

	% of asset value
Additional operations costs	0.20%
Additional maintenance	0.95%
Additional depreciation	1.40%

Planned renewal budget (information only)

You may use these values calculated from your data or overwrite the links.

Planned Expenditures from LTFP

20 Year Expenditure Projections Note: Enter all values in current **2018** values

Financial year ending	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
Expenditure Outlays included in Long Term Financial Plan (in current $ values)										
Operations										
Operations **budget**	$470	$489	$508	$529	$550	$572	$595	$618	$643	$669
Management **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AM systems **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total operations	$470	$489	$508	$529	$550	$572	$595	$618	$643	$669
Maintenance										
Reactive maintenance **budget**	$2,251	$2,341	$2,435	$2,532	$2,633	$2,739	$2,848	$2,962	$3,081	$3,204
Planned maintenance **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Specific maintenance items **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total maintenance	$2,251	$2,341	$2,435	$2,532	$2,633	$2,739	$2,848	$2,962	$3,081	$3,204
Capital										
Planned renewal **budget**	$6,522	$3,394	$4,312	$3,844	$3,851	$3,900	$3,950	$4,000	$4,000	$4,000
Planned upgrade/new **budget**	$1,017	$1,558	$736	$919	$831	$850	$900	$950	$950	$950
Non-growth contributed asset value	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Asset Disposals										
Est Cost to dispose of assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Carrying value (DRC) of disposed assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Additional Expenditure Outlays Requirements (e.g from Infrastructure Risk Management Plan)										
Additional Expenditure Outlays required and not included above	2018 $000	2019 $000	2020 $000	2021 $000	2022 $000	2023 $000	2024 $000	2025 $000	2026 $000	2027 $000
Operations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maintenance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Capital Renewal	to be incorporated into Forms 2 & 2.1 (where Method 1 is used) OR Form 2B Defect Repairs (where Method 2 or 3 is used)									
Capital Upgrade	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
User Comments #2										

Forecasts for Capital Renewal using Methods 2 & 3 (Form 2A & 2B) & Capital Upgrade (Form 2C)										
	2018 $000	2019 $000	2020 $000	2021 $000	2022 $000	2023 $000	2024 $000	2025 $000	2026 $000	2027 $000
Forecast Capital Renewal from Forms 2A & 2B	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Forecast Capital Upgrade from Form 2C	$1,017	$1,558	$736	$919	$831	$900	$1,000	$1,000	$1,100	$1,100

6.0 INFRASTRUCTURE AND WORKS BI-MONTHLY UPDATE

6.1 DEVELOPMENT AND HEALTH SERVICES REPORT

File: 29543 D533000

RELEVANCE TO COUNCIL'S PLANS & POLICIES

Council's Strategic Plan 2009-2030:

Strategy 5.4.1 Provide timely, efficient, consistent and quality services which are aligned with and meet our customers needs

SUMMARY

This report provides a summary of the activities undertaken by the Development and Health Services Department for the months of June and July 2018.

BACKGROUND

This report is provided to the bi-monthly Infrastructure, Works and Development Committee meeting to summarise the activities of the Development and Health Services Department in the preceding two months.

The Council functions undertaken by the Department are:

- Planning;
- Building and Plumbing Services;
- Environmental Health;
- Animal Control; and
- Risk and Regulatory Compliance Services.

STATUTORY REQUIREMENTS

In carrying out its activities, the Development and Health Services Department is required to ensure compliance with a substantial amount of legislation and regulation. The principal legislation administered by the Department includes the:

- *Local Government Act 1993*
- *Land Use Planning and Approvals Act 1993*
- *Building Act 2016*
- *Building Regulations 2016*
- *Public Health Act 1997*
- *Food Act 2003*
- *Environmental Management and Pollution Control Act 1994*
- *Dog Control Act 2000*
- *Devonport Interim Planning Scheme 2013*
- *Work Health and Safety Act 2012*

DISCUSSION

1. State Planning Scheme/Local Provisions Schedules

Council has made some progress with the preparation of the mandatory Local Provisions Schedules (LPS's). A number of workshops with the Planning Authority have clarified the desired position for some of the incompatible zonings forced on Council by the declaration of the Interim Planning Scheme in 2013.

Real progress towards finalising the LPS, however, continues to be hampered by matters beyond Council's control. They include, but are not limited to, the following matters:

- ***Mapping***
  The State is responsible for providing definitive mapping across all municipal areas to support the requirements of the various Codes that attach to the new Tasmanian Planning Scheme. In particular, Council requires definitive mapping of areas that are deemed to be bushfire prone, or subject to flooding, coastal inundation or landslip.

  To date, although those maps have been provided, they do not seem to be totally accurate. The options for Council are to accept what it has been given which may cause issues with planning assessments when the State Scheme is finally declared or to conduct "ground truthing" exercises to ensure the maps are correct. Council does not have the in-house expertise to conduct such an exercise and no help has been forthcoming from the State.

- ***Formatting and Consistency***
  Some time ago the State Planning Policy Division indicated that its officers would be conducting discussion sessions with the Cradle Coast Councils to ensure that the policy directions grounding the State Scheme were reflected in the LPS's. This has not happened, and it has been increasingly difficult to get any response from that Division.

  In terms of formatting it has become obvious that without any formal guidance from the Tasmanian Planning Commission (TPC) there will inevitably be different approaches to how a LPS is formatted. This would appear to defeat the stated purpose of the Sate Planning Scheme which was for uniformity and consistency. The TPC has agreed to meet with the Cradle Coast Planners Reference Group to "discuss issues" about LPS development.

2. Building Act Amendments

The State has released a package of draft amendments to the *Building Act 2016* (the Act) and other legislation and has requested comments on any matters that raise concerns.

The Building Legislation (Miscellaneous Amendments) Bill 2018 amends the following six items of legislation:

- The *Building Act 2016*
- The *Occupational Licensing Act 2005*
- The *Building Regulations 2016*
- The *Occupational Licensing (Building Services Work) Regulations 2016*
- The *Residential Building Work Contracts and Dispute Resolution Regulations 2016*
- The *Urban Drainage (General) Regulations 2016*

The suggested amendments appear a reasonable step to clarify some matters that were considered ambiguous or incorrect when the new package of building and licensing legislation came into effect on 1 January 2017.

Of particular benefit for this and other Councils is that the amendments include clarification of when building and plumbing permits issued under previous legislation

actually expire. It creates a window for such permits to be extended if written application is made before 1 January 2019.

Council has added this information, and a link to the Fact Sheet, on its website under the building and plumbing information sections. A copy is attached.

A copy of the explanatory legislative amendments Fact Sheet is also in the attachments.

3. Statistical Report for End of Financial Year 2018

Planning

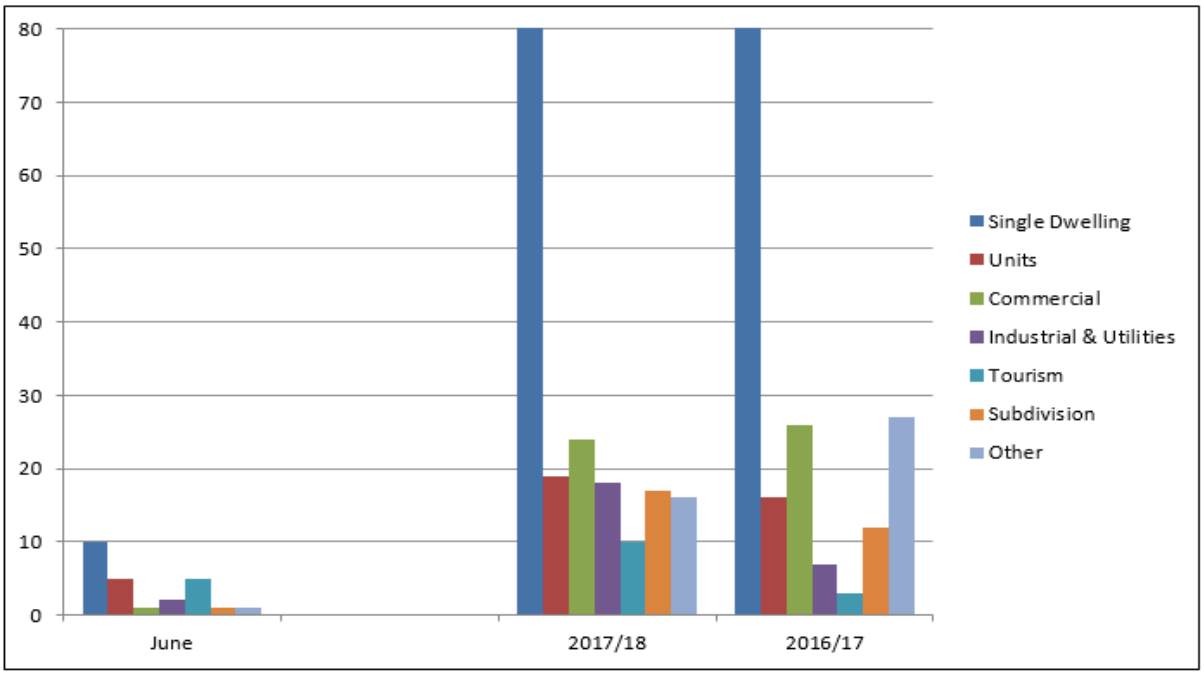
A total of 198 planning applications were recorded to the end of June 2018. This is a slight increase over the 187 received in the previous financial year.

67 of the applications received were for permitted uses while the remaining 131 were assessed against discretionary elements of the Planning Scheme.

113 of the applications were for residential use, 42 were for commercial or residential works and the remaining 43 involved applications for subdivisions or small developments such as garages or sheds that triggered a discretionary assessment because of such issues as a request to relax boundary clearances.

PLANNING APPLICATIONS RECEIVED

	Single Dwelling	Units	Commercial	Industrial & Utilities	Tourism	Subdivision	Other
June	10	5	1	2	5	1	1
YTD 2017/18	94	19	24	18	10	17	16
Total for 2016/17	96	16	26	7	3	12	27



PLANNING APPLICATIONS RECEIVED

	16/17	16/17	17/18	17/18	YTD	YTD
	Disc	Permitted	Disc	Permitted	Disc	Permitted
July	10	6	16	3	16	3
Aug	12	2	15	5	31	8
Sept	15	10	11	4	42	12
Oct	8	8	8	5	50	17
Nov	16	8	7	1	57	18
Dec	6	1	2	4	59	22
Jan	6	5	15	4	74	26
Feb	10	5	7	5	81	31
Mar	9	6	11	6	92	37
April	8	5	10	10	102	47
May	7	6	13	11	115	58
June	14	4	16	9	131	67
TOTAL 16/17	121	66		TOTAL 17/18	131	67

Building

117 building permit applications and 122 "notifiable works" notices were received to the end of June. This total of 239 applications exceeds the 224 from the previous financial year.

The nominal value of the works as notified in the building applications received was in excess of $104 million. This is far in excess of the $72 million from the previous financial year. Much of this, however, can be attributed to major projects such as Living City, the expansion of the Costa facility and the demolition of the old hospital.

Plumbing

62 plumbing permit applications were received to the end of June and there were 133 notices of "notifiable" plumbing works. This was increased by a further 24 permit applications for on-site wastewater plants.

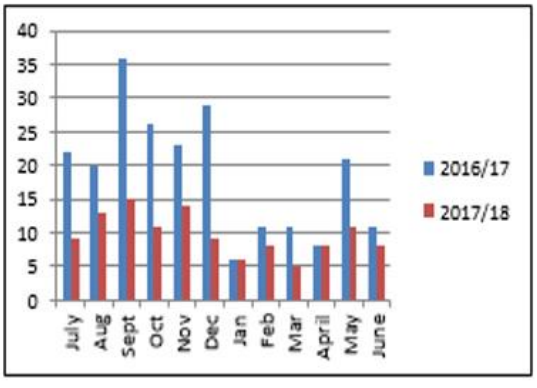
The combined total of 219 applications is below the 241 total for the previous financial year.

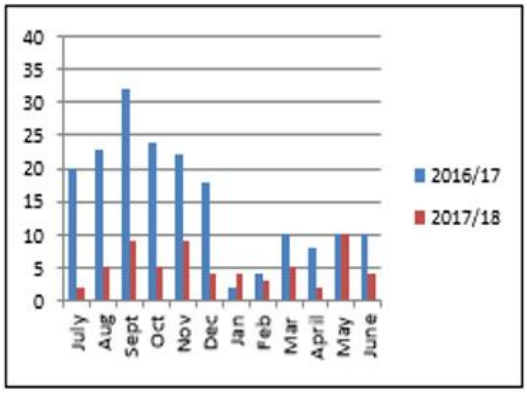
BUILDING APPLICATIONS/PERMITS

	2016/17	Total	2017/18	YTD
July	22	22	9	9
Aug	20	42	13	22
Sept	36	78	15	37
Oct	26	104	11	48
Nov	23	127	14	62
Dec	29	156	9	71
Jan	6	162	6	77
Feb	11	173	8	85
Mar	11	184	5	90
April	8	192	8	98
May	21	213	11	109
June	11	224	8	117

PLUMBING APPLICATIONS/PERMITS

	2016/17	Total	2017/18	YTD
July	20	20	2	2
Aug	23	43	5	7
Sept	32	97	9	16
Oct	24	121	5	21
Nov	22	143	9	30
Dec	18	161	4	34
Jan	2	163	4	38
Feb	4	167	3	41
Mar	10	177	5	46
April	8	194	2	48
May	10	204	10	58
June	10	214	4	62



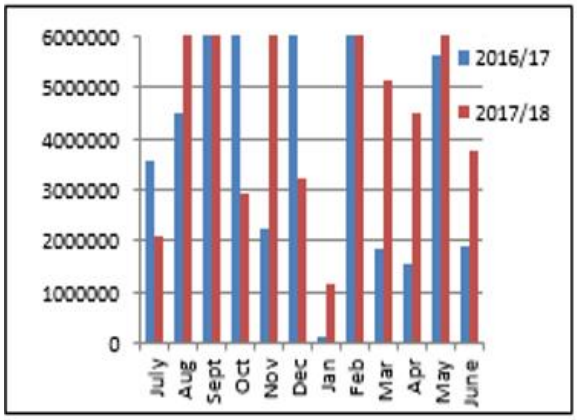


VALUE OF BUILDING WORK (ESTIMATED COST) includes BP & NW

	2016/17	Total	2017/18	YTD
July	3551320	3551320	2101995	2101995
Aug	4488020	8039340	7324772	10226767
Sept	10773575	18812915	48784953	59011720
Oct	14017889	32830804	2935625	61947345
Nov	2243129	35073933	10836648	72783993
Dec	14995000	50068933	3241524	76025517
Jan	132500	50201433	1153522	77179039
Feb	10990665	61192098	6549139	83728178
Mar	1834500	63026598	5154145	88882323
April	1573000	64599598	4510934	93393257
May	5610070	70209668	7172000	100565257
June	1908850	72118518	3744590	104309847

PLUMBING APPLICATIONS/PERMITS – ON-SITE WASTEWATER

	2016/17	Total	2017/18	YTD
July	3	3	1	1
Aug	4	7	3	4
Sept	2	9	1	5
Oct	2	11	2	7
Nov	3	14	4	11
Dec	2	16	1	12
Jan	0	16	2	14
Feb	0	16	0	14
Mar	3	19	2	16
April	1	20	1	17
May	3	23	5	22
June	4	27	2	24



NOTIFIABLE WORKS

	Building 2017/18	YTD	Plumbing 2017/18	YTD
July	9	9	12	12
Aug	10	19	10	22
Sept	10	29	18	40
Oct	8	37	17	59
Nov	14	51	12	69
Dec	15	66	11	80
Jan	5	71	4	84
Feb	7	78	7	91
Mar	12	90	12	103
April	13	103	10	113
May	14	117	13	126
June	5	122	7	133

PLUMBING INSPECTIONS

	2016/17	Total	2017/18	YTD
July	61	61	56	56
Aug	61	122	48	104
Sept	40	162	51	155
Oct	45	207	55	210
Nov	63	270	12	222
Dec	57	327	35	257
Jan	51	378	51	308
Feb	60	438	49	357
Mar	17	455	69	426
April	15	470	41	467
May	73	543	65	532
June	64	607	50	582

Environmental Health

A total of 359 food premises inspections were conducted during 2017/18. Eleven of those inspections resulted in the service of an improvement notice under the provisions of the *Food Act 2003*. Nine infringement notices were issued for breaches of the Act.

24 new Food Premises permits were issued, and a further 105 temporary Food Premises requests were approved. The majority of the temporary permits were associated with the 20 "Event" permits issued by Council.

Eighty food complaints were received to the end of June and have been investigated. Some of these investigations resulted in the issue of improvement notices and/or infringement notices. The remainder were resolved satisfactorily.

The schools' immunisation program for the calendar year was commenced in March and will continue during the year in accordance with the mandatory program set by the Director of Public Health. During the financial year 2017/18, 1,436 immunisations were administered at schools in the program.

FOOD

	Inspections		Improvement Notices		New Premises Permit		Temporary Premises Permit		Complaints Received		Infringements Issued	
	16/17	17/18	16/17	17/18	16/17	17/18	16/17	17/18	16/17	17/18	16/17	17/18
July	1	12	0	0	3	5	6	0	0	3	0	0
Aug	29	14	1	2	3	0	1	0	0	9	0	1
Sept	16	10	0	2	2	5	4	0	0	6	0	0
Oct	8	23	1	1	5	2	13	12	0	4	0	4
Nov	1	10	0	0	1	1	4	4	0	1	0	1
Dec	28	2	0	0	2	1	3	19	0	5	0	0
Jan	24	9	0	0	2	6	9	12	0	3	0	0
Feb	8	40	0	4	2	1	7	15	8	11	3	1
Mar	5	5	0	1	0	2	8	12	9	4	0	1
April	23	8	0	0	2	0	2	9	3	7	0	0
May	20	8	0	1	1	1	4	8	4	16	0	1
June	34	8	0	0	1	0	10	14	5	11	0	0

EVENTS ASSESSMENT

	17/18		17/18
July	5	Jan	5
Aug	2	Feb	6
Sept	5	Mar	5
Oct	5	April	0
Nov	4	May	1
Dec	5	June	3

Animal Control

At the end of the financial year Council records showed 4,059 dogs registered in Devonport City.

Of continuing concern is that 681 dog complaints were received in the financial year. This is an average of 56 complaints per month and continues the trend despite Council implementing a website program for responsible dog ownership.

During the year Council investigated 45 dog attacks and 145 dogs were impounded.

ANIMAL CONTROL:

	Current Dog Registrations		Dog Complaints		Other Animal Complaints		Complaints Closed		Complaints Outstanding		Complaint Response (Days)		Infringement Notices Issued		Prosecutions Commenced / referred to MPES	
	16/17	17/18	16/17	17/18	16/17	17/18	16/17	17/18	16/17	17/18	16/17	17/18	16/17	17/18	16/17	17/18
July	2250	2060	73	53		2	71	44	2	9	1	1	20	34	0	0
Aug	3170		22	71		0	22	64	0	7	1	1	6	12	2	0
Sept	3795	3569	24	48		0	23	46	1	2	1	1	2	15	0	0
Oct			50	61		4	50	65	0	0	1	1	17	17	0	0
Nov	4022	3778	21	25		3	19	23	2	5	1	1	13	2	86	0
Dec			49	53		0	49	49	0	4	1	1	17	19	0	0
Jan	4013	3845	28	53		2	28	47	0	6	1	1	0	20	1	0
Feb			46	57		0	46	57	0	0	1	1	20	11	2	0
Mar	4136	4892	71	55		0	71	48	0	7	1	1	10	17	1	0
April			34	83		0	30	83	4	0	1	1	9	31	0	0
May	4187	4219	39	53		4	34	53	5	0	1	1	13	3	0	0
June	4183	4059	62	69		3	56	72	6	0	1	1	28	20	66	0

Risk and Compliance

June 2018

COMPLAINTS

	Environmental (noise, water, litter, air)		Abandoned Vehicles		Campers		Overhanging Trees		Planning		Fire Hazard		Fire Hazard Notices	
	16/17	17/18	16/17	17/18	16/17	17/18	16/17	17/18	16/17	17/18	16/17	17/18	16/17	17/18
July	25	6	6	4	3	5	7	3	0	9	0	0	0	0
Aug	40	0	5	0	13	0	4	0	0	0	2	0	0	0
Sept	32	0	5	0	15	0	6	0	0	0	2	0	0	0
Oct	35	38	5	4	20	6	8	2	0	2	7	10	0	0
Nov	8	12	10	2	16	8	10	4	1	0	2	16	0	0
Dec	17	5	7	1	40	8	1	7	2	1	28	17	0	0
Jan	8	12	6	2	36	4	5	0	0	3	14	16	0	0
Feb	7	20	8	4	54	36	12	10	0	11	16	9	0	0
Mar	9	8	12	5	21	23	15	3	2	4	7	2	0	0
April	23	8	1	4	9	10	20	0	5	0	4	0	0	0
May	18	7	5	9	20	8	21	11	7	0	1	1	0	0
June	23	14	7	5	6	4	3	0	4	13	0	1	0	0

Number of Reported Incidents

Number of Reported Incidents Internal	Number of Reported Incidents External
10	2

Incident Type Internal

Personal Injury	Personal Threat	Motor Vehicle	Near Hit	Hazard	Report Only	Property Damage	Stolen Property
0	0	2	1	1	0	5	1

Property Damage – bollards and chevron hoops hit by public vehicles
Motor vehicle – vehicle hit post, leaking radiator
Hazard – out of service tag removed
Stolen property – batteries stolen from two trucks at Works Depot

Incident Type External

Personal Injury	Property Damage	Motor Vehicle
1	0	1

Personal injury – bumped head on ship case at BSMC
Motor vehicle – damage to tyres caused by driving through pot holes in road

Insurance Claim (Internal)

Potential Claims	6
Potential Claim Costs	$2,960
Actual Claims	6
Actual Claim Costs	$2,960

Insurance Claim (External)

Potential Claim	1
Potential Claim Costs	$600

Actual Claims	0
Actual Claim Costs	$0

4. Statistical Report for July 2018

It is difficult to identify any real trends in the first month of activity in the new financial year. It is noted, however, that building permits and notifiable works totalled twenty-three, well in advance of the nine for the corresponding month last year.

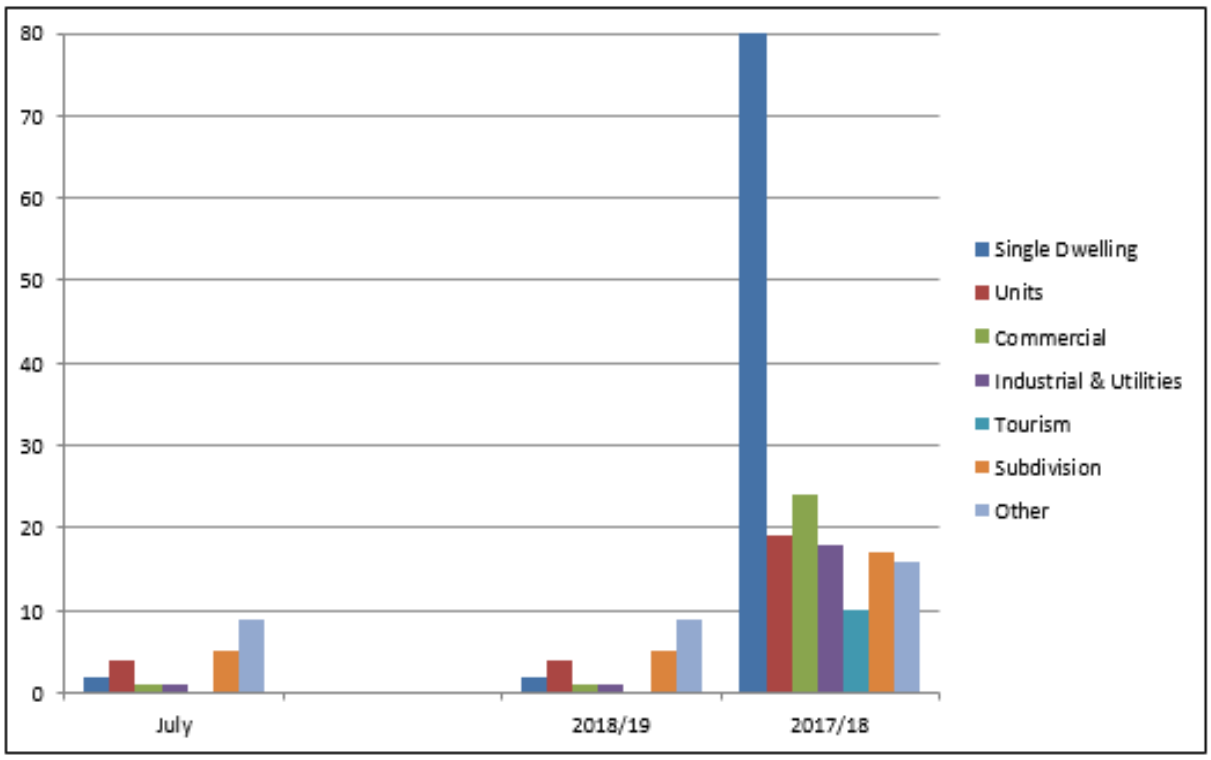
Similarly, plumbing permits and notifiable works totalled twenty-four as against the two recorded in July 2017.

Twenty-two planning applications were also received which together with building and plumbing applications confirms that development activity remains strong in the municipality.

Planning

PLANNING APPLICATIONS RECEIVED

	Single Dwelling	Units	Commercial	Industrial & Utilities	Tourism	Subdivision	Other
July	2	4	1	1	0	5	9
YTD 2018/19	2	4	1	1	0	5	9
Total for 2017/18	94	19	24	18	10	17	16



PLANNING APPLICATIONS RECEIVED

	17/18	17/18	18/19	18/19	YTD	YTD
	Disc	Permitted	Disc	Permitted	Disc	Permitted
July	16	3	21	1	21	1
Aug	15	5				
Sept	11	4				
Oct	8	5				
Nov	7	1				
Dec	2	4				
Jan	15	4				
Feb	7	5				
Mar	11	6				
April	10	10				
May	13	11				
June	16	9				
TOTAL 17/18	131	67				

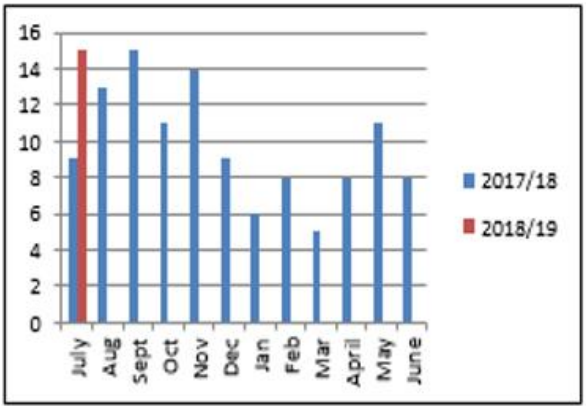
Building/Plumbing

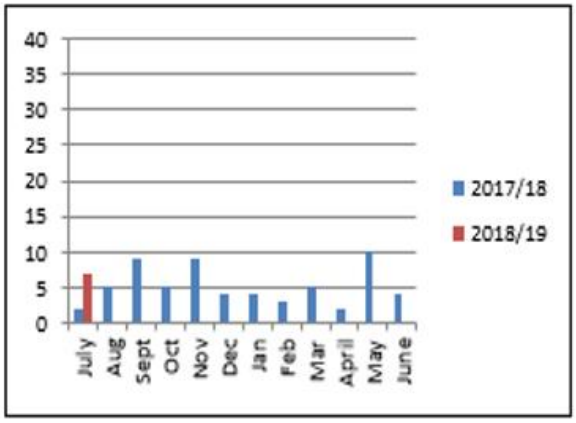
BUILDING APPLICATIONS/PERMITS

	2017/18	Total	2018/19	YTD
July	9	9	15	15
Aug	13	22		
Sept	15	37		
Oct	11	48		
Nov	14	62		
Dec	9	71		
Jan	6	77		
Feb	8	85		
Mar	5	90		
April	8	98		
May	11	109		
June	8	117		

PLUMBING APPLICATIONS/PERMITS

	2017/18	Total	2018/19	YTD
July	2	2	7	7
Aug	5	7		
Sept	9	16		
Oct	5	21		
Nov	9	30		
Dec	4	34		
Jan	4	38		
Feb	3	41		
Mar	5	46		
April	2	48		
May	10	58		
June	4	62		



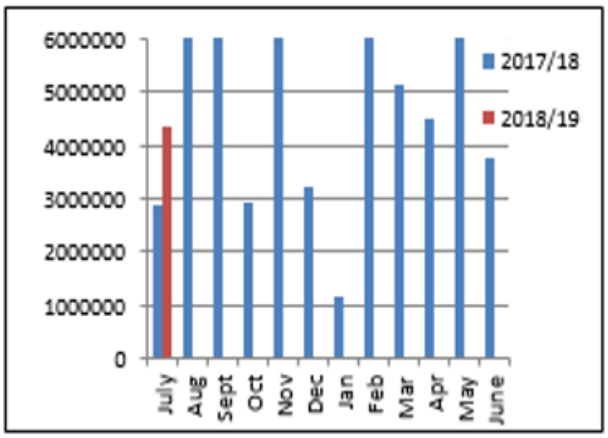


VALUE OF BUILDING WORK (ESTIMATED COST) includes BP & NW

	2017/18	Total	2018/19	YTD
July	2101995	2101995	4364284	4364284
Aug	7324772	10226767		
Sept	48784953	59011720		
Oct	2935625	61947345		
Nov	10836648	72783993		
Dec	3241524	76025517		
Jan	1153522	77179039		
Feb	6549139	83728178		
Mar	5154145	88882323		
April	4510934	93393257		
May	7172000	100565257		
June	3744590	104309847		

PLUMBING APPLICATIONS/PERMITS – ON-SITE WASTEWATER

	2017/18	Total	2018/19	YTD
July	1	1	4	4
Aug	3	4		
Sept	1	5		
Oct	2	7		
Nov	4	11		
Dec	1	12		
Jan	2	14		
Feb	0	14		
Mar	2	16		
April	1	17		
May	5	22		
June	2	24		



NOTIFIABLE WORKS

	Building 2018/19	YTD	Plumbing 2018/19	YTD
July	8	8	17	17
Aug				
Sept				
Oct				
Nov				
Dec				
Jan				
Feb				
Mar				
April				
May				
June				

PLUMBING INSPECTIONS

	2017/18	Total	2018/19	YTD
July	56	56	42	42
Aug	48	104		
Sept	51	155		
Oct	55	210		
Nov	12	222		
Dec	35	257		
Jan	51	308		
Feb	49	357		
Mar	69	426		
April	41	467		
May	65	532		
June	50	582		

Environmental Health

FOOD

	Inspections		Improvement Notices		New Premises Permit		Temporary Premises Permit		Complaints Received		Infringements Issued	
	17/18	18/19	17/18	18/19	17/18	18/19	17/18	18/19	17/18	18/19	17/18	18/19
July	12	2	0	1	5	1	0	7	3	10	0	0
Aug	14		2		0		0		9		1	
Sept	10		2		5		0		6		0	
Oct	23		1		2		12		4		4	
Nov	10		0		1		4		1		1	
Dec	2		0		1		19		5		0	
Jan	9		0		6		12		3		0	
Feb	40		4		1		15		11		1	
Mar	5		1		2		12		4		1	
April	8		0		0		9		7		0	
May	8		1		1		8		16		1	
June	8		0		0		14		11		0	

EVENTS ASSESSMENT

	18/19		18/19
July	3	Jan	
Aug		Feb	
Sept		Mar	
Oct		April	
Nov		May	
Dec		June	

Animal Control

ANIMAL CONTROL:

	Current Dog Registrations		Dog Complaints		Other Animal Complaints		Complaints Closed		Complaints Outstanding		Complaint Response (Days)		Infringement Notices Issued		Prosecutions Commenced / referred to MPES	
	17/18	18/19	17/18	18/19	17/18	18/19	17/18	18/19	17/18	18/19	17/18	18/19	17/18	18/19	17/18	18/19
July	2060	2750	53	51	2	0	44	46	9	5	1	1	34	34	0	0
Aug			71		0		64		7		1		12		0	
Sept	3569		48		0		46		2		1		15		0	
Oct			61		4		65		0		1		17		0	
Nov	3778		25		3		23		5		1		2		0	
Dec			53		0		49		4		1		19		0	
Jan	3845		53		2		47		6		1		20		0	
Feb			57		0		57		0		1		11		0	
Mar	4892		55		0		48		7		1		17		0	
April			83		0		83		0		1		31		0	
May	4219		53		4		53		0		1		3		0	
June	4059		693		3		72		0		1		20		0	

5. Risk and Compliance

July – 2018

COMPLAINTS

	Environmental (noise, water, litter, air)		Abandoned Vehicles		Campers		Overhanging Trees		Planning		Fire Hazard		Fire Hazard Notices	
	17/18	18/19	17/18	18/19	17/18	18/19	17/18	18/19	17/18	18/19	17/18	18/19	17/18	18/19
July	6	2	4	3	5	4	3	3	9	6	0	1	0	0
Aug	0		0		0		0		0		0		0	
Sept	0		0		0		0		0		0		0	
Oct	38		4		6		2		2		10		0	
Nov	12		2		8		4		0		16		0	
Dec	5		1		8		7		1		17		0	
Jan	12		2		4		0		3		16		0	
Feb	20		4		36		10		11		9		0	
Mar	8		5		23		3		4		2		0	
April	8		4		10		0		0		0		0	
May	7		9		8		11		0		1		0	
June	14		5		4		0		13		1		0	

Number of Reported Incidents

Number of Reported Incidents Internal	Number of Reported Incidents External
8	1

Incident Type Internal

Personal Injury	Personal Threat	Motor Vehicle	Near Hit	Hazard	Report Only	Property Damage	Stolen Property
3	0	0	3	0	0	2	0

Personal Injury – metal in eye, back strain and jammed finger

Property Damage – Garbage truck backed over Telstra pit lid and toilet rolls set on fire in Formby Road car park

Near Hit – chainsaw knicked chaps, air conditioning cover fell and almost hit employee x 2.

Incident Type External

Personal Injury	Property Damage	Motor Vehicle
1	0	0

Personal injury – Trip and fall over loose cover on Telstra pit

Insurance Claim (Internal)

Potential Claims	1
Potential Claim Costs	$1,500
Actual Claims	1
Actual Claim Costs	$1,500

Insurance Claim (External)

Potential Claim	1
Potential Claim Costs	$1,000
Actual Claims	0
Actual Claim Costs	$0

COMMUNITY ENGAGEMENT
The information provided above details any issues relating to community engagement.

FINANCIAL IMPLICATIONS
Any financial implications arising out of this report will be reported separately to Council.

RISK IMPLICATIONS
There are no specific risk implications as a result of this report.

CONCLUSION
This report is provided for information purposes only about the activities of the Development and Health Services Department in June and July 2018.

ATTACHMENTS
⇩1. Building Act Amendments Fact Sheet

⇩2. Fact Sheet Expiry of Permits

RECOMMENDATION
That it be recommended to Council that the Development and Health Services Report be received and noted.

Author:	Brian May	Endorsed By:	Matthew Atkins
Position:	Development Manager	Position:	Deputy General Manager

Fact Sheet

Building Legislation (Miscellaneous Amendments) Bill 2018

- The Building Legislation (Miscellaneous Amendments) Bill 2018 amends the following six items of legislation:
    - The *Building Act 2016*
    - The *Occupational Licensing Act 2005*
    - The *Building Regulations 2016*
    - The *Occupational Licensing (Building Services Work) Regulations 2016*
    - The *Residential Building Work Contracts and Dispute Resolution Regulations 2016*
    - The *Urban Drainage (General) Regulations 2016*
- The *Building Act 2016* is to be amended to:
    - Extend the range of subjects on which the Director of Building Control ("the Director") may make a Determination
    - The definition of "owner" of premises is amended:
        - to address the situation where an occupier or tenant has entered a building work contract. They are now deemed to be an "owner" for fulfilling their responsibilities under that contract. Otherwise, an occupier could walk away and leave the landlord to be directly responsible for fixing defects with the contracted work; and
        - to clarify that occupiers or tenants can have a contractual responsibility for the maintenance of any essential building services in the building they lease or occupy
    - Provides that if substantial progress had been made on the design of work prior to a building regulations change, that design may assessed against the law prior to that change occurring
    - Excludes "like for like" repair work of buildings from the operation of section 53 of the Act, that would otherwise require a further upgrading of a building where any new work goes over a specific threshold. This addresses the issue when extensive repairs are required to return a building to its former condition caused by events such as floods, fires or wind damage
    - Provides clarity that Function Control Authorities are to be notified of proposed building work on premises they license, including private hospitals, schools, or primary produce processing facilities. In assessing an application for a Certification of Likely Compliance the building surveyor is to consider any recommendations received from an Authority
    - Clarification that any extensions to an approval for work must be made before the current approval expires; however the Director of Building Control may make a Determination that special circumstances may apply, where an expired approval may still be accepted by the permit authority
    - Addresses the problem where the responsible person for work either is unable to, or will not, issue their Standard of Work Certificate to the owner, thereby preventing them obtaining a Certificate of Completion of that work. Examples are

where the builder has died, disappeared or they refuse to give a certificate due to a dispute with the owner over payment

- Clarification that owners need only make one application to the permit authority for all required steps needed before they can be issued with a plumbing permit
- Amendment allows for the permit authority to approve a schedule of maintenance that only relates to plumbing installations on the premises
- Any references to a "prescribed fee" are omitted, as fees come under the Local Government Act 1993
- Reporting Authorities are granted appeal rights against certain decisions by building surveyors

- The *Occupational Licensing Act 2005* is to be amended to:
  - Provide a power for the Administrator of Occupational Licensing to make a determination concerning owner builder work. That includes the types of buildings or building work that require an application for an owner builder permit
  - Inserts relevant matters that the Administrator is to have taken into consideration, when a decision is made to refuse a licence application
  - Clarify that an organisation, managing building work, does not also have to hold an "entity licence" under s.37C, where a director, partner, or employee already has a building services provider licence issued under s.22A
  - Repeal the Act's provisions for demerit points
  - Clarify that "demolition work" is also prescribed work that requires a licence
- The *Building Regulations 2016* is to be amended to:
  - Provides that temporary swimming pools and their safety barriers, are structures that may need a temporary occupancy permit before their erection
  - Allow the Director of Building Control to make a determination regarding processes for the rectification of defective or non-compliant work.
- The *Occupational Licensing (Building Services Work) Regulations 2016* is to be amended to:
  - Clarify of the number of owner builder permits that are permitted to be applied for in a ten year period, and when that period starts
  - Remove the monetary limit for Low Risk work of $20,000. Instead the Director will specify the types of Low Risk Work that must be constructed by a licensed builder
- The *Residential Building Work Contracts and Dispute Resolution Regulations 2016* is to be amended to correct certain references to sections of the principal Act;
- The *Urban Drainage (General) Regulations 2016* is to be amended to insert a reference to the *Building Act 2016*.

Promoting a fair marketplace
CBOS
Consumer, Building & Occupational Services

Building Standards and Regulation

Fact Sheet

July 2018
v1.0

Expiry of Permits

Duration of permits

Under the *Building Act 2016,* building/plumbing/demolition permits expire:

- if no work has started, within one year of the permit being issued (unless another period for starting work is stated in the permit); or
- if work has started, within two years of the start work authorisation being issued for the work (unless another period for completing the work is stated in the permit).

Some permits issued under the *Building Act 2000* and the *Local Government (Building and Miscellaneous Provisions) Act 1993* were issued without stating an expiry date. If these permits have not been completed, they will now expire if:

- the permit was in force immediately before 1 January 2017;
- the permit has not since expired; and
- there is no other expiry date on the permit.

If a permit meets these criteria, they will now expire on **1 January 2019** unless they are extended.

Law	Section	Provision
Building Act 2016	Duration of Permits	Section 146 (building), Section 161 (plumbing), Section 196 (demolition)
Building Act 2016	Transitional and Savings Provisions	Schedule 2, Part 3, Section 6

How to apply for a permit extension

If an owner wants work to continue under a permit which is due to expire, they will need to apply to the permit authority to have the permit extended beyond 31 December 2018.

The extension application must be made in the Approved Form and include:

- reports of prior inspections of work (if any); and
- advice from the building surveyor (or plumber/plumbing inspector for plumbing work) on the state of the works.

The permit authority may extend the permit, refuse to extend the permit or request further information. They have 7 days to make this decision. They can charge a fee for the application.

Law	Section	Provision
Building Act 2016	Extension of Duration of Permit	Section 147 (building) Section 173 (plumbing) Section 197 (demolition)

What work needs to be finished before a permit expires?

Before a permit expires, all work that is the subject of the permit must be completed. This includes:

- the building/plumbing/demolition work as defined by the *Building Act 2016*; and
- any other prescribed work including inspections (these are prescribed building services work under the *Occupational Licensing Act 2005*).

The inspection and completion of a permit is to occur before the permit expires. To allow for any building work required as a result of the final inspection, a valid permit is required.

A Certificate of Final Inspection or a Certificate of Completion can be issued without a valid permit. If an owner only needs these certificates to be issued for a project to be 'complete' after a permit has expired, a new permit is not required.

Law	Section	Provision
Building Act 2016	Interpretation – Definition of Building/Plumbing/ Demolition Work	Section 4
Occupational Licensing (Building Services Work) Regulations 2016	Prescribed Work	Regulation 4

What happens if a permit expires before work is finished?

If a permit expires and further building work (including work following final inspection) to continue on the site, a new permit from the permit authority is required. Any work done without a valid permit in place is illegal work.

An application for a new permit must comply with the requirements in the *Building Act 2016*. It will need to use the current forms, fees and supporting documents as per the Director's Specified List. New designs will not be required unless the design has changed or is no longer compliant.

Law	Section	Provision
Building Act 2016	Application for Permit	Section 139 (building) Section 165 (plumbing) Section 190 (demolition)

6.2 INFRASTRUCTURE AND WORKS REPORT

File: 29528 D533281

RELEVANCE TO COUNCIL'S PLANS & POLICIES
Council's Strategic Plan 2009-2030:

Strategy 5.4.1 Provide timely, efficient, consistent and quality services which are aligned with and meet our customers needs

SUMMARY
This report provides a summary of the activities undertaken by the Infrastructure and Works Department during the months of June and July 2018.

BACKGROUND
The report is provided to the Infrastructure, Works and Development Committee and aims to update Aldermen and the community on matters of interest. The functional areas of Council covered by this report are:

- Asset Management Program (forward planning and maintenance)
- Capital Works
- Roads, Footpaths and Cycleways
- Streetscape Design (incl lighting, signs, furniture, vegetation)
- Stormwater Management
- Traffic Management
- Waste Management
- Recreation Reserves (incl playgrounds, parks and gardens)
- Sporting Grounds and Facilities
- Tracks and Trails
- Public Buildings (incl public halls, toilets)
- Marine Structures (incl jetties, boat ramps)
- Recreation and open space planning

STATUTORY REQUIREMENTS
Council is required to comply with the provisions of the *Local Government Act 1993* and other relevant legislation.

DISCUSSION

1. 2017/2018 Capital Works Program

1.1. The 2017/2018 Capital Works Program has been completed as anticipated, with most projects being finalised. As previously reported to Council, a small number of projects were not undertaken for various reasons and some projects have been carried forward to the 2018/2019 financial year. Details regarding progress of some projects is outlined below.

- Formby Road/Best Street intersection – awaiting finalisation of LIVING CITY hotel design;
- Bishops and Squibbs Road projects – awaiting environmental approvals;
- Pool Filter replacements – awaiting material delivery;
- Plant replacements including garbage truck – awaiting delivery;

- East Devonport toilet block – delay with design commencement due to timing of Council decision.

1.2. East Devonport fitness equipment - the installation of fitness equipment in East Devonport is now complete. The equipment features 15 stations that cater for all fitness levels, which was a key message received from stakeholders. Community programs to introduce potential users to the equipment will commence in coming months.

1.3. Southern Rooke Street renewal - a contractor has now been engaged for the construction of the project. Work in an isolated area on the east side of the street is scheduled to start in late August to coincide with a planned shutdown of the adjacent business. The main portion of the work is scheduled to commence in January 2019.

1.4. Forth Road pedestrian link - the Forth Road pedestrian link is now complete. Work to construct a new path from the crossing to the Don Memorial Hall is underway.

1.5. Rural road route signs - work to install rural road route signs is complete. Signs were installed at most rural intersections to assist drivers who are unfamiliar with the rural road network.

1.6. Victoria Parade Boat Ramp - work to widen the entry lane to the boat ramp area is complete. The ramp was widened to increase the area available for preparing a boat for launch. This has removed a bottleneck on the site that had caused frustration for users. The cost of this work was accommodated within the approved budget for this project.

2. 2018-19 Capital Works Program

2.1. Several projects have progressed to the design phase and are scheduled to be constructed in the coming months including:

- Victoria Parade (Cenotaph) car park improvements
- Victoria Parade path renewal, north of boat ramp
- Victoria Parade path lighting, north of George Street
- Coles Beach/Back Beach pedestrian links

- Don Reserve bank stabilisation
- Replacement of variable message board

2.2. External funding has been confirmed for the Black Spot project to construct a new roundabout at the intersection of Ronald Street and Parker Street. This $270,000 grant will enable construction to proceed in 2019.

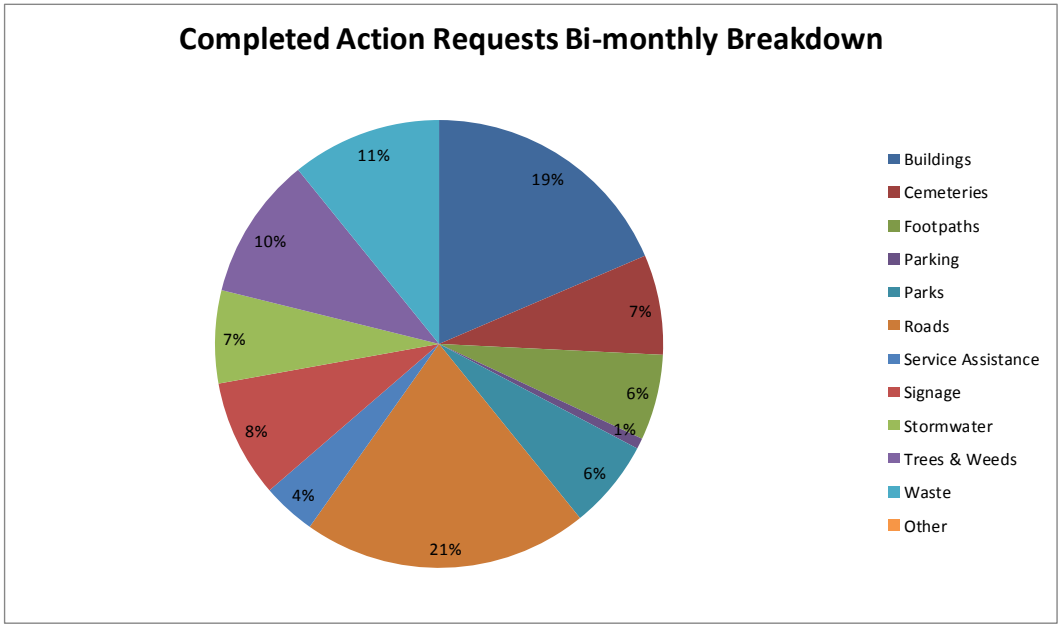
2.3. Applications are open for the 2019-20 Black Spot Program. Candidate projects that address a demonstrated road safety issue will be submitted for consideration.

3. Management

3.1. The following table is a summary of the action requests for the Infrastructure and Works Department:

Balance of Action Requests as at 1/6/2018	583
Number of Action Requests created in June & July	419
Number of Action Requests completed in June & July	381
Balance of Action Requests as at 31/7/2018	621

3.2. The following graph details the breakdown of the action requests completed during June and July:



4. Technical and Engineering

4.1. The Department of State Growth's (DSG) review of the urban bus routes is ongoing. Staff have been working with DSG and Don College to design improvements to Watkinson Street, including a new bus stop on the eastern side of the street opposite the College and pedestrian safety improvements. DSG have committed to fund the project which is essential for the new routes.

Other road network changes have been agreed, including the construction of left slip lane at the intersection Best Street and Formby Road and the change in priority of the intersection of Ronald Street and James Street. These works will be progressed within Council's 2018-19 Capital Works Program.

4.2. A development plan for the Don to Leith section of the Coastal Pathway has been received. The development plan has progressed the design and consultation for this section of pathway to a point where the plan could be used

to attract external funding. A separate report has been provided to Council summarising the progress made.

4.3. Deflection testing of the pavement assets on Wright Street, Devonport Road and Sorell Street has been completed. The data obtained is used to estimate the remaining life of the assets and determines whether a reseal is a suitable treatment.

4.4. Work on updating Council's Stormwater Asset Management Plan (AM Plan) is underway. The current AM Plan was produced in 2011 and since then, considerable improvements have been made in the accuracy of asset data, the collection and analysis of condition data has improved, and the capacity of the catchment systems is better understood. A revised plan will be presented to Council at a future meeting.

4.5. The Mersey Bluff Precinct Pedestrian Parking and Traffic Study has been delivered. The Study recommends that parking, path and signage improvements be made over the next four years. A report has been provided to Council recommending that budget allocations be considered to undertake these projects.

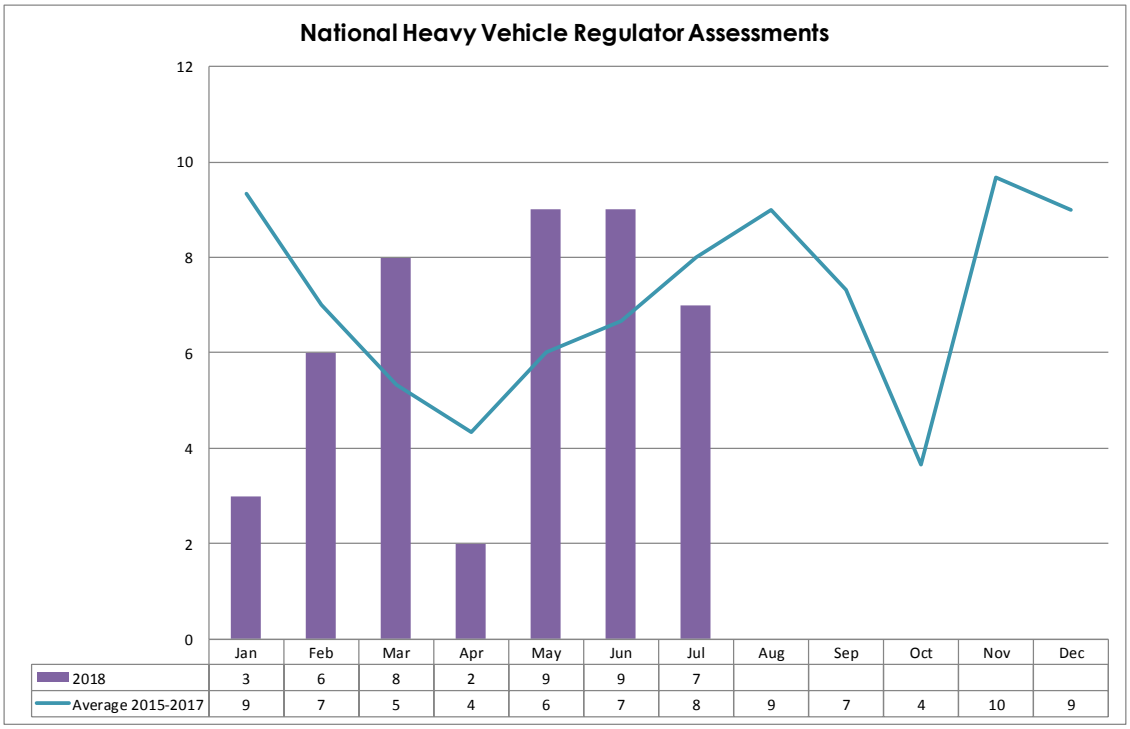
4.6. Asset management processes required for the end of financial year have been completed including a revaluation of all parks assets.

4.7. The following is a summary of the projects capitalised in June.

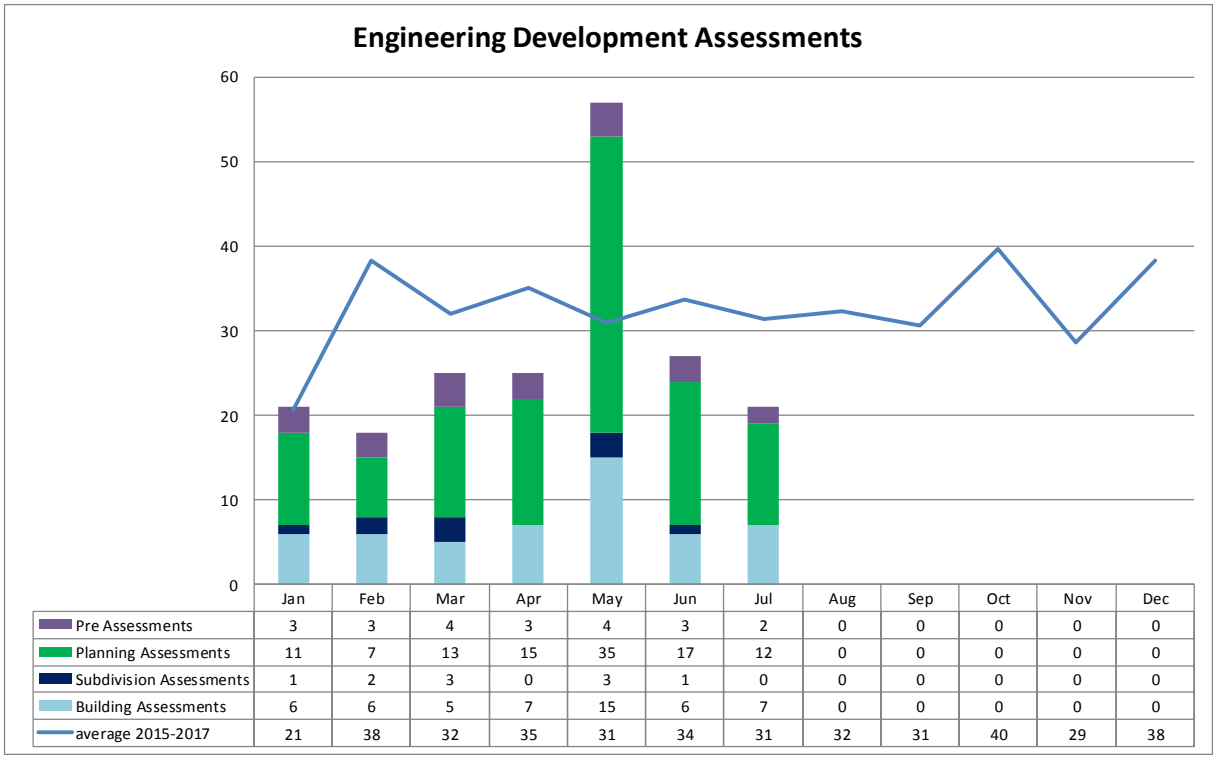
Number of projects capitalised in June and July	5
Total value of capitalisations in June and July	$0.52M
Total value of Works in Progress (WIP) as at 31/7/2018	$68.5M*
Number of projects awaiting capitalisation next month	14

* includes $61.3M LIVING CITY costs yet to be capitalised

4.8. Nine National Heavy Vehicle Regulator Assessments were completed in June and seven were assessed in July. The following graph details the National Heavy Vehicle Regulator Assessments that have been issued this year compared to previous years:

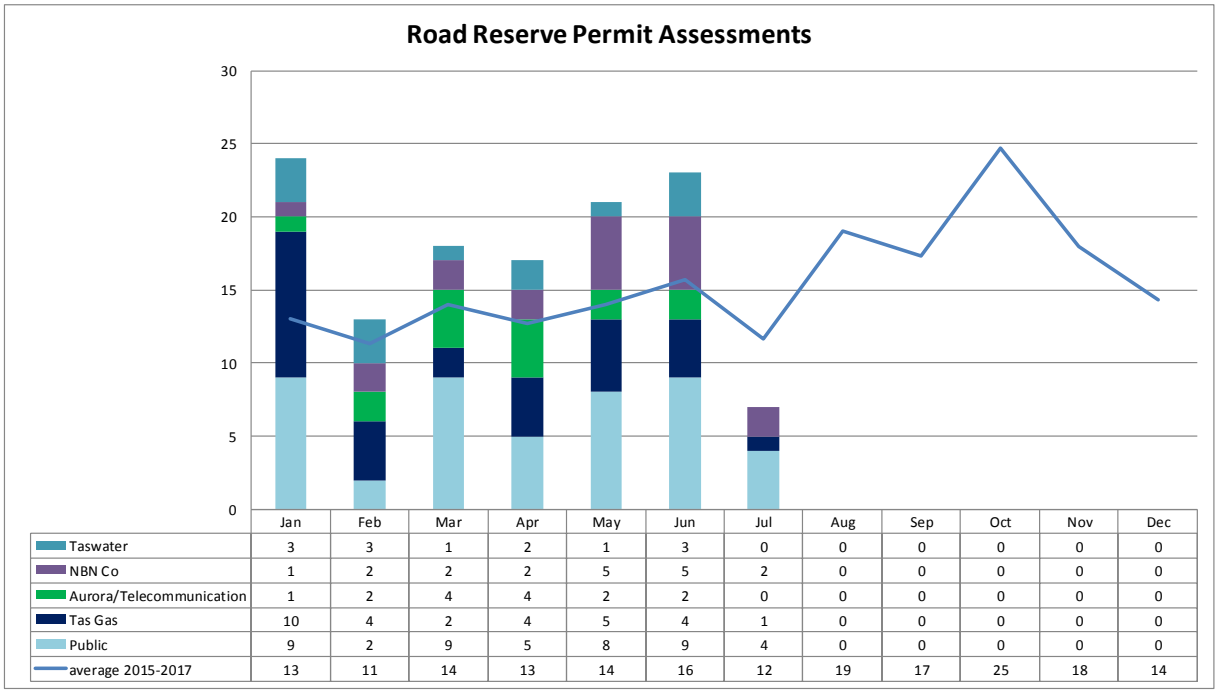


4.9. The following graph details the Engineering Assessments for Development Applications that were completed last year compared to previous years:



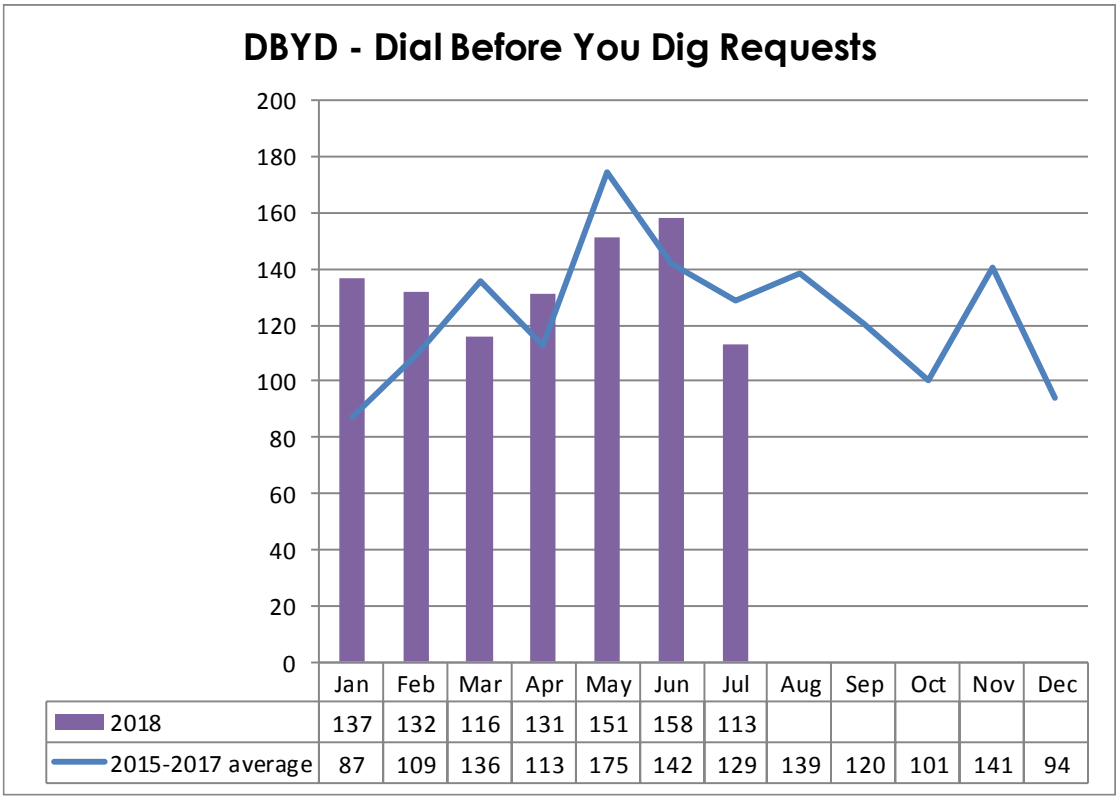
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pre Assessments	3	3	4	3	4	3	2	0	0	0	0	0
Planning Assessments	11	7	13	15	35	17	12	0	0	0	0	0
Subdivision Assessments	1	2	3	0	3	1	0	0	0	0	0	0
Building Assessments	6	6	5	7	15	6	7	0	0	0	0	0
average 2015-2017	21	38	32	35	31	34	31	32	31	40	29	38

4.10. 23 Road Reserve Permits were issued in June, 7 permits were issued in July. The following graph details the permits that were issued this year compared to previous years:



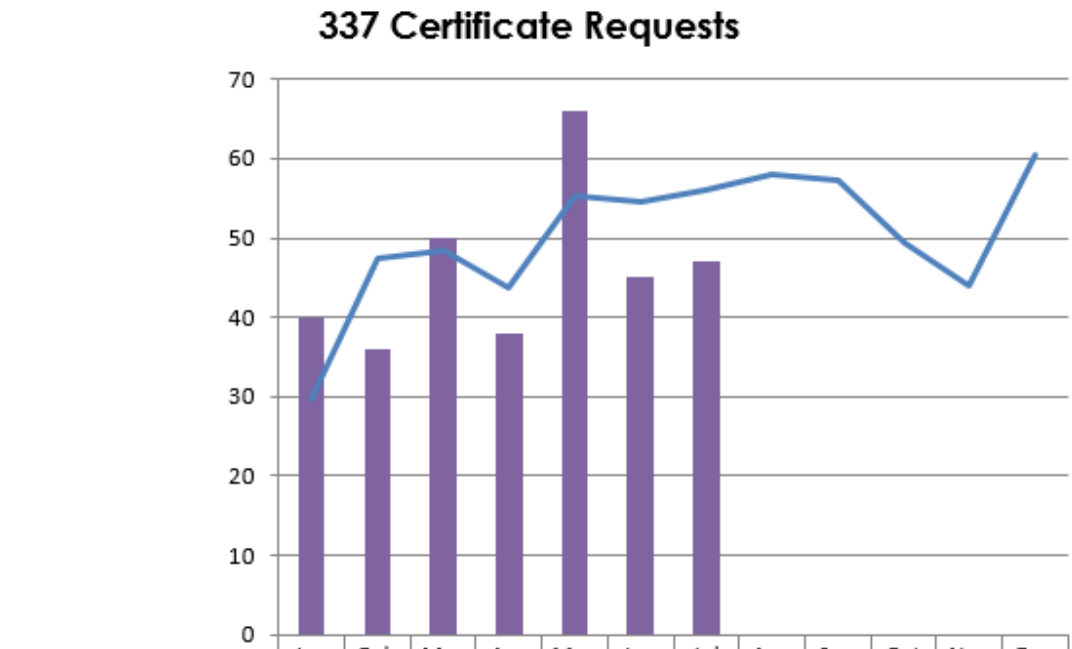
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Taswater	3	3	1	2	1	3	0	0	0	0	0	0
NBN Co	1	2	2	2	5	5	2	0	0	0	0	0
Aurora/Telecommunication	1	2	4	4	2	2	0	0	0	0	0	0
Tas Gas	10	4	2	4	5	4	1	0	0	0	0	0
Public	9	2	9	5	8	9	4	0	0	0	0	0
average 2015-2017	13	11	14	13	14	16	12	19	17	25	18	14

4.11. 158 Dial Before You Dig requests were processed in June and 113 in July. The following graph details the Dial Before You Dig requests that have been processed this year compared to previous years:



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	137	132	116	131	151	158	113					
2015-2017 average	87	109	136	113	175	142	129	139	120	101	141	94

4.12. 45 Section 337 Certificates were processed in June and 47 in July. The following graph details the 337 Certificates that have been assessed by the Infrastructure and Works Department this calendar year compared to previous years:



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	40	36	50	38	66	45	47					
2015-2017 average	30	47	48	44	55	55	56	58	57	49	44	60

5. Operational Contracts

5.1. The following table details the contracts managed within the Infrastructure and Works Department that have been extended this financial year:

Contract	Contract Period	Extension Options	$ Value (Excluding GST)	Contractor
Contract - 1276 Waste Transfer	30/11/2017 option 1+1	The original contract signed in June 2014 was for a 36 month period and had an option for two 12 month extensions. Further to a review the option for the additional 12 months was accepted.	$247,159 per annum	Veolia Environmental Services
Tree Maintenance and Removal Services	30/4/2018 option 1+1	The original contract signed in May 2017 was for a 12 month period and had an option for a further one year plus one year extension. Further to a review the option for the additional 12 months was accepted.	Schedule of Rates	A1 Trees
Contract - 1288 Security Patrol & Associated Services	30/6/2015 option 1+1	The original contract signed in May 2015 was for a 24 month period and had an option for a further one year plus one year extension. Further to a review the option for the additional 12 months was accepted.	$32,738 per annum	JRB Protection
Contract 1314 Supply & Delivery of Pre-mixed Concrete	30/06/2018 option 1+1	The original contract signed in June 2017 was for a 12 month period and had an option for two 12 month extensions. Further to a review the option for the additional 12 months was accepted.	Schedule of Rates	Boral Construction Materials

6. Civil Works and Stormwater Maintenance

6.1. Maintenance in accordance with the Service Level Document, undertaken in June and July included:

- Repairing of a major crack in Don Road, west of Hillcrest Road.
- Footpath repairs in Newton Street, Frond Place and Jarrod Court.
- Replacement of faded street blade signs.
- Clearing debris and clearing stormwater outlets following storms in July.

6.2. In August and September, it is anticipated that civil works and stormwater maintenance works will include:

- Various sections of footpath replacement identified from inspections.
- Clearing a large open drain at East Devonport Recreation Centre.
- Ongoing maintenance of a section of Arden Avenue where a spring has developed. Note that some work has already been completed to address the groundwater, including installation of two subsoil drains. However, the issue persists. It is unlikely that the damaged section of road will be able to be resealed until later in the year when the water table lowers.
- Repairs to the erosion of the Victoria Parade foreshore near George Street that was damaged during storms in July.

7. Parks and Reserves Maintenance

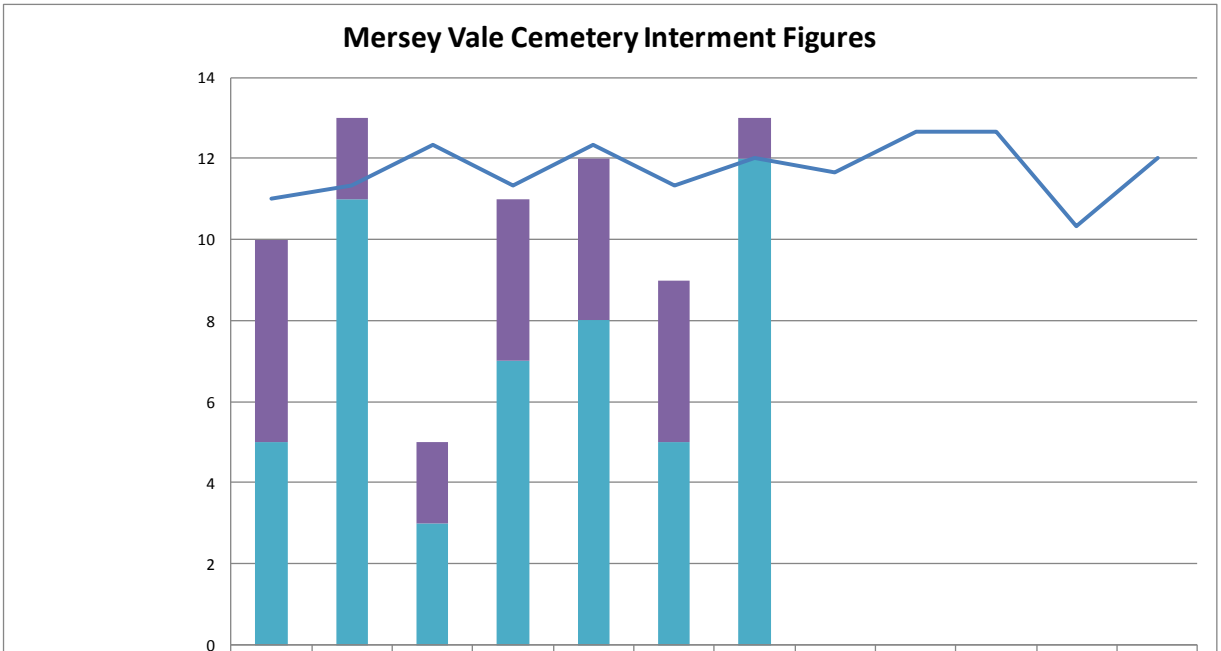
7.1. Maintenance in accordance with the Service Level Document, undertaken in June and July included:

- Maintenance and mowing of sports grounds, which has been difficult with over 100mm of rain recorded in the two months.
- Clean up at Mersey Bluff and Victoria Parade following storms.
- Planting of mulched bed on Formby Road, south of Bass Highway.

7.2. In August and September, it is anticipated that parks and reserves maintenance works will include:

- Replacement of street trees as identified in inspections.
- Maintenance and mowing of sports grounds.

7.3. Mersey Vale Memorial Cemetery interment figures for last year compared to previous years are as follows:



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ash Interment - 2018	5	2	2	4	4	4	1					
Burial - 2018	5	11	3	7	8	5	12					
average 2015-2017	11	11	12	11	12	11	12	12	13	13	10	12

8. Building and Facilities Maintenance

8.1. Maintenance in accordance with the Service Level Document, undertaken in June and July included:

- Replacement of external doors at Meercroft Park and Devonport Oval.
- Assembly of new picnic tables ready for installation at Splash.
- Install new stormwater line at 25 Forbes Street
- Service assistance for North West Thunder basketball games

8.2. In August and September, it is anticipated that building and facilities maintenance works will include:

- Recoat Foyer Floor at Surf Club Foyer

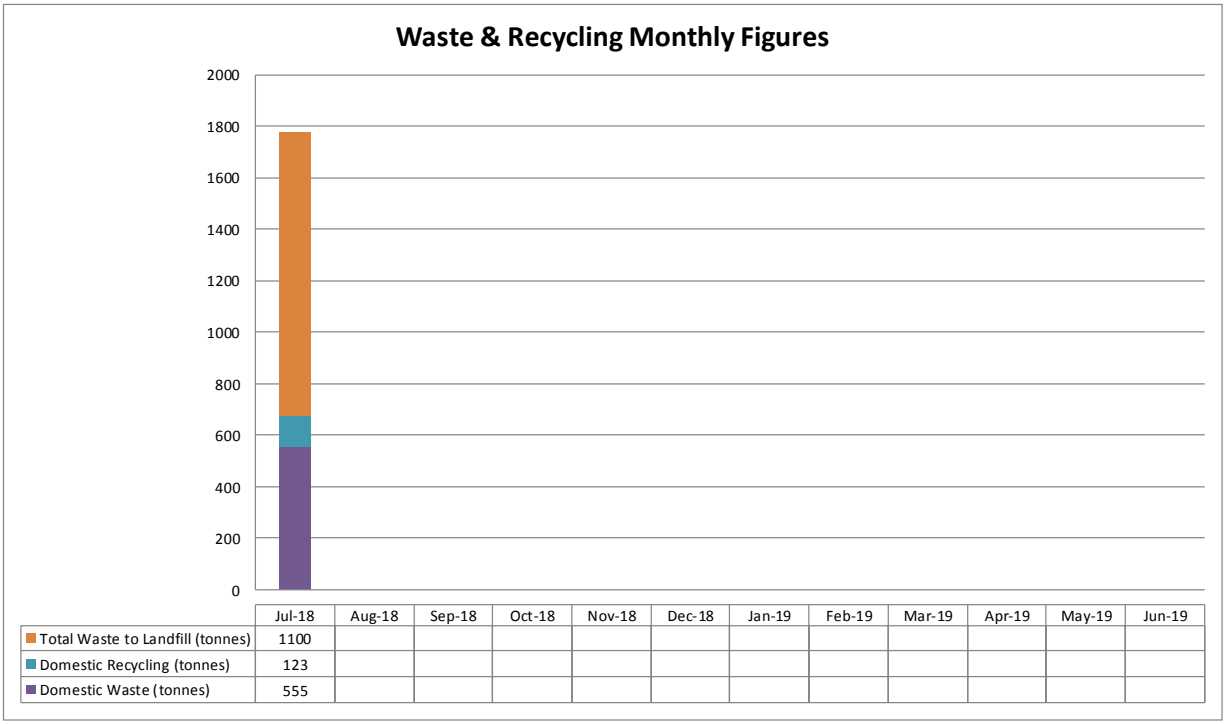
- Assemble new Park Furniture
- Stain Timber Handrails at Surf Club

9. Waste Management Operations

9.1. Waste Management Services were conducted in accordance with the Service Level Document during June and July. Items of note include:

- 1935 drums were processed for DrumMuster.

9.2. The following graph details the volumes of waste and recycling from the domestic collection services and the total volume of waste to landfill from the Spreyton Waste Transfer Station:



9.3. The following table details the monthly figures for the Spreyton Waste Transfer Station:

Item	May 2018	June 2018	July 2018	17/18 Total	16/17 Total	15/16 Total
Asbestos – large loads	0 tonnes	0 tonnes	1.36 tonnes	9.94 tonnes	11.02 tonnes	12.8 tonnes
Asbestos – small loads	11 m³	11 m³	18 m³	191 m³	205 m³	218m³
Mattresses	71	94	66	828	695	500
Vehicle Loads – up to 0.5m³	510	423	409	5,117	4,859	7,958
Vehicle Loads – 0.5m³ to 1.5m³	1,148	1,030	1,026	11,724	13,985	12,492
Vehicle Loads – 1.5m³ to 2m³	396	485	269	6,380	6,422	6,548
DCC Garbage Trucks (Domestic & Commercial Collection Services)	886 tonnes	681 tonnes	665 tonnes	9,207 tonnes	9,192 tonnes	9,376 tonnes
Steel Recycling	84 tonnes	75 tonnes	90 tonnes	845 tonnes	897 tonnes	843 tonnes
e-Waste	0 tonnes	12 tonnes	0 tonnes	12 tonnes	0 tonnes	9.9 tonnes
Tyres	27	177	31	348	293	359

COMMUNITY ENGAGEMENT
The information provided above details any issues relating to community engagement.

FINANCIAL IMPLICATIONS
Any financial or budgetary implications relating to matters discussed in this report will be separately reported to Council.

RISK IMPLICATIONS
Any specific risk implications have been outlined in the discussion above. Any specific issue that may result in any form of risk to Council is likely to be the subject of a separate report to Council.

CONCLUSION
This report is provided for information purposes only and to allow Council to be updated on activities undertaken by the Infrastructure and Works Department.

ATTACHMENTS
Nil

RECOMMENDATION
That it be recommended to Council that the Infrastructure and Works report be received and noted.

Author:	Michael Williams	Endorsed By:	Matthew Atkins
Position:	City Engineer	Position:	Deputy General Manager

7.0 CLOSURE

There being no further business the Chairman declared the meeting closed at pm.