ACT Government
Transport Canberra and City Services

FREEDOM OF INFORMATION COVERSHEET

The following information is provided pursuant to section 28 of the *Freedom of Information Act 2016*.

FOI reference: TCCSFOI 2018-107

Information to be published	Status
1. Access application	Published
2. Decision notice and schedule	Published
3. Documents	Published
4. Additional information identified	No
5. Fees	n/a
6. Processing time (in working days)	33 days
7. Decision made by Ombudsman	n/a
8. Additional information identified by Ombudsman	n/a
9. Decision made by ACAT	n/a
10. Additional information identified by ACAT	n/a

18-107
Received by post 22/NOV.

ACT Government
Transport Canberra and City Services

Freedom of Information – Access Application Form

PRIVACY NOTICE

The personal information you supply on this form will only be used for the purpose of processing your request. Your application must include an email or postal address to which the respondent can send notices under the Act. If all or some of this information is not collected, Transport Canberra and City Services may not be able to communicate with you, inhibiting their obligations under the Act. This could mean the request cannot be dealt with. Your personal information will not be disclosed to a third party without your consent unless statutory obligations require otherwise.

The Transport Canberra and City Services Privacy Policy contains information on how you can access or seek to correct any of your personal information that is held by the Transport Canberra and City Services, as well as the process for lodging a complaint about an alleged breach of the *Information Privacy Act 2014*. The Privacy Policy can be found on the Transport Canberra and City Services website at www.tccs.act.gov.au.

Applicant details

I wish to make an access application to Transport Canberra and City Services under the *Freedom of Information Act 2016*.

Name	[redacted]
Address (where notices relating to this request can be sent – either postal or electronic)	[redacted]
Telephone Contact (Business Hours)	[redacted]
Telephone Contact (Mobile)	[redacted]
Email Contact	[redacted]

What documents are you requesting under the Act?

- To help Transport Canberra and City Services process your request, please include enough detail in your application so that we can fully understand what government information you want.
- You may wish to include a statement about how the release of information is in the public interest.
- If your application is for access to your own personal information you must include evidence of your identity. If you are an agent acting for an applicant, please supply evidence of your authorisation and evidence of the identity of the agent.
- If for reasons in section 30 of the Act is not compliant and your application cannot be processed, Transport Canberra and City Services will take reasonable steps to assist you and give you reasonable time to amend your application if you wish.

Fee Waiver

If you wish to apply for a fee waiver, the Act sets out a number of provisions to do so:

- The information being requested was previously publicly available but no longer is.
- The information being requested is of special benefit to the public (Ombudsman guidelines see Section 66).
- The applicant is a concession card holder and demonstrates a material connection with the information requested (concession cards include a current health care or pensioner card issued under the Social Security Act 1991; a current pensioner concession card issued in relation to a pension under the Veterans' Entitlements Act 1986 or the Military Rehabilitation and Compensation Act 2004; a current gold card; or a card prescribed by regulation).
- The applicant is a not-for-profit organisation and the application relates to the activities or purposes of the organisation.
- ✓ The applicant is a member of the Legislative Assembly.

Transport Canberra and City Services must waive any fees for providing information if the information was not publicly available and the agency makes the information publicly available before or within 3 working days after giving it to the applicant.

Fee waiver application (fill in if applicable. Otherwise leave blank)

I would like to apply for a fee waiver because (state reason/s from the list above).

(provide details and evidence of how this reason applies) The applicant is a Member of the Legislative Assembly.

I would like

a copy of these documents sent to the above address

OR

~~to inspect these document~~

All ~~traffic~~ studies undertaken in Tuggeranong in 2018 to date.

APPLICANTS SIGNATURE	DATE OF REQUEST
[redacted]	14/11/18

ACT Government
Transport Canberra and City Services

[redacted]

[redacted]

Freedom of information request: Reference - 18-107

I refer to your application made under the *Freedom of Information Act 2016* (the Act), received by Transport Canberra and City Services Directorate (TCCS) on 22 November 2018, in which you sought access to:

- copies of all traffic studies undertaken in Tuggeranong in 2018 to date.

I am an Information Officer appointed by the Director-General under section 18 of the Act to deal with access applications made under Part 5 of the Act.

TCCS is required to provide a decision on your access application by 20 December 2018, however, I note you agreed to an extension until 18 January 2019.

Decision on access
Searches were completed for relevant documents and 9 documents (72 pages) were identified that fall within the scope of your request. The information includes the reports and summary data which provides the information you are seeking.

I have included at Attachment A to this decision the schedule of relevant documents. This provides a description of each document that falls within the scope of your request and the access decision for each of the documents.

Documents identified as relevant to your request contain information that I consider to be, on balance, contrary to the public interest to disclose under the test set out in section 17 of the Act.

I have decided to grant access, under section 50 of the Act, to copies of documents (Attachment B) with deletions applied to information that I consider would be contrary to the public interest to disclose.

Statement of Reasons
The information considered contrary to the public interest to disclose include the names of third parties.

The material I have considered in the assessment of these documents includes:

- the FOI Act, in particular:
  - Schedule 2, Section 2.1 (b)(i) – the person making the request;
  - Schedule 2, Section 2.2 (a)(ii) – prejudice the protection of an individual's right to privacy or any other right under the *Human Rights Act 2004*;
- the *Information Privacy Act 2014*; and

- the content of the documents that fall within the scope your request.

Documents referenced as 4-9 contain personal information of third parties. Disclosure of personal information is governed by the 'use and disclosure' privacy principles. Part 3 of the *Information Privacy Act 2014* (TTP 6.1) states that an agency that holds personal information about an individual that has been collected for a particular purpose, must not disclose the information to a third party unless the individual has consented to the use or disclosure of the information. Schedule 1, Section 1.4 applies to these documents.

Charges
As a member of the ACT Legislative Assembly, any fees and charges associated with this request will be waived in pursuant to section 107 (e) of the Act.

Online publishing – disclosure log
Under section 28 of the Act, TCCS maintains an online record of access applications called a disclosure log. Your original access application, my decision and documents released in response to your access application will be published in the TCCS disclosure log from 3 days after the date of this decision. Your personal contact details will not be published. You may view the TCCS' disclosure log at http://www.tccs.act.gov.au/about-us/freedom_of_information.

Ombudsman review
My decision on your access request is a reviewable decision as identified in Schedule 3 of the Act. You have the right to seek Ombudsman review of this outcome under section 73 of the Act within 20 working days from the day that my decision is published in TCCS' disclosure log, or a longer period allowed by the Ombudsman.

If you wish to request a review of my decision you may write to the Ombudsman at:

The ACT Ombudsman
GPO Box 442
CANBERRA ACT 2601
Via email: ombudsman@ombudsman.gov.au

ACT Civil and Administrative Tribunal (ACAT) review
Under section 84 of the Act, if a decision is made under section 82(1) on an Ombudsman review, you may apply to the ACAT for review of the Ombudsman decision.

Further information may be obtained from the ACAT at:

ACT Civil and Administrative Tribunal
Level 4, 1 Moore Street
GPO Box 370
Canberra City ACT 2601
Telephone: (02) 6207 1740
www.acat.act.gov.au

If you have any queries concerning the directorate's processing of your request, or would like further information, please contact the directorate's FOI Coordinator on 6205 5408 or email tccs.foi@act.gov.au.

Yours sincerely

[redacted]

Ben McHugh
Information Officer

17 January 2019

ACT Government
Transport Canberra and City Services

Attachment A

FREEDOM OF INFORMATION SCHEDULE

PLEASE BE AWARE THAT UNDER THE FREEDOM OF INFORMATION ACT 2016, SOME OF THE INFORMATION PROVIDED TO YOU WILL BE RELEASED TO THE PUBLIC THROUGH THE ACT GOVERNMENT'S OPEN ACCESS SCHEME. THE OPEN ACCESS RELEASE STATUS COLUMN OF THE TABLE BELOW INDICATES WHAT DOCUMENTS ARE INTENDED FOR RELEASE ONLINE THROUGH OPEN ACCESS.

PERSONAL INFORMATION OR BUSINESS AFFAIRS INFORMATION WILL NOT BE MADE AVAILABLE UNDER THIS POLICY. IF YOU THINK THE CONTENT OF YOUR REQUEST WOULD CONTAIN SUCH INFORMATION, PLEASE INFORM THE CONTACT OFFICER IMMEDIATELY.

INFORMATION ABOUT WHAT IS PUBLISHED ON OPEN ACCESS IS AVAILABLE ONLINE AT: HTTP://WWW.TCCS.ACT.GOV.AU/ABOUT-US/FREEDOM_OF_INFORMATION

FILE NO	WHAT ARE THE PARAMETERS OF THE REQUEST
TCCS 18-107	TRAFFIC STUDIES IN TUGGERANONG

REF NO	NO OF FOLIOS	DESCRIPTION	DATE	STATUS	REASON FOR NON-RELEASE OR DEFERRAL	OPEN ACCESS RELEASE STATUS
1	1-6	Residential Street Improvements – Beattie Cres, Deamer Cres, Proctor St and Norriss St	JUNE 2018	FULL ACCESS		PUBLISHED
2	7-13	Residential Street Improvements – Budgen Avenue, Castleton Cres, Bramston St	JUNE 2018	FULL ACCESS		PUBLISHED
3	14-21	Residential Street Improvements – Lawrence Wackett and Chippindall Circ Theodore	JUNE 2018	FULL ACCESS		PUBLISHED
4	22-29	Correspondence re: Goldstein Cres, Chisholm/Richardson	19 JANUARY 2018	PARTIAL ACCESS	INDIVIDUALS RIGHT TO PRIVACY	PUBLISHED
5.	30-38	Correspondence re: Hambridge Cr, Chisholm/Gilmore	19 JANUARY 2018	PARTIAL ACCESS	INDIVIDUALS RIGHT TO PRIVACY	PUBLISHED

6.	39-47	Correspondence re: Heagney Cres, Chisholm/Gilmore	19 JANUARY 2018	PARTIAL ACCESS	INDIVIDUALS RIGHT TO PRIVACY	PUBLISHED
7.	48-54	Correspondence re: Fincham Cres Wanniassa	19 JANUARY 2018	PARTIAL ACCESS	INDIVIDUALS RIGHT TO PRIVACY	PUBLISHED
8.	55-63	Correspondence re: Langdon Ave Wanniassa	19 JANUARY 2018	PARTIAL ACCESS	INDIVIDUALS RIGHT TO PRIVACY	PUBLISHED
9.	64-72	Correspondence re: Longmore Cres Wanniassa	19 JANUARY 2018	PARTIAL ACCESS	INDIVIDUALS RIGHT TO PRIVACY	PUBLISHED

ACT Government
Transport Canberra and City Services

Traffic Management and Safety
Roads ACT

Residential Street Improvements

Evaluation of Effectiveness of Traffic Management Measures on

Beattie Crescent, Deamer Crescent, Proctor Street and Norriss Street

June 2018

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1 INTRODUCTION

The Traffic Management and Safety (TMS) Section of Roads ACT, in the Transport and City Services Directorate (TCCS), is responsible for monitoring and managing the safety and operating conditions of the existing road network in the ACT. TMS is also responsible for evaluating the effectiveness of traffic management measures, including those directed at enhancing the amenity of residential areas.

In 2012/13 TMS investigated traffic conditions in Chisholm, Richardson and Gilmore under its *Residential Street Improvement Program* in response to a motion passed in the ACT Legislative Assembly on 2 May 2012 calling for an investigation into traffic conditions on Clift Crescent as well as residents' complaints about speeding and traffic safety in the area. As part of this investigation, the streets surrounding Clift Crescent within the suburbs of Chisholm, Richardson and Gilmore were also studied. The study finalised a Master Plan of traffic management improvements for the study area, and priorities for their implementation, based on the technical analyses of traffic data and feedback from the community. All recommended Priority 1 treatments were implemented in August 2014, and their effectiveness evaluated in June 2015.

In 2016 TMS reviewed the Master Plan and current traffic conditions in the study area. This review developed a revised traffic management plan for the area, and priorities for implementation, based on the technical analyses of current data. The implementation of the high priority treatments was completed in June 2017. This report presents the outcomes of the evaluation of the effectiveness of these treatments.

2 OBJECTIVES

The objectives of the implemented treatments are to:

- Reduce travelling speeds on Beattie Crescent, Deamer Crescent and Proctor Street.
- Improve pedestrian safety at the Norriss Street and Proctor Street intersection.

The objectives of this evaluation are to:

- Determine if travelling speeds have been reduced on Beattie Crescent, Deamer Crescent and Proctor Street.
- Identify any potential improvements to the scheme.

3 SCHEME DETAILS

The treatments implemented are:

On Beattie Crescent

- 1 set of speed cushions between Hemmings Crescent and Longman Street.

On Deamer Crescent

- 3 sets of speed cushions.

On Proctor Street

- 2 sets of speed cushions.

On Norriss Street

- A pedestrian refuge island at the intersection with Proctor Street.

4 TECHNICAL EVALUATION

To enable the technical evaluation of the implemented treatments, traffic surveys were again undertaken in February/March 2018. The traffic speeds and volumes analysed were obtained from these 24 hour/7 day tube counts.

Table 4.1 presents the periods of the "before" and "after" traffic surveys.

Table 4.1 Traffic surveys – before and after

SITE DESCRIPTION	PERIOD OF	
	"Before" surveys	"After" surveys
Beattie Crescent	2015	2018
Deamer Crescent	2015 and 2016	2018
Proctor Street	2015	2018
Norriss Street	-	2018

4.1 TRAFFIC SPEEDS

Beattie Crescent, Deamer Crescent, Proctor Street and Norriss Street are minor collector roads where the 50km/h default speed limit applies.

Table 4.1.1 presents the weekday traffic speeds (in km/h) on these roads measured before and after the implementation of treatments.

Table 4.1.1 Weekday traffic speeds (km/h) – before and after

SITE DESCRIPTION	Speed limit	BEFORE		AFTER		CHANGE	
		Average Speed	85%ile Speed	Average Speed	85%ile Speed	Average Speed	85%ile Speed
Weekday speeds							
Beattie Crescent	50	54.5	63.5	52.6	60.4	-1.9	-3.1
Deamer Crescent	50	53.0	68.1	51.8	59.2	-1.2	-8.9
Proctor Street	50	54.3	64.1	42.1	48.3	-12.2	-15.8
Norriss Street	50	-	-	54.8	62.8	-	-

Beattie Crescent

- Speeds have been reduced by up to 3.1 km/h.
- The current 85th %ile speeds are still about 21% over the legal speed limit of the road.

Deamer Crescent

- Speeds have been reduced by up to 8.9 km/h.
- The current 85th %ile speeds are still about 18% over the legal speed limit of the road.

Proctor Street

- Speeds have been reduced by up to 15.8 km/h.
- The current speeds are within the legal speed limit of the road.

Norriss Street

- The current 85th %ile speeds are about 26% over the legal speed limit of the road.

4.2 TRAFFIC VOLUMES

Table 4.2.1 provides the details of traffic volumes (vehicles per day) on these roads measured before and after the implementation of the treatments.

The desired environmental capacity for Beattie Crescent, Deamer Crescent, Proctor Street and Norriss Street (minor collector roads) is 3000 vehicles per day.

Table 4.2.1 Average Traffic Volumes – before and after

SITE DESCRIPTION	BEFORE		AFTER		CHANGE	
	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
Beattie Crescent	2873	2436	2176	1686	-697	-751
Deamer Crescent	1891	2042	1640	1773	-251	-269
Proctor Street	513	443	461	404	-52	-39
Norriss Street	-	-	1597	1412	-	-

Traffic volumes have decreased on

- Beattie Crescent by about 24% on weekdays and about 31% on weekends.
- Deamer Crescent by about 13% on both weekdays and weekends.
- Proctor Street by about 10% on weekdays and 9% on weekends.

Traffic volumes are well within the desired environmental capacities of all streets.

4.3 TRAFFIC CRASHES

Only about twelve months have lapsed since the implementation of the traffic calming measures. This is not a sufficient period to adequately ascertain the safety impacts of such a scheme. Given the short duration of the scheme, any reduction in the risk and seriousness of crashes are unlikely to be detected through the analysis of crash numbers at this stage. For a more representative evaluation of safety impacts, crash records of a longer period (at least three years) for the 'after' period would be required.

5 CONCLUSIONS AND RECOMMENDATIONS

The results of the evaluation indicate the following:

- Travelling speeds have been reduced by up to
  - 3.1 km/h on Beattie Crescent,
  - 8.9 km/h on Deamer Crescent, and
  - 15.8 km/h on Proctor Street.

Given the speed reductions achieved, the implemented measures should be retained.

Travelling speeds on Beattie Crescent, Deamer Crescent and Norriss Street are still significantly above the legal speed limit of the roads. Traffic conditions on these streets should continue to be monitored, and implementation of the remaining recommended treatments (2 speed humps on Beattie Crescent, 3 speed humps on Deamer Crescent and 3 speed humps on Norriss Street) considered when funding becomes available and in consultation with residents of the street.

ACT Government
Transport Canberra and City Services

Traffic Management and Safety
Roads ACT

Residential Street Improvements

Evaluation of Effectiveness of Traffic Management Measures on

Bugden Avenue, Castleton Crescent and Bramston Street

June 2018

TABLE OF CONTENTS

1 INTRODUCTION

The Traffic Management and Safety (TMS) Section of Roads ACT, in the Transport and City Services Directorate (TCCS), is responsible for monitoring and managing the safety and operating conditions of the existing road network in the ACT. TMS is also responsible for evaluating the effectiveness of traffic management measures, including those directed at enhancing the amenity of residential areas.

In 2012/13 TMS investigated traffic conditions in Macarthur, Fadden and Gowrie under its *Residential Street Improvement Program* in response to a motion passed in the ACT Legislative Assembly on 2 May 2012 calling for an investigation into traffic conditions on Coyne Street as well as residents' complaints about speeding and traffic safety on the street. As part of this investigation, the streets surrounding Coyne Street within the suburbs of Macarthur, Fadden and Gowrie were also studied. The study finalised a Master Plan of traffic management improvements for the study area, and priorities for their implementation, based on the technical analyses of traffic data and feedback from the community. All recommended Priority 1 treatments were implemented in August 2014, and their effectiveness evaluated in June 2015.

In 2016 TMS reviewed the Master Plan and current traffic conditions in the study area. This review developed a revised traffic management plan for the area, and priorities for implementation, based on the technical analyses of current data. The implementation of the high priority treatments was completed in June 2017. This report presents the outcomes of the evaluation of the effectiveness of these treatments.

2 OBJECTIVES

The objectives of the implemented treatments are to:

- Reduce travelling speeds on Bugden Avenue, Bramston Street and Castleton Crescent.
- Improve intersection and pedestrian safety in the area.

The objectives of this evaluation are to:

- Determine if travelling speeds have been reduced on Bugden Avenue, Bramston Street and Castleton Crescent.
- Identify any potential improvements to the scheme.

3 SCHEME DETAILS

The treatments implemented are:

On Bugden Avenue

- 3 sets of speed cushions between Courtice Close and Coyne Street.
- A pedestrian refuge island between the two legs of Demaine Crescent.
- A concrete kerb blister island between Bramston Street and Demaine Crescent.

On Bramston Street

- Two sets of speed cushions between Garrick Street and Foxton Crescent (within school zone).

On Castleton Crescent

- 5 sets of speed cushions.
- Linemarking improvements at the intersection with Sternberg Crescent.

4 TECHNICAL EVALUATION

To enable the technical evaluation of the implemented treatments, traffic surveys were again undertaken in February/March 2018. The traffic speeds and volumes analysed were obtained from these 24 hour/7 day tube counts.

Table 4.1 presents the periods of the "before" and "after" traffic surveys.

Table 4.1 Traffic surveys – before and after

SITE DESCRIPTION	PERIOD OF	
	"Before" surveys	"After" surveys
Bugden Avenue	2015 & 2016	2018
Bramston Street	2015	2018
Castleton Crescent	2015	2018
Partridge Street	2015	2018

4.1 TRAFFIC SPEEDS

Bugden Avenue is a major collector road with posted speed limits of 50km/h between Sternberg Crescent and Nicklin Crescent (south) and 60 km/h for the rest of the road. Castleton Crescent is a major collector road with a posted speed limit of 60km/h. Bramston Street is a minor collector road where the 50km/h default speed limit applies.

School zones are present on Bramston Street and Castleton Crescent, where a speed limit of 40 km/h applies during school hours (8 am – 4 pm).

Table 4.1.1 presents the weekday traffic speeds (in km/hr) on these roads measured before and after the implementation of treatments.

Table 4.1.1 Weekday traffic speeds (km/h) – before and after (The travelling speed within the school zone is shown as x/y where x = speed during school hours and y = speed outside of school hours.)

SITE DESCRIPTION	Speed limit	BEFORE		AFTER		CHANGE	
		Average Speed	85%ile Speed	Average Speed	85%ile Speed	Average Speed	85%ile Speed
Bugden Avenue (Sternberg – Nicklin south)	50	45.4	52.5	45.6	53.2	0.2	0.7
Bugden Avenue (Nicklin south – Nicklin north)	60	54.6	64.1	52.2	60.7	-2.4	-3.4
Bugden Avenue (Nicklin north – Welsby)	60	59.3	67.1	56.0	63.6	-3.3	-3.5
Bugden Avenue (Welsby – Coyne)	60	59.3	67.1	50.0	56.9	-9.3	-10.2
Bugden Avenue (Coyne – Castleton south)	60	57.3	64.2	55.8	62.3	-1.5	-1.9
Bugden Avenue (Castleton south – Ashley)	60	54.5	62.7	52.9	60.8	-1.6	-2.0
Castleton Crescent (Sternberg – Bugden north)	60	55.6	62.7	56.9	64.4	1.3	1.7
Castleton Crescent (Sternberg – Bugden south)	60	62.0	69.2	53.1	58.8	-8.9	-10.4
Castleton Crescent (within Gowrie Pr school zone)	40/60	41.9/54.2	50.4/63.6	39.8/47.1	46.7/54.8	-2.1/-7.1	-3.7/-8.8
Castleton Crescent (within Holy Family school zone)	40/60	45.5/55.2	50.0/61.4	39.8/48.2	46.7/54.2	-5.7/-7.0	-3.3/-7.2
Bramston Street (within Fadden Pr school zone)	40/50	43.1/49.6	49.6/56.2	39.3/42.1	44.7/48.3	-3.8/-7.5	-4.9/-7.9
Partridge Street	50	53.5	61.0	49.8	56.1	-3.7	-4.9

Bugden Avenue

- Speeds in the 60 km/h section have been reduced by up to 10.2 km/h.
- The current 85th %ile speeds are slightly above the legal speed limit on some sections of the road.

Castleton Crescent

- Speeds have been reduced by up to 10.4 km/h on the western leg but have marginally increased on the eastern leg. The latter is primarily due to the sloping geometry of the road.
- Speeds in the school zone have been reduced by up to 5.7 km/h during school zone operation hours, and 8.8 km/h out of school zone operation hours.
- Current 85th %ile speeds in the school zone are still above the legal speed limit.

Bramston Street

- Speeds have been reduced by up to 7.9 km/h.
- Current 85th %ile speeds in the school zone are still above the legal speed limit.

Partridge Street

- Speeds have reduced by up to 4.9 km/h.

4.2 TRAFFIC VOLUMES

Table 4.2.1 provides the details of traffic volumes (vehicles per day) on these roads measured before and after the implementation of the treatments.

The desired environmental capacity for Bugden Avenue and Castleton Crescent (major collector roads) is 6000 vehicles per day, and for Bramston Street and Partridge Street (minor collector roads) is 3000 vehicles per day.

Table 4.2.1 Average Traffic Volumes per day – before and after

SITE DESCRIPTION	BEFORE		AFTER		CHANGE	
	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
Bugden Avenue (Sternberg – Nicklin south)	3443	2854	3550	2571	107	-283
Bugden Avenue (Nicklin south – Nicklin north)	1718	1390	1800	1424	82	34
Bugden Avenue (Nicklin north – Welsby)	1183	1176	1141	964	-42	-212
Bugden Avenue (Welsby – Coyne)	3373	2177	3015	2115	-358	-62
Bugden Avenue (Coyne – Castleton south)	3840	2800	3126	2273	-714	-527
Bugden Avenue (Castleton south – Ashley)	1359	1216	1283	1120	-76	-96
Castleton Crescent (Sternberg – Bugden north)	3388	2722	3349	2409	-39	-313
Castleton Crescent (Sternberg – Bugden south)	4705	3771	3917	2965	-788	-806
Bramston Street	2242	-	1917	-	-325	-
Partridge Street	1906	1415	1282	867	-624	-548

Traffic volumes are well within the desired environmental capacities of all streets.

4.3 TRAFFIC CRASHES

Only about twelve months have lapsed since the implementation of the traffic calming measures. This is not a sufficient period to adequately ascertain the safety impacts of such a scheme. Given the short duration of the scheme, any reduction in the risk and seriousness of crashes are unlikely to be detected through the analysis of crash numbers at this stage. For a more representative evaluation of safety impacts, crash records of a longer period (at least three years) for the 'after' period would be required.

5 CONCLUSIONS AND RECOMMENDATIONS

The results of the evaluation indicate the following:

- Travelling speeds have been reduced by up to
  - 10.2 km/h on Bugden Avenue,
  - 10.4 km/h on Castleton Crescent, and
  - 7.9 km/h on Bramston Street.
- Travelling speeds during school zone operation times have been reduced by up to
  - 3.7 km/h at Gowrie Primary School,
  - 5.7 km/h at Holy Family Primary School, and
  - 4.9 km/h at Fadden Primary School.

Given the speed reductions achieved, the implemented measures should be retained.

Travelling speeds on Castleton Crescent between Sadlier Street and Kingsbury Street are still above the legal speed limit, primarily due to the sloping geometry of the road. The implementation of the recommended treatment at this location (1 set of speed cushions) should be considered when funding becomes available.

Traffic conditions on Bugden Avenue should continue to be monitored, and implementation of the remaining recommended treatments (2 sets of speed cushions) also considered when funding becomes available and in consultation with residents of the street.

ACT Government
Transport Canberra and City Services

Traffic Management and Safety
Roads ACT

Residential Street Improvements

Evaluation of Effectiveness of Traffic Management Measures on

Lawrence Wackett and Chippindall Circuit

Theodore

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1 INTRODUCTION

The Traffic Management and Safety (TMS) Section of Roads ACT, in the Transport and City Services Directorate (TCCS), is responsible for monitoring and managing the safety and operating conditions of the existing road network in the ACT. TMS is also responsible for evaluating the effectiveness of traffic management measures, including those directed at enhancing the amenity of residential areas.

Lawrence Wackett Crescent and Chippindall Circuit in Theodore were investigated in 2017 in response to resident and school concerns about road safety on the street as well as their high ranking for investigation in the Traffic Warrants System (TWS2016). Lawrence Wackett Crescent and Chippindall Circuit are ranked 51 and 83 respectively out of 436 streets.

The study recommended traffic calming measures at strategic locations to reduce motorists' travelling speeds and improve road safety for all road users. The implementation of the high priority treatments was completed in June 2017. This report presents the outcomes of the evaluation of the effectiveness of these treatments.

2 OBJECTIVES

The objective of the implemented treatments is to reduce travelling speeds on Lawrence Wackett Crescent and Chippindall Circuit.

The objectives of this evaluation are to:

- Determine if travelling speeds have been reduced on
- Assess the traffic conditions on surrounding streets (Scantlebury Crescent and Louis Loder Street)
- Identify any potential improvements to the scheme.

3 SCHEME DETAILS

The treatments implemented are 4 sets of speed cushions on Lawrence Wackett Crescent and one set of speed cushions on Chippindall Circuit.

4 TECHNICAL EVALUATION

To enable the technical evaluation of the implemented treatments, traffic surveys were again undertaken in May / June 2018. The traffic speeds and volumes analysed were obtained from these 24 hour/7 day tube counts.

Table 4.1 presents the periods of the "before" and "after" traffic surveys.

Table 4.1 Traffic surveys – before and after

SITE DESCRIPTION	PERIOD OF	
	"Before" surveys	"After" surveys
Lawrence Wackett Crescent	2014 2016	2018
Chippindall Circuit	2016	2018
Scantlebury Crescent	2015	2018
Louis Loder Street	2013	2018

4.1 TRAFFIC SPEEDS

Lawrence Wackett Crescent is classified as a major collector road with a posted speed limit of 60 km/h. It has a short section with a 40 km/h school zone. Chippindall Circuit, Scantlebury Crescent and Louis Loder Street are minor collector roads where the default speed limit of 50 km/h applies.

Table 4.1.1 presents the weekday traffic speeds (in km/hr) on these roads measured before and after the implementation of treatments.

Table 4.1.1 Weekday traffic speeds (km/h) – before and after

SITE DESCRIPTION	Speed limit	BEFORE		AFTER		CHANGE	
		Average Speed	85%ile Speed	Average Speed	85%ile Speed	Average Speed	85%ile Speed
Lawrence Wackett Crescent							
Lawrence Wackett Crescent (Ern Florence – Chippindall)	60	N/A	N/A	54.5	60.7	N/A	N/A
Lawrence Wackett Crescent (Scantlebury – Scantlebury)	60	61.8	68.3	54.1	60.0	-7.7	-8.3
Chippindall Circuit							
Chippindall Circuit (Latchford – Goldfinch)	50	N/A	N/A	47.4	53.9	N/A	N/A
Chippindall Circuit (Fairley-Fairley)	50	N/A	N/A	48.8	56.2	N/A	N/A
Chippindall Circuit (Weavers-Weavers)	50	N/A	N/A	41.1	48.4	N/A	N/A
Scantlebury crescent							
Scantlebury Crescent (Llenhop – Christmas)	50	50.9	62.1	51.1	59.8	+0.2	-2.3
Scantlebury Crescent (Kelso – Lawrence Wackett)	50	46.9	53.5	45.0	52.2	-1.9	-1.3
Louis Loder Street							
Louis Loder Street (Cochrane – Cochrane)	50	50.5	60.2	50.3	58.5	-0.2	-1.7
Louis Loder Street (Hartung – Hartung)	50	51.4	59.3	50.6	58.1	-0.8	-1.2

Lawrence Wackett Crescent

- Speeds have been reduced by up to 8km/h on Lawrence Wackett Crescent and the current 85th%ile speeds are within acceptable limits.
- Although the speeds have been reduced on some sections of Chippindall Circuit, there is still some level of speeding on Chippindall Circuit, particularly within the two intersections of Fairley Crescent with 85th%ile speed of 56km/h.
- Although there is slight reduction in speeds along Scantlebury Crescent and Louis Loder Street, the current 85th%ile speed is well above the 50km/h default speed limit with up to 59.8km/ on Scantlebury Crescent and 58.5km/h on Louis Loder Street.

4.2 TRAFFIC VOLUMES

Table 4.2.1 provides the details of traffic volumes (vehicles per day) on these roads measured before and after the implementation of the treatments.

The desired environmental capacity for Lawrence Wackett Crescent (major collector road) is 6000 vehicles per day, and for Chippindall Circuit, Scantlebury Crescent and Louis Loder Street (minor collector roads) is 3000 vehicles per day.

Table 4.2.1 Average Traffic Volumes per day – before and after

SITE DESCRIPTION	BEFORE		AFTER		CHANGE	
	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
Lawrence Wackett Crescent						
Ern Florence – Chippindall	N/A	N/A	2048	2026	N/A	N/A
Scantlebury Nth – Scantlebury Sth	2992	2615	2906	2034	-86	-581
Chippindall Circuit						
Latchford – Goldfinch	N/A	N/A	2070	2064	N/A	N/A
Fairley-Fairley	N/A	N/A	658	677	N/A	N/A
Weavers-Weavers	N/A	N/A	195	158	N/A	N/A
Scantlebury crescent						
Lienhop – Christmas	1646	1555	1918	1653	+272	+98
Kelso – Lawrence Wackett	1028	1046	686	636	-342	-410
Louis Loder Street						
Cochrane – Cochrane	547	505	766	647	+219	+142
Hartung – Hartung	1099	1061	1389	1238	+290	+177

- Traffic volumes have been reduced slightly on Lawrence Wackett Crescent. It currently carries about 2906 vehicles per day and is still well within its capacity as a major collector road.

- The current traffic volumes on Chippindall Circuit is within its desired capacity.

- Traffic volumes have been increased at the northern section of Scantlebury Crescent and been reduced at the southern section; however these traffic volumes are within the desired capacity of Scantlebury Crescent.

- Although traffic volumes on Louis Loder have increased, the current traffic volumes are still within the road's capacity.

4.3 THEODORE PRIMARY SCHOOL ZONE

Theodore Primary School has a short section of 40km/h school zone on Lawrence Wackett Crescent south of the intersection of Latchford Street to north of the intersection with Scantlebury Crescent. Two sets of speed cushions have been implemented within the school zone.

Table 4.2.1 presents the details of traffic volumes (vehicles per day) and speeds (in km/hr) on Lawrence Wackett Crescent within the school zone. The traffic data has been measured before and after the implementation of treatments during and outside school hours.

Table 4.2.1 Evaluation of Traffic Volumes and Speeds within the School Zone

THEODORE PRIMARY SCHOOL	DURING SCHOOL HOURS 40 km/hr			OUTSIDE SCHOOL HOURS 60 km/hr		
Lawrence Wackett Crescent (Scantlebury-Burdett)	8 HRS			16 HRS		
	Traffic Volume	Average Speed	85%ile Speed	Traffic Volume	Average Speed	85%ile Speed
BEFORE DATA	1278	42.1	48.6	1579	56.8	63.6
AFTER DATA	815	34.5	40.9	915	45.5	52.5
CHANGE	-463	-7.6	-7.7	-664	-11.3	-11.1

- Speed on Lawrence Wackett during school hours has been reduced by 7.7km/h.

- The current 85th %ile speed outside school hours is well below 60km/h at this section of the road.

4.4 TRAFFIC CRASHES

Only about twelve months have lapsed since the implementation of the traffic calming measures. This is not a sufficient period to adequately ascertain the safety impacts of such a scheme. Given the short duration of the scheme, any reduction in the risk and seriousness of crashes are unlikely to be detected through the analysis of crash numbers at this stage. For a more representative evaluation of safety impacts, crash records of a longer period (at least three years) for the 'after' period would be required.

5 CONCLUSIONS AND RECOMMENDATIONS

Conclusions:

- Travelling speeds on Lawrence Wackett Crescent have been reduced by up to 8km/h.
- Speeds on Lawrence Wackett Crescent during school zone operation hours has been reduced by 7.7km/h.
- There is still some level of speeding on Chippindall Circuit, particularly within the two intersections of Fairley Crescent with 85th%ile speed of 56km/h.
- The current 85th%ile speed is well above the legal speed limit on Scantlebury Crescent and Louis Loder Street (59.8km/h and 58.5km/h respectively).

Recommendations:

- Given the speed reductions achieved, the implemented measures should be retained on Lawrence Wackett Crescent and Chippindall Circuit.
- Traffic conditions on Lawrence Wackett Crescent should continue to be monitored and the implementation of remaining recommended treatments should be considered if traffic conditions deteriorate on the road, subject to funding availability and in consultation with residents of the street.
- The outstanding recommended treatment on Chippindall Circuit between the two intersections with Fairley Crescent should be implemented in consultation with the directly affected residents.
- The speed data on Louis Loder and Scantlebury Crescent should be sent to the ACT Policing for their monitoring and enforcement.
- Traffic conditions on Louis Loder and Scantlebury Crescent should continue to be monitored, and implementation of traffic calming devices considered on both streets, subject to their ranking in the TWS (in comparison with similar roads in the ACT) and the availability of funding.

19 January 2018

Consulting Engineers

Capital Works
Transport Canberra and City Services
GPO Box 158
Canberra ACT 2601

Attention: Chris Hocking

Goldstein Cr, Chisholm/Richardson – New Residential Street Improvement Works

An assessment of Goldstein Cr has been undertaken to review the provision of traffic calming measures.

The project brief requires us to include:

- A review of available traffic data (traffic volumes, speed and crash data).
- Inspection of the sites during AM and PM peak periods, and school peaks where required.
- Identify potential locations of low cost LATM devices, including a night time inspection to assess lighting conditions.
- A short letter style report and sketch plan including approximate cost estimates.

1. TRAFFIC DATA AND PREVIOUS REPORT

1.1 Previous Report

A LATM report was prepared by BROWN (May 2014). The report recommended that:

- a roundabout be installed as a priority 3 treatment at the intersection of Beattie Cr
- a roundabout be installed as a priority 2 treatment at the intersection of Hambidge Cr.

1.2 Traffic volumes and speed data

Goldstein Cr is a major collector two lane two way road with a speed limit of 60 km/h. Goldstein Cr is approximately 1km in length.

Currently there are no LATM treatments (excluding the roundabouts at each end) on Goldstein Cr. Goldstein Cr does however have a central dividing median from the roundabout at Isabella Dr through to Hambidge Cr.

Traffic volumes and speed data were collected on Goldstein Cr at the following two locations:

- Between Isabella Dr and Beattie Cr
- Between Hambidge Cr and Alston St

The results are provided in the following table:

Towards	Survey Start Date	Weekday Average (vpd)	Weekend average (vpd)	Weekday avg Speed Km/hr	Weekday 85 %ile Speed Km/hr
Between Isabella Dr and Beattie Cr					
Isabella Dr	26/10/16	5,020	4,130	53.6	61.9
Beattie Cr		4,933	4,220	58.5	65.5
Between Hambidge Cr and Alston St					
Hambidge Cr	26/10/16	1,933	1,708	56.7	64.4
Alston St		1,984	1,827	59.6	67.3

The data indicates that apart from the section of Goldstein Cr between Beattie Cr and Isabella Dr (which carries approximately 10,000 vpd) the traffic volume on Goldstein Cr (approximately 4,000) is in keeping with the major collector road classification (3,000 to 6,000 daily vehicles).

Speed data on Goldstein Cr indicates that the average motorist travels below the 60 km/h speed limit. However as the 85th percentile speed indicates, at least 15% of vehicles are travelling significantly above the 60km/h speed limit.

1.3 Collision Data

A total of 18 collisions occurred on Goldstein Cr in the five year period from 1 January 2012 to 31 December 2016 inclusive. There were a total of 3 injury collisions.

The collision history identified that:

- All 3 injury collisions occurred at the Goldstein Cr/Hambidge Cr intersection

The other collisions did not provide a particular trend.

2. SITE INSPECTIONS

This site was inspected during the AM and PM peak periods on Thursday 7 September 2017.

AM Inspection

- Parking on Goldstein Cr was minimal.
- Several road users did appear to be travelling at speeds greater than the 60 km/h speed limit along Goldstein Cr. This led to some drivers hesitating when turning right out of Hambidge Cr.
- Some pedestrians were observed walking along (and crossing) Goldstein Cr, however no concerns were identified. Most pedestrians crossed Goldstein Cr at Hambidge Cr.
- While two cyclists (school children) were observed crossing Goldstein Cr near the intersection of Hambidge Cr, no cyclists were observed along Goldstein Cr.
- Sight distance is restricted due to vegetation at the intersection (roundabout) of Goldstein Cr and Heagney Cr.
- While the intersections with Beattie Cr and Norris St had a large amount of activity, no major concerns were identified with vehicles entering or exiting Goldstein Cr.

PM Inspection

- Similar conditions to the AM peak period.
- Increased congestion for vehicles entering Goldstein Cr from Hambidge Cr during the School PM peak.

Lighting lux levels

- Lighting along Goldstein Cr varies depending on the location.
- Typically the lighting on Goldstein Cr is the older style and consequently it was difficult to achieve 3.5 Lux (minimum) at all locations.
- Some locations achieved a minimum 3.5 Lux on the street light side however less on the opposing side of the road.

3. DESIGN CONSIDERATIONS

The following needs to be considered as part of the selection of the proposed LATM treatments:

- Devices should be visible for approaching road users from 73 m on 60 km/h and 55 m on 50 km/h roads (not accounting for corrections due to grade).
- Lighting – 3.5 Lux is required within 3m of the LATM device.

4. LATM DEVICE ASSESSMENT

Goldstein Cr is ranked 22 out of 444 streets in the Traffic Warrant System (TWS 2013). It obtains this rank based on the classification of the road and traffic volume, and the surrounding activity generators (business, recreational activities, schools etc).

The roundabout at the intersection of Goldstein Cr and Heagney Cr was working well to calm vehicles heading north/south in Heagney Cr, however as mentioned above, sight distance for drivers in Goldstein Cr (looking south) is heavily restricted and could result in a collision between vehicles within the roundabout. Heavy pruning (or removal) of the vegetation within the verge on the south west corner would improve sight distance and reduce the risk of conflict.

A review of the speed data and observations indicates that the installation of speed reducing traffic calming devices on Goldstein Cr are warranted.

Goldstein Cr is a wide street which has little to no deterrent on vehicle speeds other than a posted speed limit. The intersection with Hambidge Cr is treated with central median islands (which provides some refuge for pedestrians crossing at this location), however given the 'T' configuration, vehicles are not required to give way to any other vehicles and consequently travel at speed until they reach the roundabout at Isabella Dr. Although sight distance is good for drivers entering Goldstein Cr from Hambidge Cr, it was observed that the speed of vehicles in Goldstein Cr had an impact on the gap acceptance of vehicles turning out of Hambidge Cr.

Given these observations, and the speed and accident data, a form of LATM treatment would be beneficial (with the focus on the intersection with Hambidge Cr). Options are as follows:

<u>High Cost:</u>

Roundabout – with reduced lane widths, adequate deflections and associated give way requirements a roundabout would ensure reduced speeds and improved safety at the intersection with Hambidge Cr. This would also provide improved crossing conditions for pedestrians (reduced vehicle speeds, reduced crossing widths etc). The addition of vertical deflection devices, such as a speed cushion or speed hump, on the approaches to the roundabout would also ensure vehicle speeds are controlled.

<u>Low Cost:</u>

Channelisation type treatment – options include a channelised left turn lane which would allow the hold line in Hambidge Cr to be brought forward reducing the entering distance for right turning vehicles into Goldstein Cr and allowing improved vision of approaching through vehicles on Goldstein Cr. A seagull

type treatment could also be included which would separate right turning and through westbound vehicles in Goldstein Cr while providing a sheltered acceleration lane for right turning vehicles out of Hambidge Cr. This type of treatment is considered low cost if done so primarily in paint.

This painted treatment mentioned above could be extended along Goldstein Cr towards Athllon Dr, effectively reducing the lane width while providing right turn lanes at the intersections of Norris St and Beattie Cr. It is expected that this would have a calming effect on vehicles along this section of Goldstein Cr.

Vertical deflection devices could be installed in Goldstein Cr to improve speed limit compliance along its length. Recommended locations would be south of Wolstenholme St, and between both Dalyell St intersections.

Due to the older style lighting that exists in Goldstein Cr it is difficult to achieve 3.5 Lux (minimum) at the desired locations along its length. While some locations may be achievable, it would be considered appropriate to upgrade the luminaires at any locations where vertical deflection devices (or other LATM devices) are to be installed.

5. IMPLEMENTATION STAGING

A sketch of the proposed LATM improvements is provided in Attachment A.

The justification for the proposed treatment and prioritisation is provided below:

Goldstein Dr	Location	Justification
Priority 1		
Vertical Deflection Devices	South of Wolstenholme St	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
Channelisation treatment	From the intersection of Hambidge Cr to the intersection of Athllon Dr.	Collision history at Hambidge Cr intersection. In proximity of adjacent speed data collection location which indicated an 85th percentile speed > 60km/h and speeds would be expected to remain high on this section.
Priority 2		
Vertical Deflection Devices	Between both Dalyell St intersections	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
Capital Works Funding		
Roundabout treatment	Intersection of Hambidge Cr	Collision history at intersection. In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.

As the costs associated with treating the intersection of Goldstein Cr and Hambidge Cr with a roundabout falls beyond the budget of the Residential Street Improvement Program it is not recommended under the scope of this report, however it should be considered under the Major Capital Works Program.

The lower cost channelisation treatment (painted and minor concrete works) is achievable under the program and is considered Priority 1.

Vertical deflection devices at two locations (as described in the report) would calm vehicle speeds and reduce the risk of conflict between vehicles (Priority 1&2).

The Priority 2 implementation is subject to further evaluation and available funding.

As mentioned in the report, the identified impeded sight distance at the intersection of Goldstein Cr and Heagney Cr roundabout should be addressed as there is a high risk of conflict.

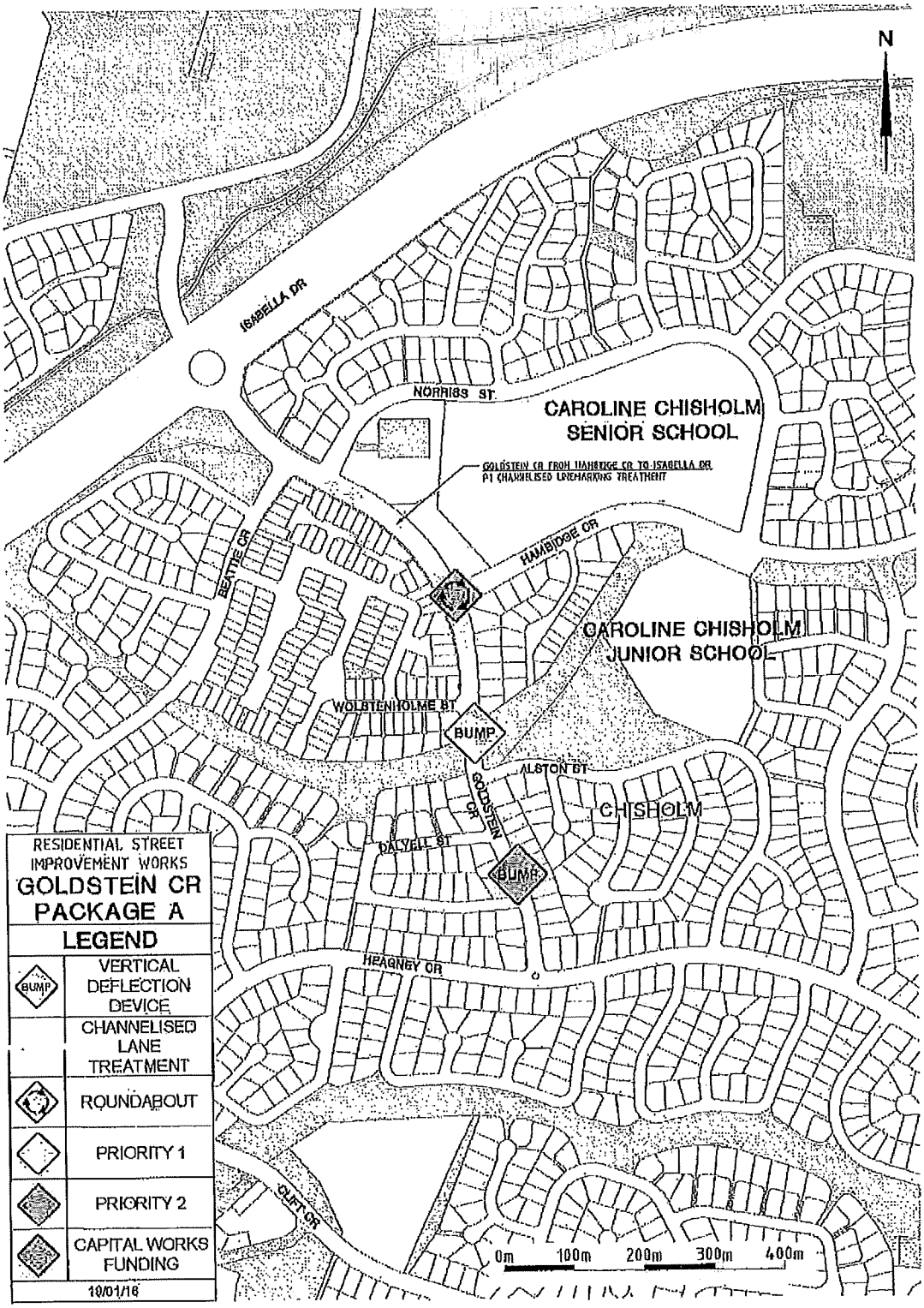
Refer to Attachment B for estimated costs (excluding GST).

If you have any questions please do not hesitate to contact me concerning the observed conditions and recommendations.

Regards

Senior Traffic Engineer

ATTACHMENT A - Sketch of the proposed LATM Device type and locations


N
ISABELLA DR
NORRISS ST
CAROLINE CHISHOLM SENIOR SCHOOL
GOLDSTEIN CR FROM HAMBRIDGE CR TO ISABELLA DR
P1 CHANNELISED LINEMARKING TREATMENT
BEATTIE CR
HAMBRIDGE CR
CAROLINE CHISHOLM JUNIOR SCHOOL
WOLSTENHOLME ST
BUMP
ALSTON ST
GOLDSTEIN CR
CHISHOLM
DALYELL ST
BUMP
HEAGNEY CR
GUEST CR
0m 100m 200m 300m 400m
RESIDENTIAL STREET IMPROVEMENT WORKS
GOLDSTEIN CR
PACKAGE A
LEGEND
BUMP VERTICAL DEFLECTION DEVICE
CHANNELISED LANE TREATMENT
ROUNDABOUT
PRIORITY 1
PRIORITY 2
CAPITAL WORKS FUNDING
10/01/18

ATTACHMENT B – Estimated Construction Costs

Goldstein Dr	Location	Estimated Costs (Excl. GST)
Priority 1 Stage		
Vertical Deflection Devices	South of Wolstenholme St	$14,000.00*
Channelisation treatment	From the intersection of Hambidge Cr to the intersection of Athllon Dr.	$40,000.00
	Sub-total	***$54,000.00** (excl. GST)***
Priority 2 Stage		
Vertical Deflection Devices	Between both Dalyell St intersections	$18,000.00*
	Sub-total	***$18,000.00 (excl. GST)***
Capital Works Funding		
Roundabout treatment	Intersection of Hambidge Cr	$400,000.00
	Sub-total	***$400,000.00 (excl. GST)***
	TOTAL	**$472,000.00** (excl. GST)**

* Note: Includes lighting upgrade (luminaires).

** Note: A review of services has not been undertaken and the impact of work on existing services is unknown. Estimated costs are indicative only and exclude relocation of services.

19 January 2018

Consulting Engineers

Capital Works
Transport Canberra and City Services
GPO Box 158
Canberra ACT 2601

Attention: Leigh Costa

Hambidge Cr, Chisholm/Gilmore - New Residential Street Improvement Works

An assessment of Hambidge Cr has been undertaken to review the provision of traffic calming measures.

The project brief requires us to include:

- A review of available traffic data (traffic volumes, speed and crash data).
- Inspection of the sites during AM and PM peak periods, and school peaks where required.
- Identify potential locations of low cost LATM devices, including a night time inspection to assess lighting conditions.
- A short letter style report and sketch plan including approximate cost estimates.

1. TRAFFIC DATA AND PREVIOUS REPORT

1.1 Previous report

The LATM report was prepared by BROWN (May 2014). The report recommended that:

- A raised platform (no zebra crossing) be installed at the intersection of Norris St (Priority 2).
- A roundabout be installed at the intersection of Goldstein Cr (Priority 2 – covered in Goldstein Cr report).

1.2 Traffic volumes and speed data

Hambidge Cr is a major collector two lane two way road with a speed limit of 60 km/h. Hambidge Cr is approximately 1.6km in length.

Hambidge Cr has a single 40km/h school zone servicing a primary school on the southern side and a high school opposite.

Existing LATM treatments include the roundabout at the Heagney Cr intersection, two Children's Crossings with associated central refuge islands, and median treatments at the intersection of Goldstein Cr.

Traffic volumes and speed data were collected on Hambidge Cr at the following three locations:

- Between Truganini Pl and Norris St.
- Between Alice Jackson Cr and Baskerville St.
- Between Heagney Cr and Isabella Dr.

The results are provided in the following table:

Towards	Survey Start Date	Weekday Average (vpd)	Weekend average (vpd)	Weekday avg Speed Km/hr	Weekday 85 %ile Speed Km/hr
Between Truganini Pl and Norris St – During School Times					
Truganini Pl	18/10/16	640		39.1	46.4
Norris St		612		38.2	44.7
Between Truganini Pl and Norris St – Outside School Times					
Truganini Pl	18/10/16	650		53.9	61.5
Norris St		637		56.0	63.0
Between Alice Jackson Cr and Baskerville St					
Alice Jackson Cr	15/06/17	1,181	952	55.0	61.9
Baskerville St		1,169	921	55.8	62.3
Between Heagney Cr and Isabella Dr					
Heagney Cr	19/07/17	4,255	3,632	49.1	53.5
Isabella Dr		2,775	2,157	55.0	59.9

The data indicates that apart from the section of Hambidge Cr between Heagney Cr and Isabella Dr (which carries approximately 7,000 vpd – four lane two way) the traffic volume on Hambidge Cr (approximately 2,500 vpd) is not high for a major collector road classification (3,000 to 6,000 daily vehicles).

Speed data on Hambidge Cr indicates that the average motorist travels at or below the 60 km/h speed limit. Apart from the section of Hambidge Cr between Heagney Cr and Isabella Dr, at least 15% of vehicles are travelling above 60km/h. Based on an average of 2,500 vpd, this equates to 375 vehicles travelling above the posted speed limit (per day).

The average vehicle travels through the school zone below 40km/h, however the recorded 85th%ile speed of approximately 46km/h is of concern.

1.3 Collision Data

A total of 35 collisions occurred on Hambidge Cr in the five year period from 1 January 2012 to 31 December 2016 inclusive. There were a total of 6 injury collisions.

The collision history identified that:

- 5 of these collisions occurred at intersections.
- 1 collision occurred midblock which involved a vehicle and a pedestrian.
- 21 collisions involved rain affected conditions.
- 3 injuries were recorded at the intersection of Goldstein Cr and Hambidge Cr – 2 involving turning vehicles and one being a single vehicle out of control.
- 2 injuries were recorded at the intersection of Heagney Cr and Hambidge Cr (roundabout).

The other collisions did not provide a particular trend.

2. SITE INSPECTIONS

This site was inspected during the AM and PM peak periods on Thursday 7 September 2017.

AM Inspection

- On street parking was light, with the majority being around the primary school.
- Several road users (low in comparison with the volume of traffic) did appear to be travelling at speeds greater than the 60 km/h speed limit on the different sections of the road. Vehicles were generally well behaved within the 40 km/h school zone.
- The main area for pedestrian movements was at the schools. While most pedestrians utilised the existing Children's Crossings a small number did 'j-walk' in between the crossing locations.
- Some Children were observed riding bicycles to the schools, however all used off road paths and generally crossed Hambidge Cr at the Children's Crossings.
- Some vehicles entering Hambidge Cr from Norris St (right turning) were observed hesitating due to restricted sight distance to the east.
- The roundabout at the intersection of Heagney Cr did experience some congestion (as expected), however no major issues were observed.

PM Inspection

- Similar conditions to the AM peak period however (as expected) there was increased congestion at and around the schools during the pickup period. Cars were noted parking within the No Stopping zone outside the access driveway to the primary school (the primary schools' internal carpark was well over capacity).
- A number of Children (mainly high school students) were observed 'j-walking' in between the two Children's Crossings.
- While the majority of vehicles were observed complying with the school zone speed limit, many did not reduce to 40km/h until well inside the school zone. This was more prevalent at the eastern end of the school zone (downhill grade) which caused hesitation for vehicles turning right out of Norris St (restricted sight distance).
- Pedestrian crossing facilities were identified to be lacking at several locations along Hambidge Cr, particularly where pedestrian paths and obvious crossing locations exist. Pedestrians were observed crossing at these locations, predominantly during the PM periods (school children and pedestrians dropped off at bus stops).

Lighting lux levels

- Lighting along Hambidge Cr varies depending on the location.
- Typically the lighting levels ranged from 3.5 lux to 20 lux in the vicinity of the street lights and less than 3.5 lux midway between lights.

3. DESIGN CONSIDERATIONS

The following needs to be considered as part of the selection of the proposed LATM treatments:

- Devices should be visible for approaching road users from 73 m on 60 km/h and 55 m on 50 km/h roads (not accounting for corrections due to grade).
- Lighting – 3.5 Lux is required within 3 m of the LATM device.

4. LATM DEVICE ASSESSMENT

Hambidge Cr is ranked 6 out of 434 streets in the Traffic Warrant System (TWS 2016). It obtains this rank based on the classification of the road and traffic volume, and the surrounding activity generators (business, recreational activities, schools etc).

Given Hambidge Cr is a bus route, any measures implemented on Hambidge Cr would need to account for buses.

Apart from the roundabout at Heagney Cr, and the median/crossing treatment at the schools, Hambidge Cr does not have any other form of LATM treatment.

The major intersection along Hambidge Cr is with Baskerville St. While Baskerville St is treated with medians, no medians exist in Hambidge Cr. Crossing facilities for pedestrians are also lacking at this intersection across Hambidge Cr.

Although the 85th %ile speeds are only marginally over the 60km/h speed limit (recorded up to 63km/h) and could be considered 'within tolerance', any 85th %ile speeds above (within) the 40km/h school zone speed limit are not tolerable (recorded up to 46km/h) and should be addressed. Whilst the use of of vertical deflection devices, such as a speed cushion or speed hump, would have an effect on the speed of vehicles, treatment of identified crossing locations and major intersections (median islands/refuges) would also be beneficial in calming vehicles at these locations and creating an overall LATM treatment along the length of Hambidge Cr.

Approaches to the schools:

East approach:

Vehicles were observed hesitating when turning right out of Norris St due to the restricted sight distance (and speed of approaching vehicles) to the east in Hambidge Cr. Many parents use Norris St to park and pick up children during the PM school peak, and then exit onto Hambidge Cr. Although the intersection with Norris St is treated with medians, no median exists in Hambidge Cr east of the Norris St intersection.

Improving the sight distance from Norris St to the east is virtually impossible due to the road geometry, however if the speed of approaching westbound vehicles in Hambidge Cr is controlled (particularly during the school PM peak), drivers will have increased confidence when picking a gap to turn out of Norris St. This would also improve the safety of the existing Children's Crossing to the west of Norris St.

Options:

- Construct a median in Hambidge Cr on the eastern side of Norris St. This may aid in calming vehicle speeds and highlighting the Norris St intersection and associated Children's Crossing. Installing in paint would reduce costs.
- Vertical deflection devices could be utilised on the approach to the Norris St intersection. This is the more cost effective option and will have the greatest effect on calming vehicle speeds.

West approach:

Similar to the eastern approach, vehicles were observed not reducing their speeds until well into the school zone. An advance treatment may aid in highlighting the approaching school zone and Children's Crossing.

An existing crossing location was identified in Hambidge Cr to the west of Truganini Pl, which is adjacent to bus stops and students were observed utilising the area during the school PM peak. Only minor crossing facilities are provided (i.e. non-standard kerb ramp). There is an opportunity to provide a formal crossing facility (such as a median/refuge) which would reduce lane widths, provide a safer location for

pedestrians to cross (in particular bus patrons), and provide a threshold type treatment prior to the school zone.

Additionally vertical deflection devices could be installed near the commencement of the school zone to reduce vehicle speeds.

Other locations along Hambidge Cr:

Existing connecting paths (between properties) exist at two locations along Hambidge Cr.

- Location 1 - approximately 210m to the east of the Baskerville St intersection (which incorporates a bus stop on either side of Hambidge Cr).
- Location 2 - located on the western side of the intersection of Alice Jackson Cr.

An opportunity exists to provide a median/refuge type treatments at these locations to calm vehicles by reducing lane widths, and providing formal crossing facilities to link these connecting paths. Pedestrians were observed utilising these locations, primarily at Location 1.

The intersection of Hambidge Cr and Goldstein Cr (where the majority of accidents are occurring) is covered in the Goldstein Cr report.

A further median/refuge treatment could be provided at the intersection of Proctor St.

Vertical deflection devices would also compliment the refuge locations above, however are given a lower priority due to the 85th %ile speeds being marginally above the 60km/h speed limit.

If all the median/refuge and vertical deflection devicess are implemented (as discussed above), LATM facilities would effectively be provided at roughly equal distances along Hambidge Cr. This would not only aid in calming vehicles travelling along Hambidge Cr, but also provide formal crossing facilities (and improved pedestrian safety) which were identified as lacking during the site inspections.

Locations could generally be identified which had a minimum 3.5 Lux for the above mentioned treatments (however the range of light readings only marginally exceeded the minimum 3.5 Lux level). If treatments are placed under existing street light poles then the minimum lux is generally achieved. If locations need to be moved slightly away from the street lights then upgrading of luminaires will be required.

Both locations where it is proposed to link connecting paths have satisfactory lux readings.

For the purpose of this report (including the estimated construction costs), the upgrade of luminaires at certain locations has been included to cover the marginal light readings and provide a more accurate estimation of costs.

A location was identified to the east of Norris St which would cater for vertical deflection devices.

The proposed median/refuge crossing treatment to the west of Truganini Pl was lacking sufficient lighting, although satisfactory lux levels was recorded to the east of the intersection.

5. IMPLEMENTATION STAGING

A sketch of the proposed LATM improvements is provided in Attachment A.

The justification for the proposed treatment and prioritisation is provided below:

Hambidge Cr	Location	Justification
Priority 1		
Vertical Deflection Devices	West of Schools	85th %ile speeds high through school zone.
	East of (Norris St) Schools	85th %ile speeds high through school zone.
Median/refuge treatment	Near Norris St (east of schools) – Painted.	Sight distance restricted from Norris St to the east. Threshold treatment on approach to schools.
	Approx 210m east of Baskerville St	Located within a green belt and bus stops (connecting footpath crossing location). Equidistant LATM treatment.
Priority 2		
Vertical Deflection Devices	Approx 210m east of Baskerville St	Located within a green belt (connecting footpath crossing location).
	Western side of Alice Jackson Cr (sth)	Located within a green belt (connecting footpath crossing location).
Median/refuge treatment	Western side of Truganini Pl	Threshold treatment into School Zone. Utilised bus stops. Crossing point without formal crossing facilities.
	Northern side of Proctor St	Crossing point without formal crossing facilities. Equidistant LATM treatment.
	Western side of Alice Jackson Cr (sth)	Located within a green belt (connecting footpath crossing location). Equidistant LATM treatment.

Vertical deflection devices at the locations described above are an effective low cost solution to speeding. As vertical deflection devices are proposed for Hambidge Cr it is suggested that the installations are separated into Priority 1 and Priority 2.

Similarly for the median/refuge treatments, installations are separated into Priority 1 and 2.

The Priority 2 implementation is subject to further evaluation and available funding.

The Priority 1 and 2 treatments located within schools zones shall be undertaken as part of the school safety program.

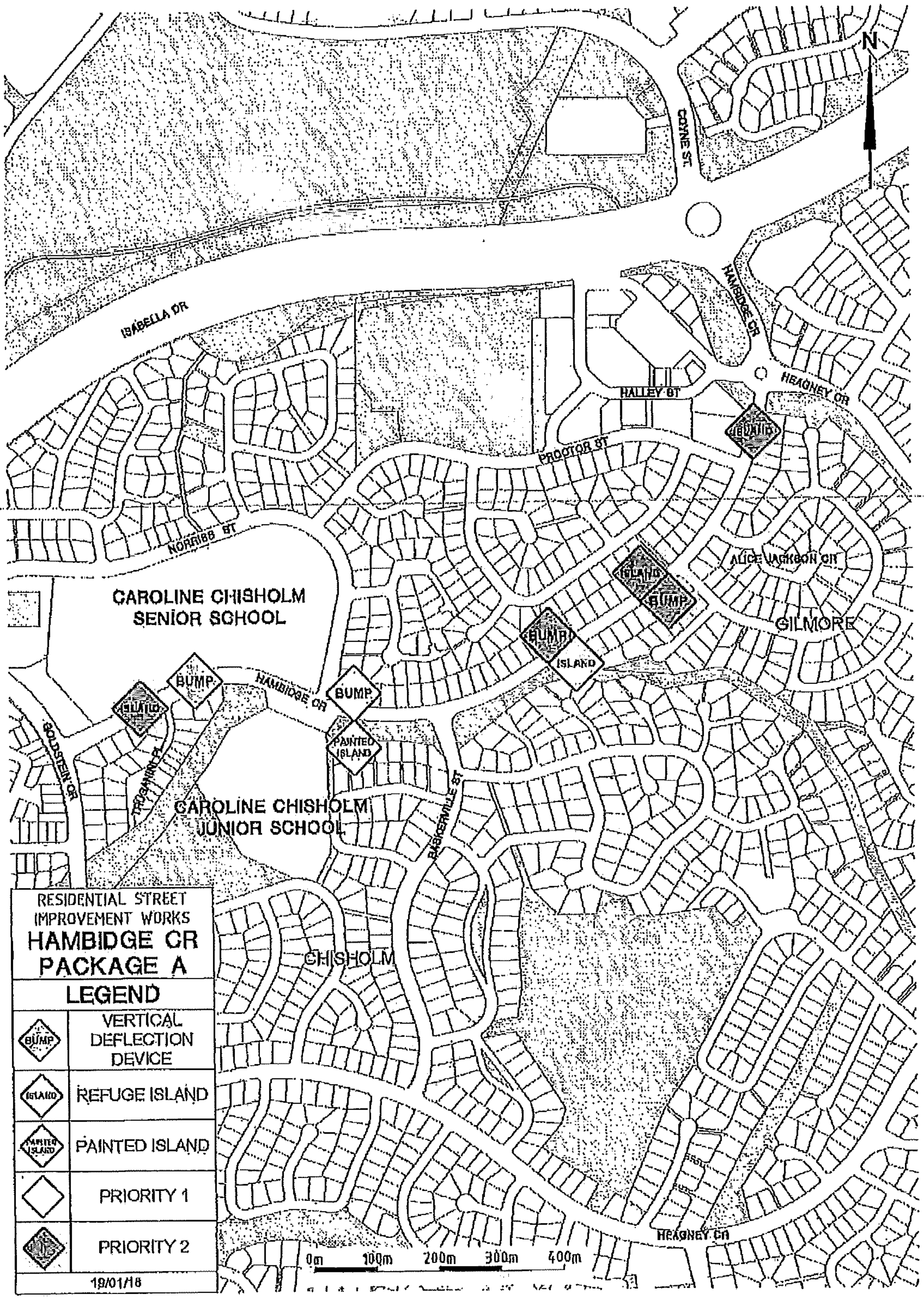
Refer to Attachment B for estimated costs (excluding GST).

If you have any questions please do not hesitate to contact me concerning the observed conditions and recommendations.

Regards

Senior Traffic Engineer

ATTACHMENT A - Sketch of the proposed LATM Device type and locations


N
COYNE ST
ISABELLA DR
HAMBIDGE CR
HEAGNEY CR
HALLEY ST
PROCTOR ST
NORRISS ST
ALICE JACKSON CR
CAROLINE CHISHOLM SENIOR SCHOOL
GILMORE
BUMP
ISLAND
PAINTED ISLAND
GOLDSTEIN CR
CAROLINE CHISHOLM JUNIOR SCHOOL
BASKERVILLE ST
CHISHOLM
HEAGNEY CR
0m 100m 200m 300m 400m
RESIDENTIAL STREET IMPROVEMENT WORKS
HAMBIDGE CR PACKAGE A
LEGEND
VERTICAL DEFLECTION DEVICE
REFUGE ISLAND
PAINTED ISLAND
PRIORITY 1
PRIORITY 2
19/01/18

ATTACHMENT B – Estimated Construction Costs

Hambidge Cr	Location	Estimated Costs (Excl. GST)
Priority 1 Stage		
Vertical Deflection Devices	West of Schools***	$14,000.00*
	East of (Norris St) Schools***	$10,000.00
Median/refuge treatment	East of Schools near Norris St (Painted)***	$10,000.00
	Approx 210m east of Baskerville St	$20,000.00*
	Sub-total	***$54,000.00 (excl. GST)****
Priority 2 Stage		
Vertical Deflection Devices	Approx 210m east of Baskerville St	$14,000.00*
	Western side of Alice Jackson Cr	$14,000.00*
Median/refuge treatment	Western side of Truganini Pl	$20,000.00*
	Northern side of Proctor St	$20,000.00*
	Western side of Alice Jackson Cr (sth)	$20,000.00*
	Sub-total	***$88,000.00** (excl. GST)***
	TOTAL	**$142,000.00** (excl. GST)**

* Note: Includes lighting upgrade (luminaires).

** Note: A review of services has not been undertaken and the impact of work on existing services is unknown. Estimated costs are indicative only and exclude relocation of services.

*** Note: Treatments within school zones to be undertaken as part of the school safety program.

19 January 2018

Consulting Engineers

Capital Works
Transport Canberra and City Services
GPO Box 158
Canberra ACT 2601

Attention: Leigh Costa

Heagney Cr, Chisholm/Gilmore – New Residential Street Improvement Works

An assessment of Heagney Cr has been undertaken to review the provision of traffic calming measures.

The project brief requires us to include:

- A review of available traffic data (traffic volumes, speed and crash data).
- Inspection of the sites during AM and PM peak periods, and school peaks where required.
- Identify potential locations of low cost LATM devices, including a night time inspection to assess lighting conditions.
- A short letter style report and sketch plan including approximate cost estimates.

1. TRAFFIC DATA AND PREVIOUS REPORT

1.1 Previous Report

A LATM report was prepared by BROWN (May 2014). The report recommended that:

- a roundabout be installed as a priority 3 at the intersection of Clift Cr,
- a roundabout be installed as a priority 3 at the intersection of Deamer Cr,
- a roundabout be installed as a priority 3 at the intersection of Henry Melville Cr sth,
- a roundabout be installed as a priority 3 at the intersection of Louisa Lawson Cr sth,
- a roundabout be installed as a priority 3 at the intersection of Louisa Lawson Cr nth.

1.2 Traffic volumes and speed data

Heagney Cr is classified as a major collector two lane two way road with a speed limit of 60 km/h. Heagney Cr is approximately 3.5km in length.

Currently there are many LATM treatments on Heagney Cr. They are primarily median type treatments (12 No) together with roundabouts at the intersection of Goldstein Cr and Hambidge Cr.

Traffic volumes and speed data were collected on Heagney Cr at the following six locations:

- Between Swanton St and McLorinan St (east)
- Between Moffiin St (east) and Muntz St (west)
- Between Deamer Cr and Hawton Pl
- Between Rose Scott Ct and Couchman Cr (west)
- Between Henry Melville Cr (south) and Louisa Lawson Cr (south) – School Zone
- Between Louisa Lawson Cr (south) and Louisa Lawson Cr (north)

The results are provided in the following table:

Towards	Survey Start Date	Weekday Average (vpd)	Weekend average (vpd)	Weekday avg Speed Km/hr	Weekday 85 %ile Speed Km/hr
Between Swanton St and McLorinan St (east)					
Swanton St	18/10/16	840	794	59.0	66.0
McLorinan St (east)		815	775	57.3	64.2
Between Mofflin St (east) and Muntz St (west)					
Mofflin St (east)	16/06/17	1,235	1,085	58.1	66.2
Muntz St (west)		1,291	1,129	53.1	59.4
Between Deamer Cr and Hawton Pl					
Deamer Cr	16/06/17	1,532	1,396	54.8	60.5
Hawton Pl		1,570	1,437	57.2	64.4
Between Rose Scott Ct and Couchman Cr (west)					
Rose Scott Ct	18/10/16	1,598	1,639	56.4	64.1
Couchman Cr (west)		1,671	1,731	61.2	70.6
Between Henry Melville Cr (south) and Louisa Lawson Cr (south) – <u>During School Hours</u>					
Henry Melville Cr (south)	18/10/16	1,003		**42.4**	**48.4**
Louisa Lawson Cr (south)		1,142		**43.1**	**49.3**
Between Henry Melville Cr (south) and Louisa Lawson Cr (south) – <u>Outside School Hours</u>					
Henry Melville Cr (south)	18/10/16	1,473		**57.7**	**63.8**
Louisa Lawson Cr (south)		1,330		**58.6**	**66.7**
Between Louisa Lawson Cr (south) and Louisa Lawson Cr (north)					
Louisa Lawson Cr (south)	18/10/16	3,622	3,667	55.0	60.1
Louisa Lawson Cr (north)		3,401	3,436	63.3	72.9

The data indicates that the traffic volume (over 7,000) on Heagney Cr (between Louisa Lawson Cr north and south) is uncharacteristic with the major collector road classification (3,000 to 6,000 daily vehicles), however the remainder of Heagney Cr falls within the major road classification range.

Speed data on Heagney Cr indicated that the average motorist generally travels below the 60 km/h speed limit (with one surveyed exception), however over 15% of vehicles are travelling above the 60km/h speed limit.

There is a definite speeding issue through the school zone at Gilmore Primary School (85th %ile average approximately 49km/h).

Although all but one 85th %ile surveyed speed was above 60km/h, of major concern are the two 85th %ile readings above 70km/h.

1.3 Collision Data

A total of 55 collisions occurred on Heagney Cr in the five year period from 1 January 2012 to 31 December 2016 inclusive. There were a total of 6 injury collisions.

The collision history identified that:

- 3 of these collisions occurred at intersections.
- 3 collision occurred midblock.
- 2 midblock injuries were west of the Goldstein Cr intersection – one collision with a parked car and one involving out of control vehicles in wet conditions.
- 1 midblock injury was recorded to the west of Couchman Cr – single vehicle right off carriageway.
- 1 injury was recorded at the intersection of Heagney Cr and Clift Cr.
- 2 injuries were recorded at the intersection of Heagney Cr and Hambidge Cr (roundabout).

The other collisions did not provide a particular trend.

2. SITE INSPECTIONS

This site was inspected during the AM and PM peak periods on Thursday 7 September 2017.

AM Inspection

- Parking on Heagney Cr was minimal.
- Many observed road users appeared to be travelling at speeds greater than 60km/h at various locations along Heagney Cr. Similarly within the school zone at Gilmore Primary School, many vehicles appeared to be travelling greater than 40km/h.
- Pedestrians were observed crossing Heagney Cr, mainly near the primary school.
- Some cyclists where observed, however very few were on road.

PM Inspection

- Similar conditions to the AM peak period however there was increased congestion at and near the primary school during the school pick up time.
- There were numerous occurances of vehicles observed that appeared to be travelling at a speed greater than the limit. In particular, many vehicles travelling between Goldstein Cr and Deamer Cr (in both directions – steep grade) seemed to have a total disregard for the speed limit.

Lighting lux levels

- Lighting along Heagney Cr varies depending on the location.
- Typically the lighting levels ranged from 5 lux to 20 lux in the vicinity of the street lights and less than 3.5 lux midway between lights.

3. DESIGN CONSIDERATIONS

The following needs to be considered as part of the selection of the proposed LATM treatments:

- Devices should be visible for approaching road users from 73 m on 60 km/h and 55 m on 50 km/h roads (not accounting for corrections due to grade).
- Lighting – 3.5 Lux is required within 3 m of the LATM device.

4. LATM DEVICE ASSESSMENT

Heagney Cr is ranked 8 out of 434 streets in the Traffic Warrant System (TWS 2016). It obtains this rank based on the classification of the road and traffic volume, and the surrounding activity generators (business, recreational activities, schools etc).

Heagney Cr is a bus route. Any measures implemented on Heagney Cr would need to account for buses.

A review of the speed data and observations indicates that the installation of speed reduction traffic calming devices in Heagney Cr is warranted within the midblocks.

While pedestrian activity was not considered high, any reduction or control of the speed of vehicles would assist pedestrians in crossing Heagney Cr. From observations, the main pedestrian crossing activity was at or near the primary school. It is noted that three pedestrian refuge islands exist near the school frontage (all of which had evidence of being hit by vehicles), and an adjacent underpass under Heagney Cr. Therefore the speed of vehicles should be treated at this location to improve the safety of road users and further enforce the 40km/h school zone. A vertical deflection device, such as a speed cushion or speed hump, on each approach to the school crossings would be an appropriate solution.

Although there are numerous median treatments along Heagney Cr, lane widths at some of these locations are still very wide and consequently do little to deter speeds. Crossing distances for pedestrians are long to reach the central median island (over 6m crossing distance). This is not an ideal environment for all road users. Linemarking and blister islands would reduce lane widths (therefore reduce crossing distances) and aid in deterring vehicles from travelling faster than the speed limit. Suitable locations include the median between the intersections of Louisa Lawson (north & south) and the median treatment near Couchman Cr.

From site observations, speeding is a common factor along the entire length of Heagney Cr. Of note was the section of Heagney Cr from Goldstein Cr to Deamer Cr, where during the PM observation period vehicles were observed blatantly exceeding the speed limit in both directions.

Given the length of Heagney Cr, the surveyed and observed speeds, and the limited budget available to address these concerns, a vertical deflection device and refuge treatment along the length of Heagney Cr is an appropriate option. Vertical deflection devices provide vertical displacement designed to reduce the speed of road users, while refuge treatments reduce lane widths for vehicles while reducing crossing distances (and providing a level of protection) for pedestrians crossing Heagney Cr. These devices are also more cost effective and can accommodate on-road cycling and public transport.

The locations where the installation of vertical deflection devices are believed to provide the most benefit would be in the proximity of pedestrian crossing locations (refuge islands/ children's crossing) that are closest to laneways or bus stops.

Given the blatant disregard for the 40km/h school zone, the vertical deflection device at either end of the school zone is considered the highest priority.

Locations where the lighting levels were assessed (under street lighting) comply with the minimum 3.5 lux requirement except for two of the proposed vertical deflection device locations. It is estimated a number

of luminaires (say 6) will need to be upgraded which will cater for final vertical deflection device locations resulting from detailed design (which may need to be slightly offset from existing street lighting locations due to road geometry).

5. IMPLEMENTATION STAGING

A sketch of the proposed LATM improvements is provided in Attachment A

Heagney Cr	Location	Justification
Priority 1		
Vertical Deflection Devices	East of McLorinan St (east)	Located within a green belt (connecting footpath crossing location and refuge). In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
	East of Alston St	Located within a green belt (connecting footpath crossing location and refuge). In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
	East of Deamer Cr	Located within a green belt (connecting footpath crossing location and refuge) and bus stop. In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
	South of Henry Melville Cr (School Zone)	85th %ile speeds high through school zone. Numerous crossing locations.
	South of Louisa Lawson south (School Zone)	85th %ile speeds high through school zone. Numerous crossing locations.
Blister and linemarking treatments	Between the intersections of Louisa Lawson	Located within a green belt (connecting footpath crossing location and refuge) and bus stop. In proximity of speed data location. Likely speeds will remain high along this section. Reducing lane widths to calm vehicles and reducing pedestrian crossing distance.
	Near Couchman Cr (Nth)	Located within a green belt (connecting footpath crossing location and refuge) and bus stop. In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section. Reducing lane widths to calm vehicles and reducing pedestrian crossing distance.
Priority 2		
Refuge	South of Beattie Cr	In proximity to bus stops. Two single vehicle collisions (both injuries).
	East of Baskerville St	In proximity to bus stops.
Vertical Deflection Devices	East of Couchman Cr (Nth)	Located within a green belt (connecting footpath crossing location and refuge) and opposing bus stops. In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
	East of Louisa Lawson north	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.

Vertical deflection devices at the locations described above are an effective low cost solution to speeding.

The blister/linemarking treatments are considered Priority 1.

The Priority 2 implementation is subject to further evaluation and available funding.

The treatments located within schools zones shall be undertaken as part of the school safety program.

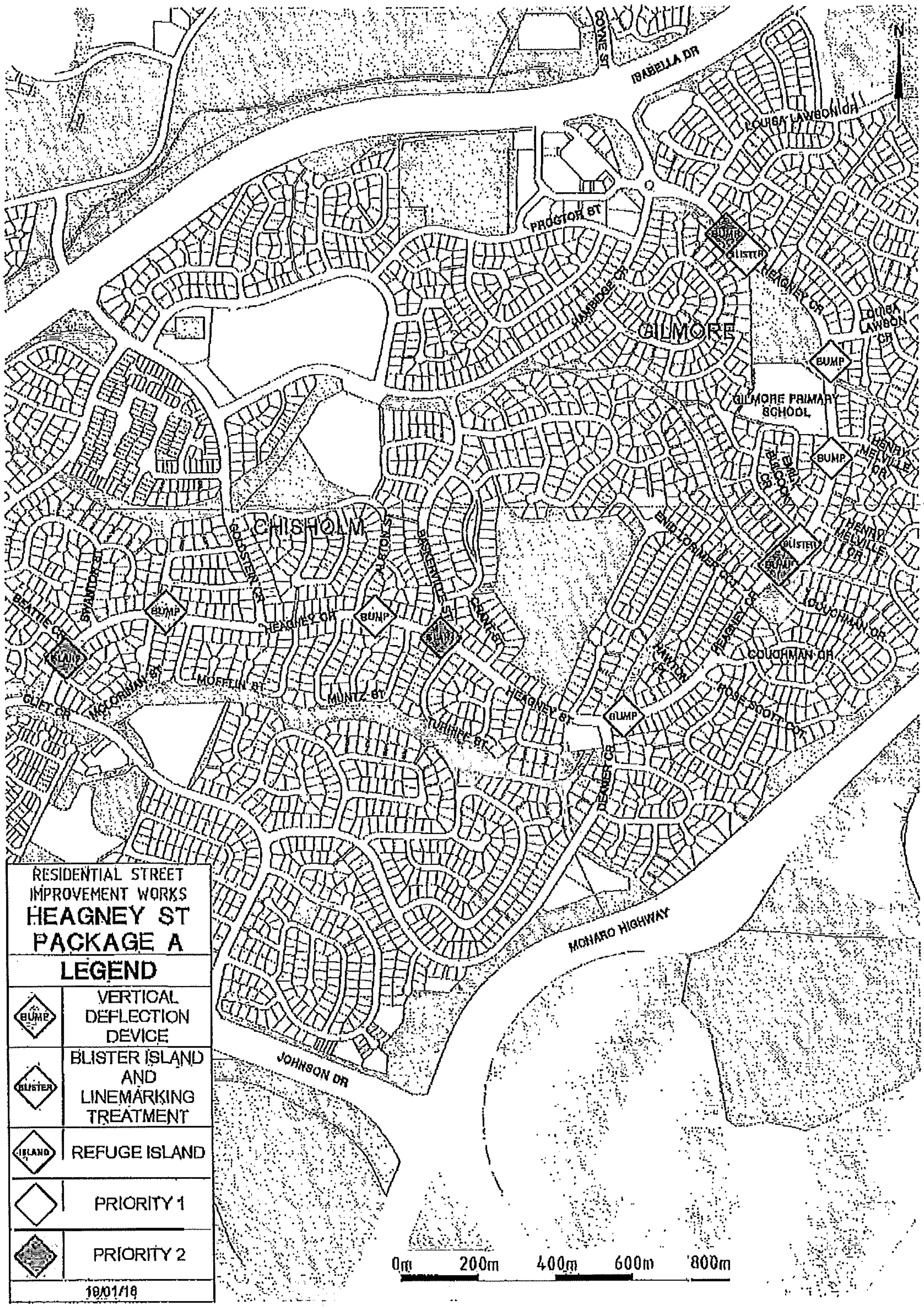
Refer to Attachment B for estimated costs (excluding GST).

If you have any questions please do not hesitate to contact me concerning the observed conditions and recommendations.

Regards

Senior Traffic Engineer

ATTACHMENT A - Sketch of the proposed LATM Device type and locations


RESIDENTIAL STREET IMPROVEMENT WORKS
HEAGNEY ST PACKAGE A
LEGEND
BUMP
VERTICAL DEFLECTION DEVICE
BLISTER
BLISTER ISLAND AND LINEMARKING TREATMENT
ISLAND
REFUGE ISLAND
PRIORITY 1
PRIORITY 2
19/01/18
0m
200m
400m
600m
800m
N
ISABELLA DR
COYNE ST
LOUISA LAWSON CR
PROCTOR ST
HEAGNEY CR
GILMORE
GILMORE PRIMARY SCHOOL
HENRY MELVILLE CR
CHISHOLM
HEAGNEY CR
MOFFLIN ST
MUNTZ ST
HEAGNEY ST
COUCHMAN CR
ROSE SCOTT CCT
MONARO HIGHWAY
JOHNSON DR
CLIFT CR
BEATTIE CR

ATTACHMENT B – Estimated Construction Costs

Heagney Cr	Location	Estimated Costs (Excl. GST)
Priority 1 Stage		
Vertical Deflection Devices	East of McLorinan St (east)	$14,000.00*
	East of Alston St	$10,000.00
	East of Deamer Cr	$14,000.00*
	South of Henry Melville Cr (School Zone)***	$10,000.00
	South of Louisa Lawson south (School Zone)***	$14,000.00*
Blister and linemarking treatments	Between the intersections of Louisa Lawson	$30,000.00
	Near Couchman Cr (nth)	$30,000.00
	Sub-total	***$122,000.00** (excl. GST)***
Priority 2 Stage		
Vertical Deflection Devices	East of Couchman St (nth)	$14,000.00*
	East of Louisa Lawson (nth)	$14,000.00*
Refuge	South of Beattie Cr	$20,000.00*
	East of Baskerville St	$20,000.00*
	Sub-total	***$68,000.00 (excl. GST)***
	TOTAL	**$190,000.00** (excl. GST)**

* Note: Includes lighting upgrade (luminaires).

** Note: A review of services has not been undertaken and the impact of work on existing services is unknown. Estimated costs are indicative only and exclude relocation of services.

*** Note: Treatments within school zones to be undertaken as part of the school safety program.

19 January 2018

Consulting Engineers

Capital Works
Transport Canberra and City Services
GPO Box 158
Canberra ACT 2601

Attention: Leigh Costa

Fincham Cr, Wanniassa – New Residential Street Improvement Works

An assessment of Fincham Cr, Wanniassa has been undertaken to review the provision of traffic calming measures.

The project brief requires us to include:

- A review of available traffic data (traffic volumes, speed and crash data).
- Inspection of the sites during AM and PM peak periods, and school peaks where required.
- Identify potential locations of low cost LATM devices, including a night time inspection to assess lighting conditions.
- A short letter style report and sketch plan including approximate cost estimates.

1. TRAFFIC DATA AND PREVIOUS REPORT

1.1 Previous Report

A LATM report was prepared by AECOM. The report recommended that:

- a 50km/h speed limit be installed (Priority 1).
- a speed cushion be installed to the north of Maloney St (Priority 2).
- a roundabout be installed at the intersection of Forlonge St (Priority 2).
- a roundabout be installed at the intersection of Sternberg Cr (Priority 2).

1.2 Traffic volumes and speed data

Fincham Cr is a major collector road from Athllon Dr to Wheeler Cr (60km/h) and beyond that is a local road with a 50 km/h speed limit. Fincham Cr is approximately 1km in length.

Currently there are no LATM treatments on Fincham Cr excluding the roundabout at Wheeler Cr, the 'seagull' treatment at Athllon Dr and the median treatment at Sternberg Cr.

Traffic volumes and speed data were collected on Fincham Cr at the following locations:

- Between Degreaves Cr and Maloney St
- Between Degreaves Cr and Forlonge St
- Between Athllon Dr and Wheeler Cr

The results are provided in the following table:

Towards	Survey Start Date	Weekday Average (vpd)	Weekend average (vpd)	Weekday avg Speed Km/hr	Weekday 85 %ile Speed Km/hr
Between Degreaves Cr and Maloney St					
Degreaves Cr	15/06/17	1,069	727	52.6	59.8
Maloney St		1,071	752	55.1	63.7
Between Degreaves Cr and Forlonge St					
Degreaves Cr	15/06/17	1,053	712	49.4	57.6
Forlonge St		1,048	722	52.8	60.1
Between Athllon Dr and Wheeler Cr					
Athllon Dr	22/06/17	2,466	1,986	54.4	58.8
Wheeler Cr		2,474	2,132	49.8	54.6

The data indicates that the traffic volume (approximately 5,000) on Fincham Cr (between Athllon Dr and Wheeler Cr) is in keeping with the major collector road classification (3,000 to 6,000 daily vehicles), while the traffic volumes (approximately 2,100) fall within the range of a Local Road.

Speed data on Fincham Cr (between Wheeler Cr and Athllon Dr) indicated that the average motorist travels below the 60 km/h speed limit (together with an 85th percentile speed lower than 60km/h). Along the 50km/h section of Fincham Cr, the average vehicle is travelling near or under the speed limit, however as the 85th percentile speed indicates, at least 15% of vehicles are travelling well above the 50km/h speed limit (average 85th percentile speed approximately 61 km/h). This is considerably higher than the speed limit.

1.3 Collision Data

A total of 10 collisions occurred on Fincham Cr in the five year period from 1 January 2012 to 31 December 2016 inclusive. There were a total of 2 injury collisions.

The collision history identified that:

- All 2 injury collisions occurred at the Fincham Cr/Wheeler Cr roundabout (one out of control vehicle late at night and one right angle collision at 7:45am).

The other collisions did not provide a particular trend.

2. SITE INSPECTIONS

This site was inspected during the AM and PM peak periods on Thursday 4 October 2017.

AM Inspection

- Parking on Fincham Cr was minimal.
- Several road users did appear to be travelling at speeds greater than the 50 km/h speed limit along Fincham Cr (Wheeler Cr to Sternberg Cr). This led to the hesitation of some drivers turning onto Fincham Cr from the various side streets.
- Some pedestrians were observed walking along (and crossing) Fincham Cr, however no concerns were identified.
- Only a minimal number of cyclists were observed.
- While there was a crash (injury) history at the roundabout of Fincham Cr and Wheeler Cr, no major issues were identified during the inspection.

PM Inspection

- Similar conditions to the AM peak period, particularly speeding vehicles.

Lighting lux levels

- Lighting along Fincham Cr varies depending on the location.
- Typically the lighting the Fincham Cr is the older style and consequently a 3.5 Lux (minimum) could not be achieved at any of the locations.

3. DESIGN CONSIDERATIONS

The following needs to be considered as part of the selection of the proposed LATM treatments:

- Devices should be visible for approaching road users from 73 m on 60 km/h and 55 m on 50 km/h roads (not accounting for corrections due to grade).
- Lighting – 3.5 Lux is required within 3 m of the LATM device.

4. LATM DEVICE ASSESSMENT

Fincham Cr is ranked 211 out of 434 streets in the Traffic Warrant System (TWS 2016). It obtains this rank based on the classification of the road and traffic volume, and the surrounding activity generators (business, recreational activities).

The roundabout at the intersection of Fincham Cr and Wheeler Cr, while having some congestion during the AM and PM peaks (as expected), did not raise any significant concerns during the observations. Due to the wide lanes and minimal deflection, vehicles could travel through the roundabout at a higher speed than what would normally be expected from this type of treatment. For the purpose of this report no LATM devices are proposed for the section between Wheeler Cr and Athllon Dr due to it being a short connection which carries a large amount of vehicles entering and exiting the suburb, and any LATM device would not be considered warranted.

A review of the speed data and observations indicates that the installation of speed reducing traffic calming devices on Fincham Cr south of Wheeler Cr are warranted.

The low cost and most effective solution for Fincham Cr is a vertical deflection device, such as a speed cushion or speed hump, along its length. Proposed locations for vertical deflection devices are:

- At intersection of Degraves Cr (Nth).
- Midblock between Degraves Cr (Sth) and Forlonge St.
- East of Steinfeld Cct (western side of overpass).

Multiple pedestrian crossing locations were identified which linked to existing connecting path networks. Fincham Cr is not wide enough (approx. 9.1m) to cater for a refuge treatment (10m minimum required). Therefore these treatments are not considered feasible. Blister treatments could be installed to reduce crossing distances (by approx. 2m) however given the cost of such treatments (against the benefits) they are not considered a priority under the scope of this report. The locations identified that could have blister treatments installed are:

- At intersection of Degraves Cr (Nth).
- Midblock between Degraves Cr (Sth) and Forlonge St.

As mentioned above, the minimum Lux levels could not be achieved at any of the proposed vertical deflection device locations. Although these locations are at (or close) to existing street lights, they are not

bright enough to reach a minimum of 3.5 Lux. Therefore luminaires will need to be upgraded at all locations.

Although a roundabout was recommended at the intersection of Fincham Cr and Forlonge St in the previous LATM report (AECOM), it is not considered warranted under this investigation. A review of the accident data at this location showed only one recorded collision (RUM code 609 – single vehicle hit animal) in the five year period from 1 January 2012 to 31 December 2016 inclusive. Therefore the high cost of a roundabout cannot be justified against the benefit.

5. IMPLEMENTATION STAGING

A sketch of the proposed LATM improvements is provided in Attachment A.

Fincham Cr	Location	Justification
Priority 1		
Vertical Deflection Devices	At intersection of Degraves Cr (Nth)	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
	Midblock between Degraves Cr (Sth) and Forlonge St	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section. Located within a green belt (connecting footpath crossing location).
Priority 2		
Vertical Deflection Devices	East of Steinfeld Crt (western side of overpass)	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.

Vertical deflection devices at the locations described above are an effective low cost solution to speeding.

The Priority 2 implementation is subject to further evaluation and available funding.

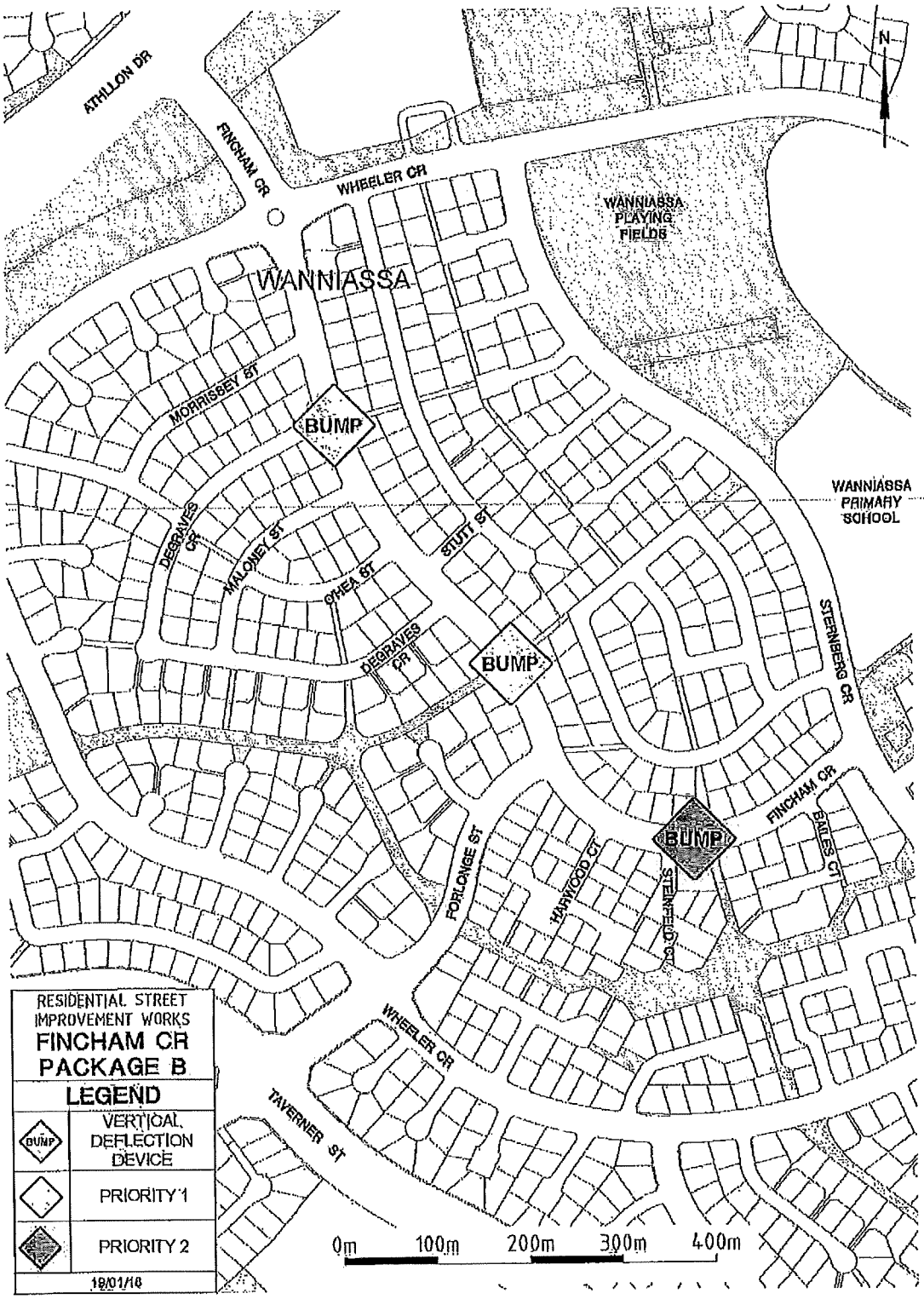
Refer to Attachment B for estimated costs (excluding GST).

If you have any questions please do not hesitate to contact me concerning the observed conditions and recommendations.

Regards

Senior Traffic Engineer

ATTACHMENT A - Sketch of the proposed LATM Device type and locations


ATHILLON DR
FINCHAM CR
WHEELER CR
WANNIASSA
WANNIASSA PLAYING FIELDS
N
MORRISSEY ST
BUMP
WANNIASSA PRIMARY SCHOOL
DEGRAVES CR
MALONEY ST
O'HEA ST
STUTT ST
BUMP
STERNBERG CR
FINCHAM CR
BUMP
BAILES CT
PORLONGE ST
HARWOOD CT
STEINFELD CT
WHEELER CR
TAVERNER ST
RESIDENTIAL STREET IMPROVEMENT WORKS
FINCHAM CR
PACKAGE B
LEGEND
VERTICAL DEFLECTION DEVICE
PRIORITY 1
PRIORITY 2
19/01/18
0m 100m 200m 300m 400m

ATTACHMENT B – Estimated Construction Costs

Fincham Cr	Location	Estimated Costs (Excl. GST)
Priority 1 Stage		
Vertical Deflection Devices	At intersection of Degraves Cr (Nth)	$14,000.00*
	Midblock between Degraves Cr (Sth) and Forlonge St	$14,000.00*
	Sub-total	***$28,000.00** (excl. GST)***
Priority 2 Stage		
Vertical Deflection Devices	East of Steinfeld Crt (western side of overpass)	$14,000.00*
	Sub-total	***$14,000.00** (excl. GST)***
	TOTAL	**$42,000.00** (excl GST)**

* Note: Includes lighting upgrade (luminaires).

** Note: A review of services has not been undertaken and the impact of work on existing services is unknown. Estimated costs are indicative only and exclude relocation of services.

19 January 2018

Consulting Engineers

Capital Works
Transport Canberra and City Services
GPO Box 158
Canberra ACT 2601

Attention: Leigh Costa

Langdon Av, Wanniassa – New Residential Street Improvement Works

An assessment of Langdon Av, Wanniassa has been undertaken to review the provision of traffic calming measures.

The project brief requires us to include:

- A review of available traffic data (traffic volumes, speed and crash data).
- Inspection of the sites during AM and PM peak periods, and school peaks where required.
- Identify potential locations of low cost LATM devices, including a night time inspection to assess lighting conditions.
- A short letter style report and sketch plan including approximate cost estimates.

1. TRAFFIC DATA AND PREVIOUS REPORT

1.1 Previous Report

A LATM report was prepared by AECOM. The report recommended that:

- '50km/h unless otherwise signposted' signage be installed (Priority 1).
- A roundabout be installed at the intersection of Sternberg Cr (Priority 1).

1.2 Traffic volumes and speed data

Langdon Av is a major collector road with a speed limit of 50 km/h. Langdon Av is approximately 2km in length.

Langdon Av has numerous existing LATM treatments. These include:

- Roundabouts (and associated medians) at the intersections of Athllon Dr, Longmore Cr (Nth), Garrett St, Gaunson Cr and Longmore Cr (Sth).
- A raised threshold (with Children's Crossing) to the west of Simmie Pl (Wanniassa Hills Primary School).
- Traffic Signals and associated median treatment at the intersection of Sternberg Cr.

Traffic volumes and speed data were collected on Langdon Av at the following four locations:

- Between Garratt St and Longmore Cr
- Between Highett St and Dyer Pl
- Between Brunton St (Nth) and Kirkton St
- Between Brunton St (Sth) and Embling St

The results are provided in the following table:

Towards	Survey Start Date	Weekday Average (vpd)	Weekend average (vpd)	Weekday avg Speed Km/hr	Weekday 85 %ile Speed Km/hr
Between Garratt St and Longmore Cr					
Garratt St	16/06/17	2,094	1,695	48.2	54.9
Longmore Cr		2,096	1,673	43.4	50.2
Between Highett St and Dyer Pl					
Highett St	15/06/17	1,143	1,007	54.6	61.8
Dyer Pl		1,271	1,115	53.3	60.3
Between Brunton St (Nth) and Kirkton St					
Brunton St (Nth)	15/06/17	1,956	1,657	50.1	57.5
Kirkton St		1,811	1,620	49.3	55.8
Between Brunton St (Sth) and Embling St					
Brunton St (Sth)	15/06/17	2,186	1,887	50.1	57.5
Embling St		2,228	1,876	49.3	55.8
Wanniassa Hills Primary School – School Zone					
Between Sainsbury St and Simmie Pl – <u>During School Hours</u>					
Sainsbury St	15/06/17	944		34.3	39.1
Simmie Pl		866		34.8	39.9
Between Sainsbury St and Simmie Pl – <u>Outside School Hours</u>					
Sainsbury St	15/06/17	756		39.8	44.5
Simmie Pl		746		42.6	48.1
Between Adamson Cr and Cumming Pl – <u>During School Hours</u>					
Adamson Cr	08/08/17	969		42.5	49.7
Cumming Pl		867		45.0	51.8
Between Adamson Cr and Cumming Pl – <u>Outside School Hours</u>					
Adamson Cr	08/08/17	699		52.3	58.9
Cumming Pl		727		52.6	59.4

The data indicates that the traffic volume (approximately 4,000) on Langdon Av is in keeping with the major collector road classification (3,000 to 6,000 daily vehicles).

Speed data on Langdon Av indicated that the average motorist travels at approximately the 50 km/h speed limit, however the section between Highett St and Dyer Pl recorded a higher average speed of approximately 54 km/h. The 85th percentile speed exceeds 50km/h at all recorded locations, with the worst section located between Highett St and Dyer Pl (approximately 61 km/h). This indicates that speeding is a concern on Langdon Av.

Referring to the speed data recorded within the school zone at Wanniassa Hills Primary School, motorists are generally travelling at or below 40km/h along the eastern side of the school zone. The southern side of the school zone is of concern, with recorded 85th %ile speeds of approximately 51 km/h, which is well above the 40km/h speed limit. Refer below for observations during the school pick up period.

1.3 Collision Data

A total of 14 collisions occurred on Langdon Av in the five year period from 1 January 2012 to 31 December 2016 inclusive. There were no injury collisions.

The collision history identified that:

- 4 collisions (3 in wet weather) around or at the intersection with Sainsbury St.

The other collisions did not provide a particular trend.

2. SITE INSPECTIONS

This site was inspected during the AM and PM peak periods on Thursday 5 October 2017.

AM Inspection

- Parking on Langdon Av was minimal.
- While some road users did appear to be travelling at speeds greater than the 50 km/h speed limit along Langdon Av (primarily east of the Garratt St roundabout), the majority of drivers seemed to comply with the 50km/h speed limit.
- There was some congestion between the Garratt St roundabout and the Athllon Dr roundabout, which is to be expected during the AM peak period. Delays to drivers were not substantial and aided in calming vehicles along this length of Langdon Av.
- Bus Stops were utilised along the length of Langdon Av, particularly the major stop in front of the Wanniassa shopping centre.
- There was activity at and around Wanniassa Hills Primary School during the school drop off period. Speeds and behaviour of vehicles was acceptable. The Children's Crossing was utilised, however some drivers did park in the opposing side streets and walked students across Langdon Av at various locations (taking a direct route). There were no major concerns with pedestrians being able to cross Landon Av during this time. Most drivers dropped off Children within the schools off-street carpark area.
- Pedestrians were observed walking along (and crossing) Langdon Av, however no significant concerns were identified. The main crossing locations were at the intersection of Sternberg Cr (traffic signals), and the length in front of the Wanniassa Shopping Centre.
- A small number of cyclists (both on-road and off-road) were observed travelling along Langdon Av.

PM Inspection

- Similar conditions to the AM peak period, although congestion was more sporadic between the Garratt St roundabout and the Athllon Dr roundabout
- Observations of vehicles appearing to be travelling at speeds faster than 50 km/h was higher than the AM period.

School PM (pickup period) Inspection

- There was significant congestion during the school pick up period.
- The majority of vehicles proceeded through the school zone at an acceptable speed. (Note: Although observed vehicle speeds were considered acceptable, this contradicts the surveyed 85th %ile speed of approximately 51 km/h. We suggest that this is due to the surveyed speed data

being taken for the whole school period of 8:00am to 4:00pm, and not purely during the school pickup period).

- There is an obvious lack of parking available for vehicles when picking up school children. Of concern was the large number of vehicles which mounted and parked within the verge in front of the School. Vehicles were observed driving along the footpath to reach these locations, which incidentally were adjacent to the Children's Crossing. Wooden bollards have been placed along certain sections of the verge to try and combat this behaviour however there is not enough to restrict these type of vehicle movements.
- The side streets opposing the school were also used by vehicles to pick up children.
- The Children's Crossing was well utilised, with only minor occurrences of children crossing at random locations.

Lighting lux levels

- Lighting along Langdon Av varies depending on the location.
- Typically the lighting the Langdon Av is the older style and consequently 3.5 Lux (minimum) could not be achieved at any of the locations.

3. DESIGN CONSIDERATIONS

The following needs to be considered as part of the selection of the proposed LATM treatments:

- Devices should be visible for approaching road users from 73 m on 60 km/h and 55 m on 50 km/h roads (not accounting for corrections due to grade).
- Lighting – 3.5 Lux is required within 3 m of the LATM device.

4. LATM DEVICE ASSESSMENT

Langdon Av is ranked 33 out of 434 streets in the Traffic Warrant System (TWS 2016). It obtains this rank based on the classification of the road and traffic volume, and the surrounding activity generators (business, recreational activities).

For the purpose of this assessment the section of Langdon Av between the Garratt St roundabout and the Athllon Dr roundabout does not warrant further LATM assessment, as this short section (approximately 280m in length) has a roundabout midway at Longmore Cr and carries a large amount of vehicles entering and exiting the suburb. Any further LATM device would not be considered warranted (at this stage).

Speed is the main concern along Langdon Av. Surveyed speeds indicate a large number of vehicles are travelling at speeds higher than the speed limit (including the 40km/h school zone). Observations also revealed a number of vehicles that appeared to be travelling above the speed limit.

Although there are a large number of roundabouts (and one raised threshold) along Langdon Av which reduce vehicle speeds, the following are possible reasons why vehicles are still exceeding the speed limit along Langdon Av:

- The distance between LATM treatments is too long - This is particularly the case to the west of the primary school, where the distance between the raised threshold to the roundabout at Garratt St is approximately 870m. An increased amount of LATM speed reducing treatments will aid in reducing overall speeds.

- Drivers are not aware of the 50km/h speed limit – Given Langdon Av is a major collector road (and provides an environment as such), drivers may disregard the 50 km/h limit or even make their own speed assessment of Langdon Av as a 60km/h road. It was observed onsite that one end of Langdon Av is posted as '50 km/h unless otherwise signposted' (northern end from Athllon Dr), and simply sign posted as 50km/h at the Sternberg Cr (southern) end. Repeating the signposting of the speed limit (50km/h) along the length of Langdon Av at regular intervals may remove any confusion to drivers, as they may believe the '50 km/h unless otherwise signposted' signage refers to the side streets off Langdon Av given Langdon Av is a major collector road. It is noted that the majority of major collector roads through suburbs are generally signposted at 60km/h.

Due to speed being the main concern that was both surveyed and observed, vertical deflection device, such as a speed cushion or speed hump, are recommended. Locations have been identified which compliment other features (such as connecting paths, approaches to the school and midway between existing treatments). Proposed locations are as follows:

- West of Tytherleigh St adjacent to connecting path (outside #47 Langdon Av).
- West of Sainsbury St (eastbound approach to school).
- North of Adamson Cr (northbound approach to school).
- North of Brunton St Nth (near connecting path).
- North of Embling St (midway between Sternberg Cr and Longmore Cr).

Multiple pedestrian crossing locations were identified which linked to existing connecting path networks. Langdon Av is not wide enough (approx. 9.2m) to cater for a median refuge (minimum 10m required).

As mentioned above, the minimum Lux levels could not be achieved at any of the proposed locations. Although these locations are at (or close) to existing street lights, they are not bright enough to reach a minimum of 3.5 Lux. Therefore luminaires will need to be upgrade at all locations.

5. IMPLEMENTATION STAGING

A sketch of the proposed LATM improvements is provided in Attachment A.

Langdon Av	Location	Justification
Priority 1		
50km/h repeater signs	4 signs (2 each way)	Road environment conducive to 60km/h. Reminder of the 50km/h speed limit on Langdon Av.
Vertical Deflection Devices	West of Tytherleigh St	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
	North of Adamson Cr	Within school zone. In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
Priority 2		
Vertical Deflection Devices	North of Embling St	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
	North of Brunton St Nth	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
	West of Sainsbury St	Within school zone.

The installation of additional 50km/h repeater signs along the length of Langdon Av (excluding the School Zone) would be beneficial in reminding drivers of the speed limit along this major collector road and are considered Priority 1.

Vertical deflection devices at the locations described above are low cost and effectively calm vehicle speeds.

The Priority 2 implementation is subject to further evaluation and available funding.

The Priority 1 and 2 treatments located within schools zones shall be undertaken as part of the school safety program.

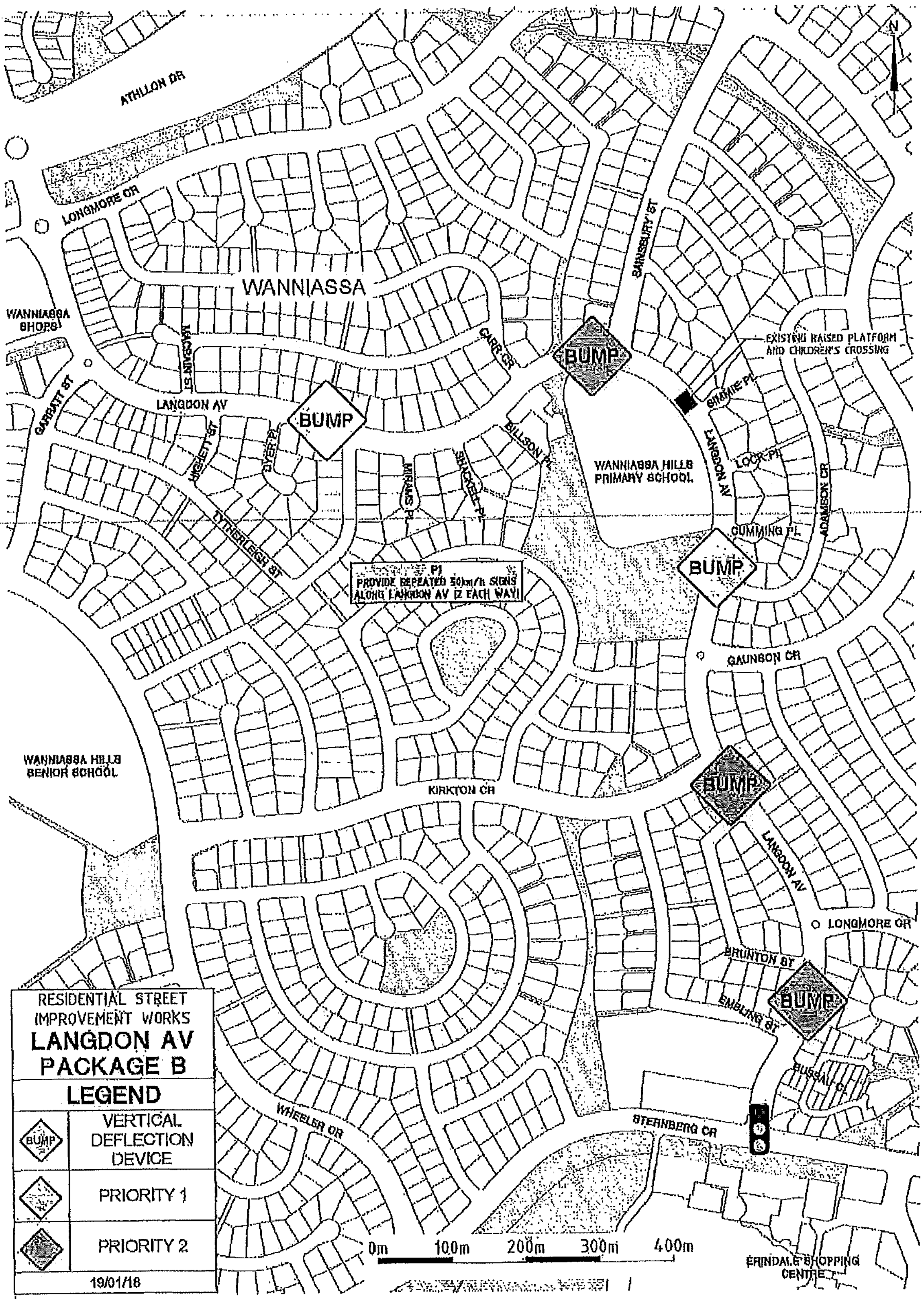
Refer to Attachment B for estimated costs (excluding GST).

If you have any questions please do not hesitate to contact me concerning the observed conditions and recommendations.

Regards

Senior Traffic Engineer

ATTACHMENT A - Sketch of the proposed LATM Device type and locations


ATHLLON DR
LONGMORE CR
WANNIASSA
WANNIASSA SHOPS
GARRATT ST
LANGDON AV
BUMP
CARR CR
SAINSBURY ST
EXISTING RAISED PLATFORM AND CHILDREN'S CROSSING
GIMMIE PL
BILLSON PL
WANNIASSA HILLS PRIMARY SCHOOL
LOCK PL
ADAMSON CR
CUMMING PL
HIGLETT ST
DYER PL
MIRAMS PL
TYTHERLEIGH ST
P1
PROVIDE REPEATED 50km/h SIGNS ALONG LANGDON AV (2 EACH WAY)
GAUNSON CR
WANNIASSA HILLS SENIOR SCHOOL
KIRKTON CR
LONGMORE CR
BRUNTON ST
EMBLING ST
STERNBERG CR
WHEELER CR
ERINDALE SHOPPING CENTRE
0m 100m 200m 300m 400m
RESIDENTIAL STREET IMPROVEMENT WORKS
LANGDON AV
PACKAGE B
LEGEND
VERTICAL DEFLECTION DEVICE
PRIORITY 1
PRIORITY 2
19/01/18

ATTACHMENT B – Estimated Construction Costs

Langdon Av	Location	Estimated Costs (Excl. GST)
Priority 1 Stage		
50km/h repeater signs	4 signs (2 each way)	$1,200.00
Vertical Deflection Devices	West of Tytherleigh St	$14,000.00*
	North of Adamson Cr***	$14,000.00*
	Sub-total	***$29,200.00 (excl. GST)****
Priority 2 Stage		
Vertical Deflection Devices	North of Embling St	$14,000.00*
	North of Brunton St Nth	$14,000.00*
	West of Sainsbury St***	$14,000.00*
	Sub-total	***$42,000.00 (excl. GST)****
	TOTAL	**$71,200.00** (excl. GST)**

* Note: Includes lighting upgrade (luminaires).

** Note: A review of services has not been undertaken and the impact of work on existing services is unknown. Estimated costs are indicative only and exclude relocation of services.

*** Note: Treatments within school zones to be undertaken as part of the school safety program.

19 January 2018

Consulting Engineers

Capital Works
Transport Canberra and City Services
GPO Box 158
Canberra ACT 2601

Attention: Leigh Costa

Longmore Cr, Wanniassa – New Residential Street Improvement Works

An assessment of Longmore Cr, Wanniassa has been undertaken to review the provision of traffic calming measures.

The project brief requires us to include:

- A review of available traffic data (traffic volumes, speed and crash data).
- Inspection of the sites during AM and PM peak periods, and school peaks where required.
- Identify potential locations of low cost LATM devices, including a night time inspection to assess lighting conditions.
- A short letter style report and sketch plan including approximate cost estimates.

1. TRAFFIC DATA AND PREVIOUS REPORT

1.1 Previous Report

A LATM report was prepared by [redacted] The report recommended that:

- '50km/h unless otherwise signposted' signage be installed (Priority 1).
- A speed cushion be installed to the south of McKenna St (Priority 2).
- A speed cushion be installed to the east of Petit Pl (Priority 2).

1.2 Traffic volumes and speed data

Longmore Cr is a minor collector road with a speed limit of 50 km/h. Longmore Cr is approximately 3km in length.

Longmore Cr has no LATM treatments apart from roundabouts at the intersections of Langdon Av (Nth), Sainsbury St, Gaunson Cr and Langdon Av (Sth).

Traffic volumes and speed data were collected on Longmore Cr at the following three locations:

- Between Butterfly Pl and Phelan Pl
- Between Meares Pl and Rees Pl
- Between McKenna St and Harker Pl

The results are provided in the following table.

Towards	Survey Start Date	Weekday Average (vpd)	Weekend average (vpd)	Weekday avg Speed Km/hr	Weekday 85 %ile Speed Km/hr
Between Butterfly Pl and Phelan Pl					
Butterfly Pl	16/06/17	831	715	56.4	65.2
Phelan Pl		755	727	56.3	64.4
Between Meares Pl and Rees Pl					
Meares Pl	01/08/17	480	365	56.1	64.0
Rees Pl		483	416	53.3	60.4
Between McKenna St and Harker Pl					
McKenna St	15/06/17	298	261	55.3	64.4
Harker Pl		333	277	55.3	64.8

The data indicates that the traffic volume (approximately 1,500) on Longmore Cr (Between Butterfly Pl and Phelan Pl) is in keeping with the minor collector road classification.

Speed data on Longmore Cr indicated that the average motorist travels above the 50 km/h speed limit. The 85th percentile speed indicates that at least 15% of vehicles are travelling above 65km/h, which is significant against a 50km/h speed limit.

1.3 Collision Data

A total of 11 collisions occurred on Longmore Cr in the five year period from 1 January 2012 to 31 December 2016 inclusive. There were no injury collisions.

Of note was the four recorded (101 – thru thru) collisions at the roundabout with Sainsbury St. The other collisions did not provide a particular trend.

2. SITE INSPECTIONS

This site was inspected during the AM and PM peak periods on Thursday 5 October 2017.

AM Inspection

- Parking on Longmore Cr was minimal.
- Many road users did appear to be travelling at speeds greater than the 50 km/h speed limit along Longmore Cr.
- Some pedestrians were observed walking along (and crossing) Longmore Cr, however no concerns were identified.
- Some cyclists were observed, however most were utilising the off road paths.
- Some congestion was observed at the roundabout with Langdon Av, however the delays were minimal.
- Vehicles were observed being able to proceed through the roundabouts at Sainsbury St and Gaunson Cr at speed. This is due to the roundabouts (and their lanes) being very wide and having little to no deflection.
- Buses were observed picking up patrons at various stops along Longmore Cr.

PM Inspection

- Similar conditions to the AM peak period.
- Buses were observed dropping off patrons at the majority of the bus stops along Longmore Cr.
- Excessive speed was again observed.

Lighting lux levels

- Lighting along Longmore Cr varies depending on the location.
- Typically the lighting the Longmore Cr did not reach the minimum 3.5 Lux level. The only locations where the minimum level was reached was on the entries to the roundabouts at Sainsbury St and Gaunson Cr.

3. DESIGN CONSIDERATIONS

The following needs to be considered as part of the selection of the proposed LATM treatments:

- Devices should be visible for approaching road users from 73 m on 60 km/h and 55 m on 50 km/h roads (not accounting for corrections due to grade).
- Lighting – 3.5 Lux is required within 3 m of the LATM device.

4. LATM DEVICE ASSESSMENT

Longmore Cr is ranked 149 out of 434 streets in the Traffic Warrant System (TWS 2016). It obtains this rank based on the classification of the road and traffic volume, and the surrounding activity generators (business, recreational activities).

Speed is the main concern along Longmore Cr. Surveyed speeds indicate a large number of vehicles are travelling at speeds much higher than the speed limit. Observations also revealed many vehicles that appeared to be travelling above the speed limit. Consequently the installation of speed reducing traffic calming devices on Longmore Cr is warranted.

The roundabouts at Sainsbury St and Gaunson Cr do little to deter vehicle speeds on the approach, through, and departing these intersections. This is due to the roundabouts (and their lanes) being very wide and having little to no deflection. The speed of vehicles through the roundabout at Sainsbury St may have contributed to the four recorded collisions (101 – Thru thru). Similarly, two 101 collisions were recorded at the roundabout with Gaunson Cr. To re-shape these roundabouts (and approaches) would come at a significant cost and falls outside the scope of this low cost improvement project.

An alternate (lower cost) solution to increasing deflection and reducing speeds of vehicles through the roundabouts is to install blister type treatments, effectively reducing lane widths on all approaches to the two roundabouts.

Speeding has been identified as an issue along the entire length of Longmore Cr. Therefore treating other locations along Longmore Cr with a combination of a vertical deflection devices, such as a speed cushion or speed hump, and linemarking (lane narrowing) treatments will further reduce vehicle speeds along its length. One concern with the proposed linemarking/blister treatment (edge line/central median/blisters) is the possible loss of on-street parking, however the impact could be reduced should the through lanes be laterally shifted to one side of Longmore Cr, therefore providing adequate width for vehicles to park between the kerb and the edge line on the residential side. Due to this concern the linemarking/blister type treatment (length) is recommended to be used along sections of Longmore Cr where residential properties are primarily located only on one side of the street (between Orkney Pl and Petitt Pl).

Proposed vertical deflection device locations are as follows:

- West of Phelan Pl.
- Between Methven Pl and Hoddinott St.
- East of Brooke Pl.
- South of McKenna St.
- West of Pettit Pl.
- East of Cruikshank St.

Given the extensive length of Longmore Cr, installing 50km/h repeater signs may help in reminding drivers of the speed limit.

For a road of this length there are very few connecting paths (say midblock) for which the installation of pedestrian refuges would be advantageous to assist in reducing high vehicle speeds. Unfortunately due to the width of Longmore Cr being approximately 9m pedestrian refuges are not possible under current standards (minimum width 10m). While some pedestrians were observed crossing Longmore Cr (primarily from bus stops), they did so very sporadically although in a relatively safe manner.

As mentioned previously, a minimum 3.5 Lux light reading was not recorded at any of the locations apart from the entries to the roundabouts at Sainsbury St and Gaunson Cr. The luminaires will be required to be upgraded at all other locations (to cater for vertical deflection device/ blister treatments).

5. IMPLEMENTATION STAGING

A sketch of the proposed LATM improvements is provided in Attachment A.

Longmore Cr	Location	Justification
Priority 1		
Vertical Deflection Devices	West of Phelan Pl.	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
	Between Methven Pl and Hoddinott St.	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
	South of McKenna St.	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
	West of Pettit Pl.	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
Blister treatments on all legs of roundabout	Sainsbury St roundabout.	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section. Minimal deflection through roundabout to reduce vehicle speeds.
	Gaunson Cr roundabout.	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section. Minimal deflection through roundabout to reduce vehicle speeds.
50km/h repeater signs	6 signs (3 each way)	Road environment conducive to 60km/h. Reminder of the 50km/h speed limit on Longmore Av.
Priority 2		
Vertical Deflection Devices	East of Brooke Pl.	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
	East of Crulkshank St.	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.
Linemarking (edge lines/central medians/blister) length type treatment.	Between Orkney Pl and Petitt Pl.	In proximity of adjacent speed data collection location which indicated high 85th percentile speeds and speeds would be expected to remain high on this section.

Vertical deflection devices at the locations described above are low cost and effectively calm vehicle speeds.

The installation of additional 50km/h repeater signs along the length of Longmore Cr may be beneficial in reminding drivers of the speed limit along this minor collector road and are also considered Priority 1.

The Priority 2 implementation is subject to further evaluation and available funding.

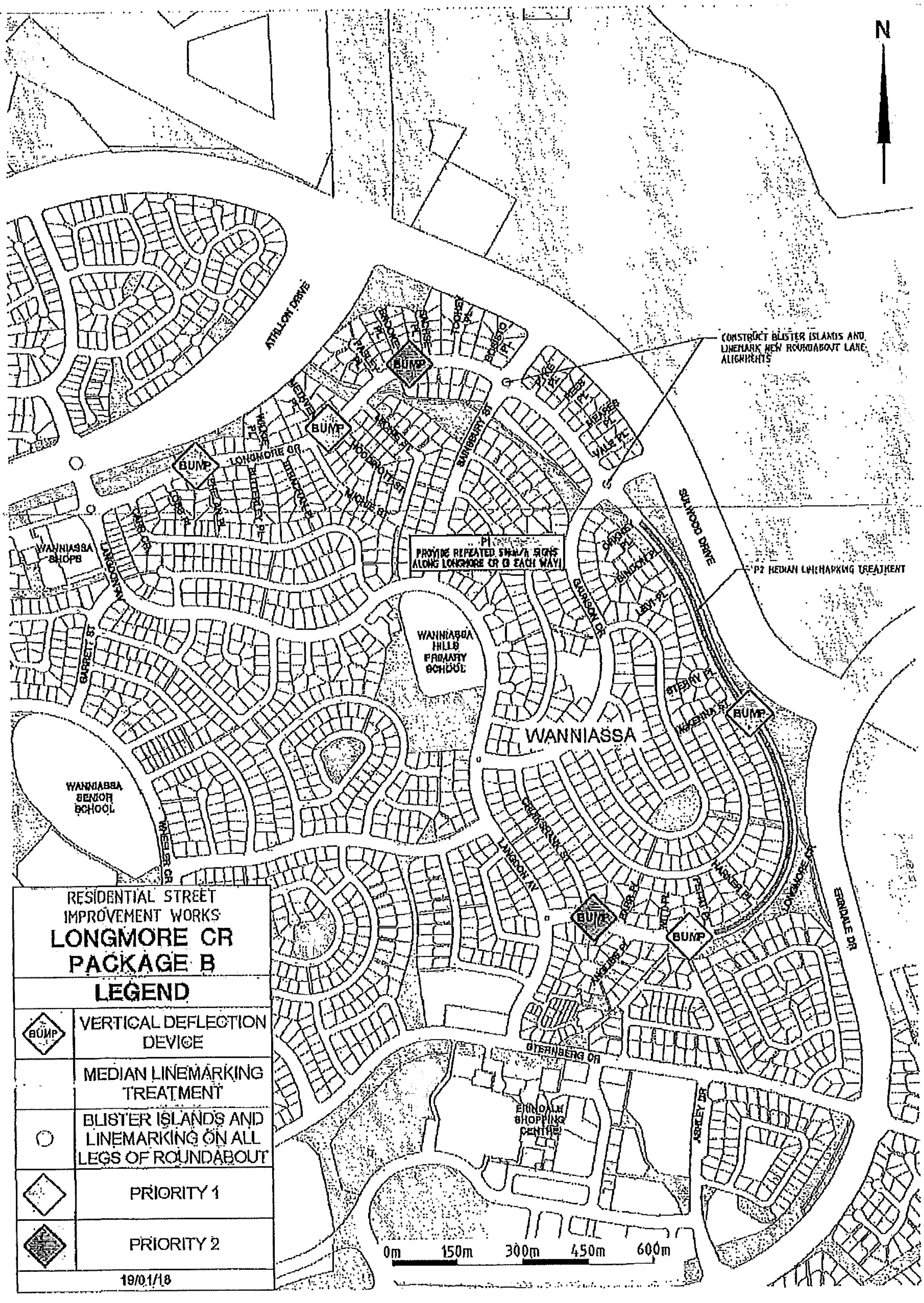
Refer to Attachment B for estimated costs (excluding GST).

If you have any questions please do not hesitate to contact me concerning the observed conditions and recommendations.

Regards

Senior Traffic Engineer

ATTACHMENT A - Sketch of the proposed LATM Device type and locations


N
CONSTRUCT BLISTER ISLANDS AND LINEMARK NEW ROUNDABOUT LANE ALIGNMENTS
P1 PROVIDE REPEATED 50km/h SIGNS ALONG LONGMORE CR (3 EACH WAY)
P2 MEDIAN LINEMARKING TREATMENT
ATHLLON DRIVE
SULWOOD DRIVE
ERINDALE DR
LONGMORE CR
STERNBERG CR
ASHLEY DR
WANNIASSA
WANNIASSA SHOPS
WANNIASSA HILLS PRIMARY SCHOOL
WANNIASSA SENIOR SCHOOL
ERINDALE SHOPPING CENTRE
BUMP
RESIDENTIAL STREET IMPROVEMENT WORKS
LONGMORE CR
PACKAGE B
LEGEND
VERTICAL DEFLECTION DEVICE
MEDIAN LINEMARKING TREATMENT
BLISTER ISLANDS AND LINEMARKING ON ALL LEGS OF ROUNDABOUT
PRIORITY 1
PRIORITY 2
19/01/18
0m 150m 300m 450m 600m

ATTACHMENT B – Estimated Construction Costs

Longmore Cr	Location	Estimated Costs (Excl. GST)
Priority 1 Stage		
Vertical Deflection Devices	West of Phelan Pl.	$14,000.00*
	Between Methven Pl and Hoddinott St.	$14,000.00*
	South of McKenna St.	$14,000.00*
	West of Pettit Pl.	$14,000.00*
Blister treatments on all legs of roundabout	Sainsbury St roundabout.	$20,000.00
	Gaunson Cr roundabout.	$20,000.00
50km/h repeater signs	6 signs (3 each way)	$1,800.00
	Sub-total	***$97,800.00 (excl. GST)***
Priority 2 Stage		
Vertical Deflection Devices	East of Brooke Pl.	$14,000.00*
	East of Cruikshank St.	$14,000.00*
Linemarking (edge lines/central medians/blister) length type treatment	Between Orkney Pl and Petitt Pl.	$30,000.00*
	Sub-total	***$58,000.00 (excl. GST)***
	TOTAL	**$155,800.00****

* Note: Includes lighting upgrade (luminaires).

** Note: A review of services has not been undertaken and the impact of work on existing services is unknown. Estimated costs are indicative only and exclude relocation of services.