

VML:CD
Vicki Lukritz
3810 6221



Ipswich City Council

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Australia

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15 February 2019

Sir/Madam

Notice is hereby given that a Meeting of the **GROWTH AND INFRASTRUCTURE COMMITTEE** is to be held in the **Council Chambers** on the 2nd Floor of the Council Administration Building, 45 Roderick Street, Ipswich commencing at **9.30 am or 10 minutes after the conclusion of the Economic Development Committee, whichever is the earlier** on **Tuesday, 19 February 2019**.

MEMBERS OF THE GROWTH AND INFRASTRUCTURE COMMITTEE	
Greg Chemello (Interim Administrator) (Chairperson)	

Yours faithfully

CHIEF EXECUTIVE OFFICER



GROWTH AND INFRASTRUCTURE COMMITTEE AGENDA

9.30 am or 10 minutes after the conclusion of the Economic Development Committee, whichever is the earlier on **Tuesday, 19 February 2019**
Council Chambers

Item No.	Item Title	Officer
1	Acquisition of Drainage Easement for Loder Road, Thagoona, Drainage Project	SPO
2	Acquisition of Drainage Easement for the Spring Creek Bridge, Mt Mort, Rehabilitation Project	SPO
3	2018 Strategic Traffic Count Program Summary of Results	STP
4	iGO Intelligent Transport Systems Strategy	E(TS)
5	Proposed Amendment of Implementation Guideline No. 18 – Estate and Directional Signage	SPM
6	Works, Parks and Recreation Quarterly Activity Report – October to December 2018	BSSC
7	Planning and Development Department Quarterly Activity Report – December 2018	A/CP
8	Planning and Development Department Annual Activity Report – January to December 2018	A/CP
9	Court Action Status Report	A/DPM
10	Exercise of Delegations Report	A/DPM
LATE ITEM 11	Infrastructure Delivery Progress as at 5 February 2019	CFM

** Item includes confidential papers

GROWTH AND INFRASTRUCTURE COMMITTEE NO. 2019(02)

19 FEBRUARY 2019

AGENDA

1. ACQUISITION OF DRAINAGE EASEMENT FOR LODER ROAD, THAGOONA, DRAINAGE PROJECT

With reference to a report by the Senior Property Officer dated 11 January 2019 concerning the acquisition of an easement for drainage purposes for the Loder Road Drainage Project.

RECOMMENDATION

- A. That the Interim Administrator of Ipswich City Council ("Council"), having duly considered this report dated 11 January 2019, be of the opinion that the following properties (shown in Attachments A, B & C) ('the Land') require an easement for drainage purposes:
- a. Part of Lot 10 on RP85361, 33 Rosewood-Thagoona Road, Thagoona (2810m²)
 - b. Part of Lot 7 on RP85362, 6-8 Thagoona-Haigslea Road, Thagoona (850m²)
 - c. Part of Lot 245 on CH3147, 18-36 Thagoona-Haigslea Road, Thagoona (2810m²)
- B. That the Interim Administrator of Ipswich City Council ("Council") exercise its power as a "constructing authority" under the *Acquisition of Land Act 1967* and acquire the easements, (as described in Recommendation A of this report dated 11 January 2019) for drainage purposes.
- C. That the Chief Executive Officer be authorised to negotiate compensation and perform any other matters, arising out of the *Acquisition of Land Act 1967* or otherwise, and to do any other acts necessary to implement the Interim Administrator of Ipswich City Council's decision in accordance with section 13(3) of the *Local Government Act 2009*, to acquire the easement.
-

2. ACQUISITION OF DRAINAGE EASEMENT FOR THE SPRING CREEK BRIDGE, MT MORT, REHABILITATION PROJECT

With reference to a report by the Senior Property Officer dated 25 January 2019 concerning the acquisition of an easement for drainage purposes for the Spring Creek Bridge Rehabilitation Project.

RECOMMENDATION

- A. That the Interim Administrator of Ipswich City Council ("Council"), having duly considered this report dated 25 January 2019, be of the opinion that the following property (shown in Attachment B) ('the Land') requires an easement for drainage purposes:

- a. Part of Lot 49 on RP46754, 144 Greys Plains Road, Mount Mort (2456m²)
 - B. That the Interim Administrator of Ipswich City Council (“Council”) exercise its power as a “constructing authority” under the *Acquisition of Land Act 1967* and acquire the easement, (as described in Recommendation A of this report dated 25 January 2019) for drainage purposes.
 - C. That the Chief Executive Officer be authorised to negotiate compensation and perform any other matters, arising out of the *Acquisition of Land Act 1967* or otherwise, and to do any other acts necessary to implement the Interim Administrator of Ipswich City Council’s decision in accordance with section 13(3) of the *Local Government Act 2009*, to acquire the easement.
-

3. 2018 STRATEGIC TRAFFIC COUNT PROGRAM SUMMARY OF RESULTS

With reference to a report by the Senior Transport Planner dated 5 February 2019 concerning the summary of results from the 2018 Strategic Traffic Count Program.

RECOMMENDATION

That the report be received and the contents noted.

4. iGO INTELLIGENT TRANSPORT SYSTEMS STRATEGY

With reference to a report by the Engineer (Traffic Systems) dated 7 February 2018 concerning the development of the *iGO Intelligent Transport System Strategy*, being a signature project of the endorsed *City of Ipswich Transport Plan (iGO)*.

RECOMMENDATION

That the Interim Administrator of Ipswich City Council resolve:

- A. That the iGO Intelligent Transport Systems Strategy, as detailed in Attachment A to the report by the Engineer (Traffic Systems) dated 7 February 2019, be adopted.
 - B. That the iGO Intelligent Transport Systems Strategy be considered when developing Council’s strategic planning documents and be used to inform applicable intelligent transport systems projects.
 - C. That the iGO Intelligent Transport Systems Strategy, as detailed in Attachment A to the report by the Engineer (Traffic Systems) dated 7 February 2019, be considered when developing the “Road Safety and Operations” sub-program as part of future capital works portfolio.
-

5. PROPOSED AMENDMENT OF IMPLEMENTATION GUIDELINE NO. 18 – ESTATE AND DIRECTIONAL SIGNAGE

With reference to a report by the Strategic Planning Manager dated 8 February 2019 concerning the proposed amendment of Implementation Guideline No. 18 – Estate and Directional Signage.

RECOMMENDATION

That the Interim Administrator of Ipswich City Council resolve:

- A. That the amended Implementation Guideline No. 18 - Estate Signage, as detailed in Attachment B to the report by the Strategic Planning Manager dated 8 February 2019, be adopted with an effective date of 4 March 2019.
 - B. That the Strategic Planning Manager be requested to attend to all relevant matters associated with amending Implementation Guideline No. 18 - Estate Signage, including:
 - 1. amending the relevant documents and Council databases; and
 - 2. issuing an eAlert advising that the guideline has been amended.
 - C. That the Engineering and Environment Manager be requested to notify each applicant as identified in Table 1 of the report by the Strategic Planning Manager dated 8 February 2019 about the amendments to Implementation Guideline No.18 – Estate Signage.
 - D. That the City Maintenance Manager be requested to attend to all relevant matters associated with the removal and disposal of the temporary directional signage.
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6. WORKS, PARKS AND RECREATION QUARTERLY ACTIVITY REPORT – OCTOBER TO DECEMBER 2018

With reference to a report by the Business Systems and Support Coordinator dated 4 February 2019 concerning the Works Parks and Recreation quarterly activity report for October to December 2018.

RECOMMENDATION

That the report be received and the contents noted.

7. PLANNING AND DEVELOPMENT DEPARTMENT QUARTERLY ACTIVITY REPORT – DECEMBER 2018

With reference to a report by the Acting City Planner dated 8 February 2019 concerning the activities of the Planning and Development Department within the December Quarter 2018.

RECOMMENDATION

That the report be received and the contents noted.

8. PLANNING AND DEVELOPMENT DEPARTMENT ANNUAL ACTIVITY REPORT – JANUARY TO DECEMBER 2018

With reference to a report by the Acting City Planner dated 8 February 2019 concerning the activities of the Planning and Development Department from 1 January to 31 December 2018 inclusive.

RECOMMENDATION

That the report be received and the contents noted.

9. COURT ACTION STATUS REPORT

With reference to a report by the Acting Development Planning Manager dated 8 February 2019 concerning the status of outstanding court actions.

RECOMMENDATION

That the report be received and the contents noted.

10. EXERCISE OF DELEGATIONS REPORT

With reference to a report by the Acting Development Planning Manager dated 8 February 2019 concerning applications determined by delegated authority.

RECOMMENDATION

That the report be received and the contents noted.

LATE ITEM

11. INFRASTRUCTURE DELIVERY PROGRESS AS AT 5 FEBRUARY 2019

With reference to a report by the Commercial Finance Manager dated 5 February 2019 concerning the Infrastructure Services monthly activity report for January 2019.

RECOMMENDATION

That the report be received and the contents noted.

** Item includes confidential papers

and any other items as considered necessary.

Growth and Infrastructure Committee	
Mtg Date: 19.02.19	OAR: YES
Authorisation: Andrew Knight	

BM:KP
A5289692

11 January 2019

MEMORANDUM

TO: CHIEF OPERATING OFFICER (FINANCE AND CORPORATE SERVICES)

FROM: SENIOR PROPERTY OFFICER

RE: ACQUISITION OF DRAINAGE EASEMENT FOR LODER ROAD, THAGOONA
DRAINAGE PROJECT

INTRODUCTION:

This is a report by the Senior Property Officer dated 11 January 2019 concerning the acquisition of an easement for drainage purposes for the Loder Road Drainage Project.

BACKGROUND:

The proposed works for the Loder Road Drainage Project will facilitate flood mitigation designed to provide improved flood immunity to a number of properties between Loder Road and Rosewood-Thagoona Road, Thagoona. These properties generally experience flooding approximately every 2 years, as a result of flows breaking out of O'Shea Gully to the west and widespread overland flows from the north.

The works involve a drainage channel graded west and then south along Loder Road and behind a number of properties. The design includes a channel to intersect overland flows from the north and divert them around the affected properties into O'Shea Gully. It also includes a diversion bund (embankment) along the southern border of O'Shea Gully (west of Thagoona- Haigslea Road). The intent of the bund is to reduce break out from O'Shea Gully caused by the increased flows entering the channel upstream of the road crossing.

To facilitate the upgrade and future maintenance of the proposed drainage infrastructure, an easement is required over the following properties:

Part of Lot 10 on RP85361, 33 Rosewood-Thagoona Road, Thagoona (2810m²) (refer to Attachment A)

Part of Lot 7 on RP85362, 6-8 Thagoona-Haigslea Road, Thagoona (850m²) (refer to Attachment B)

Part of Lot 245 on CH3147, 18-36 Thagoona-Haigslea Road, Thagoona (1683m²) (refer to Attachment C).

OPTIONS:

Council has two options to progress the new easement:

1. Resumption Agreement (if agreement with the Owner(s) can be reached).
Compulsory acquire the property by agreement under the *Acquisition of Land Act 1967 (ALA)*. Council and the Owner(s) collectively agree to the compulsory acquisition by way of a resumption agreement.
2. Resumption (if agreement with the Owner(s) cannot be reached).
Resume the land from the Owner(s) under the ALA. Compensation will be payable to the Owner(s) through the Land Court when agreement on compensation cannot be reached.

BENEFITS TO COMMUNITY AND CUSTOMERS:

The new easement will facilitate construction to remediate flooding to existing poorly formed drainage infrastructure.

CONCLUSION:

On this basis it is recommended that Council proceed with the compulsory acquisition of the new easement over the following properties as a “constructing authority” under the *Acquisition of Land Act 1967*:

Part of Lot 10 on RP85361, 33 Rosewood-Thagoona Road, Thagoona (2810m²)

Part of Lot 7 on RP85362, 6-8 Thagoona-Haigslea Road, Thagoona (850m²)

Part of Lot 245 on CH3147, 18-36 Thagoona-Haigslea Road, Thagoona (1683m²)

In the first instance, Council will make all reasonable attempts to negotiate by agreement with the property owner(s) when issuing the notice of intention to resume (NIR). Therefore, Council will seek to compulsory acquire by way of resumption agreement with the property owner(s), however if this is unsuccessful, Council will exercise its power under the *Acquisition of Land Act 1967* and make application to the relevant Minister for the land to be taken.

ATTACHMENTS:

Name of Attachment	Attachment
Proposed Easement Plan – 33 Rosewood Thagoona-Road,Thagoona	Attachment A
Proposed Easement Plan – 6-8 Thagoona-Haigslea Road, Thagoona	Attachment B
Proposed Easement Plan – 18-36 Thagoona-Haigslea Road, Thagoona	Attachment C
Property Plan – Loder Road Drainage Project	Attachment D

RECOMMENDATION:

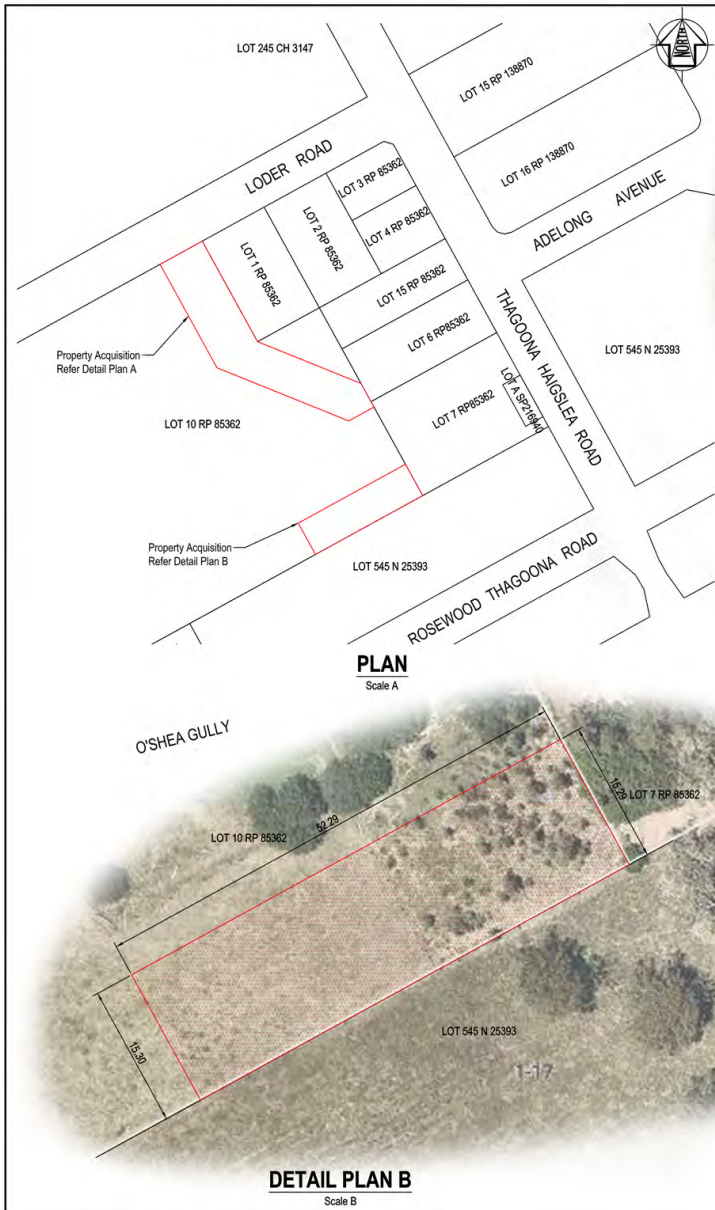
- A. That the Interim Administrator of Ipswich City Council (“Council”), having duly considered this report dated 11 January 2019, be of the opinion that the following properties (shown in Attachments A, B & C) (‘the Land’) require an easement for drainage purposes:
- a. Part of Lot 10 on RP85361, 33 Rosewood-Thagoona Road, Thagoona (2810m²)
 - b. Part of Lot 7 on RP85362, 6-8 Thagoona-Haigslea Road, Thagoona (850m²)
 - c. Part of Lot 245 on CH3147, 18-36 Thagoona-Haigslea Road, Thagoona (2810m²)
- B. That the Interim Administrator of Ipswich City Council (“Council”) exercise its power as a “constructing authority” under the *Acquisition of Land Act 1967* and acquire the easements, (as described in Recommendation A of this report dated 11 January 2019) for drainage purposes.
- C. That the Chief Executive Officer be authorised to negotiate compensation and perform any other matters, arising out of the *Acquisition of Land Act 1967* or otherwise, and to do any other acts necessary to implement the Interim Administrator of Ipswich City Council’s decision in accordance with section 13(3) of the *Local Government Act 2009*, to acquire the easement.

Brett McGrath
SENIOR PROPERTY OFFICER

I concur with the recommendations contained in this report.

Andrew Knight
CHIEF OPERATING OFFICER (FINANCE AND CORPORATE SERVICES)

ATTACHMENT A



PLAN
Scale A



DETAIL PLAN A
Scale B

PROPERTY DETAILS

LOCATION : 33 Rosewood Thagoona Road
 PROPERTY OWNER : TBA

PROPERTY DESCRIPTION : Lot 10 RP 85362
 Parish of WALLOON
 Moreton Shire Council

EXISTING AREA : 52,953 m²
EASEMENT AREA : 2,810 m²
BALANCE AREA : 50,143 m²

NOTES:
 1. All dimensions are approximate only and subject to survey.
 2. This drawing is to be read in conjunction with the Notes and Legend on Drp. INF03114 / 002.

DETAIL PLAN B
Scale B

REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
1			

SURVEY DATA			
Horiz. Datum	Terrain 2007	Vertical Datum	A.M.D.#
Level Book			
Size: A1 - Scales before reduction:			
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Scale B 0 2 4 6 8 10 12 1:250			
Dimensions shown in metres except where shown otherwise			

DRAWING CERTIFICATION	
Classification	
Certifier Name	
Certifier No.	
Date	
Signature:	
Drawing Status	

COUNCIL APPROVAL	
Approved By	
(For Chief Operating Officer (CS))	
Date:	

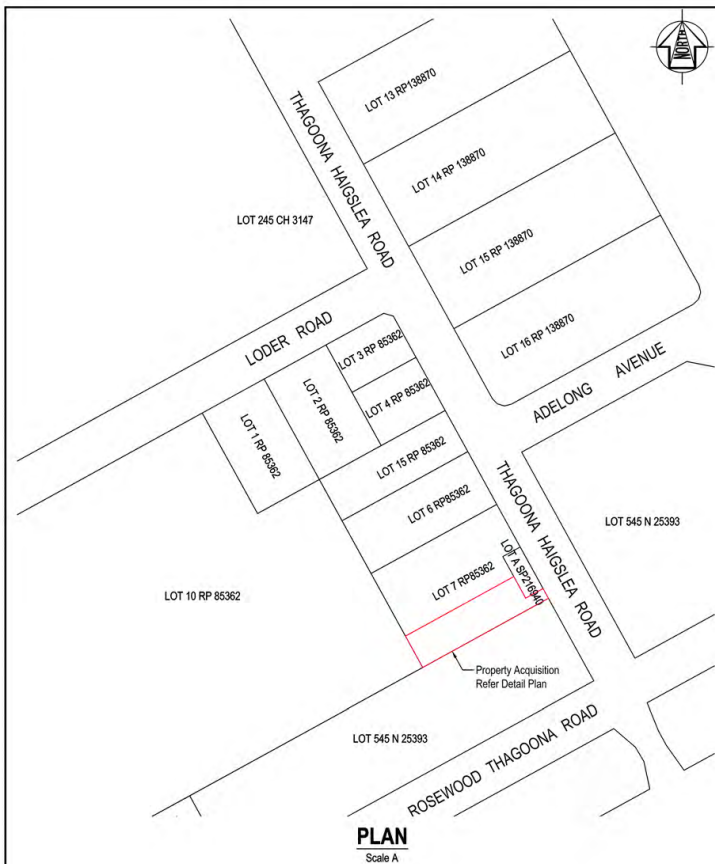
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 Telephone: (07) 3810 6666
 Facsimile: (07) 3810 7963
 e-mail: TechnicalServices@ipswich.qld.gov.au

LODER ROAD, THAGOONA DRAINAGE DESIGN

Drawing Title

PROPOSED EASEMENT PLAN - LOT 10 RP 85362

Name	Date
Drawn	
Designed	
Checked	
Project No.	Sheet No. Rev.
INF03114	1401 1



ATTACHMENT B

DETAIL PLAN
Scale B

PROPERTY DETAILS
 LOCATION : 6-8 Thagoona Haislea Road
 PROPERTY OWNER : TBA

 PROPERTY DESCRIPTION : Lot 7 RP 85362
 Parish of WALOON
 Moreton Shire Council

 EXISTING AREA : 2,814 m²
 EASEMENT AREA : 850 m²
 BALANCE AREA : 1,964 m²

- NOTES:**
- All dimensions are approximate only and subject to survey.
 - This drawing is to be read in conjunction with the Notes and Legend on Drp. INF03114 / 002.

REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
1			

SURVEY DATA

Horiz. Datum	Terrain 2007	Vertical Datum	A.M.D. 0	Level Book	---		
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Dimensions shown in metres except where shown otherwise							

DRAWING CERTIFICATION

Classification	
Certifier Name	
Certifier No.	
Date	
Signature	
Drawing Status	

COUNCIL APPROVAL

Approved By	
(For) Chief Operating Officer (SO)	
Date	

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 e-mail: TechnicalServices@ipswich.qld.gov.au

LODER ROAD, THAGOONA DRAINAGE DESIGN

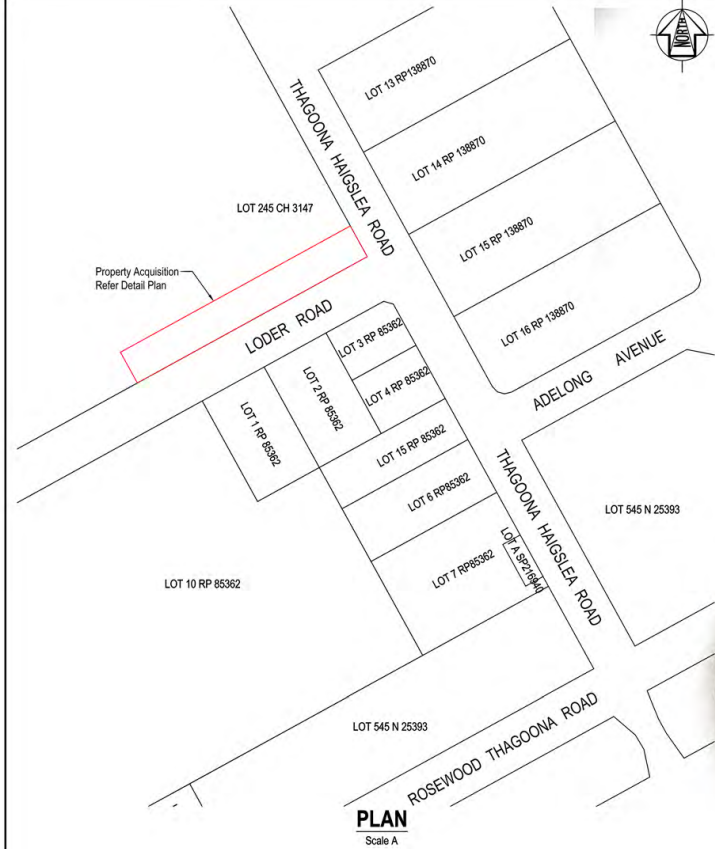
Drawing Title

PROPOSED EASEMENT PLAN - LOT 7 RP 85362

Name	Date
Drawn	
Designed	
Checked	
Project No.	Sheet No. Rev.
INF03114	1402 1



ATTACHMENT C



PLAN
Scale A



DETAIL PLAN
Scale B

PROPERTY DETAILS

LOCATION : 18-36 Thagoona Haiglesia Road, Thagoona
 PROPERTY OWNER : TBA

PROPERTY DESCRIPTION : Lot 245 CH 3147
 Parish of WALDOON
 Moreton Shire Council

EXISTING AREA : 121,495 m²
EASEMENT AREA : 1,683 m²
BALANCE AREA : 119,812 m²

- NOTES:**
- All dimensions are approximate only and subject to survey.
 - This drawing is to be read in conjunction with the Notes and Legend on Drg. INF03114 / 002.

REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
1			

SURVEY DATA				
Horiz. Datum	Terrain 2007	Vertical Datum	A.M.D. #	Level Book
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Scale B 0 2 4 6 8 10 12 1:250				
Dimensions shown in metres except where shown otherwise				

DRAWING CERTIFICATION		COUNCIL APPROVAL	
Classification		Approved By	
Certifier Name		(For Chief Operating Officer (CS))	
Certifier No.		Date	
Date			
Signature			
Drawing Status			

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 e-mail: TechnicalServices@ipswich.qld.gov.au

Project

LODER ROAD, THAGOONA DRAINAGE DESIGN

Drawing Title

PROPOSED EASEMENT PLAN - LOT 245 CH 3147

Name	Date
Drawn	
Designed	
Checked	
Project No.	
Sheet No.	
Rev.	
INF03114	1400 1



Property Plan - Loder Road Drainage Project

Scale 1:3,000
Printed Date: 29 Jan 2019

Growth and Infrastructure Committee	
Mtg Date: 19.02.19	OAR: YES
Authorisation: Andrew Knight	

BM:KP
A5314097

25 January 2019

MEMORANDUM

TO: CHIEF OPERATING OFFICER (FINANCE AND CORPORATE SERVICES)

FROM: SENIOR PROPERTY OFFICER

RE: ACQUISITION OF DRAINAGE EASEMENT FOR THE SPRING CREEK BRIDGE, MT
MORT REHABILITATION PROJECT

INTRODUCTION

This is a report by the Senior Property Officer dated 25 January 2019 concerning the acquisition of an easement for drainage purposes for the Spring Creek Bridge Rehabilitation Project.

BACKGROUND

The proposed works for the Spring Creek Bridge Project will facilitate the replacement of the existing timber bridge with a new concrete box culvert. Construction is programmed for the 2019-2020 financial year.

The works involve pavement widening and bitumen surface sealing, removal and replacement of the existing timber bridge with a box culvert, scour repair and protection works to both the inlet and outlet and inclusion of roughing elements along the culvert walls to assist with fish passage, refer to Attachment A.

To facilitate the upgrade and future maintenance of the proposed drainage infrastructure, an easement is required over the following property:

Part of Lot 49 on RP46754, 144 Greys Plains Road, Mount Mort (2,456m²). Refer to Attachment B.

OPTIONS

Council has two options to progress the new easement:

1. Resumption Agreement (if agreement with the Owner(s) can be reached)
Compulsory acquire the property by agreement under the *Acquisition of Land Act 1967 (ALA)*. Council and the Owner(s) collectively agree to the compulsory acquisition by way of a resumption agreement.
2. Resumption (if agreement with the Owner(s) cannot be reached)
Resume the land from the Owner(s) under the *ALA*. Compensation will be payable to the Owner(s) through the Land Court when agreement on compensation cannot be reached.

BENEFITS TO COMMUNITY AND CUSTOMERS

The new easement will facilitate the installation of the new concrete box culvert and associated roadworks being constructed within a dedicated road reserve with improved road safety and flood immunity. The new structure will minimise the ongoing need for regular maintenance to the existing ageing timber bridge, minimise the risk of structural failure and maintain road connectivity.

CONCLUSION

On this basis it is recommended that Council proceed with the compulsory acquisition of the new easement over the following property as a “constructing authority” under the *ALA*:

Part of Lot 49 on RP46754, 144 Greys Plains Road, Mount Mort (2,456m²)

In the first instance, Council will make all reasonable attempts to negotiate by agreement with the property owner(s) when issuing the notice of intention to resume (NIR). Therefore, Council will seek to compulsory acquire by way of resumption agreement with the property owner(s), however if this is unsuccessful, Council will exercise its power under the *Acquisition of Land Act 1967* and make application to the relevant Minister for the land to be taken.

ATTACHMENTS

Name of Attachment	Attachment
Fact Sheet – Greys Plains Road, Mount Mort, Timber Bridge Replacement	Attachment A
Proposed Easement Plan – 144 Greys Plains Road, Mount Mort	Attachment B
Proposed Easement Area Plan – 144 Greys Plains Road, Mount Mort	Attachment C
Property Plan – 144 Greys Plains Road, Mount Mort	Attachment D

RECOMMENDATION

- A. That the Interim Administrator of Ipswich City Council (“Council”), having duly considered this report dated 25 January 2019, be of the opinion that the following property (shown in Attachment B) (‘the Land’) requires an easement for drainage purposes:
 - a. Part of Lot 49 on RP46754, 144 Greys Plains Road, Mount Mort (2456m²)

- B. That the Interim Administrator of Ipswich City Council (“Council”) exercise its power as a “constructing authority” under the *Acquisition of Land Act 1967* and acquire the easement, (as described in Recommendation A of this report dated 25 January 2019) for drainage purposes.

- C. That the Chief Executive Officer be authorised to negotiate compensation and perform any other matters, arising out of the *Acquisition of Land Act 1967* or otherwise, and to do any other acts necessary to implement the Interim Administrator of Ipswich City Council’s decision in accordance with section 13(3) of the *Local Government Act 2009*, to acquire the easement.

Brett McGrath
SENIOR PROPERTY OFFICER

I concur with the recommendations contained in this report.

Andrew Knight
CHIEF OPERATING OFFICER (FINANCE AND CORPORATE SERVICES)

Greys Plains Road, Mount Mort - Timber Bridge Replacement

FACT SHEET | January 2019

ATTACHMENT A

The Project

Ipswich City Council is replacing the timber bridge with a new concrete box culvert.

The proposed scope of works will include:

- Removal of the existing timber bridge
- Installation of a new stormwater culvert crossing
- Installation of upstream and downstream protection works to the existing waterway
- Associated road works and road safety improvements
- Inclusion of roughing elements to assist with fish migration
- Minor service relocations to accommodate new works.

There will be partial road closures to carry out the works. Traffic control will be in place for the safety of local residents.

Project Timing

This Project is currently in design with construction expected in FY2019/20.

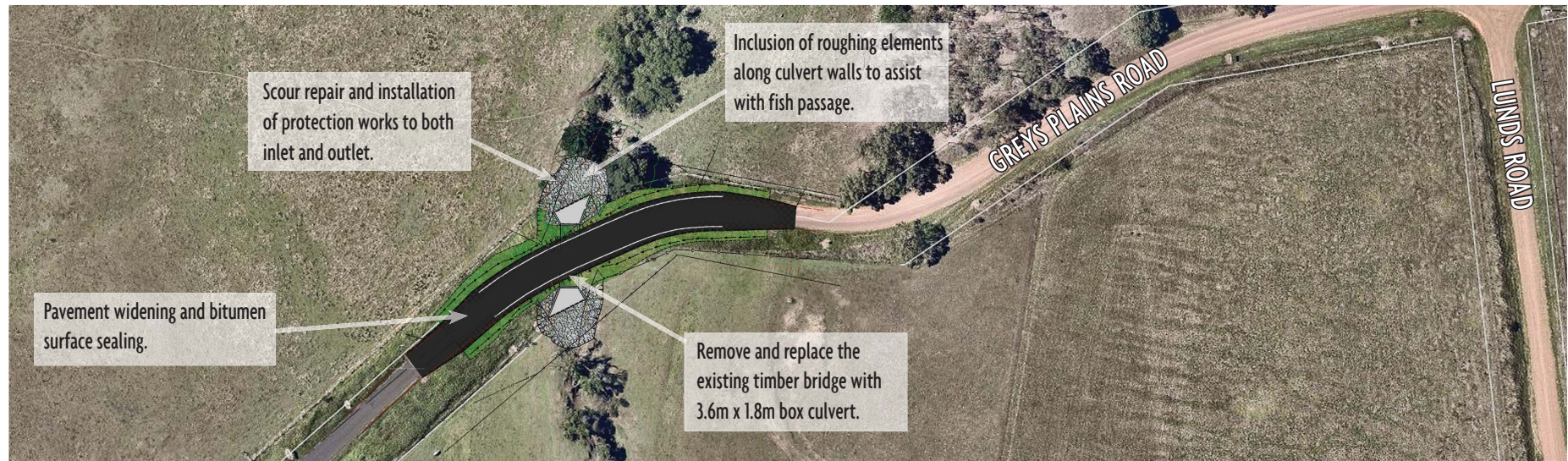
How do I find out more?

If you have any questions about this project please contact:

Ipswich City Council | Infrastructure Services Department

Phone | 07 3810 6666 (8:00am to 4:00pm Monday to Friday)

Email | ISProjects@ipswich.qld.gov.au

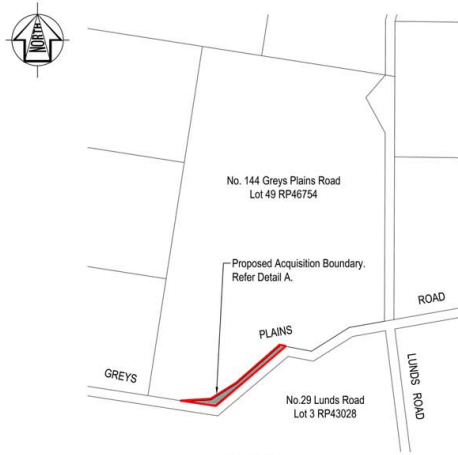


INF02055 - Greys Plains Road, Mount Mort - Proposed Timber Bridge Replacement

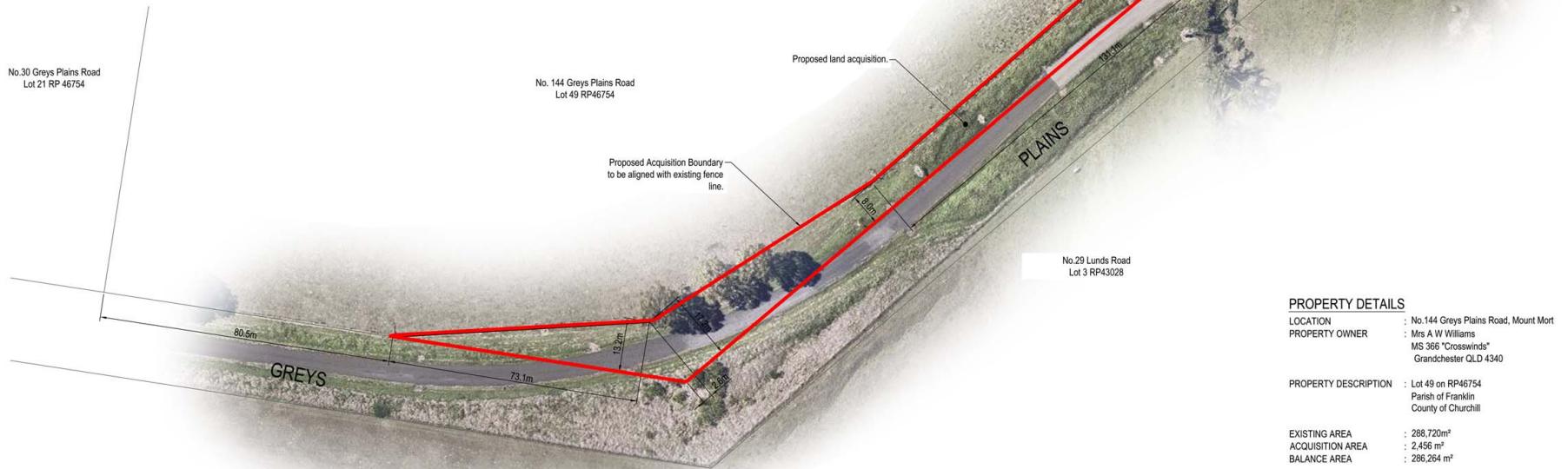


Produced by ICC Technical Services

NTS



PLAN
NOT TO SCALE



DETAIL A

PROPERTY DETAILS

LOCATION : No.144 Greys Plains Road, Mount Mort
 PROPERTY OWNER : Mrs A W Williams
 MS 366 "Crosswinds"
 Grandchester QLD 4340
 PROPERTY DESCRIPTION : Lot 49 on RP46754
 Parish of Franklin
 County of Churchill
 EXISTING AREA : 288,720m²
 ACQUISITION AREA : 2,456 m²
 BALANCE AREA : 286,264 m²

NOTES:

- All dimensions are approximate only and subject to survey.
- This drawing is to be read in conjunction with the Notes and Legend on Drg. INF02055 / 002.

REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date

SURVEY DATA			
Horiz. Datum	Terrain 2001	Vertical Datum	A.H.D. or Level Book
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Dimensions shown in metres except where shown otherwise			

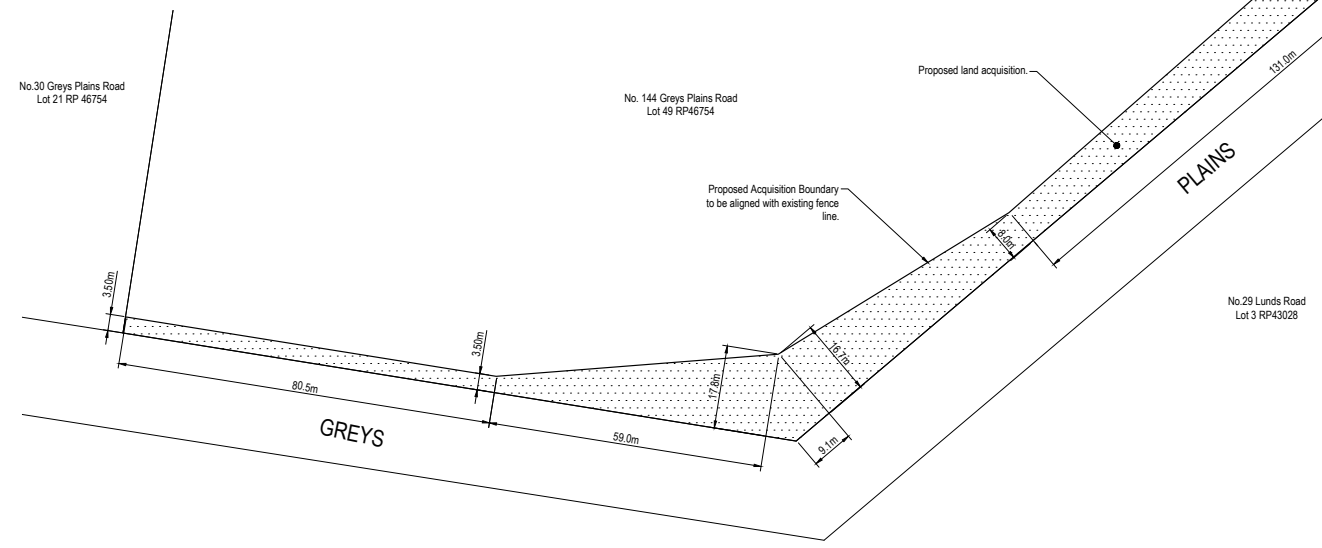
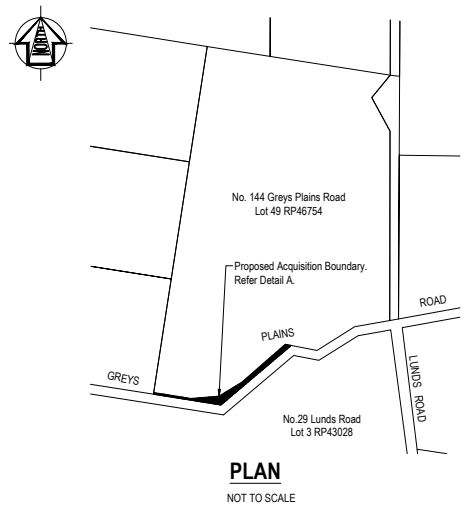
DRAWING CERTIFICATION	
Classification:	Civil
Certifier Name:	
Certifier No.:	
Date:	
Signature:	
Drawing Status:	

COUNCIL APPROVAL	
Approved By:	
(For) Chief Operating Officer (SO)	
Date:	11/01/2019

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Project
GREYS PLAINS ROAD, MOUNT MORT
SPRING CREEK BRIDGE REHABILITATION
 Drawing Title
PROPOSED LAND ACQUISITION - LOT 49 RP46754

Name	Date
Drawn: TAR	12/17
Designed: TAR	12/17
Checked: BK	12/17
Project No. INF02055	Sheet No. 1400
	Rev. A



PROPERTY DETAILS

LOCATION	: No.144 Greys Plains Road, Mount Mort
PROPERTY OWNER	: Mrs A W Williams MS 366 "Crosswinds" Grandchester QLD 4340
PROPERTY DESCRIPTION	: Lot 49 on RP46754 Parish of Franklin County of Churchill
EXISTING AREA	: 288,720m ²
ACQUISITION AREA	: 2,891 m ²
BALANCE AREA	: 285,829 m ²

- NOTES:**
- All dimensions are approximate only and subject to survey.
 - This drawing is to be read in conjunction with the Notes and Legend on Drg. INF02055 / 002.

<p>REVISIONS</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Issue</th> <th>Revisions/Descriptions</th> <th>Drawn</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Original issue - for construction</td> <td></td> <td></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Issue	Revisions/Descriptions	Drawn	Date	A	Original issue - for construction																			<p>SURVEY DATA</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Horiz Datum</th> <th>Terrain 2001</th> <th>Vertical Datum</th> <th>A.H.D.#</th> <th>Level Book</th> <th>----</th> </tr> </thead> <tbody> <tr> <td colspan="6">Size: A1 - Scales before reduction:</td> </tr> <tr> <td colspan="6" style="text-align: center;"> </td> </tr> <tr> <td colspan="6" style="font-size: small;">Dimensions shown in metres except where shown otherwise</td> </tr> </tbody> </table>	Horiz Datum	Terrain 2001	Vertical Datum	A.H.D.#	Level Book	----	Size: A1 - Scales before reduction:												Dimensions shown in metres except where shown otherwise						<p>DRAWING CERTIFICATION</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Classification</td> <td>Civil</td> </tr> <tr> <td>Certifier Name</td> <td>R. Jaynes</td> </tr> <tr> <td>Certifier No.</td> <td>RPEO 6181</td> </tr> <tr> <td>Date</td> <td>20/12/2017</td> </tr> <tr> <td>Signature</td> <td></td> </tr> <tr> <td>Drawing Status</td> <td style="text-align: center;">FOR REVIEW</td> </tr> </table>	Classification	Civil	Certifier Name	R. Jaynes	Certifier No.	RPEO 6181	Date	20/12/2017	Signature		Drawing Status	FOR REVIEW	<p>COUNCIL APPROVAL</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Approved By</td> <td></td> </tr> <tr> <td>(For)</td> <td>Chief Operating Officer (S)</td> </tr> <tr> <td>Date</td> <td>20/12/2017</td> </tr> </table>	Approved By		(For)	Chief Operating Officer (S)	Date	20/12/2017	<p style="text-align: center;"></p> <p style="text-align: center;">City of Ipswich</p> <p style="text-align: center;">TECHNICAL SERVICES</p> <p style="font-size: x-small;">P.O. Box 191 Ipswich QLD 4305 Australia Telephone: (07) 3810 6696 Facsimile: (07) 3810 7963 e-mail: TechnicalServices@ipswich.qld.gov.au</p>	<p>Project</p> <p style="text-align: center;">GREYS PLAINS ROAD, MOUNT MORT SPRING CREEK BRIDGE REHABILITATION</p> <p>Drawing Title</p> <p style="text-align: center;">PROPOSED LAND ACQUISITION - LOT 49 RP46754</p>	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Name</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>Drawn</td> <td>TAR 12-17</td> </tr> <tr> <td>Designed</td> <td>TAR 12-17</td> </tr> <tr> <td>Checked</td> <td>BK 12-17</td> </tr> <tr> <td>Project No.</td> <td>Sheet No. Rev.</td> </tr> <tr> <td style="text-align: center;">INF02055</td> <td style="text-align: center;">1400 A</td> </tr> </tbody> </table>	Name	Date	Drawn	TAR 12-17	Designed	TAR 12-17	Checked	BK 12-17	Project No.	Sheet No. Rev.	INF02055	1400 A
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ATTACHMENT D

Lot 45

Property Plan - 144 Greys Plains Road, Mount Mort

Scale 1:7,500
Printed Date: 25 Jan 2019

Growth and Infrastructure Committee
Mtg Date: 19.02.2019
Authorisation: Tony Dileo

JC: AR
A5331022

5 February 2019

MEMORANDUM

TO: ACTING INFRASTRUCTURE PLANNING MANAGER

FROM: SENIOR TRANSPORT PLANNER

RE: 2018 STRATEGIC TRAFFIC COUNT PROGRAM
SUMMARY OF RESULTS

INTRODUCTION

This is a report by the Senior Transport Planner dated 5 February 2019 concerning the summary of results from the 2018 Strategic Traffic Count Program.

RELATED PARTIES

There are no related party matters associated with this report.

ADVANCE IPSWICH THEME LINKAGE

Managing growth and delivering key infrastructure.

PURPOSE OF REPORT/BACKGROUND

History

Each year since 2010 Council has carried out the Strategic Traffic Count Program that comprises the gathering of traffic data from the same locations across Council's major road network. The program takes place in the months of October/November of every year at approximately 100 locations and the data captured delivers information on traffic growth rates across the city. This information is then used to advise Council's transport planning, traffic operations, investment programming and development assessment activities.

Previously the reporting hasn't included traffic data from the Department of Transport and Main Roads (DTMR) on state-controlled roads. However, as they have a direct impact on the traffic volumes of surrounding local-controlled roads, data from State-controlled roads within the Ipswich CBD have been included in this year's report in order to provide a clearer understanding of trends in this area.

2018 Count Sites

Two new count site locations were added to the 2018 Strategic Traffic Count Program. These included:

- **Springfield Greenbank Arterial** (Springfield Central/Springfield): Between Eden Station Dr & Springfield Pwy; and
- **Springfield Parkway** (Springfield): Between Commercial Dr & Old Logan Rd.

Consequently, the 2018 program comprised of 105 count site locations across the Ipswich local government area.

2018 Results

The Strategic Traffic Count Program for 2018 has been completed and the data analysed. A summary of the 2018 results for each count location is outlined in Attachment A. A comparison of the data collected through the program for the last five years is outlined in Attachment B.

Commentary

Busiest Roads

Based on the 2018 results, the top ten busiest Council controlled roads in Ipswich are outlined in Table 1 below. The nine busiest roads remain the same and in the same order as reported in 2017, with the only difference being Pine Street as number ten. With 16,904 recorded vehicles per weekday, Pine Street returned to the 10th position after being displaced in 2017 by Kingsmill Road/Albion Street which recorded 16,821 vehicles per weekday in 2018.

TABLE 1
TOP TEN BUSIEST COUNCIL CONTROLLED ROADS

NO.	ROAD	SUBURB	LOCATION / SECTION	DAILY VOLUME*		GROWTH
				2017	2018	
1	Augusta Parkway	Augustine Heights, Brookwater	200m south of Technology Dr	31,830	31,820	0.0%
2	Springfield Greenbank Arterial	Springfield Central, Springfield Lakes	Main St & Sinnathamby Blvd	24,500	26,400	7.7%
3	Sinnathamby Boulevard	Springfield Central	200m north of Main St	24,420	25,880	6.0%
4	Old Toowoomba Road	Leichhardt, One Mile	Lobb St & Ernest St	23,400	23,790	1.6%
5	Redbank Plains Road	Bellbird Park, Redbank Plains	200m north of Barry Dr	22,130	22,940	3.7%
6	Springfield Parkway	Springfield	SGA & Bridgewater Dr	21,890	22,170	1.3%
7	Brisbane Street	West Ipswich	Keogh St & Hooper St	20,070	20,240	0.8%
8	Queen Street	Goodna	Eric St & Marie St	18,970	19,080	0.6%
9	Old Logan Road	Camira	200m south of Alice St	18,040	17,950	-0.5%
10	Pine Street	North Ipswich	40m north of Ferguson St	16,540	16,900	2.2%

* Average weekday traffic (rounded) and measured as vehicles per day

Largest Increase

Based on the 2018 results, the top five roads with the largest percentage increase in traffic from 2017 are outlined below in Table 2.

**TABLE 2
LARGEST % INCREASE IN TRAFFIC**

NO.	ROAD	SUBURB	LOCATION / SECTION	DAILY VOLUME*		INCREASE	
				2017	2018	VEHICLES	%
1	Ripley Road	Ripley	North of Centenary Hwy	6,160	8,910	2,750	44.6%
2	Ripley Road	Ripley	Centenary Hwy & Providence Pde	5,090	6,790	1,710	33.6%
3	Ripley Road	Ripley	100m south of Cunningham Hwy	8,540	10,980	2,450	28.7%
4	Collingwood Drive	Collingwood Park	350m north of Redbank Plains Rd	8,750	10,860	2,120	24.2%
5	Grampian Drive	Deebing Heights	Centenary Hwy & Broomfield Rd	1,650	2,030	380	22.9%

* Average weekday traffic (rounded) and measured as vehicles per day

The largest increase in traffic over the last year (in terms of vehicle volume and percentage) was recorded on Ripley Road just north of the Centenary Highway, with an additional 2,747 vehicles per weekday – a 44.6% increase. Additionally, two of the other sites along Ripley Road also recorded large increases of 1,708 (33.6%) and 2,446 (28.7%) vehicles per weekday. This is most likely the result of the continued development and construction works associated with the Ripley Valley Priority Development Area.

Collingwood Drive also recorded a significant increase of 2,116 (24.2%) vehicles per weekday. This growth and the results recorded in the surrounding area, suggest the continuation of the Eastern and Outer Eastern Suburbs traffic redistribution as outlined in last year's summary report [refer to Item 1 tabled at City Infrastructure and Emergency Management Committee No.2018(2)]. This being, increased north-south movements on strategic roads in the area throughout 2017 and 2018, as opposed to the east-west growth observed on strategic roads in prior years.

Finally, Grampian Drive recorded an increase of 378 vehicles per weekday – a 22.9% increase. This growth is also likely the result of development works, though the volume change is relatively small when compared to the growth experienced on Ripley Road.

Largest Decrease

Based on the 2018 counts, the top five roads with the largest percentage decrease in traffic from 2017 are outlined in Table 3 below.

**TABLE 3
LARGEST % DECREASE IN TRAFFIC**

NO.	ROAD	SUBURB	LOCATION / SECTION	DAILY VOLUME*		INCREASE	
				2017	2018	VEHICLES	%
1	Bognuda Street	Bundamba	Archer St & Boundary St	5,060	3,760	-1,300	-25.8%
2	Stafford Street	Booval	South of Wearne St	6,550	6,120	-430	-6.6%
3	Glebe Road	Newtown	Chermside Rd & Whitehill Rd	5,220	4,960	-260	-5.1%
4	Whitehill Road	Eastern Heights	100m south of Phyllis St	2,500	2,380	-120	-4.8%
5	South Station Road	Raceview	100m south of Trumpy St	10,990	10,480	-510	-4.6%

* Average weekday traffic (rounded) and measured as vehicles per day

The largest decrease in traffic over the last year (in terms of vehicles and percentage) was recorded on Bognuda Street between Archer Street and Boundary Street with 1,304 less

vehicles per weekday – a 25.8% decrease. This is most likely due to development construction works on Ashburn Road which may have made Bognuda Street less attractive to drivers travelling through the area.

Interestingly, the other four significant percentage decreases were all located in the Inner Eastern Suburbs. There is no obvious reason for these decreases.

By Area

Figure 1 (over) illustrates the areas of Ipswich in which the traffic count sites have historically been grouped for data collection and analysis purposes. As in previous years, the traffic count information for each area of Ipswich are summarised in Table 4 below.

**TABLE 4
TRAFFIC COUNT GROWTH BY AREA**

AREA	EXAMPLE SUBURBS	2018 TOTAL DAILY VOLUME* ¹	1 YEAR (between 2017 & 2018) ²		5 YEAR (between 2014 & 2018) ³	
			VEHICLES	%	VEHICLES	%
Ipswich Central	CBD, East Ipswich	120,660	-220	0%	406	0%
Inner East	Booval, Eastern Heights, Bundamba	119,980	-2,450	-2%	6,200	5%
Eastern	Redbank, Redbank Plains, Goodna, Riverview, Collingwood Park	183,140	15,360	9%	39,330	29%
Outer Eastern	Springfield, Bellbird Park, Augustine Heights, Camira	310,760	8,430	3%	60,430	28%
North & West	North Ipswich, West Ipswich, Brassall	223,710	3,850	2%	15,670	8%
Southern	Ripley, Raceview, Flinders View	120,010	10,950	10%	23,170	28%
Citywide		1,078,250	35,913	4%	145,200	17%

*Average weekday traffic (rounded) and measured as vehicles per day

¹ Based on a comparison of 105 count sites

² Based on a comparison of 103 count sites which included the use of ad hoc counts where required

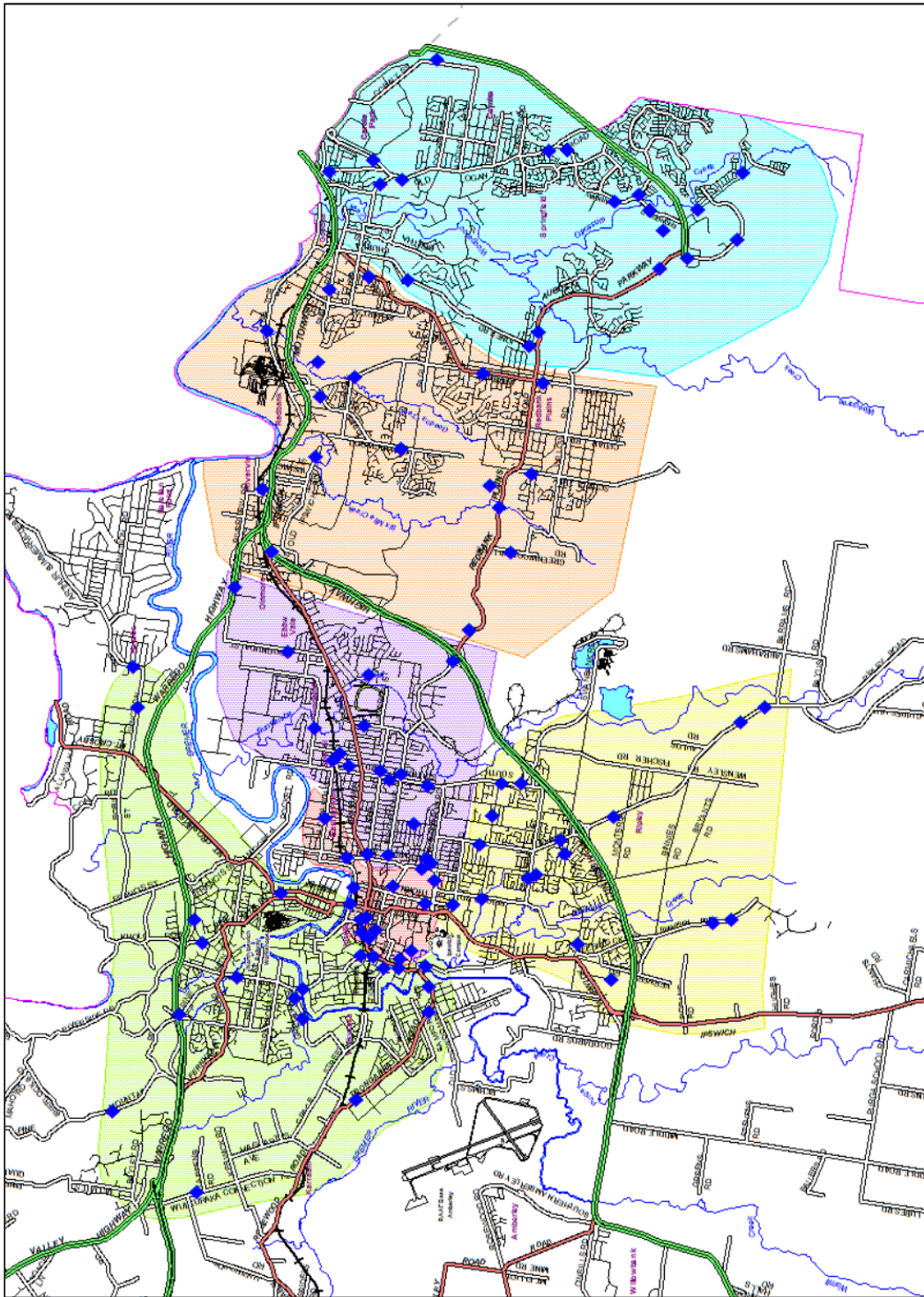
³ Based on a comparison of 96 count sites which included the use of ad hoc counts where required

A total weekday volume of approximately 1.1 million traffic counts across 105 sites were recorded during the 2018 program. Ipswich also recorded an increase of 4% in the number of traffic counts over the past year and a 17% increase over the past five years.

In terms of traffic count growth, the Southern Suburbs (Ripley, Raceview, Flinders View etc.) maintained the highest one year percentage growth rate of 10%. The Eastern Suburbs (Redbank, Goodna, Collingwood Park etc.) had the highest five year percentage growth rate (29%), just above the Southern Suburbs and Outer Eastern Suburbs (Springfield, Bellbird Park, Augustine Heights etc.). Additionally, the Outer Eastern Suburbs observed the largest five year volume increase of 60,430 vehicles counts per weekday.

Also of note this year, traffic volumes in the 'Ipswich Central' area continued to remain unchanged with 0% growth measured over both the one and five year periods. Moreover, the Inner Eastern Suburbs recorded a decline in 2018 opposed to the growth experienced in previous years.

FIGURE 1
IPSWICH TRAFFIC ANALYSIS AREAS

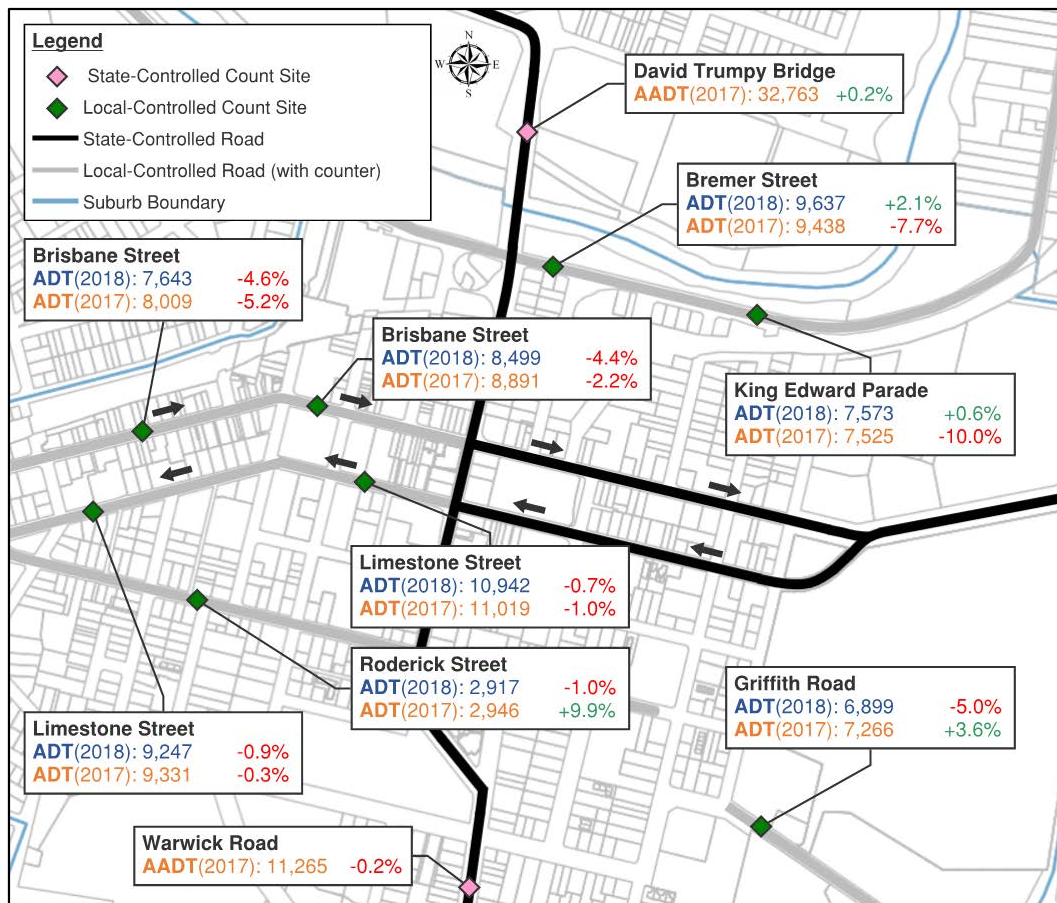


Ipswich Central

As mentioned above, one of the primary trends consistent over the past five years has been the stagnation of recorded local-controlled road traffic volumes in the Ipswich CBD. In order to form a more complete representation of the CBD, state-controlled road traffic counts in the Ipswich CBD from DTMR have been included in Figure 2. It is important to note that all DTMR data is based on average annual daily traffic (AADT) from 2017, with changes being calculated from 2016-2017 data. To compare, average daily traffic (ADT) data from local-controlled roads has also been included.

Of note, the David Trumpy Bridge and Warwick Road have both consistently recorded insignificant variations over the past five years, excluding a 900 vehicle per day decrease experienced on Warwick Road in 2015. As such, the state-controlled roads further reveal relatively unchanged traffic volumes within the 'Ipswich Central' area.

FIGURE 2
IPSWICH CENTRAL STATE AND LOCAL CONTROLLED ROAD COUNT SITES



Note: State-controlled roads are measured in average annual daily traffic (AADT) and Local-controlled roads are measured in average daily traffic (ADT). All 2018 growth was calculated as the 2017-2018 difference and all 2017 growth was calculated as the 2016-2017 difference. Source: Transport and Main Roads, Queensland Government, Traffic census for the Queensland state-declared road network (<https://data.qld.gov.au/dataset/traffic-census-for-the-queensland-state-declared-road-network>), licensed under Creative Commons Attribution 4.0 (<https://creativecommons.org/licenses/by/4.0>), sourced on 12 December 2018.

Trends and Comparisons

Looking more broadly, Figure 3 shows the total volume of traffic movements recorded at the same 82 count sites across Ipswich from 2011-2018. This graph demonstrates that Ipswich overall continues to experience relatively linear growth in traffic movements, indicating a heavy reliance on private vehicle travel.

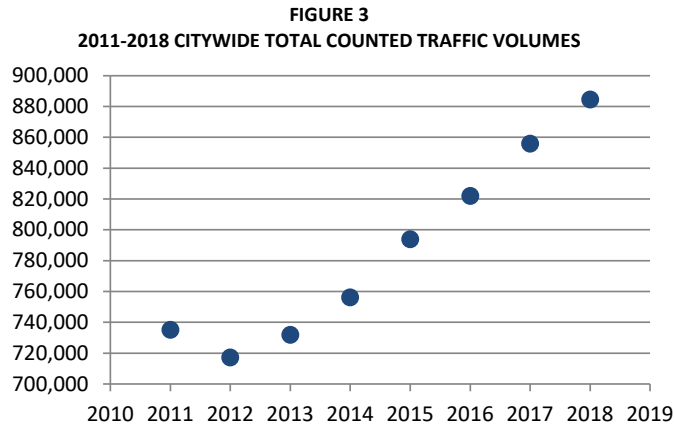
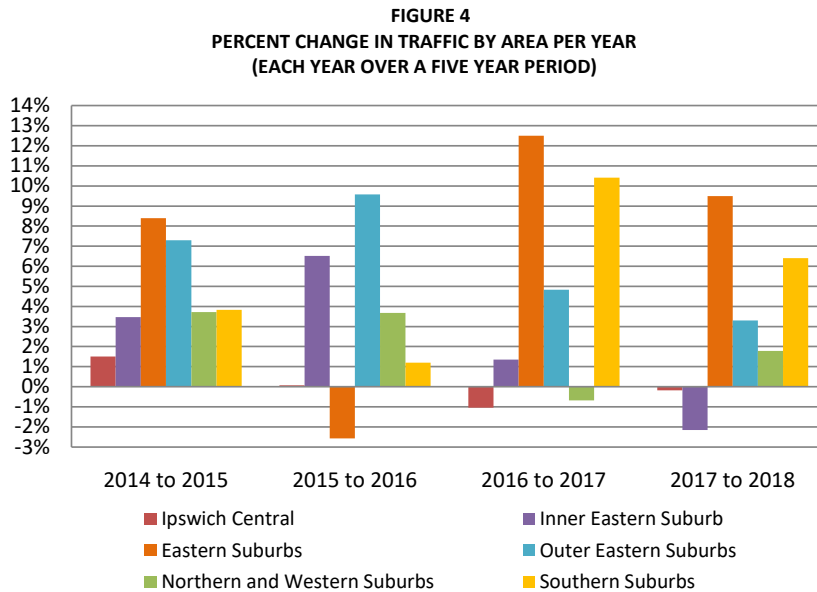


Figure 4 shows the percent change in vehicles counted per year for each area of Ipswich over a five year period. It illustrates that the Outer Eastern, Eastern and Southern Suburbs continue to grow, however the percentage growth rates have slowed in 2018 when compared to the previous years. Additionally, the percentage growth rate of the Inner Eastern Suburbs has continued to decline with a traffic count volume decrease observed in 2018. This graph also shows that the Northern and Western Suburbs have again experienced growth this year after decreasing the year before.



RESOURCE IMPLICATIONS

The information contained in this report forms part of the information used to inform the annual prioritisation of projects for the Strategic Transport Sub-program within the Capital Works Portfolio.

RISK MANAGEMENT IMPLICATIONS

Council has obligations to monitor the city's traffic growth and deliver transport infrastructure.

LEGAL/POLICY BASIS

Transport data collection activities are a requirement of the endorsed *City of Ipswich Transport Plan (iGO)*.

COMMUNITY AND OTHER CONSULTATION

Notification of the strategic traffic count program data collection schedule was provided to the Ipswich community offices and call centre to ensure that up to date information was called upon for any public enquiry regarding the on-site count technology.

Internal consultation also occurred with specific Infrastructure Services Department and Works, Parks and Recreation Department project managers to ensure co-ordination with road work activities.

CONCLUSION

The 2018 Strategic Traffic Count Program has been completed and the results analysed. These results will be used to inform Council's transport planning, traffic operations, investment programming and development assessment activities. Of note, the results have delivered a valuable snapshot into the performance of Ipswich's existing road network.

The results have also identified that a number of two-lane roads within the city's transport network continue to perform near or over their carrying capacity. Where necessary, these roads have already been identified for future investment by Council and prioritised as part of the annual prioritisation of projects for the Strategic Transport Sub-program within the Capital Works Portfolio.

Finally, the results outlined in this report provide further evidence of the current population growth and development occurring in Ipswich and the need to deliver on the objectives of the *City of Ipswich Transport Plan (iGO)* in order to maintain a safe and reliable transport network. In particular, the continued high growth trend in vehicle trips provides justification for the need for Ipswich residents to be provided access to viable and high quality public and active transport alternatives.

ATTACHMENTS

Name of Attachment	Attachment
Attachment A 2018 Strategic Traffic Count Program Data Summary (NOTE: best viewed at A3 size)	Attachment A
Attachment B Strategic Traffic Count Program Data Comparison 2014 – 2018 (NOTE: best viewed at A3 size)	Attachment B

RECOMMENDATION

That the report be received and the contents noted.

Jessica Cartlidge
SENIOR TRANSPORT PLANNER

I concur with the recommendation contained in this report.

Mary Torres
ACTING INFRASTRUCTURE PLANNING MANAGER

I concur with the recommendation contained in this report.

Tony Dileo
ACTING CHIEF OPERATING OFFICER (INFRASTRUCTURE SERVICES)

“Together, we proudly enhance the quality of life for our community”

2018 Strategic Traffic Count Program Data Summary

Table with columns: Division, Road, Suburb, Location, Start Date, Finish Date, Average Daily Traffic (ADT), Average Weekday Traffic (AWT), % Com. Vehicles, Average vehicle speed (km/h), Weekday avg AM peak start, Weekday avg AM peak hour, Weekday avg AM peak flow, Weekday avg PM peak start, Weekday avg PM peak hour, Weekday avg PM peak flow. Includes sections for Ipswich Central, Inner Eastern Suburbs, Eastern Suburbs, Outer Eastern Suburbs, Northern & Western Suburbs, and Southern Suburbs.

1 Due to developer activity, site was relocated 50m north of Rice Rd in 2018
2 Due to developer activity, site was relocated 90m north of Thomas St in 2018

Growth and Infrastructure Committee	
Mtg Date: 19.02.19	OAR: YES
Authorisation: Tony Dileo	

Doc ID No: A5340837

7 February 2019

MEMORANDUM

TO: ACTING CHIEF OPERATING OFFICER (INFRASTRUCTURE SERVICES)
FROM: ENGINEER (TRAFFIC SYSTEMS)
RE: iGO INTELLIGENT TRANSPORT SYSTEMS STRATEGY

INTRODUCTION

This is a report by the Engineer (Traffic Systems) dated 7 February 2018 concerning the development of the *iGO Intelligent Transport System Strategy*, being a signature project of the endorsed *City of Ipswich Transport Plan (iGO)*.

Intelligent Transport Systems (ITS) is the application of modern computer and communication technologies to transport systems to increase efficiency, reduce pollution and other environmental effects of transport, and to also increase the safety of the travelling public. The ever growing technology industry is beginning to change the landscape of the transport network. Modern computer and communications technologies are being applied to new vehicles while the transport network falls behind in technology advancement. Given Council is a road manager, it is important to not only be aware of the new technology but to also embrace, implement and manage this technology to ensure that a safer and efficient road network can be achieved in the future.

RELATED PARTIES

There are no related party matters associated with this report.

ADVANCE IPSWICH THEME LINKAGE

This report aligns with the 'Managing Growth and Delivering Key Infrastructure' theme within *Advance Ipswich*

In particular, it aligns with Strategy 3 of this theme: 'Provide a transport system that supports the safe, reliable and sustainable movement of people and goods for all travel modes'.

PURPOSE OF REPORT

BACKGROUND:

At its Ordinary Meeting on 24 May 2016, Council adopted the *City of Ipswich Transport Plan (iGO)* as its master plan to shape Ipswich's transport future [refer Item 4 tabled at the City Infrastructure & Emergency Management Committee Meeting No. 2016(02)].

At Council's Ordinary Meeting on 20 October 2017, Council approved the development of an *iGO Intelligent Transport Systems Strategy* as its master plan to shape Ipswich's future transport technology needs [refer Item 4 tabled at the Infrastructure and Emergency Management Committee Meeting No. 2017(10)].

The *iGO Intelligent Transport Systems Strategy* is intended to outline Council's preferred short term, medium term and ongoing implementation plan for transport technology, as well as signature projects. The Strategy aims to improve safety, increase sustainability and drive efficiencies through the use of transport technology.

iGO INTELLIGENT TRANSPORT SYSTEMS STRATEGY:

The *iGO Intelligent Transport Systems (ITS) Strategy* has now been developed and can be found in Attachment A. It is proposed to develop a summary version of the document in the iGO branding that can also be used as a more concise communication and marketing tool.

The *iGO ITS Strategy* will be used:

- To inform and guide future policy and investment decision making regarding ITS; and
- As an advocacy tool to assist with securing funding from higher levels of government.

The *iGO ITS Strategy* has produced a concise, realistic and prioritised program of ITS technology applications for Ipswich accompanied by implementation actions and timings. This Strategy will guide Council's ITS programming and investment decision making and refine ITS efforts in a more informed manner.

For ease of reference, a summary of the key elements of the *iGO ITS Strategy* are outlined in Table 1 below.

TABLE 1
iGO ITS Strategy Key Elements

ELEMENT	DETAILS / COMMENTS	MORE INFORMATION
<u>Vision & Objectives</u>	<p><u>Vision</u> Ipswich City Council harnesses the use of smart technology to assist with achieving a transport system for Ipswich that is safe and reliable and provides for the sustainable movement of people and goods for all travel modes.</p> <p><u>Objectives</u> 5 objectives were developed which have been categorised under each of the iGO City of Ipswich Transport Plan objectives</p>	Table 13 of <u>Attachment A</u>
<u>Desired Outcomes</u>	<p><u>Outcomes & Values</u></p> <ul style="list-style-type: none"> • iGO City of Ipswich Transport Plan • Ipswich Smart City Program • Advance Ipswich <p><u>Further Alignment</u></p> <ul style="list-style-type: none"> • Queensland State Government Strategies i.e. Smarter Infrastructure for Queensland, Electric Vehicle Strategy & Shaping SEQ • Australian Government Strategies i.e. Smart Cities Plan, Office of Future Transport Technologies & National Policy and Framework for Land Transport and Technology • Industry Bodies i.e. ITS Australia, Austroads & National Transport Commission 	Figure 3 & <u>Table 14 of Attachment A</u>
<u>Action Areas</u>	<ul style="list-style-type: none"> • 18 Projects • 41 Protocols • 14 Partnerships 	<u>Table 18 Attachment A</u>

Each action area has been given a timeframe that outlines Council’s ITS priorities. They are defined as:

- Signature (resource focus over the next two years)
- Short (within the next 5 years)
- Medium (6-10 years)
- On-going (already underway and/or will occur across all timeframes)

The timeframes have been established based on need, opportunities and alignment with Council’s other strategic directions. The actual delivery of each action will be subject to resourcing, the establishment of investment and expertise partnerships and the outcomes of prototype design, testing and evaluation processes. Due to the evolutionary nature of technology, with the continual emergence of new and updated platforms, there are no longer term (10+ years) actions.

The ‘signature’ projects outlined in the *iGO ITS Strategy* for short term resource effort are outlined in Table 2 below.

TABLE 2
SIGNATURE PROJECTS

POLICY FOCUS AREA	ACTION NO.	SIGNATURE PROJECTS
Intelligent Road Operations Team	<i>ITS 1</i>	Establish a road operations data analytics and performance monitoring team that is driven by technology and works in collaboration with TMR to better manage traffic, improve network reliability and enhance the customer experience and inform transport investment decisions.
Smart Parking Solution	<i>ITS 13</i>	Investigate the feasibility, develop and implement a smart parking solution.
Electric Vehicles	<i>ITS 27</i>	Encourage the deployment and uptake of electric vehicles
C-ITS Trial	<i>ITS 29, ITS 30 & ITS 31</i>	<ul style="list-style-type: none"> • Actively support the Queensland Government's C-ITS trial in Ipswich • At completion of the C-ITS trial take learnings and potentially roll out infrastructure throughout the city for connected vehicles • Support ongoing C-ITS testbeds in Ipswich

RESOURCE IMPLICATIONS

Capital Finance

As part of the implementation of the *iGO ITS Strategy* and agreement with the recommendations of this report, it is proposed that there will be an ongoing commitment to a regular capital budget as part of the Capital Portfolio budget development. The initial capital investment proposed would be approximately \$350,000 and increased annually. In addition, the *iGO ITS Strategy* will also be used for marketing and seeking opportunities of external funding from the Federal and State Government.

Operational Finance

It is anticipated that no additional operational funding is sought at this time, however as the area of transport technology grows within Council additional operational funds will be required and will be reported as required.

RISK MANAGEMENT IMPLICATIONS

By adopting this report, the *iGO ITS Strategy* will lead to the development of new projects that will bring a level of risk with each project. Project risk will be managed in accordance with Council's Enterprise Risk Management Policy.

If recommendations of this report are not supported, Council could stand to fall behind in the area of ITS technology for the City of Ipswich. There is currently a drive to investigate alternative measures in enhancing the road network through road technology rather than look to further expensive infrastructure projects. Furthermore, there is also motivation for the use of greener technology through the use of electric vehicles, and Council will need a plan to encourage the use of this technology and ultimately reduce the carbon emissions from the road network.

LEGAL/POLICY BASIS

This is not applicable to this report and its recommendations.

COMMUNITY AND OTHER CONSULTATION

In order to help shape the *iGO ITS Strategy*, targeted workshops with key internal stakeholders from various Departments were held to determine action development and their corresponding priorities. Consultation has also been conducted with the Queensland Department of Transport and Main Roads and other South East Queensland Councils to assist with the development of the Strategy.

As previously mentioned, it is proposed to develop a summary version of the document in the iGO branding that can also be used as a communication and marketing tool with the broader community. It can also be used as an advocacy tool for any potential grants as they become available.

CONCLUSION

The *iGO Intelligent Transport Systems Strategy* has been developed to guide the planning, delivery and resourcing of transport technology for Ipswich, aligning with the City of Ipswich Transport Plan (iGO). This strategy aims to improve safety, increase sustainability and drive efficiencies through the use of transport technologies through implementation of short term, medium term and signature projects.

ATTACHMENTS

Name of Attachment	Attachment
iGO Intelligent Transport Systems Strategy – Final Report	Attachment A

RECOMMENDATION

- A. That the iGO Intelligent Transport Systems Strategy, as detailed in Attachment A to the report by the Engineer (Traffic Systems) dated 7 February 2019, be adopted.
- B. That the iGO Intelligent Transport Systems Strategy be considered when developing Council's strategic planning documents and be used to inform applicable intelligent transport systems projects.
- C. That the iGO Intelligent Transport Systems Strategy, as detailed in Attachment A to the report by the Engineer (Traffic Systems) dated 7 February 2019, be considered when developing the "Road Safety and Operations" sub-program as part of future capital works portfolio.

Josh Ellis

ENGINEER (TRAFFIC SYSTEMS)

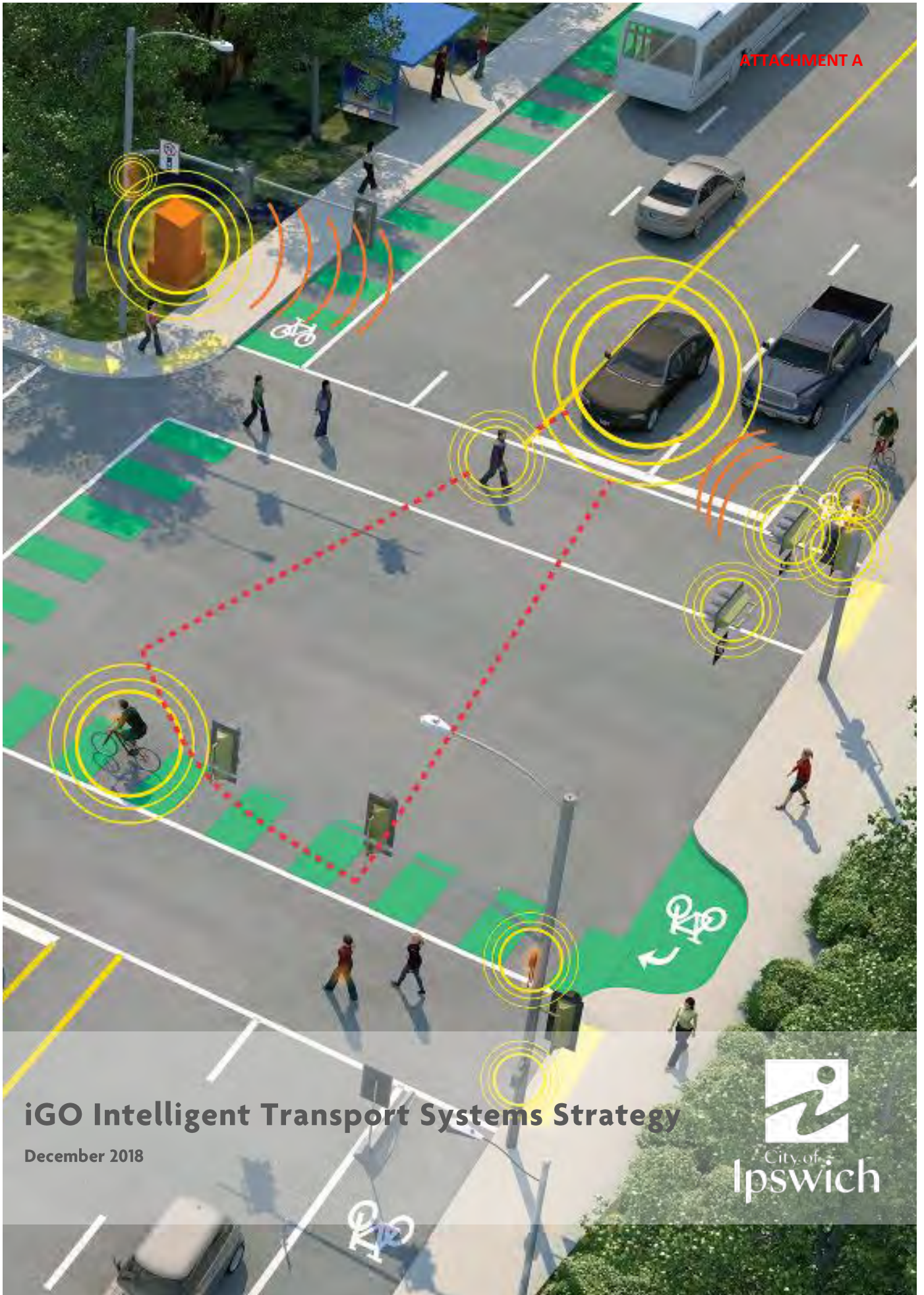
I concur with the recommendations contained in this report.

Mary Torres
ACTING INFRASTRUCTURE PLANNING MANAGER

I concur with the recommendations contained in this report.

Tony Dileo
ACTING CHIEF OPERATING OFFICER (INFRASTRUCTURE SERVICES)

“Together, we proudly enhance the quality of life for our community”



iGO Intelligent Transport Systems Strategy

December 2018



PREFACE

In 2016, Ipswich City Council released the **'iGO' City of Ipswich Transport Plan** - our transport blueprint for the city. iGO sets Council's longer-term agenda to advance Ipswich's transport system in a sustainable manner in response to forecast population growth. Its key mantras are "*proper investment*" and "*clever new thinking*".

With the emergence of smart phones and new technology platforms, transport in our cities is on the verge of an extraordinary revolution - from connected, driverless and electric vehicles, car and ride sharing schemes, intelligent traffic and parking networks and interactive travel information systems. Ipswich can be at the forefront of this revolution to dramatically change the way we travel, delivering significant safety, reliability and environmental benefits for transport users and help delay or even eliminate the need for expensive transport infrastructure.

As part of Council's **Smart City Program**, we are actively seeking opportunities for investment and resourcing partnerships to make Ipswich a truly smart city. The roll out of intelligent transport system (ITS) initiatives is an intrinsic part of this goal.

As such, Council has developed the **iGO Intelligent Transport Systems Strategy**. It outlines Council's tactical approach for the deployment of ITS to Ipswich's transport system over the next decade or so to assist in meeting the sustainability outcomes of iGO from an environmental, social, economic and financial perspective. The Strategy is visionary and recommends a way forward to resource, advocate, trial, support and execute in partnership with other levels of government, industry, businesses and the community.

Signature projects for delivery in the short term are to establish a road operations team driven by technology and a smart parking solution for the Ipswich City Centre. These initiatives will be delivered in stages using trials, evaluation, awareness and partnerships as implementation tools.

EXECUTIVE SUMMARY

Over the next few decades, Ipswich will experience significant change. Alongside extensive population growth, urban renewal and shifts in demographics, emerging technologies, including shared mobility services and automated vehicles will revolutionise the city's future transport system.

This is Council's tactical blueprint for *Intelligent Transport Systems* to help achieve our transport aspirations for Ipswich as outlined in **iGO**. It contains prospects to ensure Council is ready for a transport future driven by technology.



Intelligent Transport Systems (ITS) are the deployment of advanced and digitally enabled information, communication and sensor technologies to the transport system to enhance connectivity between users, vehicles and infrastructure.



Key Messages

We recognise that technology will influence an extraordinary degree of change to Ipswich's transport future. But the unknown extent of what transport technologies, how they will be deployed and their level of uptake, is also significant.

Given the evolutionary nature of technology, with the continual emergence of new and updated platforms, Council will position to be **future ready** by enhancing our **expertise**, developing **protocols**, establishing **investment frameworks**, advocating for government policy and regulatory **reform** and creating strategic **alliances**.

Council will take the following approach to ITS.

AGILITY

We will be agile by being **open to market led proposals** that align with city aspirations, and short-term investment on projects that will provide tangible benefits to our core local functions of **roads, safety** and **parking**.

TRIALS

We will use trials to **test reliability** and **measure performance** before wider deployment including the support of industry proposals using Ipswich as a **'testbed'**.

ENABLER

We will be an 'enabler' not just a provider. Council may be a project **leader, supporter** or **sponsor**.

Success will require **collaboration** and **partnerships** with government, innovators and the community. The Strategy will help us **advocate** for funding and sponsorship deals.

Action Plan

- ▶ Suite of 73 prioritised actions
- ▶ 10-year delivery timeframe
- ▶ Includes **projects, protocols** and **partnerships**

SIGNATURE PROJECTS

Our resource focus over the next two years:

Intelligent Road Operations Team

- Driven by technology
- Data analytics
- Performance monitoring
- Central road data portal



Smart Parking Solution

- Key activity centres
- Monitoring sensors
- Pricing and payment methods
- Customer navigation systems



Electric Vehicles

- Support uptake and schemes
- Alternative parking codes and development incentives
- Dedicated parking spaces and infrastructure



Connected Vehicles (C-ITS)

- Actively support the Queensland Government with their C-ITS initiative



GLOSSARY & ABBREVIATIONS

TERM	ACRONYM	DEFINITION
Advanced Driver Assist Systems	ADAS	A category of ITS where vehicle technology applications help the driver with the driving process. This includes speed control, lane and object warnings and rear parking sensors and cameras.
Advanced Traffic Management Systems	ATMS	A category of ITS that improves road user safety and traffic flow.
Automatic Crash Notification	ACN	An ITS application that uses sensors inside a vehicle to determine when a serious crash has occurred, and then provides emergency services with the exact location of the crash by transmitting data over the mobile phone network.
Automatic Number Plate Recognition	ANPR	An ITS application that uses optical character recognition to read vehicle registration plates. It is used for law enforcement, toll collection and for tracking traffic movements.
Advance Ipswich		Council's long-term community plan that provides an overarching vision for the City's future and a framework for how this vision will be achieved. It is a statutory requirement of the Local Government Act 2009 for every local government in Queensland to develop and implement a long-term community plan.
Bluetooth		A wireless technology platform for exchanging data over short distances using short wavelength UHF radio waves. Invented in 1994, it is now widely used as a default application on many devices including smart phones, televisions, speakers and vehicles.
Brisbane City Council	BCC	The local government of the City of Brisbane.
Civil Aviation Safety Authority	CASA	The Australian national authority for the regulation of civil aviation responsible for monitoring civil air operations in Australia, issuing appropriate licences, enforcing safety requirements and protecting the environment from the effects of aircraft use. The Authority reports to the Federal Minister for Infrastructure and Transport.
Central Business District	CBD	The principal economic activity area of city or town with a concentration of employment and commercial, retail, health and educational land uses.
City of Gold Coast	CoGC	The local government of the City of Gold Coast. Sometimes referred to as Gold Coast City Council.
City of Ipswich		The local government area that makes up Ipswich as a city
City of Ipswich Transport Plan	iGO	Council's long-term multi-modal transport strategy developed in 2016. It outlines Council's aspirations to sustainably advance the city's transport system in response to forecast population growth. It contains a suite of policy focus areas and over 200 actions.
Connected and Automated Vehicle/s	CAV	A category of ITS where vehicles can sense their environment and navigate with some, little or no human input.
Connected and Automated Vehicle Initiative	CAVI	A Queensland Government trial of CAVs to help prepare for the arrival of new vehicle technologies with safety, mobility and environmental benefits on Queensland roads. The largest component of the CAVI is a pilot of C-ITS applications in Ipswich
Cooperative Intelligent Transport System/s	C-ITS	A category of ITS that use wireless technologies to enable real-time communication between vehicles, road infrastructure, mobile devices and back-office systems.
Department of Transport and Main Roads	TMR	The Queensland Government agency that operates the transport system in Queensland including major roads, public transport and vehicle and driver regulation.
Electric Vehicle	EV	A vehicle that uses one or more electric motors for propulsion.
Governance		Processes of formal decision-making among a group based on collective interaction, problem solving and tactics with the view of providing transparency, accountability and consistency.
Infrastructure Planning Branch		The Council organisational entity responsible for the forward planning of the city's transport and drainage infrastructure including strategic transport planning, traffic operations, road safety and ITS. Custodian of the Strategy.
In-kind		Goods, services and transactions not involving money or not measured in monetary terms.
Integrated Corridor Management	ICM	An ITS concept that focuses on maintaining the greatest mobility benefits along a road corridor or series of corridors in the same geographical area through the application of innovative technologies that maximise network safety and reliability.

TERM	ACRONYM	DEFINITION
Intelligent Transport System/s	ITS	The deployment of advanced and digitally enabled information, communication and sensor technologies to the transport system to enhance the dynamic connectivity between users, vehicles and infrastructure.
In Vehicle Monitoring System	IVMS	A form of ITS where an electronic device that is located within a vehicle that records and a range of information about the vehicle including location, performance and driver behaviour. They can also measure the recorded data against a set of criteria.
International Association of Public Transport	UTIP	A European based advocacy organisation for the development of public transport and sustainable mobility.
Ipswich Central		The area that makes up the Ipswich CBD. Not formally a suburb but the term is used by TMR and ICC on direction signs to differentiate the central part of Ipswich from the City of Ipswich.
Ipswich City Centre		The economic activity area of Ipswich. It is made up of the traditional CBD core and some inner suburbs that have with a concentration of commercial, retail and health land uses.
Ipswich City Council (Council)	ICC	The local government of the City of Ipswich
Key Performance Indicator	KPI	A type of performance measurement that evaluates the success of an organisation, project, program, product and/or initiative) in which it undertakes. Success can be an achievement of a goal and working towards a strategic outcome.
Li-Fi	Li-Fi	Technology for wireless communication between devices using light to transfer data at high speeds.
Light Detection and Ranging	LIDAR	A land surveying method that measures distance to a target by illuminating the target with pulsed laser light and measuring the reflected pulses with a sensor. Difference in laser return times and wavelengths can then be used to make maps, 3D representations and inform the design of infrastructure. It has terrestrial, airborne and mobile applications.
Light Emitting Diode	LED	A type of light source that is energy efficient. It is now commonly used in traffic signals, road signs, street lights and vehicle head lamps.
Local Area Traffic Management	LATM	An integrated scheme where infrastructure such as signs, lines and islands are installed on local streets across a residential area to discourage non-local traffic use and to better control vehicle speeds.
Local Government Area	LGA	The administrative area and boundary of a local government.
Local Government Infrastructure Plan	LGIP	Identifies a local government's plans for trunk infrastructure (roads, parks, water, sewer and community facilities) that are necessary to service urban development at a desired standard of service in a coordinated, efficient and financially sustainable manner.
Land Use and Public Transport Accessibility Index	LUPTAI	A spatial analysis tool developed by TMR in 2006 to help state and local transport agencies evaluate the level of accessibility people have to public transport and walking in different areas.
Memorandum of Understanding	MoU	A type of agreement between two (bilateral) or more (multilateral) parties. It expresses a convergence of will between the parties, indicating an intended common line of action. It is often used either in cases where parties do not imply a legal commitment or in situations where the parties cannot create a legally enforceable agreement. It is a more formal alternative to a 'gentlemen's agreement'.
Mobile Device		A computing device small enough to hold and operate in the hand, take me readily moved from place to place and can connect to the internet and other devices. This includes smart phones, tablets, laptop computers and smart watches.
Mobility as a Service	MaaS	An ITS concept where various transport services are integrated into a single mobility touchpoint on a mobile device.
Mobility on Demand	MoD	Another term for MaaS (refer above).
National ITS Architecture	NIA	A specification framework for the development and design of ITS applications in Australia to ensure consistency and interoperability across agencies and providers.
National League of Cities		A United States based advocacy organisation representing 19,000 cities and municipalities.

TERM	ACRONYM	DEFINITION
National Transport Commission	NTC	An Australian independent statutory body created in 1991 by inter-government agreement to develop regulatory and operational reform for road, rail and intermodal transport. The aim is to improve the productivity, safety and environmental outcomes of the Australian transport system and enhance consistency across state agency jurisdictions. Recommendations and advice are presented to the TIC for approval. State and territory governments contribute 65 percent of the NTC's funding and the Australians Government provides 35 percent.
Original Equipment Manufacturer	OEM	A company that produces parts and equipment that may be used and marketed by another manufacturer. When referring to auto parts, OEM refers to the manufacturer of the original equipment, that is, the parts assembled and installed during the construction of a new vehicle. In contrast, aftermarket parts are those made by companies other than the OEM, which might be installed as replacements after the car comes out of the factory.
Partnership		An arrangement between two or more entities that agree to cooperate to advance their mutual interests either formally (through a legal contract) or informally via a verbal or written understanding.
Penalty Infringement Notice	PIN	Financial penalty (fine) for an offence prescribed by legislation.
Procurement		The process of finding, agreeing terms and acquiring goods, services or works from an external source, often via a tendering or competitive bidding process. The process is used to ensure the buyer receives goods, services or works at the best possible price, when aspects such as quality, quantity, time, and location are compared.
Queensland Government		The parliament of the state of Queensland and its associated operational departments and agencies.
Radio Detection and Ranging	Radar	A detection system that uses radio waves to determine the range, angle, or velocity of objects. Radio waves (pulsed or continuous) from the transmitter reflect off the object and return to the receiver, giving information about the object's location and speed. It can be used to detect moving objects such as vehicles, weather formations and terrain.
Resource		A source or supply from which a benefit is produced. This can be a product, asset, human skills and money. Typically, resources can be a product, asset, service, staff, skills, knowledge or money.
Safe City Program		A network of over 200 cameras across the Ipswich City Centre and ten other suburbs that are actively monitored 24 hours per day, seven days per week to deter crime and anti-social behaviour.
Service Level Agreement	SLA	A commitment between a service provider and a client usually in the form of a contract. Aspects of the service – quality, availability, responsibilities – are agreed between the service provider and the service user.
Society of Automotive Engineers	SAE	A global professional association for automotive engineers and practitioners.
Smart City		An urban area that uses digital and communication technologies to improve business operations and productivity, share information with the public, enhance community safety, enrich customer experiences and reach municipal goals.
Smart City Program		Council's strategy and program for Ipswich to be Smart City.
Smart Phone		A class of multi-purpose mobile computing device. They are distinguished from feature phones by their stronger hardware capabilities and extensive mobile operating systems that facilitate wider software, internet and multimedia functionality (including music, video, cameras, and gaming), alongside core phone functions such as voice calls and text messaging. Smartphones typically include various sensors that can be leveraged by their software, such as a magnetometer, proximity sensors, barometer, gyroscope and accelerometer, and support wireless communications protocols such as Bluetooth, Wi-Fi, and satellite navigation.
Telematics		Telematics is an interdisciplinary field that encompasses telecommunications, vehicular technologies, road transport, road safety, electrical engineering (sensors, instrumentation, wireless communications, etc.), and computer science (multimedia, Internet, etc.).

TERM	ACRONYM	DEFINITION
Telemetry		An automated communications process by which measurements and other data are collected at remote or inaccessible points and transmitted to receiving equipment for monitoring. Although the term commonly refers to wireless data transfer mechanisms (e.g. using radio, ultrasonic, or infrared systems), it also encompasses data transferred over other media such as a telephone or computer network, optical link or other wired communications like power line carriers.
Testbeds		A platform for conducting experimental testing and trials of new technology products in a rigorous, transparent and replicable manner.
Transport Disruptor		New technologies, platforms and applications that change and revolutionise traditional ways in providing transport services.
Transport and Infrastructure Council	TIC	A collective body of Commonwealth, State and Territory transport and infrastructure ministers and the Australian Local Government Association to coordinate national reforms to improve efficiency, productivity and consistency of Australia's infrastructure and transport systems.
Variable Message Sign	VMS	An electronic sign that displays changeable messages to transport system users about incidents, special events, route guidance and items of public interest.
Unmanned Aerial Vehicle	UAV	An aircraft without a human pilot aboard. Commonly referred to as a 'drone', components include a ground-based controller and a system of communications between the two. The flight of UAVs may operate with various degrees of autonomy: either under remote control by a human operator or autonomously by onboard computers.
Ultra-High Frequency	UHF	Radio frequencies in the range between 300 megahertz (MHz) and 3 gigahertz (GHz) that mainly broadcast by line of sight (i.e. they are blocked by hills and large buildings although the transmission through building walls is strong enough for indoor reception). They are used for television broadcasting, cell phones, satellite communication including GPS, personal radio services including Wi-Fi and Bluetooth, walkie-talkies, cordless phones and numerous other applications.
Vehicle-to-Infrastructure	V2I	A C-ITS application that wirelessly connects vehicles with road infrastructure in real time.
Vehicle-to-Vehicle	V2V	A C-ITS application that wirelessly connects vehicle with each other in real time.
Wi-Fi		Technology for wireless communication between devices using UHF radio bands of 2.4 GHz and 5.8GHz. Wi-Fi compatible devices can connect to the internet via a WLAN and a wireless access point. Such an access point (or 'hotspot') has an indoor range of about 20 metres indoors and a greater range outdoors by using multiple overlapping access points.
Wireless Local Area Network	WLAN	A wireless computer network that links two or more devices to form a network within a limited / local area such as a home, school or office. Most modern WLANs are based on Wi-Fi standards.
	3D	An element represented with three dimensions (length, width and depth) on a two-dimensional product (map, design plan, monitor, television screen etc).
	5G	The fifth generation of mobile device communications with high data rates, reduced latency, energy saving, cost reduction, higher system capacity and massive device connectivity over the current 4G platform.

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INTRODUCTION

PREMISE

With the advent of smart phones, Wi-Fi and Bluetooth connectivity, digital technology continues to become a more integral part of daily life and will continue to shape our future. Advancement in technology will have a greater influence on the way decisions are made, the way we interact, and the way services are consumed. This is especially true with transport where the way we travel, and how our transport network is designed and operated, will increasingly be influenced by technology.

The recent growth in Intelligent Transport Systems (ITS) has the potential to dramatically change the way we travel and deliver significant safety, reliability, resilience and environmental benefits for transport users that in turn can help delay or eliminate the need for expensive transport infrastructure outlay.

There is considerable evidence collected from within Australia and globally that transport technology adoption can deliver substantial reductions in road crash rates and improvements in transport system reliability and productivity. There are also strong indications that reductions in crashes and improvements in reliability of the transport network will produce significant financial savings to the community, largely through the more focused use of existing transport infrastructure and reducing the need to build more road space.

Ipswich is ideally positioned as a place to live, work and play and a desirable location for businesses due to its proximity to Brisbane with regional road and rail networks and a readily available labour force. As part of the its **Smart City Program**, Council is actively seeking opportunities for investment and resourcing partnerships to make Ipswich a truly smart city. The roll-out of ITS is an intrinsic part of this goal.

As such, Council has developed the **iGO Intelligent Transport Systems Strategy** ('ITS Strategy' or 'Strategy') that outlines Council's tactical approach for the deployment of ITS over the next decade to assist in meeting the outcomes of iGO. The Strategy is visionary and recommends a way forward to resource, advocate, trial, support and execute in partnership with other levels of government, industry, businesses and the community.

BACKGROUND

Transport plays a fundamental part of our daily lives with a large role in economic transactions, social interactions, educational activities and leisure pursuits. In a rapidly growing city such as Ipswich, getting transport right is the foundation for ensuring future sustainability and liveability.

A good portion of Council's human and capital resources are dedicated to operating, maintaining and improving the local transport system. Whilst investment in the traditional local government transport functions of roads, traffic management and footpaths will need to continue, Council are now expanding their focus to include other transport elements into their portfolio to ensure sustainable transport future for the city. This includes the provision of safe and quality facilities for pedestrians, cyclists and public transport users and implementing smarter, more cost-effective ways of funding and delivering transport infrastructure and services.

In this regard, Council are investigating opportunities to use ITS across Ipswich's transport system. ITS is digitally enabled applications that provide better connections across and between the three elements that form the transport system: **Users**, **Infrastructure** and **Vehicles** (refer to Figure 1).

The introduction of traffic signals on the road network over 50 years ago is a good example of an ITS application. Traffic signals provide improved connections between road infrastructure and road users to improve public safety and traffic flow. In more recent years, authorities have introduced variable message signs (VMS) onto the road network to advance connections between the road and motorists.

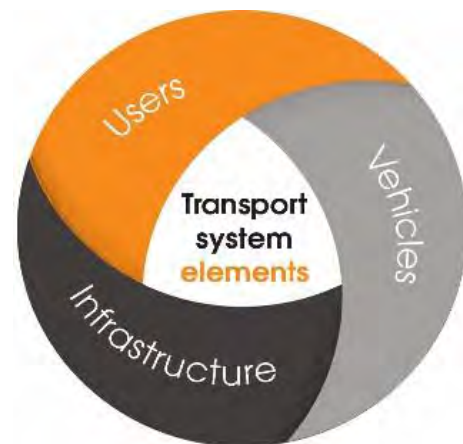


FIGURE 1
The three elements of the transport system
Source: Stantec (2018)

Over the last decade, new ITS applications (such as connected sensors, integrated traffic coordination centres, in car satellite navigation), digital platform opportunities (such as ‘smart’ phones, broadband internet, Bluetooth and GPS satellite connectivity) and transport ‘disruptors’ (such as Uber) have appeared on the market and are now readily accepted as a normal part of our lifestyles.

With massive global investment in research and development of advanced technologies (not just in the transport space), the growth of an incipient middle class in highly populated countries (particularly in Asia), and the emergence of a generation of young people whose positive uptake of, and confidence in using, new technologies in their daily routines, will see exponential growth in ITS over the next 20 years. In fact, the next two decades are predicted to see a significant shift away from established lifestyle values such as house and car ownership, the need to hold a driver’s licence for mobility and the need to travel to/from work during traditional peak hours (if at all).

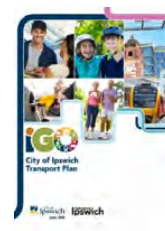
This document describes, and brings together, the different ITS elements and opportunities that could enhance Ipswich’s future transport system and provides a coordinated way forward that is conducive to Council’s aspirations for the city and the community as outlined in *Advance Ipswich*.

DRIVERS

The drivers behind the development, and subsequent execution, of this Strategy are related to Council’s strategic transport planning and smart city initiatives. These two drivers are outlined in further detail below.

iGO City of Ipswich Transport Plan

iGO was released in 2016 and sets Council’s longer-term aspirations to advance the city’s transport system towards a sustainable future. iGO outlines a series of policy focus areas that Council will pursue and a suite of over 200 prioritised actions.



Revolving around the mantras of *proper investment* and *clever new thinking*, the key ideas of iGO are outlined in Table 1.

TABLE 1: Key Ideas of iGO

IDEA	COMMENT
 Safe, reliable & resilient road network	The provision of a safe, reliable and resilient local road network for all road users, but one that may not necessarily be efficient for traffic movements during peak times. Cars will continue to play an essential role in how people travel but Council will not be able to afford to continuously add more and more road space to meet the travel demand generated by the city’s forecast population growth.
 Facilitating travel mode choices	Reducing Ipswich residents’ dependency on their cars by facilitating competitive, attractive and sustainable travel mode choices through the provision of quality transport infrastructure and incentives/disincentives.
 Transport and land use integration	<p>Fostering the development of strong, compact and connected mixed-use activity centres, complete communities and providing job opportunities close to where people live. This revolves around the philosophical idea of giving Ipswich residents the land uses, transport infrastructure and economic and social opportunities that will offer the:</p> <ul style="list-style-type: none"> • “10-minute neighbourhood” – residents can access their basic daily goods and services such as schools, parks and groceries within a 10- minute journey time • “20-minute city” – residents can commute to their jobs and access higher order goods, services and leisure pursuits within a 20-minute journey time.
 Culture shift	<p>Clever new thinking and strong civic leadership to make sustainable decisions. This includes new non-traditional attitudes such as:</p> <ul style="list-style-type: none"> • Promoting travel behaviour changes for certain trips • Taking a demand management (as opposed to demand satisfaction) approach to car use, parking, road network performance and traffic congestion • Balancing the needs of all users in the design and management of roads • The development and uptake of new transport-related technology • Influencing institutional frameworks (i.e. employee core work hours and locations) • Using innovation regarding the cost, affordability, funding and financing of new infrastructure

Source: iGO City of Ipswich Transport Plan, Ipswich City Council (2016)

A key policy focus area of iGO is to support and enable technology and transport infrastructure innovations. The plan also encourages the embracing of technology and partnerships to drive network reliability, promote sustainability and improve safety.

"Sustainable, inclusive, prosperous and resilient cities depend on transport that facilitates the safe, efficient and pollution-free flow of people and goods, while also providing affordable, healthy and integrated mobility for all people."

Ashok Sridharan
Mayor - Bonn, Germany
President - International Council for Local Environmental

Use

iGO is used for the following purposes to:

- **Guide** transport related policy, planning, investment and resourcing decisions;
- **Advocate** for government funding and private-sector partnerships; and
- **Promote** travel choices and a sustainable and healthy transport culture.

Delivery Structure

The delivery structure of iGO is outlined in Figure 2. It includes elements and mechanisms that will be used by Council to assist with executing the outcomes and actions of iGO.

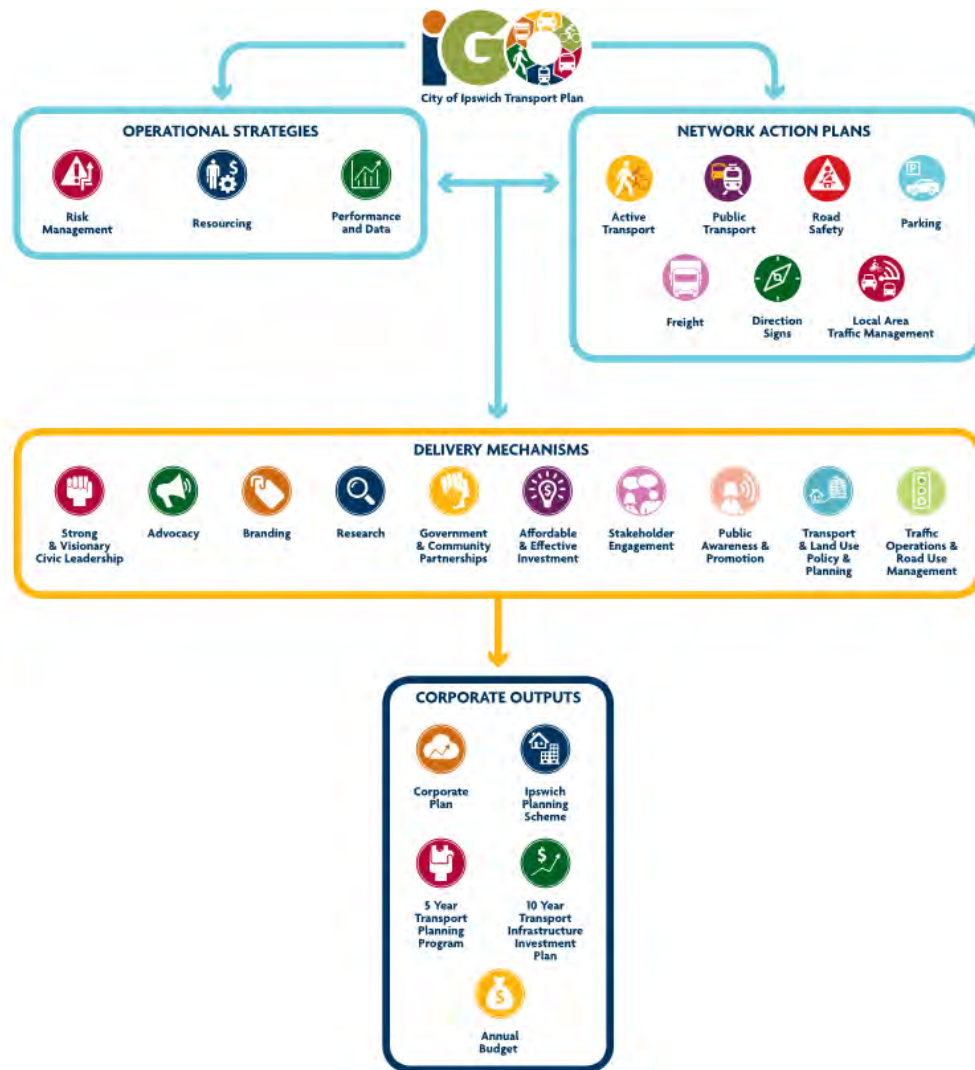


FIGURE 2: iGO Delivery Structure

Source: iGO City of Ipswich Transport Plan, Ipswich City Council (2016)

iGO Action Plans

The iGO delivery structure (refer to Figure 2 previous) includes the development and implementation of several detailed action plans relating to the following transport elements:

- **Active Transport** (endorsed by Council in November 2016)
- **Public Transport**
- **Road Safety**
- **Parking**
- **Freight**
- **Direction Signs**
- **Wayfinding**
- **Local Area Traffic Management**



The ITS Strategy will inform the development and implementation of these network action plans.

iGO Operational Strategies

The iGO delivery structure (refer to Figure 2 previous) includes the development and implementation of three detailed operational strategies relating to the following elements:

- **Risk Management** (endorsed by Council in November 2018)
- **Resourcing** (human, operational and capital)
- **Performance Monitoring and Data**

The ITS Strategy will inform the development and implementation of these operational strategies.

Further information on iGO can be found at www.ipswich.qld.gov.au/igo

Smart City Program



In 2017, Council released its **Smart City Program**. Going beyond just digital technology, the Smart City Program embraces new ways of working, learning, living and the capture and use of data to make Ipswich a truly connected community full of ideas and innovation.

The Smart City Program is used to drive innovations, build knowledge and promote investment.

Council is actively seeking partnerships for the deployment of devices, applications and platforms that will support the smart city principles outlined in Table 2.











TABLE 2: Smart City Program Principles

PRINCIPLE	COMMENT
Jobs, Growth & Liveability	Every Smart city initiative must deliver on at least one of these outcomes and everyone involved in the initiative must always be clear on what outcome is being pursued. If the potential for improved jobs, growth or liveability is not obvious the initiative must be reviewed and realigned or deprioritised and shelved.
Business as Usual Innovation	Many of the Smart City initiatives are advancements of current Council business in the running of a city. Therefore, the Smart City initiatives and innovation in general is seeded across the organisation and integrated into business as usual for departments, business units and staff at all levels.
Open and Interoperable	Council does not own the Smart City Program, it has simply created the framework for Ipswich to prosper from. Many of the initiatives must be wholly community or industry lead. Therefore, the Smart City Program platforms, enablers, data and infrastructure must be as open and interoperable as possible. Potential partners and vendors wanting to engage with Council must agree to an open and interoperable platform. In this regard, Council has established a Smart City Data Platform .

Source: Smart City Program, Ipswich City Council (2017)

Council is current investigating and implementing pilot projects across the city. While open to all proposals, the key priority areas of the Smart City Program are outlined in Table 3.

TABLE 3: Smart City Program Priority Areas

INITIATIVE	DESCRIPTION	TRANSPORT OPPORTUNITY
 <p>Unmanned Aerial Vehicles</p>	Use of UAV (e.g. drones) to collect data, monitor remote areas and aerial mapping.	<ul style="list-style-type: none"> Traffic monitoring Road design surveying Parking and road reserve compliance Micro deliveries (parcels, groceries etc.) Passenger transport
 <p>Application Studio</p>	Provides a formal rapid application development vehicle for Council, partners and community to collaborate on solutions.	Development of applications for home based, hand-held and in-vehicle devices for: <ul style="list-style-type: none"> Travel information System use data collection Asset management Parking management
 <p>Digital Skilling</p>	Establishes a framework for communication education and training programs.	Providing residents with awareness and training on the capabilities and use of transport technologies.
 <p>Connected Transport</p>	<p>Aims to create an intelligent transport system focusing on electric, connected and autonomous vehicles.</p> <p>Ipswich is established as a testbed for transport technologies relating to different modes of transport and traffic management and enabling a variety of partners to research and develop better informed, safer, more coordinated and smarter transport technologies.</p>	<p>The basis for this Strategy.</p> <p>Council has committed to transitioning sections of its fleet to hybrid and electric vehicles.</p>
 <p>Healthy Living Lab</p>	Studies human health and wellness behaviours at the city level and pushes the boundaries of health research through using advanced technologies such as big data, analytics and the Internet of Things.	<ul style="list-style-type: none"> Reduced need for travel to and from medical appointments and for health worker commuter trips. Better and more user-friendly community based public transport services
 <p>Sustainable Living</p>	<p>Advances new neighbourhoods to be more sustainable through collaboration and incentives between developers, utility providers, technology vendors and Council.</p> <p>The initial stages of this initiative will focus on the trial and deployment of technologies such as rooftop solar with integrated battery, micro-grids with power trading and integrating distributed generation with home automation.</p>	<ul style="list-style-type: none"> Solar power on bus shelters and other passenger transport facilities. Home based proactive travel information Car, bike and ride sharing programs
 <p>Smart Parks, Buildings & Facilities</p>	<p>Trialling and deployment of digital technology in public spaces and municipal assets to achieve operational or community benefit.</p> <p>This includes investigating:</p> <ul style="list-style-type: none"> Remote operations Water, waste and lighting management Solar energy, integrated batteries and micro-grid technology User engagement and urban furniture 	<ul style="list-style-type: none"> Infrastructure for electric, connected and automated vehicles Infrastructure for car, bike and ride sharing programs Predictive & automated road maintenance Video analytics for Safe City Program and traffic management Parking meters & management
 <p>Connected City Lighting</p>	Advances in the provision and management of public lighting to better management of costs and operations.	<ul style="list-style-type: none"> LED illuminance Connected street and bikeway lighting for better operation
 <p>Digital Service Standard</p>	Utilising digital technologies to streamlining Council services making it easy for people to manage their local government needs.	<ul style="list-style-type: none"> Traffic and road incident management Transport related customer enquires Transport data collection & surveys
 <p>5D Data Modelling</p>	<p>The 5D Data Modelling initiative brings together streams of data from across Council to build a five-dimensional view of city infrastructure.</p> <p>Starting with a 3D digital model of above and below ground city infrastructure, dimensions of data and time are overlayed to produce the 5D Data Model.</p> <p>Will provide innovative planning, development and compliance outcomes.</p>	A conduit for the above.

Source: Smart City Program, Ipswich City Council (2017)

Further information on the Smart City Program can be found at www.ipswichsmartcity.com.au

CONTEXT

Strategic planning and policy instruments in the context of the Strategy are depicted in Figure 3 and described further below.



FIGURE 3: Strategic Planning & Policy Context

Source: Stantec (2018)

AUSTRALIAN GOVERNMENT

The Australian Government has taken recent steps to provide meaningful policy leadership into urban transport affairs including ITS.

Smart Cities Plan

In 2016, the Australian Government released their *Smart Cities Plan* to support productive, accessible and liveable cities that encourage innovation and create jobs. The plan is based around the three pillars of smart investment, smart policy and smart technology and crosses over several portfolios including transport.

An initiative borne out of the Smart Cities Plan is the *Smart Cities and Suburbs Program* where the Australian Government has allocated funds to partner and support the delivery of innovative projects that will help achieve the outcomes of the Smart Cities Plan. This Strategy provides a robust and coordinated base to assist Council in securing a funding partnership with the Australian Government under the Smart Cities and Suburbs Program or another type of funding initiative.



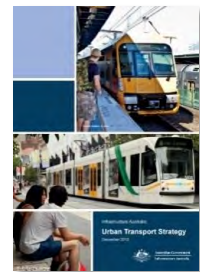
Further information on the Smart Cities Plan can be found at <https://cities.infrastructure.gov.au>

Urban Transport Strategy

In 2013, the Australian Government released their *Urban Transport Strategy* that outlines principles and criteria to assist in the planning of urban transport systems and the identification, assessment and prioritisation of projects for inclusion on priority funding lists. It outlines that new ideas and methods relating to better use of existing assets, technological advances and new funding and financing mechanisms need to be factoring investment policy thinking. This includes ITS.

A copy of the Urban Transport Strategy can be found at:

http://infrastructureaustralia.gov.au/policy-publications/publications/files/InfrastructureAus_Rep_UrbanStrategy.pdf



Office of Future Transport Technologies

In October 2018, the Australian Government established the *Office of Future Transport Technologies* to help prepare for the pending arrival of automated vehicles and other transport innovations.

The new Office is part of the Department of Infrastructure, Transport and Regional Development and will provide strategic leadership, coordination and collaboration with other governments, agencies and industry to develop policy, regulation and infrastructure relating to transport technologies including ITS.

Transport Infrastructure Council

The *Transport Infrastructure Council* (TIC) is a collective body of Australian, State and Territory transport and infrastructure ministers and the Australian Local Government Association that makes strategic decisions on national reforms to improve efficiency, productivity and consistency of Australia's infrastructure and transport systems. With regards to ITS, the TIC's terms of reference include:

- Continuing a focus on transport safety while maintaining awareness of technological developments (positive and disruptive) that may impact safety and security; and
- Removing barriers to innovation and capitalising on new and emerging technologies.

Many of the activities of the TIC are led and undertaken by the National Transport Commission (NTC).

National Policy Framework for Land Transport Technology

In 2016, the TIC agreed to the *National Policy Framework for Land Transport Technology* that outlines a principles-based approach to facilitate the effective and consistent implementation and uptake of transport technology across Australia including ITS. The Policy Framework outlines the following four roles for government:

1. **Policy leadership:** Providing a clear and coordinated approach across different levels of government and being responsive to changes in the technological environment;
2. **Enabling:** Ensuring that the private sector can readily bring beneficial new technologies to the market;
3. **Supportive regulatory environment:** Ensuring that community expectations of safety, security and privacy are appropriately considered in new technology deployments; and
4. **Investment:** Investing in research and real-world trials that benefit the entire transport network customer base or provide a sound basis for government decision-making (including collaboration with the private sector).

A copy of the policy framework is available at <http://transportinfrastructurecouncil.gov.au/publications/>

National Transport Technology Action Plan (2016-2019)

The NPFLT is supported by *National Transport Technology Action Plan (2016-2019)*. It outlines short-term priorities for implementing new transport technologies across Australia (refer to Table 4).

TABLE 4: Short-term Priorities - National Transport Technology Action Plan (2016-2019)

ACTION	LEAD
1 Establish a regulatory framework for testing automated vehicles	NTC
2 Develop national operational guidelines to support the on-road use of automated vehicles	Austrroads
3 Undertake priority trials and research of ITS	NTC
4 Develop a connected vehicle (C-ITS) infrastructure road map	NTC
5 Publish a connected vehicle (C-ITS) statement of intent on standards and deployment models	NTC
6 Develop a nationally agreed deployment plan for the security management of CAVs	NTC / Austrroads
7 Investigate options to provide enhanced geo-positioning information to the land transport sector	Australian Govt.
8 Improve the availability of open data in the transport sector	All governments
9 Explore options to increase the uptake of telematics and other technologies for regulatory and revenue collection purposes	NTC
10 Evaluate low-cost technologies to improve safety at rail level crossings	NTC
11 Explore how data from telematics and other ITS can be used to optimise operations and planning for port precincts and intermodal terminals	NTC
12 Investigate options for interoperable public transport ticketing	NTC
13 Investigate costs, benefits and deployment models for Automatic Crash Notification (ACN)	NTC / Austrroads
14 Explore the merits of adopting Advanced Traffic Management Systems (ATMS) and Advanced Driver Assist Systems (ADAS) technologies.	NTC

Source: *National Transport Technology Action Plan (2016-2019)*, Transport and Infrastructure Council

QUEENSLAND GOVERNMENT

The Queensland Government does not have a specific ITS planning document. However they have recently taken steps to incorporate smart infrastructure into their policy thinking and are undertaking significant regulatory reform to support a national goal of on-road deployment of connected and automated vehicles (CAVs) by 2020.



Smarter Infrastructure for Queensland

As part of the execution of the **State Infrastructure Plan**, the Queensland Government has established a *smarter infrastructure* policy agenda to bring together governments, community, industry and academia to drive innovation and help Queensland compete globally in the future. Smarter infrastructure is the intersection between traditional physical infrastructure and digital technology and innovation. The value of smart infrastructure is being able to intelligently respond to changing usage patterns, reduce costs, maximise capacity and minimise disruptions.

As part of this agenda, the Queensland Government released the *Smarter Infrastructure for Queensland Directions Paper* that outlines the key themes established after various collaboration forums (refer to Table 5) and describes a way forward.

TABLE 5: Smarter Infrastructure for Queensland Themes

THEME	DESCRIPTION
Being customer centric	Placing the customer at the heart of smart infrastructure
Reimagining the role of government	An enabler (not simply a provider)
Innovation from less prescription	Moving to an outcome-focused procurement approach
More from existing assets	'Sweating' and re-purposing the infrastructure we already have
Adopting agile thinking	Build trust, embrace challenges and learn from others
Data focus	Improving the collection, sharing & use of data between government, industry & academia
Collaboration across sectors	Improve cross-sector collaboration, showcase innovation, attract and retain skills

Source: Smart Infrastructure for Queensland Direction Paper, Queensland Government (2018)

Infrastructure Innovation Taskforce

As part of their Smart Infrastructure policy agenda, the Queensland Government plans to establish an *Infrastructure Innovation Taskforce* to examine and report back to government on a range of matters including:

1. The benefits of integrating technological solutions into infrastructure planning and delivery;
2. The efficiency of procurement processes; and
3. Whole-of-life cost modelling benefits to improve the use of existing assets.

Further information on the Queensland Government's smarter infrastructure agenda can be found at www.qld.gov.au/smarterinfrastructure

Strategic Planning

The Queensland Government is developing the following strategic planning documents that will provide policy direction and actions associated with ITS:

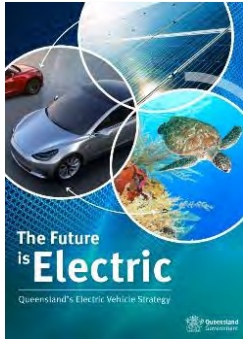
- **Digital Infrastructure Plan** (with a focus on using big and open data, data analytics and machine learning)
- **Queensland Transport Strategy** (future focussed)
- **Queensland Road Operation Strategy**
- **Queensland Freight Strategy**

Engagement with TMR as part of the development of this Strategy indicated that they are keen to partner with Council to develop and deploy technology initiatives as part of their road operations, particularly in the integrated corridor management space, to achieve a one network approach to the management of roads and traffic in the region.

Cooperative & Autonomous Vehicle Initiative

The Queensland Government is trialling cooperative and automated vehicle technologies to make roads safer through their *Cooperative & Autonomous Vehicle Initiative* (CAVI). A large component of the CAVI will be a pilot of Cooperative Intelligent Transport Systems (C-ITS) on public roads in Ipswich from 2019. Further information on C-ITS is outlined in Chapter 4 – Opportunities.

Further information on CAVI can be found at www.qld.gov.au/transport/projects/cavi



Electric Vehicle Strategy

In 2017, the Queensland Government released its *Electric Vehicle (EV) Strategy* that outlines 16 cost-effective initiatives to encourage the uptake of EVs. These initiatives aim to:

- Empower consumers
- Enable supporting infrastructure
- Explore cost-effective support programs
- Envisage future government actions.

The EV Strategy includes the deployment of the *Queensland Electric Super Highway*, a network of fast-charging stations across the state along major highway nodes and tourist routes.

Regional Planning

The following planning initiatives will inform and assist the Queensland Government in delivering their longer- term regional land use and transport plans:

- **State Infrastructure Plan** (2018 update)
- **Shaping SEQ** (SEQ Regional Plan 2017)
- **SEQ Regional Transport Plan** (currently under development)
- **Road Safety Strategy 2015-2021**



Road Planning and Design Manual

The Queensland Government's *Road Planning and Design Manual* (developed and administered by the Department of Transport and Main Roads) provides specifications for the consistent and safe planning and design of roads. Chapter 5 covers ITS and includes provisions relating to locating, positioning, configuration and installation of vehicle detection loops, vehicle counters, CCTV, road weather monitoring, variable and changeable message signs, variable speed limit and lane control signs, ramp metering, weigh-in-motion automatic number plate recognition and tunnel systems.

Guidelines for the Installation of Electric Vehicle Charging Station Signs

In 2017, the Queensland Government released a guide on installing signs for EV charging stations to ensure a consistent approach in their implementation and improve road user interpretation and awareness of EV charging stations.

IPSWICH CITY COUNCIL

Council's strategic planning framework is outlined in Figure 4.

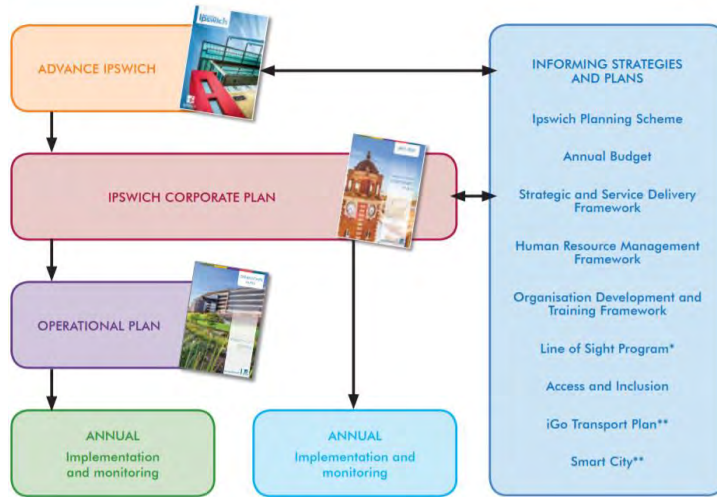


FIGURE 4: Council's Strategic Planning Framework

Source: Ipswich City Council Corporate Plan 2017-2022

Advance Ipswich

Advance Ipswich (2015) is Council's long-term community plan that provides an overarching vision for the city's future and a framework for how this vision will be achieved.

Based on community research and feedback, it includes a suite of aspirations and actions based around the following policy pillars:

- Strengthening our economy and building prosperity (jobs)
- Managing growth and developing infrastructure
- Caring for our community
- Caring for our environment
- Listening, leading and financial management

A key action of Advance Ipswich was the development of iGO.

Ipswich Corporate Plan

The Corporate Plan (2017-2022) establishes Council's five-year priorities and more specific outcomes in the delivery of Advance Ipswich. Corporate Plan Goal 1: Strengthening Our Local Economy and Building Prosperity outlines Council's priority for supporting the development of a strong and vibrant local digital economy through integration of the Smart City Program and the development and roll-out of a Digital Infrastructure Plan (Strategy 4) and for supporting technology, research and knowledge-based industries (Strategy 6).

Ipswich Planning Scheme

The Ipswich Planning Scheme articulates Council's land use planning framework and regulates the development of land across the city. iGO attempts to integrate transport outcomes with the intent of the Ipswich Planning Scheme (and vice versa).



Local Government Infrastructure Plan (LGIP)

The LGIP forms part of the Ipswich Planning Scheme that identifies Council plans for trunk infrastructure (roads, parks and community facilities) that are necessary to service urban development at the desired standard of service in a coordinated, efficient and financially sustainable manner and provides the framework to calculate infrastructure charges associated with development permits.

Standard Drawings

Council has a suite of standard drawings that provides reference parameters and specifications for the design and configuration of Council roads, drainage, parks and public lighting infrastructure. These are used by both internal and external practitioners for infrastructure items that will become registered as Council assets. The introduction of transport technologies, particularly ITS applications on Council roads, will need its own suite of standard drawings based on best practice, TMR Road Planning and Design Manual and Austroads guidelines.

INDUSTRY BODIES

The industry bodies that have dealings with ITS and have the potential to offer leadership, expertise and support for Council in the delivery of the Strategy are outlined in Table 6 (over). These organisations undertake research, share knowledge, provide industry connections between practitioners, consumers and suppliers and convene conferences, seminars and exhibitions.

TABLE 6: Industry Bodies

ORGANISATION	DESCRIPTION
 Intelligent Transport Systems Australia (ITS Australia)	<ul style="list-style-type: none"> • Industry organisation established in 1992 • Membership includes ITS suppliers, government authorities, academia and transport businesses • Support members through knowledge, promotion and advocacy
 Australian Road Research Board (ARRB)	<ul style="list-style-type: none"> • Research organisation for road agencies established in 1960 • Research areas include road safety and operations, pavements, heavy vehicle management and ITS.
 Austrroads	<ul style="list-style-type: none"> • Industry organisation for Australasian road agencies • Support agencies through shared knowledge and consistency • Activities include best practice research, publishing design guides, industry training and international collaboration • Currently developing the <i>National ITS Architecture</i> (refer below).
 Australian Institute of Traffic Management & Planning (AITPM)	<ul style="list-style-type: none"> • Industry organisation for transport practitioners established in 1966 • Integrated activities involving traffic management and operations, transport planning, economics, freight, road safety and public and active transport.
 Roads Australia	<ul style="list-style-type: none"> • Industry organisation to advance the development of roads including network development, safety, construction and asset management • Members include all of Australia's road agencies, major contractors and consultants, motoring clubs and service providers • Support members through knowledge sharing, networking, training and advocacy
 Australian Smart Community Association (ASCA)	<ul style="list-style-type: none"> • Industry body for people that are moving to make communities more technologically empowered • Membership includes governments, businesses, universities and individuals.
 National Transport Commission (NTC)	<ul style="list-style-type: none"> • Independent statutory body created in 1991 by inter-government agreement • Undertake activities to develop regulatory and operational reform for road, rail and intermodal transport to improve productivity, safety and environmental outcomes and enhance consistency across state agency jurisdictions. • Provide recommendations and advice to the <i>Transport and Infrastructure Council</i> (TIC) for approval. • State and territory governments contribute 65 percent of the NTC's funding and the Australians Government provides 35 percent.

Austrroads

Austrroads is preparing the *National ITS Architecture* (NIA) that will be a reference document for practitioners to use when planning and designing ITS applications to ensure they are deployed in a consistent and interoperable way.

"The more we can do to accelerate the safe introduction of technology on our roads, the more lives we can save"

David Stuart-Watt
 President, Roads Australia

Further information on the National ITS Architecture can be found at www.austrroads.com.au/road-operations/network-operations/national-its-architecture

ITS Australia

The *ITS Australia Strategic Plan (2013-2018)* outlines the importance of finalising the National ITS Architecture to ensure a consistent and interoperable frameworks for agencies and provider to follow when designing and deploying ITS. ITS Australia is also leading industry dialogue on *Mobility as a Service* (MaaS) as the potential to drastically improve customer choices, reduce travel costs, increase network capacity and transport sustainability while improving social and environmental outcomes.

NEED

Ipswich is a fantastic place to live, work and raise a family. The City's future is bright with many opportunities for prosperity and community development.

The population of Ipswich is forecast to more than double over the coming decades that will significantly increase demand for travel on the City's transport system. Special areas of future city prosperity include:

- Economic and civic revitalisation of the **Ipswich City Centre**;
- Continued urban growth of the greenfield master planned areas at **Springfield** and **Ripley** (including their town centres);
- Major job growth at the **regional business and industry** areas at:
 - Carole Park
 - Redbank / Bundamba / Dinmore / Riverview
 - Swanbank / New Chum,
 - Ebenezer / Willowbank and
 - Wulkuraka
- Expansion of the **RAAF Base Amberley** as Australia's premier defence facility;
- Extension of the passenger railway line to Redbank Plains and Ripley; and
- **Inland rail project** through southern Ipswich.

Whilst enhancements and expansions to Ipswich's road network, public transport services and active transport infrastructure will be required, Council will not be able to financially address the City's growing traffic issues by continually adding more road space just for cars. As such, iGO advocates for innovative methods to solve transport challenges. This includes taking a demand management approach rather than a demand satisfaction approach, integrating land use outcomes with transport outcomes to shorten trip lengths and having opportunities for more people to live closer to where they work, encouraging the use of sustainable travel modes and making better use of existing assets.

The deployment of ITS is also part of this clever new thinking paradigm to help Ipswich achieve a safe and sustainable transport future.



Source: Ipswich City Council (2018)

HORIZON

The Strategy has a horizon of 10 plus years and includes a suite of actions for implementation over the next five years plus a tactical framework to assist with informed decision making when considering longer term ITS initiatives.

Given the rapid pace of technology evolution and the disruptive nature of new services and applications, it will be necessary to frequently consider the relevance of the Strategy and how the direction and resources of Council can adapt to meet both consumer demand and industry capability.

SCOPE

The Strategy takes the outcomes and messages from both iGO and the Smart City Program and overlays an ITS filter to guide Council's policy, resource and investment decision making. It is an aspirational document aimed at the citywide level. It provides overarching direction and priorities for the formulation of more detailed initiatives and projects in the future. The Strategy deals with:

- **Land** transport only;
- **Local government functions** and responsibilities with a focus on road safety, traffic management and parking;
- The City of **Ipswich** local government area; and
- **Strategic, citywide** matters and opportunities.

The Strategy is not aimed at individual properties, will not provide answers to specific locality issues and does not deal with immediate or short-term operational matters on the existing transport network. The Strategy does not deal with innovations relating to transport infrastructure construction and maintenance (materials and procedures) and funding mechanisms. These will be subject to other policy, planning and procedural practices of Council.

ASSUMPTIONS

The future effect and uptake of ITS and transport related technologies are important considerations for Council but surrounded by much speculation and little certainty. It is largely unknown how transport will operate in Ipswich in the longer term and Council recognises there will be significant changes to transport in the future. Whilst Council's transport planning decision making is currently evidence based, there are some key assumptions that should be recognised as part of the Strategy as outlined in Table 7.

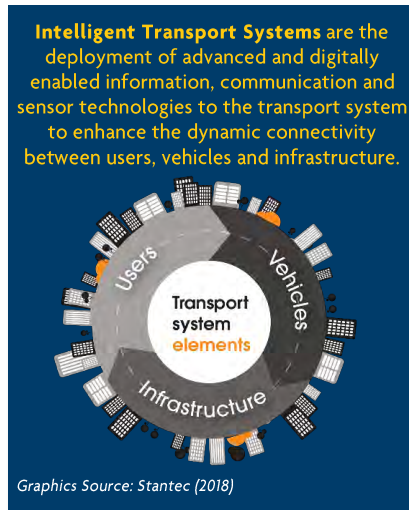
TABLE 7: Strategy Assumptions

ASSUMPTION	COMMENT
Agility	<p>There will be many new transport related technology solutions that will come to market over the next two decades. Some of these technologies will have the potential for significant cultural and social change on how we all travel and our thinking and approach to travel. These are referred to as 'disruptors' to traditional market models and protocols.</p> <p>Given the evolutionary (and sometimes revolutionary) nature of technology with the continual development of new and updated solutions and services, Council will assume an agile attitude to the adoption of new ITS products and will be open to market led proposals and trials that align with the strategic outcomes of Advance Ipswich, iGO and the Smart City Program.</p> <p>Council will embrace this disruption and recognise where ITS can help to:</p> <ul style="list-style-type: none"> • Enhance the transport experience for residents and business operators; • Improve and/or transform Council's service delivery; and • Better connect Council with the community. <p>Council will cultivate an environment that quickly responds to change through an iterative, ongoing process that is cognisant of the evolving needs and expectations of customers.</p>
Trials	<p>With innovation comes uncertainty of market acceptance. Council assumes there will be a need to trial various ITS applications to test reliability and measure performance and uptake to enable informed decisions to be made to progress to wider and/or permanent implementation.</p> <p>This will be a good opportunity for Council to market and brand these initiatives to the community as 'pilot' projects with lower levels of funding input and thus appraise their effectiveness to justify further investment.</p> <p>There will be future opportunities for Council to support market led proposals for new ITS applications as 'test beds' in Ipswich. This could be indirect support by allowing the testing of ITS applications on the City's transport system or direct support through funding or sponsorships for start-up testing of new ITS technologies that align with the strategic outcomes of Advance Ipswich, iGO and the Smart City Program.</p>
Enabler	<p>Council does not have the financial capacity, resources or expertise to implement many of the outcomes of the Strategy by itself. Additionally, future ITS opportunities may not necessarily be a core local government responsibility for Council to lead. As such, Council assumes it will need to be an 'enabler', not just a provider.</p> <p>The successful delivery of the Strategy will require collaboration and partnerships with other levels of Government, innovators, industry, business operators, community groups and residents. Thus, Council will use the Strategy as a basis to advocate for external funding alliances and sponsorships of certain ITS initiatives.</p> <p>As an enabler, Council may be a lead partner, supporting partner or a sponsoring partner in future initiatives.</p>

Source: Stantec (2018)

CHARACTERISATION

DEFINITION



Intelligent Transport Systems are the deployment of advanced and digitally enabled information, communication and sensor technologies to the transport system to enhance the dynamic connectivity between users, vehicles and infrastructure.

ITS is the practical application of new tools, machinery and devices to the transport system based on scientific knowledge and innovation. Whilst this primarily includes the adjacent definition, it can also include:

- New ways of energy production for:
 - Vehicle propulsion and (e.g. electric vehicles); and
 - Infrastructure operation (LED street lighting)
- New platforms for undertaking vocational, economic and educational activities and social interactions without the need for travel (e.g. home shopping, work from home)

The aim of these applications is to enable transport system users and managers to be better informed and to make transport systems safer, more reliable and resilient as well as more user and environmentally friendly. The 'currency' of ITS is **data**. The data flow in technology applications is used by transport system managers and users to make timely and informed decisions.

CATEGORIES

For land transport, ITS can be broadly grouped into seven categories as outlined in the Table 8.

TABLE 8: Transport Technology Application Classifications

CATEGORY	DESCRIPTION
Traffic & Transport Management	Technology that monitors, manages and optimises transport system use, user behaviour and trip distribution, through sensors, travel data collection and performance monitoring, traffic signal control and dynamic road safety, routing, incident, speed management solutions.
Public & Shared Transport	Technology that makes public transport safer and more accessible, reliable and user friendly such as scheduling, real-time positioning, ticketing & payments, routing and on-demand dispatching. This also includes shared personalised transport systems.
Parking & Kerbside Management	Technology that monitors parking occupancy and duration of stay, notifies users of supply availability enables payment and offers dynamic timing, compliance and a range of pricing mechanisms. Can also include provision of infrastructure electric vehicle charging and car and ride sharing initiatives.
Traveller Information	Technology that provides real time information to engage, educate and influence transport users via digital communication tools such as websites, smart phone apps, social and digital signage and wayfinding.
Fleet & Freight Systems	Technology that advances fleet and freight vehicle management and user safety by providing better understanding of utilisation, scheduling, logistics and journey optimisation.
Connected & Automated Vehicles	Technology that advances vehicle communication with each other, road infrastructure and the user to share warnings, instructions and guidance and ultimately drive autonomously.
Road User Charging	Technology that automatically and remotely collects charges (tolls) associated with access to certain parts of a road network.
Electric Propulsion & Solar Power	Electric and solar technology to propel vehicles, bicycles and personalised mobility devices and power transport infrastructure and public lighting.

Source: Stantec (2018)

CURRENT SITUATION

Over the last several decades, many transport technology initiatives have been implemented across Australia ranging in complexity and cost. Some examples include:

- **Dynamic traffic control systems** (e.g. traffic signals) to better manage traffic movements and improve road user safety – refer *Figure 5*;
- **Road and traffic monitoring systems** (e.g. cameras, road side and road surface sensors and traffic coordination centres) to better respond to incidents to reduce delays for motorists;
- **Vehicle monitoring** and scheduling systems to better manage fleets, improve the efficiency and safety of heavy vehicle movements, measure traffic volumes, speeds and travel times and regulatory enforcement.
- **Electronic fare and toll collection systems** to improve user convenience and reduce system costs;
- **In vehicle navigation** systems to assist motorists with way finding and route selection;
- **Advanced traveller information systems** to improve system understanding and make more informed journey, timetabling and route decisions.
- **Variable Message Signs (VMS)** to deliver road information to motorists in real time. The types of VMS range from simple one or two-line message signs (advising motorists of excessive speed, poor visibility, or an upcoming road hazards) to fully variable signs that can include graphical displays pertaining to road and traffic conditions, current freeway travel speeds and safety messages.
- **Automatic Number Plate Recognition (ANPR)** systems to more effectively identify vehicles for better and more convenient parking management, measurement of traffic conditions, collection of tolls and regulatory enforcement.

In recent years, some vehicle manufacturers have introduced camera and sensor technologies into their new vehicles to improve safety for users, collectively known as **Advanced Driver Assist Systems (ADAS)**. These technologies monitor, detect, control and warn the driver on possible safety matters such as the vehicle's speed, proximity to other vehicles and objects, lane departure and vehicle malfunction and maintenance issues.

STREAMS

STREAMS is an ITS tool used by Australian road authorities to monitor and manage 110,000km of roads and 1500 signalised intersections. STREAMS is developed and provided by Transmax, a wholly owned entity of the Queensland Government.

STREAMS services include motorway and arterial road traffic management, incident management, traffic signal management - adaptive coordination plan selection, adaptive movement control, public transport priority and VIP and emergency vehicle priority.

 **TRANSMAX**



FIGURE 5: Traffic signals in Ipswich with radar technology to detect approaching vehicle speeds and adjust signal operations.

Source: ICC (2018)

The current use of ITS applications by Council is outlined in the Table 9 and is generally used for road, fleet and parking management purposes.

TABLE 9: Current Use of Transport Technology Applications by Council / Queensland Government in Ipswich

USE	APPLICATION
Road Management	<ul style="list-style-type: none"> Speed Awareness Signs (60). Parking meters in the Ipswich CBD – refer to Figure 9. Enhanced School Zone Signs (22 sites) – refer to Figure 6. Traffic Signals (113 sets) – refer to Figure 5. Flood Warning Signs (2 sites). Smart Lighting projects currently underway in Springfield and Ripley. Move to take over ownership of all street lighting poles from Energex (i.e. Rate 3 type) to allow future ‘smart’ poles (currently undertaking NEMA testing - sending data). Railway level crossing traffic control systems (Queensland Government). Red light camera systems at five locations in Ipswich: <ul style="list-style-type: none"> Chermside Rd / Brisbane Rd, East Ipswich Limestone St / East St, Ipswich South Station Rd / Blackstone Rd, Silkstone Warwick Rd / Moffatt St, Ipswich Warwick Rd / Cunningham Hwy, Yamanto. (Queensland Government) – refer Figure 8. Speed camera program (Queensland Police Service) including 81 mobile sites across Ipswich (40 on state-controlled roads and 41 on Council roads), four parked sites and two fixed sites. On-ramp metering and dynamic speed limit signs on the Ipswich Motorway at Riverview, Redbank and Goodna (Queensland Department of Transport & Main Roads) – refer Figure 7. Variable message signs on the Ipswich Motorway, Warrego Highway and Cunningham Highway (Queensland Department of Transport & Main Roads). CCTV cameras on motorways and key arterial roads in Ipswich linked to the Brisbane Metropolitan Transport Management Centre (Queensland Department of Transport & Main Roads). Roll out of Emergency Vehicle Priority at signalised intersections in Ipswich over the next four years (Queensland Department of Transport & Main Roads).
Council Operations	<ul style="list-style-type: none"> Regulatory Service Branch use a vehicle fitted with a camera for automatic number plate recognition (ANPR) to monitor parking compliance. Waste Services Branch currently has an <i>In-Vehicle Monitoring System</i> (IVMS) system that records driver’s route, times and speed in real time. Fleet Service Branch is implementing an IVMS for Council’s light vehicle fleet that will provide real time data on vehicle utilisation and bookings.



FIGURE 6: Enhanced School Zone Sign at Karalee State School in Ipswich Source: Stantec (2018)



FIGURE 7: Dynamic Speed Limit Sign on the Ipswich Motorway Source: ICC (2018)



FIGURE 8: A red light camera system deployed by the Queensland Government at an Ipswich intersection Source: ICC (2018)



FIGURE 9: A Parking Meter in the Ipswich City Centre Source: ICC (2018)

MARKET SHARE

The global ITS market revenue by application type in 2015 is outlined in Figure 10. Traffic management and road user charging applications account for nearly half the market.

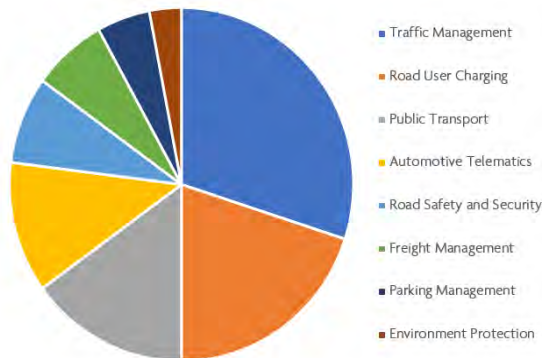
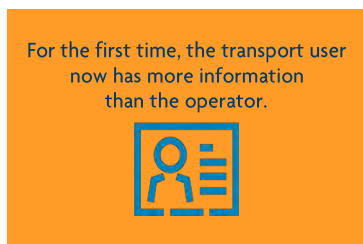


FIGURE 10: Global ITS Market Revenue 2015 (by application type) Source: *ITS Market Size Analysis, Radiant Insights Inc. (2015)*



The proportion of the world's population who live in urban areas continues to rise faster than transport system capacities. This pressure on transport infrastructure is driving global capital investment, estimated at over a trillion dollars per year. However, building new infrastructure does not always sustainably create additional capacity and technology will play a crucial role in changing the way we travel.



The digital age has begun, and technology has brought us smart phones, real-time planning, open traffic data and social customer service. This fundamental shift offers consumers real choice based on a picture of alternative routes, comparative pricing and current network status. As transport system providers adapt and fresh entities arrive on the market, new business models will transform the use of user information, payments, integration and automation.

Research undertaken by professional services consulting firm Deloitte, identified five emerging disruptive transport trends that will evolve over the next two decades setting the future of transport. These are outlined in Table 10.

TABLE 10: Disruptive Trends for the Future of Transport

TREND	DESCRIPTION
User centred	The smart phone has given access to more travel options and real time status and thus putting people in control and public transport services (e.g. Uber) becoming more personal. This will change the way transport providers design and deliver their services based on user choices and priorities, data flows and dynamic response to disruption.
Integrated & Intelligent	Connected transport networks will sense demand, measure performance and monitor the health of physical assets. Smart transport systems will respond in real-time to manage capacity and predict and avoid disruption.
Pricing & Payments	Flat-rate transport pricing and paper tickets are outdated. There will be a revolution in the way transport services are priced and paid for. The digitisation of payments will enable new ways to charge travelers based on a combination of their journey and other factors such as time of day, class of travel, discounts, previous travel patterns and special events and personal milestones such as birthdays. Pricing and payments will be revolutionised with digital tickets and payments for public transport allowing operators to follow airlines by adopting e-tickets. Beyond contactless payments, pay as you travel will be based simply on location.
Automation & Safety	Transport systems will benefit from the exponential potential of cognitive technology with vehicle to vehicle, and vehicle to infrastructure connectivity and automation likely to save millions of lives worldwide, particularly on roads. Increases in safety and changes to the nature of liability will have a fundamental impact on the insurance industry.
Public & Private innovation	Governments, corporations and community innovation will work together to meet the mobility challenges of the 21st century. The role of governments will be critical to stimulating transport technology advances whilst protecting citizens. New private sector entrants to the market will take advantage of peer-to-peer models, digital and mobile technology and lower costs to be transferable between countries and grow exponentially.

Source: *Transport in the Digital Age – Disruptive Trends for Smart Mobility, Deloitte (2015)*

DISRUPTIVE TRENDS

Transport is amid a generational shift where the advent of smart phone use has enabled consumers and businesses to drive forward new models within the transport sector. This revolution is evident through:

- Government policy direction;
- Investment on smart mobility initiatives;
- Car manufacturers focussing their efforts on next-generation vehicles; and
- Widening recognition that the “information everywhere” world will utterly disrupt the transport status quo.

LOOKING AHEAD

The speed of deployment and uptake of the disruptive transport trends outlined in Table 10 (above) will vary. The digital age will empower transport system users and disrupt the way providers operate and manage their services. This will put emphasis on the need for varied transport systems to integrate and join up passenger journeys. To achieve this, the public and private sectors must innovate and think differently, working together to ensure the growth and sustainability of transport for the future.

Transport in the longer-term future will be automated, intelligent and suit user needs with self-driving cars, shuttles and trains that will adapt to our needs and preferences. Ultimately, the stress of using traditional public and private transport will be eliminated by the advances we will see over the next few decades.

As part of their research, Deloitte predicted some things that are likely to happen to the transport system over the coming decades. These are outlined in Table 11.

TABLE 11: Transport System Predictions

TIMEFRAME	PREDICTION
By 2025	<ul style="list-style-type: none"> All payments will be contactless (no using a ticket machine, paper tickets or swiping a card). Personal devices will synchronise our travel plans with our calendars telling us step by step what to do next and when and how to do it. Transport agencies will be monitoring traffic flow and passenger numbers in real time to predict congestion and work to avoid it. Millions of sensors will start creating a “network of things”.
By 2030	<ul style="list-style-type: none"> Trains will be automatically controlled (no signals) with metro systems being driverless, mainline heavy rail services in driverless test phases and the status of track assets communicated in real time to a manned control centre. Cars will be connected to a network of other vehicles and infrastructure that will inform it of impending delays and safety issues Public and private sectors will be working together to push the integrated transport agenda to deliver tangible improvements to user experience and operational efficiency.
By 2040	<ul style="list-style-type: none"> The transport sector will be completely transformed. Fully automated vehicles where all users will be a passenger. User’s travel plans will be facilitated by their mobile devices. Transport staff will dedicate all their time to customer service and will never be caught off guard by a customer who has more information than they do. A revolution in public-private partnerships with governments promoting and facilitating the integration of transport modes. Payment systems will be standardised, seamless and available to all.

Source: *Transport in the Digital Age – Disruptive Trends for Smart Mobility*, Deloitte (2015)



FIGURE 11: With its planned economic and civic revitalisation, the deployment and uptake of ITS applications will make travel to the Ipswich City Centre safer and more reliable and convenient. Source: ICC (2018)

ISSUES & CHALLENGES

Public safety, reliability and congestion on a modern city's transport system are big community issues that governments are expected to address. Financial, environmental, land use and social constraints have resulted in governments looking toward travel demand management techniques, maximising the use of existing infrastructure, low cost solutions and innovative financing methodologies to help solve these issues. The deployment of transport technologies is critical to achieving these elements.

As technology and computing becomes both cheaper and more powerful, more transport technology concepts will become technically feasible and will be deployed. It is important that governments are prepared for these technologies to ensure that regulatory and resourcing frameworks are future proofed, and that the community does not miss out on the benefits provided by transport technologies.

iGO outlines a few issues that will affect Ipswich's transport future. Some of these challenges are global in nature and affect many cities around the world. Others are more specific to Ipswich due to factors including the city's geography, socio-economic conditions and the nature of the existing transport network.

The key challenges and drivers of change for Ipswich's transport future are outlined in Table 12.

TABLE 12: Ipswich Transport Challenges & Drivers for Change

ELEMENT	DESCRIPTION
 Car Dependence	High dependence on cars for all transport needs
 Urban Growth	Significant urban growth (population and employment)
 Urban Form	Low density and segregated urban form that is not conducive to trips by public and active transport
 Public Transport	An uncompetitive public transport system that is designed for captive riders.
 Parking	Management of community parking supply expectations in activity centres (particularly for long stay commuter use)
 Freight	Growth in freight movements on the road network accessing the city's large industrial land uses and the conflicts between achieving economic outcomes with the sensitivity of residential amenity.
 Public Health	Public health issues associated with physical inactivity due to a lack of walkable environments and concerns about personal security.
 Constrained Funding	A constrained fiscal environment to adequately fund the timely delivery of new transport infrastructure and services.
 Fuel Prices	Exposure to fuel price volatility and depletion
 Limited Space	Limited space on road corridors within existing urban environments will make it hard to expand capacity and adequately provide for active and public transport facilities.
 Legislation & Policy	Some government legislative and policy frameworks are not conducive to the effective technological advancement of the transport system including procurement processes, licensing and public liability insurances.

Source: iGO City of Ipswich Transport Plan, Ipswich City Council (2016)

The deployment of ITS applications, in conjunction with other transport initiatives and innovations, will help address, and potentially solve, some of these challenges.

DEMOGRAPHIC FEATURES

There are several key demographic features of Ipswich that will drive and/or shape the deployment and uptake of transport technology applications in the future.



Population Growth

The population of Ipswich is approximately 210,000 and is currently growing at four percent per annum, one of the highest growth rates in Australia for a local government area (LGA). It is forecast that the City's population will more than double over the next two decades, with the Ripley Valley Priority Development Area (PDA) forecast to house 120,000 residents.

Jobs

In 2016, there were approximately 73,000 jobs within the LGA. Ipswich contains two principal activity centres at Ipswich Central and Springfield Central, a large stock of existing and emerging regional business and industry areas, two large master planned communities at Springfield and Ripley and the RAAF Base Amberley which is expanding to include both air force and army functions to become Australia's premier defence and national security facility.



With these land uses, the number of jobs in Ipswich is also expected to grow substantially over the coming decades. From a transport perspective, it is important that jobs growth keeps pace with population growth to ensure greater containment of commuter trips within the city boundaries, to reduce commuter trip lengths and manage demands on the regional transport network.



Young People & Families

Ipswich is home to a young population. In 2016, the city had a median age of 32 in comparison to 38 for Australia. A younger population is much more receptive to technological change and are more likely to consider using public and active transport where competitive and practical.

Ipswich also contains a higher proportion of couples with children and households with a mortgage than the Queensland average. As such, Ipswich is an attractive place for young people to buy a house and raise a family.

Journey to Work

In 2016, the journey to work features of Ipswich were:

- 77% of residents who work commute by private vehicle (7% by public transport)
- 80% of people who work at a location in Ipswich commute via private vehicle (2% by public transport)
- 48% of working residents have jobs at locations outside the city
- 36% of people who work at a location in Ipswich are not Ipswich residents.



These features highlight that residents within Ipswich are likely to commute to and from work by private vehicles, with a significant portion of these trips crossing the city's boundaries to access jobs (predominantly in the Brisbane CBD and the industrial areas in the south-west of Brisbane).