VML:MB
Vicki Lukritz
3810 6221

5 October 2018

Sir/Madam

Notice is hereby given that a Meeting of the **INFRASTRUCTURE AND EMERGENCY MANAGEMENT COMMITTEE** is to be held in the **Council Chambers** on the 2nd Floor of the Council Administration Building, 45 Roderick Street, Ipswich commencing at **8.30 am** on **Tuesday, 9 October 2018**.

MEMBERS OF THE INFRASTRUCTURE AND EMERGENCY MANAGEMENT COMMITTEE	
Greg Chemello (Interim Administrator) **(Chairperson)**	Councillor

Yours faithfully

CHIEF EXECUTIVE OFFICER

INFRASTRUCTURE AND EMERGENCY MANAGEMENT COMMITTEE AGENDA

8.30am on **Tuesday,** 9 October 2018

Council Chambers

Item No.	Item Title	Officer
1	Infrastructure Delivery Progress as at 19 September 2018	CFM
2	**Contract Award – No. 11213 – Blackstone and South Station Road, Silkstone – Intersection Upgrade Project	CM (IS)
3	Active Transport Wayfinding Strategy and Sign Design Manual	STP
4	Repeal of Temporary Seals for Dust Suppression on Gravel Roads Policy	TO (T)
5	Petition regarding River Road, Bundamba – Division 4	IPM

** Item includes confidential papers

INFRASTRUCTURE AND EMERGENCY MANAGEMENT COMMITTEE NO. 2018(10)

9 OCTOBER 2018

AGENDA

1. INFRASTRUCTURE DELIVERY PROGRESS AS AT 19 SEPTEMBER 2018

With reference to a report by the Commercial Finance Manager dated 20 September 2018 concerning the delivery of the 2018-2019 Infrastructure Services Capital Works Portfolio.

RECOMMENDATION

That the report be received and the contents noted.

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2. **CONTRACT AWARD – NO. 11213 – BLACKSTONE AND SOUTH STATION ROAD, SILKSTONE – INTERSECTION UPGRADE PROJECT

With reference to a report by the Construction Manager (Infrastructure Services) dated 2 October 2018 concerning the procurement and contract award of Contract No. 11213 Blackstone and South Station Road, Silkstone Intersection Upgrade Project as a result of the tender evaluation.

RECOMMENDATION

That the Interim Administrator of Ipswich City Council resolve:

A. That Tender No. 11213 Blackstone and South Station Road, Silkstone Intersection Upgrade Project be awarded to the preferred contractor under an AS2124 Lump Sum Contract.

B. That Council enter into a Lump Sum Contract with the preferred contractor for the Blackstone and South Station Road, Silkstone Intersection Upgrade Project for the sum of two million eight hundred and eighty-two thousand, four hundred and thirty-nine dollars and forty-seven cents (excluding GST) ($2,882,439.47) for the proposed works as specified in the project documentation.

C. That the Chief Executive Officer be authorised to negotiate and finalise the terms of the contract to be executed by Council and to do any other acts necessary to implement Council's decision in accordance with section 13(3) of the *Local Government Act 2009*.

---

3. ACTIVE TRANSPORT WAYFINDING STRATEGY AND SIGN DESIGN MANUAL

With reference to a report by the Senior Transport Planner dated 18 September 2018 concerning the *Active Transport Wayfinding Strategy and Sign Design Manual*, a signature project of the endorsed *iGO Active Transport Action Plan* (ATAP).

RECOMMENDATION

That the Interim Administrator of Ipswich City Council resolve:

C. That the *Active Transport Wayfinding Strategy and Sign Design Manual*, as detailed in Attachments B and C to the report by the Senior Transport Planner dated 18 September 2018, be adopted.

D. That the *Active Transport Wayfinding Strategy and Sign Design Manual* be considered when developing Council's strategic planning documents and used to inform applicable active transport projects.

---

4. REPEAL OF TEMPORARY SEALS FOR DUST SUPPRESSION ON GRAVEL ROADS POLICY

With reference to a report by the Technical Officer (Traffic) dated 27 September 2018 concerning the repealing of the Temporary Seals for Dust Suppression on Gravel Roads Policy in line with Ipswich City Council's review cycle.

RECOMMENDATION

That the Interim Administrator of Ipswich City Council resolve:

That the policy titled "Temporary Seals for Dust Suppression on Gravel Roads", as detailed in Attachment A of the report by the Technical Officer (Traffic) dated 27 September 2018, as per resolution No. 20.07 of the Works Committee of 9 February 1998, adopted at Council on 18 February 1998 and amended on 4 November 1998, be repealed.

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5. PETITION REGARDING RIVER ROAD, BUNDAMBA – DIVISION 4

With reference to a report by the Infrastructure Planning Manager dated 24 September 2018 concerning a petition received from the community regarding the potential opening of River Road, Bundamba at the intersection with Nelson Street.

RECOMMENDATION

That the Interim Administrator of Ipswich City Council resolve:

A. That the current road closure on River Road, Bundamba north of Nelson Street remain in effect to restrict through traffic access.

B. That the existing bollards and slide rail be removed from River Road and more permanent infrastructure such as concrete barriers be installed.

C. That the petitioners be advised of the outcomes of this report.

** Item includes confidential papers

and any other items as considered necessary.

Infrastructure and Emergency Management Committee	
Mtg Date: 08.10.18	OAR: YES
Authorisation: Charlie Dill	

20 September 2018

M E M O R A N D U M

TO: CHIEF OPERATING OFFICER (INFRASTRUCTURE SERVICES)

FROM: COMMERCIAL FINANCE MANAGER

RE: INFRASTRUCTURE DELIVERY PROGRESS AS AT 19 SEPTEMBER 2018

INTRODUCTION:

This is a report by the Commercial Finance Manager dated 20 September 2018 concerning the delivery of the 2018-2019 Infrastructure Services Capital Works Portfolio.

BACKGROUND:

The Infrastructure Services (IS) Department is responsible for the planning and delivery of the city's transport and municipal capital infrastructure. The Infrastructure Services Monthly Activity Report (Attachment A) is for the month of September as of 19 September 2018.

CONCLUSION:

The Infrastructure Services Monthly Activity Report provides a status on the delivery of the Capital Works Portfolio, progress update on key capital projects and community affairs.

ATTACHMENT:

Name of Attachment	Attachment
Infrastructure Services Monthly Activity Report - September 2018	Attachment A

RECOMMENDATION:

That the report be received and the contents noted.

Cathy Murray
COMMERCIAL FINANCE MANAGER

I concur with the recommendation/s contained in this report.

Charlie Dill
CHIEF OPERATING OFFICER (INFRASTRUCTURE SERVICES)

Infrastructure Services

Monthly Activity Report
September 2018
Presented by Charlie Dill

Ipswich.qld.gov.au

City of Ipswich

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Table of Contents

Glossary of Terms

Term / Acronym	Description
CO	Financial carry-over from previous financial year
EOFY	End of Financial Year
FFC	Forecast Final Cost
FY	Financial Year
FYTD	Financial Year to Date
IS	Infrastructure Services Department

Introduction

Council's Department of Infrastructure Services (IS) is the lead service provider in the Ipswich community for the planning and delivery of the city's transport and municipal capital infrastructure. This includes Strategic Transport and Investment Planning, Program Development, Traffic Engineering and Road Safety Advice, Program Management, Design and Survey, Procurement, Project Management and Construction.

The IS Department's activities are delivered through its four (4) Branches:

- Infrastructure Planning, comprising of:
  - Transport Planning
  - Infrastructure Planning
  - Management of Customer Service Requests related to transport, traffic and local drainage
  - Manage and operate the traffic signal network and intelligent transport systems
- Program Management and Technical Services, comprising of:
  - Program Management and Coordination Section (Pre-Tender Management)
  - Technical Services Section (Design, Survey, Geotech)
- Construction, comprising of:
  - Transport Delivery
  - Municipal Works Delivery (Open Space, Drainage, Facilities, Divisional works)
- Business Support, comprising of:
  - Contracts and Procurement
  - Finance and Controls
  - Performance and Reporting
  - Estimation
  - Scheduling

This monthly activity report, dated 19 September 2018, provides a status of Infrastructure Services key activities for the 2018-2019 Infrastructure Services Capital Works Portfolio.

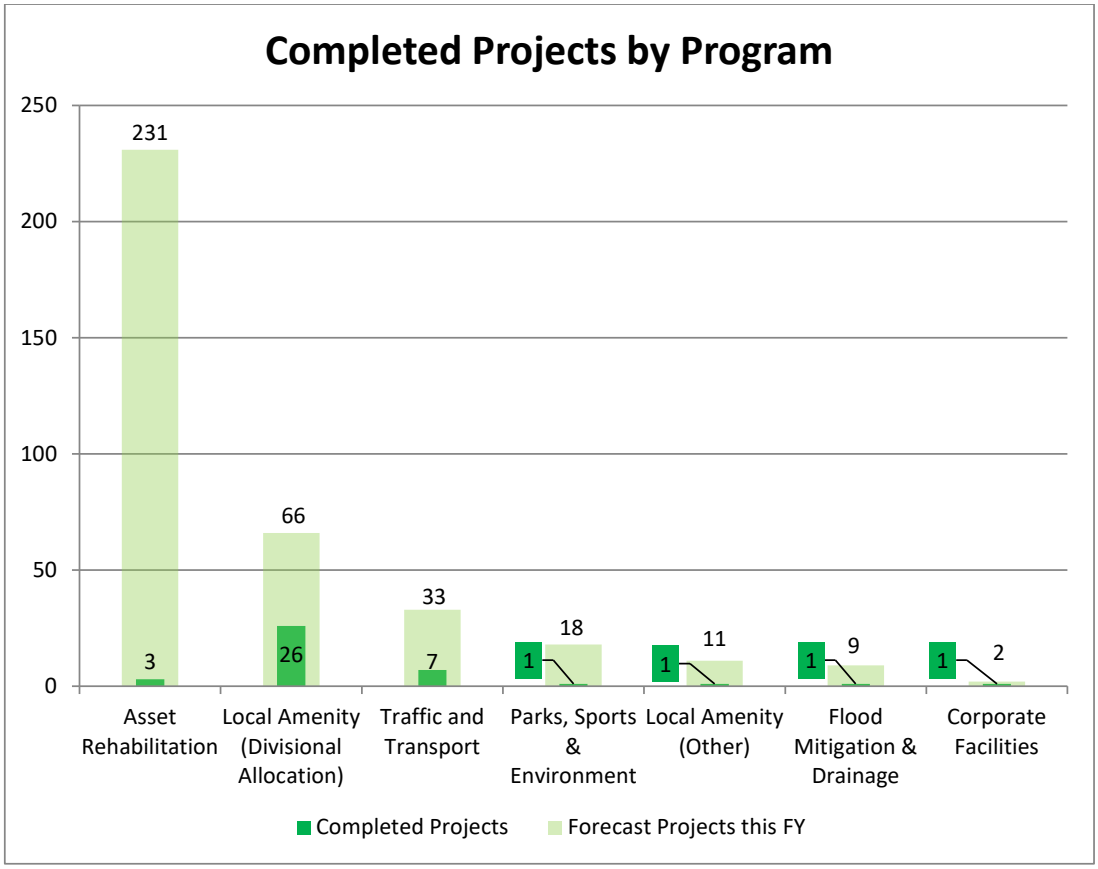
"Trusted Advisor to Council for Infrastructure Planning, Design and Delivery"

Capital Portfolio

Progress Summary

The 2018-2019 Master Schedule performed well against the Master Schedule for the period. IS has completed 40 projects to date in 2018-2019, out of approximately 370 construction projects.

There are 182 projects carried over from the 2017-2018 financial year to be completed this financial year, of which 150 projects are reseal projects. These are included in the 370 construction projects. The 150 reseal projects are planned to be completed by late November 2018. Six (6) carryover projects completed so far this financial year.



Cost Summary

The Council Approved Budget for IS Deliverable component of the 2018-2019 Capital Works Portfolio is $65.28 million with progress tracking well against budget. This excludes any 2017-2018 carryover which, will be presented to Council for adoption in October 2018.

Planning

The recommended actions outlined in iGO, continue to be progressed; including strategy and policy development, investment and corridor planning, grant applications, project scoping, feasibility and provision of transport and traffic advice.

Norman Street Bridge Preliminary Business Case – (iGO Action R9). The Preliminary Business Case to "Address Congestion, Cross River Connectivity and Network Resilience in the Ipswich City Centre" is in progress with technical analysis and traffic modelling of the two recommended options underway. The preliminary business case is scheduled for completion in December 2018.

10 Year Transport Infrastructure Investment Plan (10 Year TIIP) – (iGO Action D8). The 10 Year TIIP provides intelligence for logical and effective program management and the delivery of major transport projects including effective planning, design, procurement, pre-construction and construction processes. The annual revision of the plan is in progress and the draft version has been aligned to the 2018-2019 capital portfolio.

iGO Public Transport Advocacy and Action Plan – (iGO Action PT7). This project will identify short, medium and long term improvements to the public transport system and advocacy strategies. The consultants draft report will be circulated for internal review in October 2018.

iGO Parking Pricing Strategy – (iGO Action P6). The project will identify short, medium and long term pricing actions, technologies, zones, pricing models etc. to effectively manage short and long stay parking arrangements in the Ipswich City Centre. The project has commenced with the initial background research underway. Procurement activities have commenced for a parking survey which will inform the Parking Pricing Strategy.

iGO Active Transport Action Plan Implementation – In progress (iGO ATAP Action 1.1, 1.2 and 2.2). The 2019-2020 program priority areas was endorsed by Council and project scoping has commenced.

TMR Cycle Network Local Government Grants – (iGO ATAP Action 1.3). Early project identification work for the 2019-2020 cycle grant applications is underway. The proposed project list for the cycle grant applications is planned to be submitted to Council in November 2018 for endorsement.

iGO Active Transport Way Finding Strategy – (iGO Action AT5 and iGO ATAP Action 6.1). The project involves the development of an active transport signage strategy and signage design guide. The final strategy and design manual will be submitted to Committee in October 2018 for endorsement.

iGO Intelligent Transport Systems Action Plan – (iGO Action R5). The project involves the development of a strategic plan for road based technologies. The final draft report has been received from the consultant and is being reviewed by Council officers.

Deebing Creek Bikeway Corridor Plan – (iGO Action AT9 and iGO ATAP Action 1.4). A corridor planning study for a new bikeway along Deebing Creek between Carr Street (Ipswich) and the Cunningham Highway (Yamanto/ Flinders View). Draft concept plans have been received from the consultant and reviewed by Council. Hydraulic analysis and preliminary cost estimation work are in progress.

Community

- Land acquisition negotiations are ongoing for the following projects:
    - Waghorn and Martin Street K&C
    - Danyel Court
    - Lobb Street K&C
    - Western Ipswich Bikeway Link
    - Brassall Bikeway Stage 6.
- Focus of consultation efforts has been on the following projects within the Capital Portfolio of Works delivery program:
    - Brisbane Street Interim Upgrade
    - Old Toowoomba Road
    - Hunter Street
    - Redbank Plains Road Upgrade Stage 3
    - Resurfacing works across the City
    - Rosewood Library
    - Western Ipswich Bikeway Link

Opening/Media Events

There were no opening/media events during this reporting period.

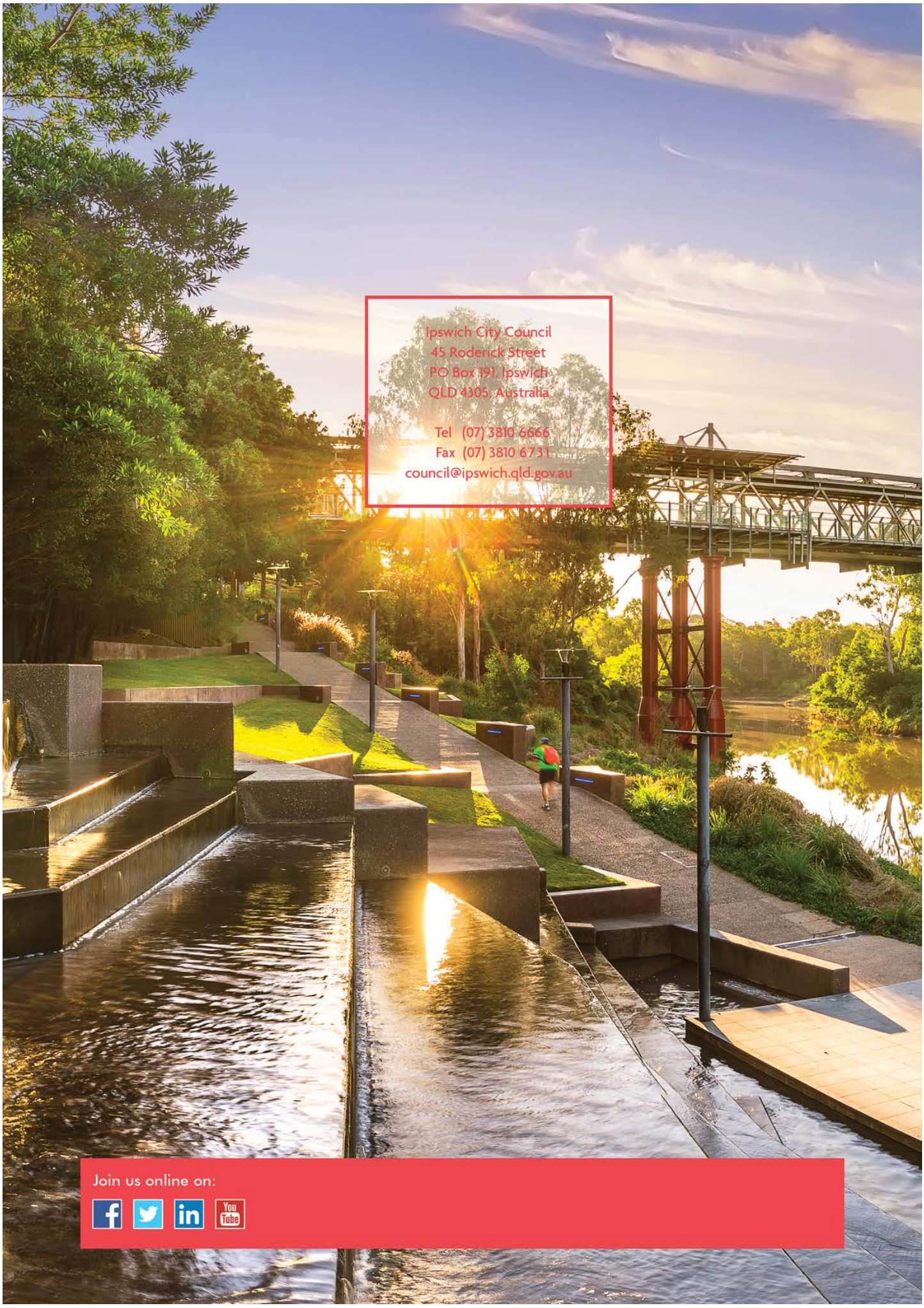
Media Releases/Articles Published

No media releases or articles to report.

Schedule

Key Capital Project Updates

- **Rosewood Library –** The Development Application (DA) has been approved. The Construction Package is being prepared by the Consultant and Building Approval has been submitted for approval. Procurement for the building works will commence with Tender release after the Building Approval is received. WPR are currently consulting with the State Government regarding extension of the grant.
- **2017 - 2018 Road Resurfacing Program –** Construction works are complete in Divisions 10 (Package 1), 9 and 8. Division 7 has one street to complete, this will occur in October 2018. The current schedule has spray seal works to commence late September 2018. Pavement repair works for Divisions 1, 2 (Package 1), 3 and 4 are complete. Pavement Repairs for Division 2 package 2 will be completed late September 2018. Works Request Form for Division 10 (Package 2) will be issued to the Asphalt Supply Panel in October 2018.
- **Kerb and Channel (K&C) Program –** Seventeen (17) projects to be delivered in 2018-2019. Sixteen (16) projects have now completed detailed designs, ready for construction. Two (2) projects now completed and another is due to commence construction late September 2018. An additional 15 projects are progressing through detailed design as part of the forward design for future years with five (5) out of 15 detailed designs completed.
- **Redbank Plains Stage 3 –** The detailed design is progressing with the focus on minimising the impacts on private properties and increasing usability for all road users – motorists, cyclists and pedestrians.
- **Old Toowoomba Road, Leichhardt –** Property resumptions are to be finalised. Relocation of major services are progressing. The procurement plan for the civil construction works is currently being reviewed for approval. APA has commenced design for the gas relocation with design scheduled to be completed late September 2018.
- **Brisbane Street, West Ipswich –** Property resumptions are to be finalised. Relocation of major utilities is progressing. Formal confirmation of funds is required prior to submitting the Tender Evaluation Report for approval, hence there is a risk of project delay whilst approval is sought.
- **Blackstone/South Station Roads – Intersection upgrade –** Service relocations are nearing completion for all accessible areas (property acquisition for remaining service relocations nearing completion). The Tender Evaluation Report has been submitted for approval.
- **Marsden Parade realignment –** Design of impacted services continues. The environmental (contamination) report regarding 53 Brisbane Street (formerly a service station) is being finalised. All required land acquisitions are completed and discussions are progressing with the affected tenant at 55 Brisbane Street to vacate the property. Stage 1 construction (enabling works) is scheduled to commence in the last quarter of 2018.
- **Limestone Park Detention Basin –** Tender process is complete and contract awarded. Works commenced on site on 19 September 2018. Completion is scheduled late December 2018.
- **Western Ipswich Bikeway Link –** Detail design is scheduled for completion in November 2018. Property resumptions are nearing finalisation and required service relocation works confirmed. Construction is scheduled to commence in January 2019.



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Join us online on:

Infrastructure and Emergency Management Committee	
Mtg Date: 09.10.18	OAR: YES
Authorisation: Tony Dileo	

DMC:
A5107426

2 October 2018

M E M O R A N D U M

TO: ACTING CHIEF OPERATING OFFICER (INFRASTRUCTURE SERVICES)

FROM: CONSTRUCTION MANAGER (INFRASTRUCTURE SERVICES)

RE: CONTRACT AWARD – NO. 11213
BLACKSTONE AND SOUTH STATION ROAD, SILKSTONE
INTERSECTION UPGRADE PROJECT

INTRODUCTION:

This is a report by the Construction Manager (Infrastructure Services) dated 2 October 2018 concerning the procurement and contract award of Contract No. 11213 Blackstone and South Station Road, Silkstone Intersection Upgrade Project as a result of the tender evaluation.

BACKGROUND:

The intersection of Blackstone Road and South Station Road, Silkstone functions as a key arterial intersection in the city's transport network. This intersection upgrade project has been identified due to operational pressure from increasing traffic volumes on the two major arterial roads, generated by urban growth across the city and in surrounding areas.

The Blackstone Road and South Station Road intersection upgrade project forms part of the 2018-2019 capital portfolio. The evaluation report for the contract award to deliver the project requires endorsement by the Chief Executive Officer and Council approval.

PROCUREMENT STRATEGY:

The Infrastructure Services Department sought to attract an experienced contractor through an open tender process for the delivery of the project.

EVALUATION:

The qualitative criteria included an assessment on company experience, timing and approach, experience of personnel, management systems and whether or not the tenderer supported local business and industry.

Council's due diligence process was applied to the highest scoring tenderer after the comparative assessment was complete. They were assessed against mandatory workplace health and safety requirements and the reviewing of references. There were no identified issues and there were no probity issues identified in the procurement process.

BENEFITS TO COMMUNITY AND CUSTOMERS:

The capacity of the intersection will increase, accommodating higher vehicle flow and safer, more controlled turning movements for commuters and pedestrians.

In order to meet funding conditions, the project is required to be awarded by the end of October 2018 to ensure works are completed within the 2018-2019 Financial Year.

CONCLUSION:

As a result of the evaluation clarification process, it was determined that the preferred contractor satisfied all evaluation criteria with no departures. By the results of the tender evaluation and best value index (BVI) results, a preferred contractor to undertake the works was identified – refer to Attachment B.

The funding for this project is within the allocated 2018-2019 capital portfolio budget. The contract award amount is within the allocated portfolio funding.

ATTACHMENT/S:

Name of Attachment	Attachment
INF01253 Blackstone and South Station Road, Silkstone Intersection Upgrade Project Tender Evaluation and Probity Plan	Attachment A

CONFIDENTIAL BACKGROUND PAPERS

Confidential Background Papers	Background Papers
INF01253 Blackstone and South Station Road, Silkstone Intersection Upgrade Project Contract No. 11213 Evaluation Report	Attachment B

RECOMMENDATION:

That the Interim Administrator of Ipswich City Council resolve:

A. That Tender No. 11213 Blackstone and South Station Road, Silkstone Intersection Upgrade Project be awarded to the preferred contractor under an AS2124 Lump Sum Contract.

B. That Council enter into a Lump Sum Contract with the preferred contractor for the Blackstone and South Station Road, Silkstone Intersection Upgrade Project for the sum of two million eight hundred and eighty-two thousand, four hundred and thirty-nine dollars and forty-seven cents (excluding GST) ($2,882,439.47) for the proposed works as specified in the project documentation.

C. That the Chief Executive Officer be authorised to negotiate and finalise the terms of the contract to be executed by Council and to do any other acts necessary to implement Council's decision in accordance with section 13(3) of the *Local Government Act 2009*.

Deb Campodonico
CONSTRUCTION MANAGER (INFRASTRUCTURE SERVICES)

I concur with the recommendation/s contained in this report.

Tony Dileo
ACTING CHIEF OPERATING OFFICER (INFRASTRUCTURE SERVICES)

INFRASTRUCTURE SERVICES

TENDER EVALUATION AND PROBITY PLAN

BLACKSTONE & SOUTH STATION ROAD, SILKSTONE

-INTERSECTION UPGRADE-

11213

INF0253

Version 1 1/18

City of Ipswich

Tender Evaluation and Probity Plan Approval Checklist

☐	The Procurement Plan is completed and approved.
☐	This TEPP is consistent with the requirements outlined in the Project Plan, Procurement Plan and the project objectives.
☐	Roles and responsibilities are clear and unambiguous.
☐	The probity requirements are clear and unambiguous.
☐	The recommended approach optimises efficiency and ensures appropriate governance in meeting the project requirements.
☐	The plan is complete and endorsed by the Responsible Officer (Project Manager) and ready for approval by the Accountable Officer (per delegation).

EVALUATION PANEL

Status	Name	Signature	Date
Panel Chair	Pedro Baraza		28/5/18
Panel Member	Derek Durocher		28/5/18
Panel Member	Chris Yung		1/6/18

DOCUMENT PREPARATION AND APPROVAL

Status	Name	Signature	Date
Draft (Project Manager)	Pedro Baraza		28/5/18
Endorsed (Program Coordinator)	Malcolm Timm		29-5-18
Endorsed (IS Procurement)	Gavin Wright		1/6/18
TEPP Approval	Charlie Dill		8/6/2018

Contents

1 Purpose of Evaluation

The purpose of the evaluation process is to select and recommend a Preferred Tenderer in accordance with the Local Government Act 2009 (Act), the Local Government Regulation 2012 (Regulation), Queensland Government procurement guidelines and Council's own Procurement Policy.

The Tender Evaluation Panel (Panel) members must follow the process outlined in this Tender Evaluation and Probity Plan (TEPP) and ensure they have sufficient information and time to make an informed assessment and recommendation. Any queries or concerns must be brought to the attention of the Panel Chair (Chair) and/or Probity Manager. The Chair or Probity Manager may, in turn, refer the matter to the Delegated Officer.

The TEPP must be completed and approved by the Delegated Officer before opening any Tenders and cannot be varied after Tenders have been opened.

Before commencing the evaluation, the Chair must be satisfied that all Panel members:

- Are duly appointed;
- Have signed a Confidentiality and Conflict of Interest Declaration (Attachment A);
- Have read and understood the Procurement Plan, this TEPP and are aware of the project objectives, requirements and risks as outlined in the documents.

2 Value for Money Objective

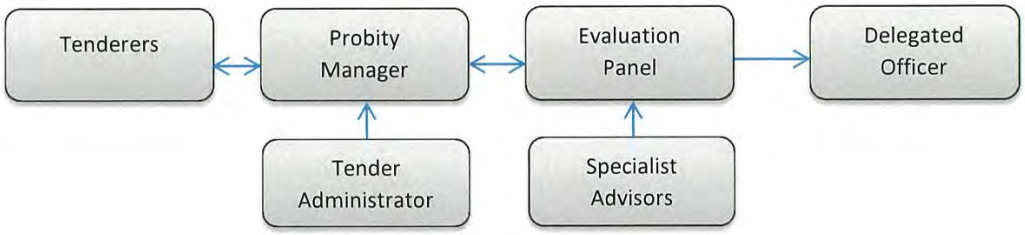
Section 104(3) of the Act places a statutory obligation on local government to utilise sound contracting principles when entering into contracts. Queensland Government Procurement guidelines define "value for money" in broader terms than the initial cost of a project. Achieving value for money includes a broad combination of factors such as non-price (qualitative) criteria and price that encourage:

- A contribution to the advancement of Government priorities;
- Evaluation of non-price factors such as fitness for purpose, quality, service and support and sustainability considerations; and
- Consideration of factors including whole-of-life and transaction costs associated with acquisition, use, holding, maintenance and disposal are determined by the appropriate combination of price and non-price criteria for the specific project.

To satisfy the statutory obligation, Council utilises a holistic approach to the evaluation process where the Tenderer who achieves a superior Best Value Index (BVI) score is considered to be able to provide the optimum balance between price and capability to undertake the works.

3 Roles and Responsibilities

The structure, roles and responsibilities of the parties involved in the evaluation process are:



3.1 Probity Manager

The Probity Manager is:

- Gavin Wright

The Probity Manager is responsible for:

- Managing the Tender process in accordance with Council Policy;
- Distributing and collating all Confidentiality and Conflict of Interest Declarations;
- Ensuring the evaluation process complies with this TEPP; and,
- Overviewing probity compliance and conduct of the Panel meetings.

3.2 Tender Administrator

The Tender Administrator is:

- Gavin Wright

The Tender Administrator is responsible for:

- In conjunction with the Chair, responding to Tenderer RFI's;
- Management of records; and,
- Initiating and managing all direct contact with Tenderers (with review by the Probity Manager as appropriate).

3.3 Tender Evaluation Panel

The minimum number of Panel members is three. There is no limit to the number of specialist advisors to the Panel. Panel members for this Tender are:

- Pedro Baraza, (A/Principal Officer -Infrastructure Delivery) - Chair
- Chris yung, (Project Manager-) - Panel Member
- Derek Durocher (Project Manager) - Panel Member

The Panel members have been selected for their expertise in:

- Managing and constructing project of similar size & scale
- Background knowledge of the project and current risks
- Expertise delivering projects for local government organizations

The Chair is responsible for:

- Chairing all meetings of the Panel;
- Ensuring that the Panel have sufficient time, information and resources that encourages debate and critical analysis of submissions allowing the Panel to arrive at an agreed position (differences in opinion are documented);
- Ensuring that the Panel meets expected standards of probity and official conduct;
- Where necessary, seeks advice from other resources on matters relevant to the evaluation deliberations;
- Preparing the Evaluation Report; and
- Addressing any challenges to the evaluation process.

All Panel members, including the Chair, are responsible for:

- Ensuring the evaluation process complies with this TEPP;
- Thoroughly document their reasons for each rating in the Individual Evaluation Sheet to indicate how the rating was determined;
- Apply appropriate security and confidentiality to their deliberations; and
- Maintain high standards of probity, conduct and to disclose any actual, potential or perceived conflicts.

3.4 Delegated Officer

The Delegated Officer (or their authorised delegate) for the TEPP is:

- Sean Madigan (Chief Executive Officer)

The Delegated Officer (or their authorised delegate) will:

- Review and approve the TEPP;
- Review (and approve if authorised) the Evaluation Report;
- Execute (if authorised) the Contract on behalf of Council.

3.5 Specialist Advisors

Specialist Advisors are not members of the Panel but are appointed by the Chair and are bound by the protocols outlined in this TEPP, including confidentiality and conflicts. Any specialist advice must be documented.

Specialist Advisors to the Panel may include:

- ICC Workplace Health & Safety Advisor;
- Principal Officer (Estimating);
- Scheduler

4 Project, Evaluation Criteria and Weightings

4.1 Project Description

To upgrade Blackstone Road & South Station Road intersection including service relocations. Works will be completed through multiple procurement activities with administration of separate Contracts.

4.2 Evaluation Criteria and Weightings

Council's evaluation process is governed by the principles set out in the Act, Regulations, Queensland Government procurement guidelines and Council's own Procurement Policy. The following table sets out the criteria and weightings against which Tender responses will be assessed. The weightings reflect a balance between the requirements necessary to successfully complete the project, the value for money objective and qualitative assessment criteria.

Category	Tender Evaluation Criterion	Panel Guidance	Weighting %
Mandatory at opening. ***Non-compliance will result in the Tender being disqualified from evaluation.***	- On time - Price - Tender Form signed - Licences/Registration - Legal compliance - Conflicts of Interest - BoQ - Program timing chart	Tender submitted on time. Price submitted. Tender Form correctly signed/authorised. As applicable: licence class; certificates/number; National Prequalification System (NPS) R2 etc. supplied. No relevant/significant notices or breaches. No existing or potential conflicts of interest. Bill of Quantities included. Program of works (Gantt chart or similar) included.	Pass/Fail
Mandatory at final due diligence (pre- award).	- Insurance - WH&S - Referees (including ICC internal)	Current insurance certificates provided (ie. Workcover, Public Liability, Professional Indemnity). Compliant with ICC WH&S requirements. Satisfactory confirmation of work performance by external and internal (ICC) referees.	Pass/Fail
Qualitative	Company Experience	Does the company profile provide details such as history, core business and achievements? Has the Tenderer provided details of two (2) projects undertaken in the past five (5) years that are of a similar scope and nature to the project tendered? Has the Tenderer provided referee details of their last two (2) projects regardless of size and relevance to the project tendered?	Weighting 10%

Category	Tender Evaluation Criterion	Panel Guidance	Weighting %
	Methodology and Timing	Does the Tenderer provide details of their program timing and execution of the project? This includes documentation, such as a Gantt chart and other documentary evidence of methodologies that demonstrate how the Tenderer will deliver the project on time and within budget. Innovation - Does the submission offer innovative solutions that will provide Council with a more effective and efficient outcome such as reduced whole of life (WOL) cost? Are the BOQ's submitted by the Tenderers generally consistent in item values or volumes? A sharp divergence in item values or volumes when compared to other BOQs may suggest the Tenderer has a different strategy or an Alternative Tender. If an Alternative Tender has been submitted, will the alternative proposal impact the timing requirements? Is the methodology of the Alternative Tender sound and supported by documentation?	15%
	Personnel - Employees - Subcontractors	Employees – Are key personnel (Director, Project Manager, Engineer, Quality Representative and Site Foreman) who will be directly involved with this project suitably experienced? Subcontractors – Do the proposed sub-contractors have relevant experience and capability? Does the Tenderer propose to use sub-contractors, sub-consultants or internal resources? Have the names of the proposed sub-contractors been submitted?	10%
	Local Business and Industry	Is the Tenderer's business located within Council's local government area? Will the Tenderer utilise contractors or obtain goods and/or other services from businesses within Council's local government area.	5%
Price	Price. Note: Adjustment(s) to the original tendered price by post tender clarifications/negotiations with the Tenderer must be explained in the Evaluation Report.	Quoted price. If the Tenderer has submitted exclusions or departures in their Tender response, will those exclusions or departures result in adjustment to the quoted price, are they reasonable or, do they setup potential for numerous variations during the project?	60%

The scoring guide is used to rate the Tenderers response to each of the qualitative evaluation criteria. Fractions are acceptable and may assist in ranking close responses.

Further detailed information relating to the scoring of qualitative responses is provided to each Panel member in their individual scoring spreadsheet.

Score	Comment
0-1	**STANDARDS NOT MET** - does not address the criterion; is not relevant; or, the response field is blank.
2-3	**POOR** - Substantial non-compliance with requirements and/or prior poor performance in ICC projects. Limited understanding of the criteria or limited capability to deliver. No confidence that the Offeror would be able to satisfactorily complete the project requirements.
4-5	**BORDERLINE** - Does not meet requirements, but may be adaptable. Less than satisfactory understanding of the criteria and/or less than satisfactory capability; less than satisfactory prior performance in ICC projects. Limited confidence that the Tenderer would be able to satisfactorily complete the project requirements.

Score	Comment
6-7	**SATISFACTORY** - Meets requirements except for minor aspects. Satisfactory understanding of the criteria and/or has satisfactory capability; prior ICC project performance has been satisfactory. Confident that the Tenderer would be able to satisfactorily complete the project requirements.
8-9	**VERY GOOD** - Meets all requirements. Demonstrates a very good understanding of the criteria and/or has very strong capability. Prior performance in ICC projects has been to a high standard. Strong confidence that the Tenderer would be able to complete the project requirements.
10	**EXCELLENT** - Exceeds all requirements in a material and significant manner.

5 Evaluation Process

5.1 Tender Opening

At the prescribed Tender closing time, the electronic Tender Box will automatically close. In accordance with Council policy, late Tenders cannot be accepted without concurrence from Corporate Procurement. To satisfy probity requirements, submitted Tenders require a minimum of two authorised Council Officers to be present when Tenders are downloaded from the Tender Box.

5.2 Separation of Pricing Material

Where the Tenderer has not provided a redacted version of their Tender, the Tender Administrator will redact all price details from the Tender submissions prior to those submissions being made available to the Panel members. With the exception of redacted prices, submissions will be provided in "as received" condition for the member's evaluation.

5.3 Evaluation Panel Briefing and Individual Assessment

The Probity Manager will convene the Panel to brief the members on the Tenders received, the evaluation process and probity requirements. Panel members are responsible to ensure they are familiar with the Procurement Plan and this TEPP. Each member must complete a Confidentiality and Conflicts of Interest Declaration prior to the briefing.

The Tender Administrator will prepare and distribute individual spreadsheets to the members. The spreadsheet will set out the names of the Tenderers, evaluation criteria and scoring guidelines. Upon completion of the individual assessments, the Tender Administrator will prepare a collective (master) evaluation spreadsheet and copy the individual spreadsheet data to the collective spreadsheet. The individual evaluation spreadsheets will be electronically stored for probity and transparency purposes.

If, during the member's individual assessment, the member notes the submission is incomplete and potentially disqualified from evaluation or, the submission may be an Alternative Tender, that matter should be discussed amongst the Panel in the collective assessment meeting.

5.4 Collective Assessment and Moderated Qualitative Scores

The Panel will collectively review each submission and confirm its Compliance, Conformance or Alternative Tender status and if appropriate, accept the Tender for moderated qualitative scoring.

Where the Tender is accepted for consideration, the Panel's collective assessment is a collaborative score and is not intended to be an average score. Where collective agreement cannot be reached, the Chair may impose an average score for the purposes of completing the master spreadsheet. Dissenting view(s) must be highlighted in the Evaluation Report and signed by all members of the Panel.

Where the Panel determine that the Tender submission is non-complying, non-conforming or an Alternative Tender, the Panel will proceed in accordance with this TEPP.

This process must be conducted with the Probity Manager present.

5.5 Non-Complying Tenders

A complying Tender is a Tender that complies with the Conditions of Tender and those criteria must be set out in Evaluation Criteria and Weightings (Section 4). A non-exhaustive list of *examples* of a non-complying Tender and the outcome of that non-compliance are:

- Tender received after the Tender closing time **(automatically disqualified from evaluation unless concurrence from Corporate Procurement to accept)**;
- Tender form is not signed or signed by an unauthorised person **(automatically disqualified from evaluation)**;
- Failure to reveal an existing or potential Conflict of Interest **(automatically disqualified from evaluation)**;
- Failure to reveal legal compliance offences/notices **(automatically disqualified from evaluation)**;
- The required program timing schedules/BoQ are not included in the submission **(automatically disqualified from evaluation)**;
- Failure to include insurance certificates with initial submission **(not usually disqualified from evaluation)**.

The Panel may only evaluate a Tender where non-compliance has not automatically disqualified that submission from evaluation. The Panel may, at its discretion, deem other non-compliance as disqualifying the submission and not accept the submission for evaluation during the evaluation process. Where the Panel accepts, at their discretion, a non-complying Tender for evaluation, that acceptance is conditional on the non-compliance being overcome by the Tenderer supplying the missing document(s) or otherwise complying with the Conditions of Tender within 24 hours of being requested to do so by the Tender Administrator.

Where the Tenderer cannot, or will not, supply the missing information or otherwise comply with the Tender requirements as requested, the Tender must be set aside and not further evaluated by the Panel.

5.6 Non-Conforming Tenders

A non-conforming Tender is a Tender that does not conform to the requirements of, or it contains provisions not required or allowed by, the Tender documents. Examples may include:

- Contractual conditions imposed by the Tenderer onto the Principal;
- Specifications modified from the Tender requirements;
- Offered prices that are subject to conditions;
- Practical completion date that does not meet the original Tender requirements;
- Does not meet the required qualitative minimum score.

The Panel may collectively review the conformity of each submitted Tender with the requirements as set out in the Tender documents. Non-conforming Tenders may be set aside by the Panel until the Contract is awarded or, that submission may be considered an Alternative Tender and evaluated accordingly.

5.7 Alternative Tenders

An Alternative Tender may not be flagged as such by the Tenderer. It is not necessary that the Tenderer submit a Conforming Tender for the Alternative Tender to be considered. An Alternative Tender may be characterized by:

- A significantly divergent methodology from that envisaged in the specifications;
- Conditioning of the Tenderer's proposal that requires agreement and/or concession(s) by the Principal;
- An innovative approach that may also offer significant cost savings;

The Panel is not required to consider an Alternative Tender although it may do so if deemed appropriate. An Alternative Tender is likely to require clarification from the Tenderer and the Tender Administrator will make the appropriate enquiry as directed by the Chair.

If, following the Tenderer's response, the Panel deem the response unsatisfactory and/or it does not meet the project's objectives, the Panel may exclude the Alternative Tender from further consideration. Details of the reason(s) for doing so must be recorded.

5.8 Clarifications

Where any aspect of a Tenderer's submission requires clarification, that matter should be brought to the attention of the Tender Administrator who will contact the Tenderer on behalf of the Panel. All communications with the Tenderer must be documented by the Tender Administrator who will inform the Panel of the response (if any) by the Tenderer.

6 Tender Evaluation Methodology

The Infrastructure Services department evaluation methodology is based on the Best Value Index (BVI). It uses a formula that converts price and non-price factors into 'best value' indices and adds them together to derive the BVI. Tenders with higher BVI scores are recognised as the Tenders that best meet Council's qualitative and value for money objective.

The BVI is calculated by adding two indices; price index (PI) and non-price selection criterion index (NPI).

BVI = PI + NPI

Where:

NPI = non-price selection criterion index;
PI = price index.

6.1 Non-Price Index

6.1.1 Non-Price Index

The evaluation process will utilise a non-price index (NPI). The NPI is a weighted score calculated from the individual scores the Panel members allocate to each criteria of the Tenderer's submission. The following procedure is to be used to calculate the NPI:

The following formula will be used to score the non-price selection criteria:

NPI = Sum of all (NPS x NPW)

Where:

NPI = Index of the non-price selection criterion;
NPS = score (10 high) the Panel gives to the individual non-price evaluation criterion;
NPW = weighting of the individual non-price criterion (totals 100 – weighting of price).

6.1.2 Sensitivity Analysis

The Chair will undertake a sensitivity/risk analysis to review provisional items, provisional if ordered items and, items outside the limits of accuracy. Potential risks to the delivery of the project, as outlined in the Procurement Plan or the TEPP, will be addressed. The sensitivity/risk analysis will be attached to the Evaluation Report.

6.2 Non-Price Threshold

Ensuring value for money is a key objective and that principle requires acceptance of a reasonably priced tender that will provide the best overall outcome for Council. However, it is not necessarily the lowest priced tender. It is vital that the Tenderer can perform the required services as set out in the Tender document in a timely and professional manner.

Following the qualitative evaluation and prior to the inclusion of the Tenderer's prices, those Tenderers who have achieved a cumulative score of sixty percent (60%) or less than the highest cumulative qualitative score will be excluded from further evaluation regardless of their offered price.

6.3 Price Index

The evaluation process will utilise a Price Index (PI) as a weighted score calculated for a Tendered price. PI is the weighted Price Score (PS) multiplied by the price weighting (PW).

PI = PS x 50/100

(Example shows price weighting of 50%).

The formula to calculate PS includes the submitted Tender price and a "threshold price". The threshold price could be either the price of the lowest conforming Tender or the price used to identify the lowest bid.

Using the following formula, the Tendered price is ranked with the highest score of 10 for the price which is equal to the price of the "threshold price".

$$PS = 10 - 10 \times (PT-PTh) / PTh$$

Where:

PS = score of the price of the Tender;
PT = submitted Tender price;
PTh = Threshold price.

6.4 Unusually Low Bid

6.4.1 Unusually Low Bid Definition

An Unusually Low Bid is a tendered price that is significantly lower than the other prices tendered. Whether a price is unusually low is established by utilising the median tender price of the conforming tenders and comparing the percentage disparity. Note that an Unusually Low Bid may be a consequence of an Alternative Tender (refer 5.7).

The percentage below median price that applies to this tender: 20%

6.3.2 Unusually Low Bid clarification

Where the Panel decides that the Unusually Low Bid is not a consequence of an Alternative Tender, the Panel may notify the Tenderer that an Unusually Low Bid has been submitted. It is not mandatory that the Panel notify the Tenderer and the Panel may elect to exclude the Tender.

If deemed appropriate by the Panel, the Tenderer will be requested to submit, within two (2) working days, the influencing factors that may have resulted in the Unusually Low Bid. The only factors that the Panel may take into account are:

- Materials cost advantage;
- Process cost advantage;
- Innovation advantage.

If no response is received or, the response does not substantiate the Unusually Low Bid, the Panel may exclude that Tender from further consideration. Any communication with the Tenderer with regard to the Unusually Low Bid will be via the Probity Manager.

6.5 Shortlisting

The number of Tenderers to be shortlisted, if any, will be determined by the Panel and there is no requirement for the Panel to create a shortlist. The Panel will consider the closeness of the evaluated scores; the number of Tenderers; value for money or, other opportunities to the advantage of Council in considering whether to create a shortlist of Tenderers or, nominate a single Tenderer as the Preferred Tenderer.

6.6 Negotiation

Negotiations may be undertaken with the Preferred Tenderer only or, simultaneously with any/all of the shortlisted Tenderers.

The Chair will highlight the areas requiring negotiation and prepare a negotiation plan in consultation with the Probity Manager. Negotiations may include, but are not limited to, price and other financial undertakings, process documentation, contract terms and conditions, personnel and, working with Council.

The negotiation plan, approved by the Delegated Officer, will confidentially set out Council's preferred and minimum positions. In limited circumstances, the Chair and the Delegated Officer may determine that an external specialist negotiator is required to represent Council.

The negotiation process must be concisely documented and outcomes are subject to approval by the Delegated Officer.

6.6.1 Best and Final Offer

Seeking a Best and Final Offer (BAFO) from shortlisted Tenderers is a mechanism to establish the lowest possible price from those Tenderers without any amendment to the specifications, project timing requirements or any other non-price element of the works. It is purely a price reduction request and may be useful in separating two or more bids following the evaluation process or, where the Evaluation Panel believes the prices offered are excessive.

The BAFO request may only be undertaken via the Probity Manager who will advise the selected Tenderer(s) and, the time period for their response.

6.7 Due Diligence

Due diligence refers to the confirmation of claims or information in the Preferred Tenderer's submission. This includes:

6.6.1 WH&S

The Tender Administrator will request a WH&S evaluation of the Preferred Tenderer. Where the Preferred Tenderer has an existing ICC WH&S number, re-evaluation is not required.

If WH&S approval is required, the Probity Manager will ensure a Confidentiality and Conflict of Interest Declaration has been signed by the WH&S representative prior to release of the Tenderer's information.

6.6.2 Referee Checks (including internal ICC)

The Panel may undertake referee checks with the referee(s) nominated in the Preferred Tenderer's submission. Where the Preferred Tenderer has previously undertaken work for ICC, the Preferred Tenderer's performance can be established by enquiry to the relevant Project Manager and Contractor Performance Reports.

All referee responses must be documented and form part of the Evaluation Report.

6.6.3 Financial Solvency

For projects of significant value (>$2.0m), the Tender documentation may require the Tenderer to submit audited financial statements of their business to determine whether they have sufficient financial resources to undertake the project. No request for the Tenderer's financial statements will be made by ICC where the Tenderer provides those statements to the Department of Transport and Main Roads (DTMR) as part of that pre-qualification process.

If requested by ICC, the financial statements may only be accessed by a qualified accountant (CPA or similar) who is an ICC employee, who has been briefed by the Probity Manager and has completed a Confidentiality Declaration. The accountant's opinion of the financial standing of the Preferred Tenderer will form part of the Evaluation Report.

6.6.4 Claims History

Tenderer documentation may have required the Tenderer to provide details of their claims history for their two most recent Contracts. If provided, the claims history will be utilised to predict the potential claim risks behaviour by the Tenderer. Verification of the claim history will be sought from the Tenderer's nominated referee.

6.8 Evaluation Report and Approval

On completion of the evaluation process, the Chair will prepare the Evaluation Report. The Evaluation Report will be endorsed by all members of the Panel and the Probity Manager.

The Delegated Officer (or their delegate) will review the Evaluation Report to ensure that:

- The objectives of the project have been reached;
- Value for money was achieved; and
- The evaluation process was fair and the required probity standards were met.

If satisfied, the Delegated Officer will approve the Report and consequent recommendation.

7 Probity

Probity compliance is integral to the procurement and evaluation process. All Council staff associated with the Tender must maintain the highest ethical standards. A Probity Manager is appointed to manage the tender process and is responsible that all Panel members apply the principles of probity throughout the evaluation process. All members must have completed probity training.

7.1 Fairness and Impartiality

The Chair and the Probity Manager will ensure that probity principles of ethical behaviour, honest dealing and transparency of process are achieved in accordance with this TEPP. The Panel will:

- Be impartial, uninfluenced, accountable and promote professional practice;
- Not entertain approaches from suppliers that might be interpreted as attempts to influence the evaluation process (accept or seek favours or gifts during the Tender process);

- Not allow their private interests to conflict with their duties;
- Not prefer the interests of one Tenderer to the interests of another due to their own opinion;
- Respect the commercial confidentiality of the Tender submission and any other information provided by the Tenderer; and
- Follow prescribed systems and procedures, including this TEPP.

7.2 Accountability and Transparency of Process

Ensuring accountability means that the actions and decisions of the Panel are justifiable and will withstand scrutiny. Without limiting this primary principle, the Chair and Probity Manager will ensure:

- The Tender process is fair and provides equal treatment to each Tenderer;
- All dealings with Tenderers are transparent; and
- Negotiations, if any, are conducted in good faith.

7.3 Confidentiality and Security of Information and Materials

The Tender Administrator and Chair are responsible and will ensure:

- That all documents relating to the Tender or evaluation process are securely stored (whether electronic or paper records) in accordance with standard commercial-in-confidence procedures; and
- All communications, including evaluation meetings, are secure.

A record of all communications with the Tenderers will be maintained. To the extent that communication is not written, such as in meetings and telephone conversations, a permanent record of such communication will be made. This may extend to recording meetings and the use of telephone call file records.

All computer files/correspondence must be stored securely during the evaluation process.

7.4 Effective Management of Conflicts of Interest

Where a member declares an actual or potential conflict of interest, the Probity Manager in conjunction with the Delegated Officer will determine whether the conflict of interest is significant. Subject to the level of significance, the Probity Manager and Delegated Officer may elect to:

- Take no action;
- Limit the member's access to the content of the Tender submissions; and/or,
- Revoke the member's tender scoring authority; or,
- Remove the member from the Panel and substitute with another person.

Note that all actual or potential conflicts of interest and the management action must be concisely documented.

7.5 Panel Member Individual Recourse

Panel members with concerns about the conduct of the Panel or compliance with the probity requirements of the evaluation process should promptly raise those concerns with the Chair and the Probity Manager. In consultation with the Probity Manager, the Chair will

consider the matter and make an appropriate report and recommendation to the Delegated Officer.

Where it is not appropriate to raise the actual or perceived conflict of interest with the Chair and/or the Probity Manager, the Panel member may report directly to the Delegated Officer or ICC's Legal Department.

Attachment A - Confidentiality and Conflict of Interest Declaration

PROJECT:		
BY THIS DECLARATION dated the _____ day of _____, 201___		
I, _____ of _____ acknowledge and agree to the following:		
Confidential information includes information of a sensitive, personal, commercial or political nature made available to you in connection to your role as a public official that could cause harm to individuals or Council if disclosed other than in accordance with its intended purpose or target audience.		
1. CONFIDENTIALITY OF OBLIGATIONS		
1.1 In the course of performing services, relating to the evaluation of the above named Tender, I will be exposed to information which is confidential.		
1.2 Improper use or disclosure of that information could jeopardise or invalidate the evaluation process and may severely damage ability to perform its functions.		
1.3 I am aware of my obligations under the legislation which governs my employment (and associated code of conduct) to take all reasonable steps in ensuring confidential information is kept confidential and in performing those services faithfully and without any conflict of interest.		
2. CONFLICT OF INTEREST		
2.1 I warrant that before signing this declaration, I have disclosed on this document all the past, current and anticipated interests which may conflict with my impartial involvement in the evaluation process. I note that conflicts of interest may arise under the following situations: • an event or situation and the context in which it occurs; • the nature of my work; • any personal or private interests that may directly or indirectly influence and/or benefit me or others; • my relationships with, or the names of other parties; • a conflict of interest may relate to both pecuniary and non-pecuniary interests.		
2.2 Declaration: I declare that the following are all the past, current and anticipated interests which may give rise to a real or apparent conflict with my impartial involvement in the evaluation process. The reason/s why I consider the situation may be a conflict of interest or be perceived by others as a conflict of interest are below: 1..... ..... **(if none write NONE)** 2..... 3.....		
2.3 I agree that during the course of the evaluation process I will not engage in an activity or obtain any interest likely to conflict with my impartiality in respect of this project. In the event that a real or apparent conflict of interest arises, I will immediately disclose it to Council.		
SIGNED		
NAME (PLEASE PRINT)	**SIGNATURE**	__/__/__ (DATE)
WITNESS		
NAME (PLEASE PRINT)	**SIGNATURE**	__/__/__ (DATE)

Infrastructure and Emergency Management Committee	
Mtg Date: 08.10.18	OAR: YES
Authorisation: Charlie Dill	

JC:JC
A5082805

18 September 2018

M E M O R A N D U M

TO: INFRASTRUCTURE PLANNING MANAGER

FROM: SENIOR TRANSPORT PLANNER

RE: ACTIVE TRANSPORT WAYFINDING STRATEGY AND SIGN DESIGN MANUAL

INTRODUCTION:

This is a report by the Senior Transport Planner dated 18 September 2018 concerning the *Active Transport Wayfinding Strategy and Sign Design Manual*, a signature project of the endorsed *iGO Active Transport Action Plan* (ATAP).

BACKGROUND:

At its Ordinary Meeting on 24 May 2016, Council adopted *iGO - 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 and Emergency Management Committee Meeting No. 2016(02)].

At its Ordinary Meeting on 11 October 2016, Council approved the outcomes of iGO ATAP, a detailed network action plan for active transport and key deliverables of iGO (refer Attachment A). The purpose of this document is to guide the planning, delivery and promotion of facilities and programs to encourage more people to walk and cycle in Ipswich for transport purposes.

This plan identifies an existing Ipswich resident walker and cyclist market profile, vision, objectives and mode share targets, pedestrian and cycle network hierarchy, maps of the Ipswich pedestrian and cycle networks and a number of actions to advance the three iGO active transport policy focus areas. These policy focuses being;

- Building Quality Active Transport Networks;
- Developing Supportive Active Transport Communities; and
- Growing an Active Transport Culture.

To assist with the delivery of the plan, iGO ATAP also identifies pedestrian and cycle network infrastructure priorities and 'signature projects' (actions) for each policy focus area for short term resource effort (refer Table 1 below).

TABLE 1
iGO ATAP SIGNATURE PROJECTS

POLICY FOCUS AREA	ACTION NO.	SIGNATURE PROJECTS
Building Quality Active Transport Networks	*1.1-1.4 & 2.1-2.2*	Plan, design and construct cycle and pedestrian networks as per the identified network priorities.
	3.4	Trial and measure 'Pop up' pedestrian and cycle infrastructure (e.g. pedestrian squares, protected bike lanes, lunch time street closure in activity centre) and tie with community events to gather feedback and interest.
Developing Supportive Active Transport Communities	*6.1*	Develop and implement a *Wayfinding Strategy*
	6.2	Where possible incorporate non-deciduous shade trees along pedestrian and cycle paths. Coordinate/ integrate with other Council activities where possible or develop a *Shadeways Program*.
Growing an Active Transport Culture	*8.2*	Undertake an *'Active Towns'* style program (involving infrastructure and promotion) in the priority neighbourhoods of: - Brassall / North Ipswich (with the Brassall Bikeway); - Redbank Plains, Collingwood Park and adjacent suburbs (with the Goodna Creek Bikeway); - Yamanto and other southern suburbs (with the Deebing Creek Bikeway); and - Ipswich City Centre and surrounding inner suburbs.
	8.7	Prepare and implement a *Social Media Strategy* to promote and inform the community on walking and cycling and to start community conversations on relevant issues.
	9.1	Provide information on safe walk and cycle practices and existing walk and cycle maps via local information brochures to be made available at community information locations in the City (e.g. public libraries) and on Council's website.
	9.2	Develop a smartphone and website 'app' that enables users to choose routes to walk and cycle in the city, based on a number of varying factors (e.g. grade, availability of paths, traffic volumes).

This report relates to the delivery of Action 6.1 from the table of iGO ATAP signature projects above, "*Develop and implement a Wayfinding Strategy"*.

ACTIVE TRANSPORT DIRECTIONAL WAYFINDING SIGNAGE:

Active transport relates to human powered movement. The most common forms of active transport are walking and cycling, however it also includes other devices such as skateboards, roller blades and scooters.

While the provision of active transport infrastructure such as shared paths, cycle tracks, bicycle lanes, kerb ramps etc. are key to increasing the uptake of active transport, so is the provision of supporting infrastructure such as shade trees, end of trip facilities, regulatory signage and directional wayfinding signage in order to increase user friendliness and comfort on the network.

There is currently directional wayfinding signage on some of the existing bikeways in the City (e.g. Brassall Bikeway and Ipswich Motorway Bikeway) and numerous information and site-interpretive signs in and around the Ipswich City Centre and in some parks and natural areas. Other than this, most of the existing directional wayfinding signage is primarily directed at motorists, which can also be of use in some circumstances to pedestrians and cyclists.

However, as part of the community survey undertaken in the development of iGO ATAP, the Ipswich community identified a need for simple, clear, consistent and attractive directional wayfinding signage on the Ipswich active transport network. The need for a strategy and design guideline to enable Council to be consistent in their approach to active transport wayfinding signage was also then identified.

Consequently, the purpose of the *Active Transport Wayfinding Strategy and Sign Design Manual* is to provide consistent standards and high-quality navigation throughout the city for pedestrians and cyclists in order to build confidence in the network and assist users with easily locating and accessing destinations and community facilities by bicycle or foot.

The *Active Transport Wayfinding Strategy and Sign Design Manual* is based on best-practice strategic and guideline documentation and has been broken into two documents, these being:

- The Active Transport Wayfinding Strategy (refer Attachment B); and
- The Active Transport Sign Design Manual (refer Attachment C).

ACTIVE TRANSPORT WAYFINDING STRATEGY:

The *Active Transport Wayfinding Strategy* details the methodology for the implementation of the sign system across the Ipswich active transport network and is divided into four main sections:

- **Introduction –** Sets out the document's objectives and outlines the strategic and contextual basis for implementing a consistent, coordinated and comprehensive directional signage system for walking and cycling routes within Ipswich;

- **Active Transport Signage and Wayfinding Framework –** Details a framework for the implementation of wayfinding signage as part of the iGO ATAP Pedestrian and Cycle Network Plans and route hierarchy;

- **Sign Families and Sign Types –** Introduces the signage suites and provides guidelines for identifying and assigning sign types to the network; and

- **Sign Planning** - Sets out a methodology from planning through to the installation of the signage on a route by route basis.

ACTIVE TRANSPORT DESIGN MANUAL:

The *Active Transport Wayfinding Strategy* is to be read in conjunction with the *Active Transport Sign Design Manual* which provides specific details on the design, layout, manufacture and mounting of all signs to be used on the network. The sign design manual is divided into five sections:

- **Active Transport Network –** Provides a brief overview of the signage system, including the Ipswich active transport network route hierarchy, sign types and signing methodology;

- **Graphic Standards –** Provides standards for typeface, colours and sign content layout;

- **Directional Signs for Active Transport Routes –** Consists of sign designs to be used for the iGO ATAP cycle network and hierarchy (i.e principal transport route, secondary transport route, secondary recreation route and local transport bicycle route) as well as pedestrian signs in activity centres based on the iGO ATAP Pedestrian Network. This section provides specific technical information, dimensions and layout templates for each sign design required to sign the different parts of the network.

- **Sign Installation and Mounting** – Includes recommendations on the mounting and siting of signs.

- **Construction, Materials and Maintenance –** Includes general technical recommendations for the manufacture of signs and the on-going maintenance of the sign system.

CONSULTATION:

Consultation on the *Active Transport Wayfinding Strategy and Sign Design Manual* was undertaken with officers from the Planning and Development Department and Works, Parks and Recreation Department, particularly in relation to the 'look' of the activity centre pedestrian signage.

Consultation with officers from Council's Marketing Services Branch was also undertaken to ensure visual alignment with other Council signage strategies such as the Parks Signage Manual, Natural Areas Signage Manual and the Indigenous Culture Signage Manual.

A briefing on the project with the previous Chair of the Infrastructure and Emergency Management Committee was also held.

CONCLUSION:

The *Active Transport Wayfinding Strategy and Sign Design Manual* is identified as a 'signature project' for the delivery of the iGO ATAP. The document is based on best-practice strategic and guideline documentation and provides consistent standards for directional signage and high-quality navigation throughout Ipswich for pedestrians and cyclists.

ATTACHMENTS:

Name of Attachment	Attachment
Report from City Infrastructure and Emergency Management Committee Meeting No. 2016(07) regarding the iGO Active Transport Action Plan	Attachment A
Active Transport Wayfinding Strategy	Attachment B
Active Transport Sign Design Manual	Attachment C

RECOMMENDATION:

That the Interim Administrator of Ipswich City Council resolve:

A. That the *Active Transport Wayfinding Strategy and Sign Design Manual*, as detailed in Attachments B and C to the report by the Senior Transport Planner dated 18 September 2018, be adopted.

B. That the *Active Transport Wayfinding Strategy and Sign Design Manual* be considered when developing Council's strategic planning documents and used to inform applicable active transport projects.

Jessica Cartlidge
SENIOR TRANSPORT PLANNER

I concur with the recommendations contained in this report.

Tony Dileo
INFRASTRUCTURE PLANNING MANAGER

I concur with the recommendations contained in this report.

Charlie Dill
CHIEF OPERATING OFFICER (INFRASTRUCTURE SERVICES)

ATTACHMENT A

City Infrastructure & Emergency Management Committee	
Mtg Date: 04/10/2016	OAR: YES
Authorisation: Charlie Dill	

19 September 2016

M E M O R A N D U M

TO: INFRASTRUCTURE PLANNING MANAGER

FROM: TRANSPORT PLANNER

RE: iGO ACTIVE TRANSPORT ACTION PLAN - CITYWIDE

INTRODUCTION:

This is a report by the Transport Planner dated 19 September 2016 concerning the development of the *Active Transport Action Plan*, a key deliverable of iGO, the *City of Ipswich Transport Plan*.

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)].

The iGO delivery structure (refer Figure 1 over) includes the development and implementation on a number of more detailed network action plans relating to the following transport elements:

- **Active Transport**;
- Public Transport;
- Road Safety;
- Parking;
- Freight;
- Direction Signs; and
- Local Area Traffic Management

Action AT8 (refer page 77) of iGO outlines the short term intention to *"develop and implement a citywide Active Transport Action Plan that identifies Council's active transport objectives, policies, network and infrastructure priorities in detail"*.

FIGURE 1
iGO DELIVERY STRUCTURE

ACTIVE TRANSPORT AND ITS BENEFITS:

Active transport relates to human powered movement. The most common forms of active transport are walking and cycling however it also includes other devices such as wheelchairs, skateboards, roller blades and scooters.

Active transport not only has sustainable transport benefits (i.e. reduces traffic congestion and the need for expensive road infrastructure), it is also good for the physical and mental health of participants (i.e. through an active lifestyle and social interactions), is good for the environment (i.e. reduces car exhaust emissions) and has economic benefits for businesses (i.e. more vibrant and successful activity centres).

iGO ACTIVE TRANSPORT ACTION PLAN:

The *iGO Active Transport Action Plan* (ATAP) has now been developed and its outcomes are ready to be considered by Council with the view of obtaining formal endorsement to commence its delivery.

The ATAP summary report is outlined in *Attachment A*. The ATAP network maps are outlined in *Attachment B*. A more detailed ATAP technical report will be finalised after the outcomes of the ATAP summary report are considered by Council.

The ATAP will be used:

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

Drivers

The development of the ATAP was driven and informed by the strategic planning documents outlined in Table 1.

TABLE 1 - DRIVERS

ENTITY	STRATEGIC DOCUMENT
COUNCIL	Advance Ipswich
	iGO City of Ipswich Transport Plan
	Ipswich Planning Scheme
	Open Space & Recreation Strategy
	Ipswich Regional Centre Strategy Master Plan
	Ripley Valley Development Scheme
	Springfield Town Centre Concept Plan (and related documents)
	Creek / Linear Open Space Corridor Plans
QUEENSLAND GOVERNMENT	SEQ Regional Plan
	Connecting SEQ 2031
	Queensland Cycle Strategy
	SEQ Principal Cycle Network Plan

Focus

The focus of the plan, like iGO, is on school, commuter and utility trips acknowledging that through the provision of an active transport network, infrastructure and promotion activities for these trip types, other users (e.g. recreation and sporting groups) will also receive positive benefits.

Consultation

In order to help shape a realistic ATAP, focused community consultation was undertaken via an online survey. The survey asked the community to provide input on whether they were, or were not, currently walking or cycling for transport purposes, their level of comfort with respect to different conditions and what they identified as barriers/enablers for them. Three targeted workshops with Council stakeholders relating to network development, action development and priorities was also undertaken.

Project Deliverables

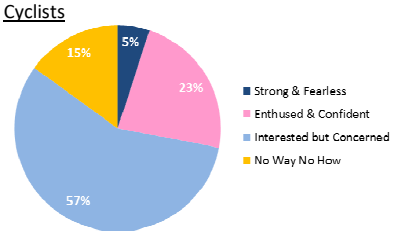
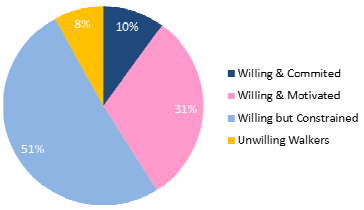
ATAP has produced the following deliverables:

- Baseline data of the current state of walking and cycling in Ipswich;
- An existing Ipswich resident walker and cyclist market profile;
- An active transport vision and objectives;
- Cycle and pedestrian network hierarchies (including desirable management characteristics for each category of the hierarchy);
- Maps of the pedestrian and cycle networks;
- Actions to advance the three iGO active transport policy areas;
- Priorities for delivery; and
- Mechanisms to monitor the performance of the action plan.

ATAP Summary Report Contents

For ease of reference, a summary of the contents of the ATAP Summary Report are outlined in Table 2.

TABLE 2
iGO ACTIVE TRANSPORT ACTION PLAN SUMMARY REPORT
SUMMARY OF CONTENTS

ELEMENT	DETAILS / COMMENTS	MORE INFORMATION
iGO Active Transport Policy Focus	• Building quality active transport networks • Developing supportive active transport communities • Growing an active transport culture	Page 75 of iGO
Baseline Data	• There is limited information available on current walking practices in Ipswich <u>2011 Australian Bicycle Council National Cycling Participation Survey</u> *(survey of 603 Households in Ipswich consisting of 1,705 individuals)* • 20.3% of residents in Ipswich ride a bicycle in a typical week • Of those who rode in the week before the survey, 84% had ridden for recreation or exercise while 7% had ridden for commuting.	Table 2 of *Attachment A*
Ipswich Resident Profile	• Online community survey undertaken in March 2016. • 941 people responded to the survey, with over 500 being complete responses. • Results used to create an Ipswich resident market profile and help inform the development of the ATAP network plans and actions • Key findings identified a large market of 'Interested but Concerned' cyclists and 'Willing but Constrained' walkers • Addressing the barriers of these groups is key to getting more people walking and cycling for transport purposes in Ipswich <u>Cyclists</u>  <u>Pedestrians</u> 	Table 3, 4, 5 and 6 of *Attachment A*
Vision & Objectives	<u>Vision</u> Active transport in Ipswich is connected, convenient and comfortable <u>Objectives</u> 9 objectives were developed which have been categorised under each iGO active transport policy focus and vision area 	Table 7 of *Attachment A*
Targets	<u>iGO mode share targets</u> • Cycling – 3,000 (0.5%) → 45,000 (3%) trips per day • Walking – 55,000 (8.5%) → 165,000 (11%) trips per day	Figure 4 of *Attachment A*
Network Hierarchy	<u>Cycle</u> Principal (Transport) → Secondary (Transport) → Secondary (Recreation) → Local (Transport) <u>Pedestrian</u> Pedestrian Activity Street → Pedestrian Transport Corridor → Pedestrian Access Street	Table 8 of *Attachment A*
Network Maps	• Cycle Network Plan • Pedestrian Network Plan	*Attachment B*
Strategy & Actions	• 10 strategies • 45 actions	Table 9, 10 and 11 of *Attachment A*
Delivery	• 10 priority strategic cycle projects • 3 priority activity centres for strategic pedestrian improvements • 7 priority public transport nodes for strategic pedestrian improvements • 10 priority schools for strategic pedestrian improvements • 8 signature projects/ actions	Page 48 and 49 of *Attachment A*

Cycle Network Priorities

The routes outlined in the Queensland Government's *South East Queensland Principal Cycle Network Plan* (identified as 'Principal Routes' in the ATAP Summary Report) were identified as the most important for Council to construct first in order to create a base arterial cycle network in Ipswich. Key links identified as very high priority are outlined in Table 3.

Secondary Routes (transport and recreation) and Local Routes were also prioritised based on criteria such as topography, traffic volumes along route, crash data, existing and future population/ jobs within catchment, vulnerable users, trip attractors/ generators, strategic importance, feasibility and opportunity to co-ordinate with other Council projects.

TABLE 3
CYCLE NETWORK PRIORITIES

LINK / PROJECT	SECTION
Deebing Creek Bikeway	Ipswich Central to Yamanto/ Ripley *(via South St, Thorn St and the Deebing Creek corridor)*
Brassall Bikeway (Stage 6)	Ipswich Central to North Ipswich
Glebe Rd	Ipswich Central to Booval
Bradfield Bridge links	Integration with the Ipswich Mall redevelopment and other inner city connections
RAAF Base Amberley	Southern Amberley Road
Goodna Creek Bikeway	Collingwood Park to Redbank Plains
'Western Ipswich Link'	Ipswich Central to Leichhardt *(via Roderick St, Omar St and Old Toowoomba Rd)*
Brassall Bikeway (Stage 5)	Brassall to Karrabin
South St	East St to Ellenborough St
Bremer St	Olga St to Ellenborough St

Maps illustrating the full results of this prioritisation work will be submitted to Council for their consideration through a future standing committee.

Pedestrian Network Priorities

The prioritisation process of the pedestrian network was undertaken on an area basis. Table 4 (over) summarises the very high strategic priorities for each of the pedestrian generator types: activity centres, public transport nodes and schools.

Examples of some of the criteria used for this prioritisation included trip attractors/ generators, existing and future population/ jobs within catchment, centre hierarchy, public transport patronage data, school and university enrolments, disadvantaged groups within catchment and opportunity to co-ordinate with other Council projects.

TABLE 4
PEDESTRIAN NETWORK PRIORITIES

GENERATOR TYPE	LOCATION
Activity Centres	• Ipswich Central; • Booval; and • Brassall
Public Transport Nodes	• Ipswich Central Rail Station and Bus Station; • Riverlink Bus Station; • Goodna Rail Station and Bus Station; and • Booval Rail and Bus Station.
Schools	• Woodcrest State College • Redbank Plains State High School • Springfield Lakes State School • Westside Christian School • Kruger State School • Raceview State School • Ipswich Grammar School • St Edmund's College • St Augustine's College • Springfield Central State High School

Maps illustrating the full results of this prioritisation work will be submitted to Council for their consideration through a future standing committee.

Signature Projects

The 'signature' projects outlined in the ATAP for short term resource effort, based on the iGO active transport policy focus areas, are outlined in Table 5. The prioritisation of the actions considered the assessment of the action against ATAP objectives, against the barriers and enablers identified in the online community survey and against best practice for a city which is starting out on its journey to encourage more people to walk and cycle.

TABLE 5
SIGNATURE PROJECTS

POLICY FOCUS AREA	ACTION NO.	SIGNATURE PROJECTS
Building Quality Active Transport Networks	*1.1-1.4 & 2.1-2.2*	Plan, design and construct the identified network priorities as outlined in Table 2 and Table 3.
	3.4	Trial and measure 'Pop up' pedestrian and cycle infrastructure (e.g. pedestrian squares, protected bike lanes, lunch time street closure in activity centre) and tie with community events to gather feedback and interest.
Developing Supportive Active Transport Communities	*6.1*	Develop and implement a *Way Finding Strategy*
	6.2	Where possible incorporate non-deciduous shade trees along pedestrian and cycle paths. Coordinate/ integrate with other Council activities where possible or develop a *Shadeways Program*.
Growing an Active Transport Culture	*8.2*	Undertake an *'Active Towns'* style program (involving infrastructure and promotion) in the priority neighbourhoods of: - Brassall / North Ipswich (with the Brassall Bikeway); - Redbank Plains, Collingwood Park and adjacent suburbs (with the Goodna Creek Bikeway); - Yamanto and other southern suburbs (with the Deebing Creek Bikeway); and - Ipswich City Centre and surrounding inner suburbs.
	8.7	Prepare and implement a *Social Media Strategy* to promote and inform the community on walking and cycling and to start community conversations on relevant issues.
	9.1	Provide information on safe walk and cycle practices and existing walk and cycle maps via local information brochures to be made available at community information locations in the City (e.g. public libraries) and on Council's website.
	9.2	Develop a smartphone and website 'app' that enables users to choose routes to walk and cycle in the city, based on a number of varying factors (e.g. grade, availability of paths, traffic volumes).

CONCLUSION:

A detailed *iGO Active Transport Action Plan* has been developed to guide the planning, delivery and promotion of facilities and programs to encourage more people to walk and cycle in Ipswich. The Action Plan is a key deliverable of the *City of Ipswich Transport Plan* (iGO) to assist with providing a sustainable transport future for the city.

ATTACHMENTS:

Name of Attachment	Attachment
Attachment A iGO Active Transport Action Plan Summary Report	Attachment A
Attachment B iGO Active Transport Action Plan Network Maps	Attachment B

RECOMMENDATIONS:

A. That the outcomes of the *iGO Active Transport Action Plan*, as outlined in the report by the Transport Planner dated 19 September 2016, be approved.

B. That the Chief Executive Officer, in consultation with the Chairperson of the City Infrastructure & Emergency Management Committee, finalise the *iGO Active Transport Action Plan* technical report based on the contents of the summary report and the network maps as outlined in the report by the Transport Planner dated 19 September 2016.

C. That the Chief Executive Officer finalise the detailed cycling and pedestrian infrastructure prioritisation work and submit a report to Council for their approval.

D. That the Chief Executive Officer communicates and promotes the outcomes and key messages of the *iGO Active Transport Action Plan* with the Ipswich community and other stakeholders such as the Queensland Government and user groups.

E. That the Chief Executive Officer, in consultation with the Mayor and Councillors, be authorised to commence the delivery of the *iGO Active Transport Action Plan*.

Jessica Coats
TRANSPORT PLANNER

I concur with the recommendations contained in this report.

Tony Dileo
INFRASTRUCTURE PLANNING MANAGER

I concur with the recommendations contained in this report.

Charlie Dill
CHIEF EXECUTIVE OFFICER (INFRASTRUCTURE SERVICES)

ATTACHMENT B

City of Ipswich

Active Transport Wayfinding Strategy

August 2018

City of Ipswich

iGO City of Ipswich Transport Plan

This report was prepared for

Ipswich City Council
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By

Zwart Transport Planning Pty Ltd and Sustainable Transport Consultants Pty Ltd

Amendment record

Version Number	Date	Description	Page No.
1.0	16/8/2018	Final document as issued	-
			-
			-

Contents

City of Ipswich, Active Transport Wayfinding Strategy

Introduction

The *City of Ipswich Transport Plan* (branded 'iGO') is Ipswich City Council's masterplan for Ipswich's transport future. Implementation of this plan has seen to the development of the *iGO Active Transport Action Plan* (iGO ATAP) which provides guidance on the planning, delivery and promotion of quality facilities and programs for walking and cycling in Ipswich.

Ipswich City Council in association with key stakeholders has commenced the construction of a high quality active transport network to enable residents and visitors to walk and cycle for transport, fitness and recreation on a daily basis. In order to ensure maximum use and access to this network, a key action and signature project from iGO ATAP is the development of an *Active Transport Wayfinding Strategy and Design Manual* (this document). The purpose of the *Active Transport Wayfinding Strategy and Design Manual* is to provide consistent standards and high-quality navigation throughout the City for pedestrians and cyclists in order to build confidence in the active transport network and assist users with easily locating and accessing destinations and community facilities.

The Active Transport Wayfinding Strategy:

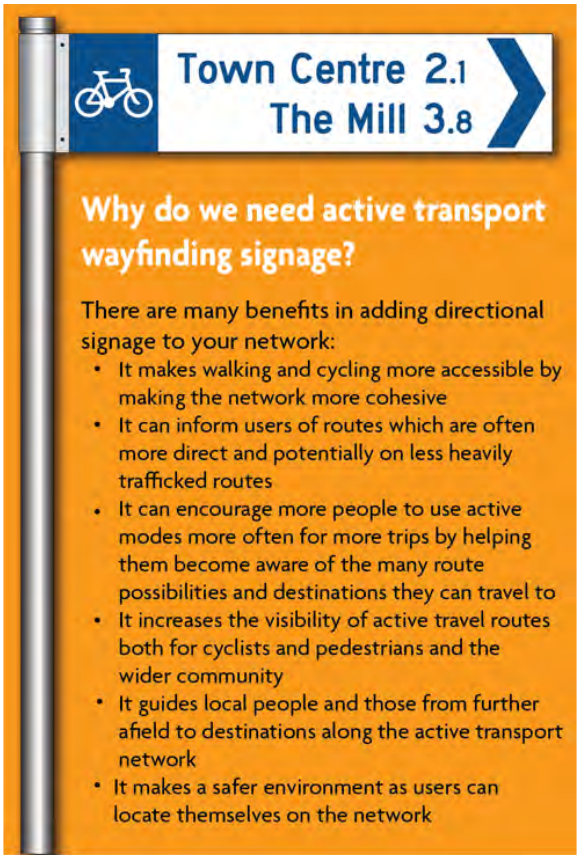
- sets out the strategic and contextual basis for implementing a consistent, coordinated and comprehensive directional signage system for walking and cycling routes within Ipswich
- details a framework for the implementation of wayfinding signage as part of the City of Ipswich Pedestrian and Cycle Network Plans (also referred to as Active Transport Network Plans)
- provides guidelines for identifying and assigning sign types to the network
- sets out a methodology from planning through to the installation of the signage system to meet multiple users' needs on a route by route basis
- recommends suitable technical guidelines based on recognised national and international standards.

This Strategy should be read in conjunction with the *Active Transport Sign Design Manual* which provides details on the design, layout, manufacture and mounting of all signs used in the system.

The *Active Transport Wayfinding Strategy and Design Manual* have leveraged off best-practice strategic and guideline documentation, with the documents based on the proposed changes to the *Australian Standard AS1742.9* and new *Austroads national signage and wayfinding guidelines* (published October 2015) which have been developed following an extensive literature review of national and international best practice.

This document is divided into the following sections:

- Introduction, objectives, existing situation and context
- Active transport signage and wayfinding framework
- Sign families and sign types
- Developing signage plans and installation



Source: Adapted from TMR, *"Cycle Network Signage and Wayfinding Fact Sheet – Local Government and Transport and Main Roads reference",* 2016

Objectives

The broad objective of the City of Ipswich's *Active Transport Wayfinding Strategy and Design Manual* is to provide a system of clear and consistent directions to public domain facilities to encourage and assist residents and visitors to walk and cycle more easily, comfortably and confidently in Ipswich and its surrounds. The Strategy will achieve this by:

- Establishing a framework for the future development of wayfinding and signage for the Ipswich Cycle Network and in activity centres for pedestrians
- Formalising the planning and construction guidelines for directional signage based on recognised national and international standards, guidelines and best practice.
- Providing recommendations on the coordinated development of essential supporting information and infrastructure such as mapping, interpretation, wayfinding and navigation etc.

Existing situation

Council have implemented directional wayfinding signage on some of the existing bikeways in the City such as the Brassall and Goodna Creek Bikeways. There are also numerous information and site-interpretative signs located in and around the Ipswich City Centre and in some parks and natural areas. However, there is a lack of consistent and comprehensive signs to direct locals or visitors to popular destinations easily reached by bicycle or on foot. Most of the existing directional wayfinding signage is primarily directed at motorised road users, and may, in some instances, be of use to pedestrians and cyclists travelling on paths adjacent to the road system.

Key issues identified to date are:

- Community need for simple, clear, consistent and attractive signage and directional wayfinding on the active transport network. A community survey undertaken as part of the iGO ATAP found that 32% of non-cyclists and 17% of current pedestrians thought that signage/wayfinding on bicycle/walking routes would encourage them to cycle/walk more.
- Lack of continuity and cohesion of existing interpretive and directional signage.
- Lack of legibility in the existing and future cycle and pedestrian networks.
- Lack of strategy and design guidelines to enable Council to be consistent in their approach to active transport wayfinding signage.
- Lack of framework for co-ordination and funding of future projects.
- Opportunity to provide consistency with neighbouring local governments and State controlled elements of the active transport network.
- Opportunity to seek funding via the Department of Transport and Main Roads Cycle Network Local Government grants program for future wayfinding signage.
- Opportunity to provide guidance for directional wayfinding signage on the active transport network in new development areas.

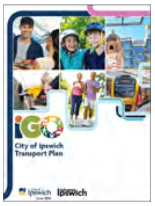
Context

The *Active Transport Wayfinding Strategy* is supported by both State and Local Government policy and guided by national signage standards and guidelines.

National Context

State Context

Local Context



Local Sign Manuals

National Context

In 2015 Austroads produced the following updated guidance on bicycle directional signage and wayfinding systems:

- *AP-R493-15 Research Report – Bicycle Wayfinding Literature Review* (Austroads 2015) reviews best practice signage and wayfinding from Australian, New Zealand and international jurisdictions.

- AP-R492-15 Research Report – Bicycle Wayfinding (Austroads 2015) provides detailed recommendations for updating sign standards and guidelines including updates to AS1742.9 – Manual of Uniform Traffic Control Devices – Bicycle Facilities; Austroads Guide to Traffic Management Part 10; and AS1743 Road signs – Specifications. The report contains three technical appendices designed for early inclusion in the relevant Australian Standards and Austroads guideline documents.

These updated national guidelines for cycle network directional signage have been used as the base for preparation of the City of Ipswich's *Active Transport Sign Design Manual*. The Austroads technical guidelines cover the planning, design and installation of the majority of signs and sign types required to sign the Ipswich network.

The Austroads guidelines supersede Queensland's previous directional signage guidelines, *TRUM Technical Note 1.36: Queensland Cycle Network Directional Signage Guidelines* (TMR, 2013).

State Context

There are a number of state policies that support active transport and the need to provide signage and wayfinding as follows:

- *Queensland Cycling Strategy 2017-2027* has a vision of more cycling, more often. To achieve this, the strategy has prioritised building connected cycle networks. To support the infrastructure, the strategy also proposes to provide up to date and consistent signage that helps people find their way while riding a bike.

- *Queensland Cycling Action Plan 2017-2019* documents the short term actions to achieve the Cycling Strategy. The action associated with signage and wayfinding in the document is to publish guidelines to support its provision.

- *SEQ Principal Cycle Network Plan* 2016 identifies core strategic routes across SEQ focusing on connections to activity centres and employment nodes, universities and schools and regional recreational nodes. Wayfinding signage projects along these routes are eligible for 50/50 funding under the Department of Transport and Main Roads Cycle Network Local Government grants program.

- *Cycle Signage and Wayfinding Focal Point Map for Ipswich City Council* 2016 was prepared by the Department of Transport and Main Roads, in consultation with Ipswich City Council to identify consistent focal points for wayfinding signage across SEQ on the Principal Cycle Network.

Local Context

Ipswich City Council has produced two documents that guide the delivery of walking and cycling infrastructure, as well as supporting infrastructure such as wayfinding signage:

- *iGO - The City of Ipswich Transport Plan* (2016) is Ipswich City Council's masterplan for a sustainable transport future. It outlines Council's aspirations to advance the city's transport network to a population of 435,000 people. One of the implementation areas in the plan is active transport and it identifies three policy focus areas:

    - Building quality active transport networks
    - Developing supportive active transport communities
    - Growing an active transport culture

Action AT5 in the plan is to "develop, advocate and implement a Wayfinding Strategy focussed around railway stations, other key public transport hubs and activity centres."

- *iGO Active Transport Action Plan* (2016) - sits under iGO providing further details on how the City will reach its targets for modal change. The document provides actions under the three active transport policy focus areas identified in iGO, as well as identifying a vision and network hierarchy for walking and cycling in Ipswich and Cycle Network and Pedestrian Network Plans.

- Provision of wayfinding signage sits under the Developing Supportive Active Transport Communities policy focus area aiming to make the pedestrian and cycle network easier to use and more comfortable and convenient. Action AT5 in iGO is reinforced in the *iGO ATAP* and proposed as a signature project.

Local Signage Manuals

The *Active Transport Wayfinding Strategy and Design Manual* will complement Council's other signage manuals, including the latest versions of:

- Natural Areas Signage Manual
- Parks Signage Manual
- Indigenous Culture Signage Manual

Active transport signage and wayfinding framework

Principles of signage and wayfinding

Every signage location or intersection is subtly different with its own set of problems to resolve. To meet these changing circumstances it is essential to have a clear understanding of the key principles of effective signage.

Signs are compact pieces of information designed to transmit their messages very quickly. They are most effective if their messages are brief. This is essential when people travel at speed and the time for taking in a message and responding safely is limited.

Signs primarily communicate best through graphics and symbolism. Though much of the content of directional signs contains words, the letters which make up these words are in themselves complex graphical symbols. If the word content of a sign is lengthy or complex, it will require more time for the human brain to process the information resulting in possible errors of judgement and injury.

Even well-designed signs may fail to communicate if they are not placed so that they can be easily seen by path or trail users. Sign clutter, poor placement, insufficient colour contrast (particularly in low light situations) and complicated or wordy messages are all factors which can decrease the effectiveness of signage.

Signage guidelines are formulated to ensure good legibility. Important factors such as typeface (font), size, sign and lettering colour and sign layout are specified to ensure a consistently high legibility of signage.

Good signage brings cohesion to a walking and cycling network. Even if the provision of facilities is in its early development phase, a well-signed network of routes can provide people with the ability to more easily find their way around their area by foot or by bike. A comprehensive overview of the principles of signing (conspicuity, legibility, coherence and function) is summarised in Table 1.

Mapping

There are a number of good principles to be considered when preparing the maps for active transport signs. These are broadly noted below and more detailed information can be found in TMR's *Cycle Note B11: Producing bicycle network maps and cycling transport access guides*.

- Maps for active transport users should be specifically designed to help them with their particular navigational problems and to show the kinds of things they want to know.
- Important things must look important on the map. Information of lesser importance still needs to be readable, but only on closer inspection.
- Less is more. Good design tends towards simplicity. The best, most useable maps are often distinguished by what they do not show rather than what they do show.
- Always try to include as much useful information on a map as is possible without making the map difficult to read and use.
- Always aim to 'connect' with the end user of the map and cater to their particular needs.

Other aspects to consider in the map making process are the area covered by the map, scale of the map, cycling or walking information and how to show it, and the level of detail to show attractors. Further content details on maps for the Pedestrian Activity Centre wayfinding precincts can be found in Appendix G.

Table 1: Principles of active travel network signage

Principle	Elements	Discussion
Conspicuity	Siting	Signs should be sited so that pedestrians and cyclists have a clear view on approach and have time to respond. They should be mounted consistently along the route with adequate side clearance to sign supports.
	Mounting height	Signage should be mounted at a consistent height so as to be easily seen by all users. Signs should not be sited where they could be hit by vehicles or interfere with services (power, phone etc).
	Clutter-reduction	Visual clutter and sign proliferation should be avoided by grouping similar signage on the same support or combining information onto a single sign.
	Safe operation	Signage should be sited so as not to create a hazard to route users, or other road/path users.
	Sightlines	Signs should be sited with clear sightlines for route users.
Legibility	Clarity	Signs must be easily read by all users of the system.
	Typeface	Choice of typeface should be based on legibility. Using a mixture of upper and lower case letters increases legibility particularly in low light conditions.
	Symbols	A limited, easily recognisable and consistent palette of symbols and pictograms should be used throughout.
	Colour	Sign background and lettering colours should avoid combinations which are hard to read.
	Contrast	Maximum contrast between sign background colour and legend is desirable.
	Lettering size	A consistent lettering size for route signage should be used so that signs can be easily read by users travelling at the design speed of the route and in all lighting conditions.
	Brevity	Destinations should be designated by concise, easily understandable and unabbreviated terms. Words over 20 characters should be avoided. Use pictograms to indicate services and facilities.
	Lighting	Night time and low light operation of the route should always be considered in the design and siting of signage.
	Alignment	Route turnings and branching routes should always be accurately indicated by fingerboard type signs. Fingerboards should be fixed to prevent accidental or intentional rotation.
Coherence	Route hierarchy	Signage should reflect the type of route (i.e. its designation in the network route hierarchy – Principal Transport, Secondary Transport, Secondary Recreation and Local Transport Cycle Routes and Pedestrian Activity Centre Signs
	Destinations	All listed destinations should be identified on the Network Focal Point Map and used consistently throughout.
	Distances	Distances are important to the users as a means of judging journey length, progress and arrival.
	Consistent information	Once a destination is stated it should be listed on each succeeding sign until it is reached (Rule of Continuity).
	Sign type	Sign type should indicate the importance of the route. Sign shape and type should relate to the location, ie plate type signs for advance warning and reassurance and fingerboard types for intersections.
	Image/branding	Route signs should be consistently designed to reflect a consistent image or branding for the route relating to either network hierarchy, municipal style, or specific route design/designation.
	Relationship to other signs	Network signage should take account of other road signage systems (eg route markers could be added to existing street signs to avoid unnecessary sign clutter).
Function	Decision points	All turnings of the route should be clearly signed. Advance direction signage should also be provided for network junctions. Reassurance direction signs also contribute to effective system redundancy.
	Consistency	Signage has to be sited consistently and in the most obvious and logical of places to meet user expectations.
	Wayfinding complexity	A signage system should operate consistently across the network to service a complexity of wayfinding needs.
	Orientation	Signage should reflect the particular orientation of the traveller.
	Human cognitive limitations	Human beings have limitations on the amount of information they can take in from the route environment in order to safely respond.
	Unambiguity	Destinations for one route should be displayed per fingerboard. Alternate or parallel routes use separate fingerboards.
	Redundancy	The sign system should be designed to permit safe and effective use even if individual signs are removed.
	Construction and installation	Signage should be durable, non-fading, and easy to erect and maintain. Simplified mounting systems compatible with existing systems will offer ease of maintenance and replacement to the sign system.

Source: AP-R493-15 Research Report – Bicycle Wayfinding Literature Review (Austroads 2015)

Active transport network route hierarchy

An active transport network is a system of interconnected routes which enable pedestrians and cyclists to easily travel within the City. Ipswich's active transport network (Cycle Network Plan and Pedestrian Network Plan) is shown in Appendix A and there are five types of active transport routes which are to be signed.

Principal transport and secondary transport bicycle routes

These routes provide connections to and between major regional destinations such as activity centres, public transport nodes, universities, schools, shopping or commercial centres, industrial areas and regional recreational facilities. Principal and secondary transport cycle routes are usually high-priority routes providing quick unhindered travel offering the most direct access with minimal delays.

Secondary recreation bicycle routes

Secondary recreation cycle routes in the Ipswich ATN are iconic recreational routes or routes that cater for sporting, training or touring longer distance cyclists. Examples of these routes are the Brisbane Valley Rail Trail and longer distance routes to Rosewood, Grandchester and Marburg.

Local transport bicycle routes

Provides connection to principal or secondary transport routes and serves as access to minor/local land use precincts or feeder routes from residential areas. These routes provide high quality connectivity to residential streets and local trip-generating facilities such as local shops, schools, community centres and libraries. Local routes provide direct access to facilities not located on principal and secondary routes.

Pedestrian activity centre signs

These are signs that are designed specifically for pedestrians and will be implemented primarily within an 800m radius of Ipswich's activity centres (refer Appendix B). The signs could also be implemented on Pedestrian Activity Streets, Pedestrian Transport Corridors and Pedestrian Access Streets, as per the iGO ATAP Pedestrian Network Plan, once pedestrian facilities and the pedestrian network is more developed.

Active transport focal point mapping

Focal Point Signage Practice is used for determining all key destination and decision points within an active transport network to ensure the accurate and consistent signing of the network. Focal Point Signage Practice is commonly used to determine all place names for the National Road Network and road networks in cities and towns. These focal point maps are maintained by road authorities for the National Road Network and by local councils for networks within cities and towns.

As active transport networks are locally or regionally based, active transport network focal point maps are usually more fine-grained and urban-oriented and use additional or different focal points to the national and city road-based networks.

Signing a single route is a relatively simple process of signing destination 'A' to destination 'B' and all sub destinations in between. Signing a network is a much more complicated process as the users must be able to logically navigate their way around the network using the signage destination information provided at the intersections of the routes.

A transport network functions more like a mesh or a web rather than a linear route. Pedestrians and cyclists may need to plan their journeys and take a number of routes to get to their destinations. The fineness of the network mesh is particularly important to network users as trip choice is often dependent on a range of factors such as slope/terrain, traffic density, route attractiveness, preferred travel speed and the quality of the available route infrastructure.

The focal point methodology is designed to ensure that navigation across a complicated network is possible and logical. A key aim of a network focal point map is to achieve rigid consistency in the use of destination names so that a coherent, logical and consistent system of signage can be developed to enable unambiguous wayfinding around the network. Only those destinations appearing on the focal point map will be used on network signage.

The most important information on the focal point map is the destination names. Routes may in time be changed (with minor adjustments in the field), as better route opportunities become available, but the destinations which appear on the network directional signs represent a closed system and may only be altered at great cost.

One of the most important underlying aspects of effective network directional signage is building trust in the transportation system. If directional signage allows pedestrians and cyclists to easily use the network to travel to a wide range of destinations, this helps build community trust in the system. Missing signs are like broken links in a chain. Signs with inconsistent or chaotic destination listings likewise degrade trust in the system.

Determination of cycle network focal points

The current version of the City of Ipswich Signage and Wayfinding Focal Point Map (see Appendix C) has been created using the iGO ATAP Cycle Network Plan and the *Cycle Signage and Wayfinding Focal Point Map for Ipswich City Council 2016* prepared by TMR in consultation with Council.

The initial selection of focal point destination names as shown on the current focal point map complies with the *AP-R492-15 Research Report – Bicycle Wayfinding* (Austroads 2015) and the focal point definitions outlined in Table 2 below. On routes where a focal point (as per Appendix C) is not immediately apparent, the designer should consult with Council's Infrastructure Planning Branch to determine the destination names to be included on route direction signs.

Additionally, focal points are localities, not buildings such as shopping centres or pools etc. Naming these types of destinations is more appropriate on local route/destination signage.

Determination of local destinations

Local destinations and facilities can be located on a principal and secondary transport bicycle route or be accessible via a local transport bicycle route. Local destinations can include public transport facilities (train stations and bus interchanges, but not individual bus stops), community facilities (such as parks, swimming pools and libraries), emergency/ medical services (police station, hospital), shopping centres, cycling specific facilities (bicycle parking and bicycle maintenance facilities) and public toilets.

Furthermore, streets may be signed as a local destination. For example, if a street sign is not visible from a cycling route through a park, a sign may be installed to advise of the distance along a path to the nearest street.

Schools are generally not signed as local facilities as students and staff would be aware of the location of their school though they may be illustrated on cycle map signs to assist with user orientation. School path pavement wayfinding markings (as per the *Active Transport Sign Design Manual)* may be considered upon request to Council's Infrastructure Planning Branch..

See Appendix D for further guidance on naming conventions for local destinations.

Determination of pedestrian activity centre destinations

Similar to the cycle network focal points, a hierarchy of destinations is required for pedestrian activity centre signs. These signs will vary depending on the scale and size of the activity centre. The hierarchy of focal points for pedestrians are:

- Level 1 - Major destinations relate to regional level or important destinations in the activity centre (major shopping area, regional park or citywide sports facility, hospital, train station etc.), These are similar to *focal points* on cycle network focal point maps;
- Level 2 - Sub-destinations relate to lower level destinations in the activity centre (library, local park or sporting facility, community hall, police station etc.). These are similar to the *sub-destination points* on cycle network focal point maps; and
- Level 3 - Facilities relate to services or facilities to support the user on their trip around the activity centre (information centres, toilets etc.).

Appendix E provides further information on pedestrian destinations for activity centres.

As these destinations will vary depending on the activity centre, pedestrian destination focal point maps for each activity centre in Ipswich have not been developed as part of this strategy. Overall the principles of consistency, accuracy and logic in the signing process is still required. As a result, identifying the destinations to be signed and their names is a key step in the methodology for signing for pedestrians in activity centres. An example of a pedestrian activity centre destination focal point map has also been provided in Appendix F

Table 2: Symbol definitions for cycle network focal point mapping

Destination type	Symbol*	Definition
Focal point	●	Major destinations (towns, regional centres and key suburbs) located on or near principal/secondary bicycle routes.
Terminal focal point	■	Major destinations (towns, regional centres and key suburbs) located at the ends of principal/secondary bicycle routes beyond junctions with other principal/secondary routes.
City/town centre	☼	A city/town centre is the compact area where many routes converge and intersect at multiple junctions. The city/town centre is defined as an area (shown by a dashed boundary line) containing the multiple route junctions.
Sub destination	○	An important intermediate destination in between focal points usually on longer principal/secondary routes such as a district shopping centre, train station or university.
Local destination	⊙	Local destinations are accessible via local routes which usually branch or loop from principal/secondary routes. Local routes are identified to service important local community facilities and trip attractors such as local parks, swimming pools or local shops.

* Symbols used on focal point maps to denote destination type

Source: Adapted from AP-R492-15 Research Report – Bicycle Wayfinding (Austroads 2015)

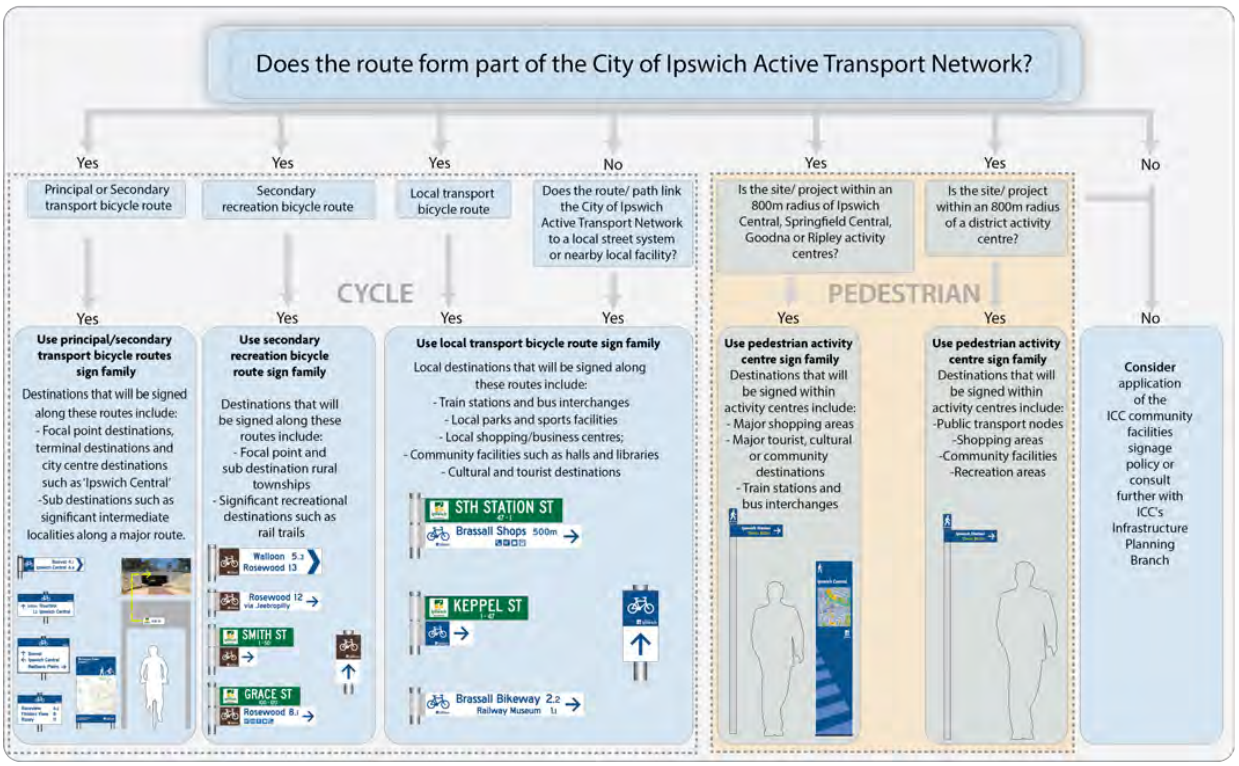
Sign families and sign types

This section introduces the signs used to mark routes within the Ipswich active transport network. Full information and technical details on sign design specifications, sign manufacture, mounting and maintenance is available in the City of Ipswich's *Active Transport Sign Design Manual*. The sign families used to mark the ATN routes utilise different sign types appropriate to each route type.

While all signs can effectively be used by either pedestrians or cyclists to assist with wayfinding, there are sign families which are more cycle focussed due to distances and speeds travelled across the network by cyclists and a sign family which is more pedestrian focussed which is to be applied in activity centres across the city.

Figure 1 summarises use of sign types by active transport route and activity centre hierarchy.

Figure 1: Sign Family Decision Tree

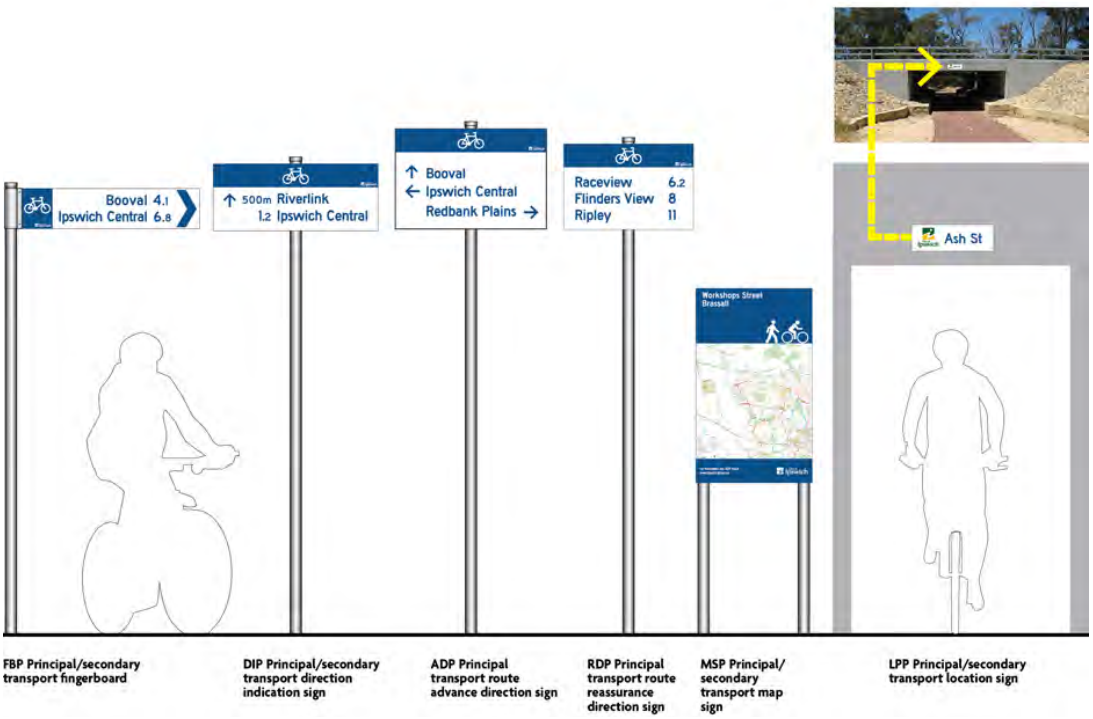


Principal transport and secondary transport bicycle route signs

The sign types (see Figure 2) used to mark principal and secondary transport bicycle routes are:

- **Fingerboard** signs on principal/secondary transport cycle routes are the primary means of indicating route direction at network junctions. One or two focal points or a focal point and sub destination can be shown on this type of sign. Where routes overlap, separate fingerboards should be used for each route with the sign for the joining route mounted below the joined route's sign. Distance numerals are shown for destinations on fingerboards used at route junctions only.
- **Direction Indication** signs are used in place of fingerboards where that type of sign is difficult to mount due to insufficient clearance from traffic or inadequate sightlines. Direction Indication signs are also used between junctions with other routes to indicate a change of direction or provide reassurance in complicated urban street systems. Distance numerals are only shown on these signs when used at route junctions.
- **Advance Direction** signs are placed before a junction to indicate the route(s) being followed and the route choices available at the approaching junction. For brevity, Advance Direction signs only display focal point destinations. Distances are never shown on Advance Direction signs.
- **Reassurance Direction** signs are located after intersections which have been signposted with fingerboards to reassure cyclists that they are travelling towards their intended destination and to indicate the distances to those destinations. Focal point destinations and sub destinations with their distances should be shown as a list with the closest destination to the top of the list sorted by distance. Where routes overlap, destinations and sub destinations for all routes are listed, including any route Terminal Destinations (ends of routes).
- **Location** signs are used to mark cross streets on bridges, underpasses and overpasses.
- **Facilities/Services** signs are a fingerboard-type sign used to indicate facilities and services adjacent to a principal/ secondary route (toilets, shops, services) and to indicate paths linking to the local street system for principal/secondary routes in parklands (refer Figure 4).
- **Map** signs are located at key network locations and show pedestrians and cyclists the many route options which may be available to them. Map signs can be located in an off-path viewing bay. Map signs are network 'Info Points'.

Figure 2: Ipswich Active Transport Network Principal transport and secondary transport bicycle route sign family – sign types

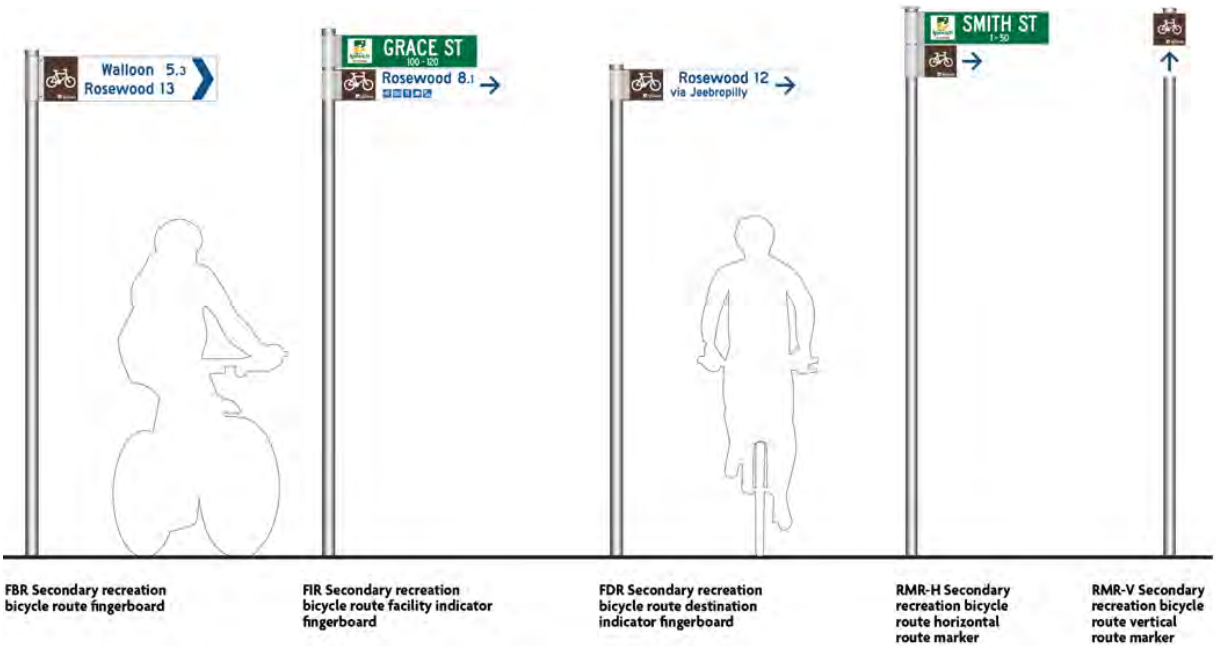


Secondary recreation bicycle route signs

These signs feature a distinctive dark brown patch to indicate touring/training and iconic recreation routes and may be subject to approval by the relevant national, state or local authority land owner when located within reserves. The sign types (see Figure 3) used on secondary recreation routes are:

- **Fingerboards** are the main means of indicating travel direction at decision points and junctions on secondary recreational routes. Focal points for the route, plus any sub destinations, are shown on fingerboards along with distances. If advance or reassurance direction signage is required near an intersection to ensure adequate route wayfinding (due to complicated intersection alignments etc), route markers should be used instead.
- **Location** signs are used to mark cross streets on bridges, underpasses and overpasses (refer Figure 2).
- **Facilities Indicator** signs are a fingerboard-type sign used to indicate facilities and services adjacent to a secondary recreation route (toilets, shops, services).
- **Facilities Destination Indicator** signs are a fingerboard-type sign used to indicate destinations relevant to the route with additional wayfinding information and a sub destination on the lower line of the sign.
- **Route markers** are used as an aid to navigation at route turnings and to provide reassurance between junctions where these are some distance apart. Route markers, when used away from intersections, are placed at minimum intervals of 5km. Markers can also be used on routes as advance direction or reassurance signs to supplement intersection fingerboards.

Figure 3: Ipswich Active Transport Network Secondary recreational bicycle route sign family – sign types.

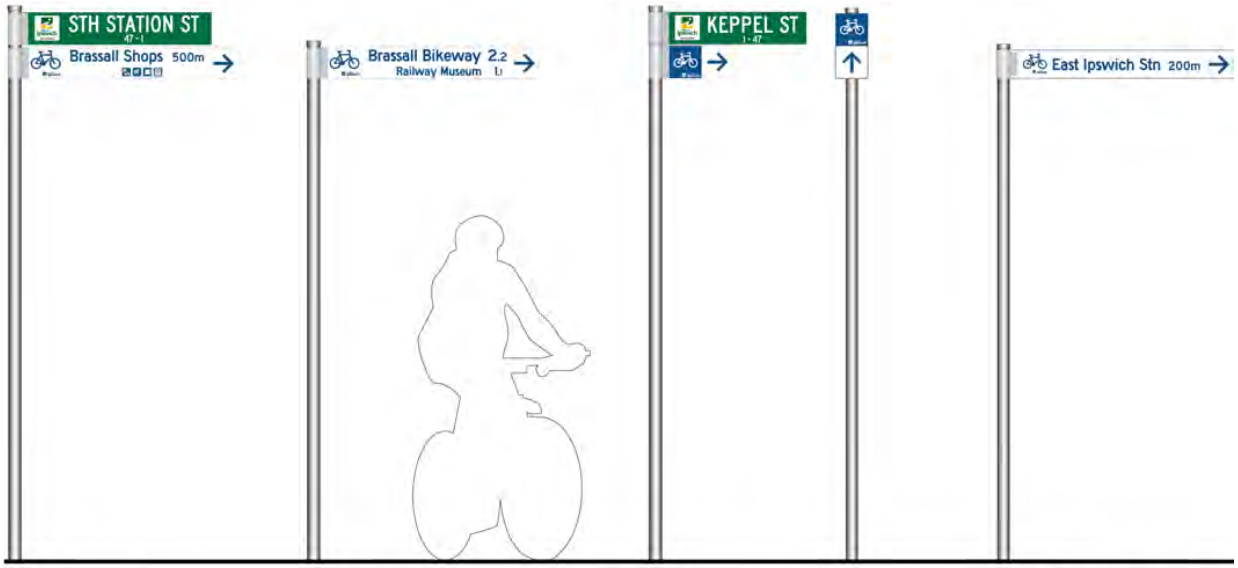


Local transport bicycle route signs

The sign types (see Figure 4) used on local transport bicycle routes, as well as on principal/secondary routes to locate nearby services, are:

- **Fingerboards** on local transport routes are placed at each end of the local route, where it branches from a principal/ secondary transport route and at its destination. Local route signage is closely related to local street name signage so local route signage should always, where possible, be sited below local street name signs. It may be necessary when signing local routes to install missing street signage to ensure completeness and easy navigation within the locality. Where a local route is short (maximum of three turnings from the principal/ secondary transport route), the preferred method of marking the route is to install a fingerboard at each end of the route with all intermediate route turnings indicated by Route Markers. On longer routes with many turnings, it may be useful to include additional fingerboards along the route for reassurance. Advance direction and reassurance signs are not used on local routes.
- **Facilities/Services** signs are a fingerboard-type sign used to indicate facilities and services adjacent to a local route (toilets, shops, services) and to indicate paths linking to the local street system for local routes in parklands.
- **Route markers** are used to supplement local route fingerboards and are mounted with street name signs to indicate a route turning.
- **Location** signs are used to mark cross streets on bridges, underpasses and overpasses (refer Figure 2).

Figure 4: Ipswich Active Transport Network Local transport bicycle route sign family – sign types



Pedestrian activity centre signs

While the application of the cycle signs described previously across the ATN will also be of value to pedestrians, Council acknowledges the need to provide additional pedestrian focussed signage to key destinations within activity centres as these are pedestrian priority areas.

Though there is no current Australian standard for pedestrian directional and wayfinding signage, there are a number of highly regarded Australian and International best practice examples to provide guidance for signing these routes. A major trendsetter in pedestrian signage and wayfinding systems is the United Kingdom where the Legible Bristol and Legible London projects have set high standards for sign design and improved wayfinding in busy inner-urban settings. Since the Legible London project began in the mid-2000s a number of similar projects have been implemented in Australia, including Parramatta and Bendigo.

Given this, the *Active Transport Wayfinding Strategy and Design Manual* include a small family of pedestrian focussed signs, based on a review of a number of Australian pedestrian wayfinding signage examples, to be used in activity centres in the Ipswich Local Government Area. These sign designs are detailed further in the *Active Transport Sign Design Manual.*

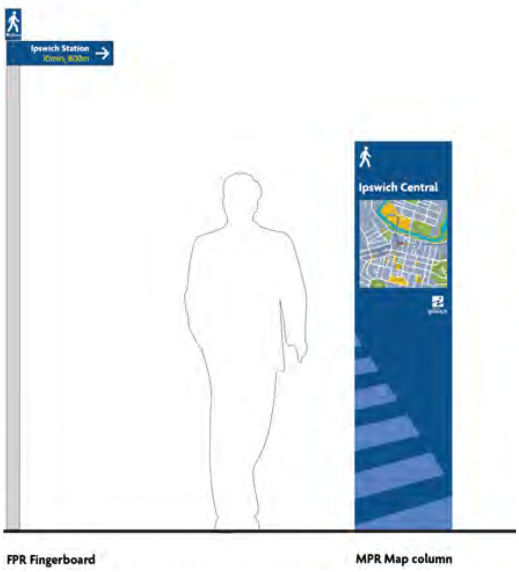
The sign types (see Figure 5) designed for pedestrians are:

- **Fingerboards** are the main means of indicating destination direction at decision points or intersections. This sign type shows one destination with its distance and walking time. Where there are multiple destinations, separate fingerboards are used for each destination with the sign mounting stack order going from closest destination at the top to furthest destination at the bottom.

- **Map Columns** are essentially 'Info Points' which show pedestrians the nearby points of interest/ destinations from that location. A locality map showing a 10min walking catchment (approx. 800m) and showing key destinations, points of interest and public facilities will be provided on this map, complemented by a 'You Are Here' arrow. Map columns are only to be provided in Ipswich Central, Springfield Central, Goodna and Ripley activity centres and are to be located at key locations generally within an 800m walking radius from the centre of an activity centre. This is usually at the start of key walking routes into the Activity Centre (refer to ATN Map for guidance) and at other strategic locations such as activity centre gateways (e.g. railway stations, bus stations, pedestrian mall, tourist information centres etc.)

  Pedestrian map guiding principles and a pedestrian column map example have been provided in Appendix G with further specifications in the *Active Transport Sign Design Manual.*

Figure 5: Pedestrian activity centre sign family – sign type



Pavement wayfinding markings

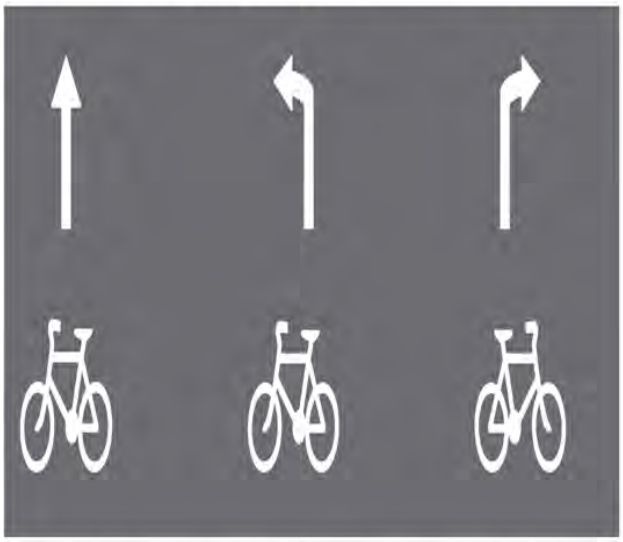
There are two key wayfinding pavement marking types that can be used across all of the above active transport network routes, except local transport routes (refer Figure 6):

- **On-road pavement wayfinding markings** are for on road bicycle facilities only and aim to indicate direction of the route to aid in wayfinding for cyclists in complex situations. These are positioned in advance of a route turning.

- **Off road path wayfinding markings** are a suite of pavement directional markers which indicate suggested walking routes to schools. These markings are only to be placed near schools, to complement Council walking programs/initiatives for schools and are subject to safety assessment and approval by Council's Infrastructure Planning Branch prior to application.

Figure 6: Pavement markings - wayfinding markings

On-road pavement wayfinding markings for bicycle routes only



On-road bicycle route pavement indicator (RPM-S shown)
To indicate straight ahead route travel direction

On-road bicycle route pavement indicator (RPM-L shown)
To indicate left turn ahead route travel direction

On-road bicycle route pavement indicator (RPM-R shown)
To indicate right turn ahead route travel direction

Off-road path pavement wayfinding markings

Path markers for recommended walking routes to school (subject to Council approval prior to application)
Examples shown for 5, 10 minute and untimed (reassurance) pavement markers

Pavement behaviour markings

Pavement marking types to assist in managing behaviour on the off road network across all of the above active transport network routes, except local transport bicycle routes and within pedestrian routes in activity centres (refer Figure 7) include:

- **Path behaviour pavement markings** are for off-road shared paths to aid good path behaviour and can be used on a situational basis where remedial action is considered necessary to ensure safe path operation. These markings are subject to safety assessment and approval by Council's Infrastructure Planning Branch prior to application.

Figure 7: Pavement Markings- Behaviour Markings

PBM Path behaviour marker

Additional PBM Path behaviour marker designs

Sign planning

This Strategy establishes a directional signage and wayfinding system to sign the active transport network in the City of Ipswich. Adoption of the following framework is recommended to ensure a consistent, high standard implementation of signing across the network:

1. The Ipswich Active Transport Network (ATN), consisting of the Cycle Network Map and Pedestrian Network Map, is an integrated series of paths and on road bicycle facilities serving the needs of pedestrians and cyclists in the City. Routes which are part of this network are documented in Appendix A.

2. Directional signs are to be used on all cycle routes and in identified pedestrian wayfinding precincts (see Appendix B) on the Ipswich ATN, including those provided as part of greenfield developments, and will conform to the sign design and construction guidelines outlined in this Strategy and detailed in the *Active Transport Sign Design Manual.*

3. Destinations used on signs will conform with the current edition of the City of Ipswich Signage and Wayfinding Focal Point map (see Appendix C), the local transport bicycle route destinations/ facilities guideline (see Appendix D) and the pedestrian activity centre fingerboard destinations/ facilities guideline (see Appendix E). Examples of pedestrian activity centre decision points mapping and column maps provided in Appendix F and G respectively will also guide placement of signs and their content.

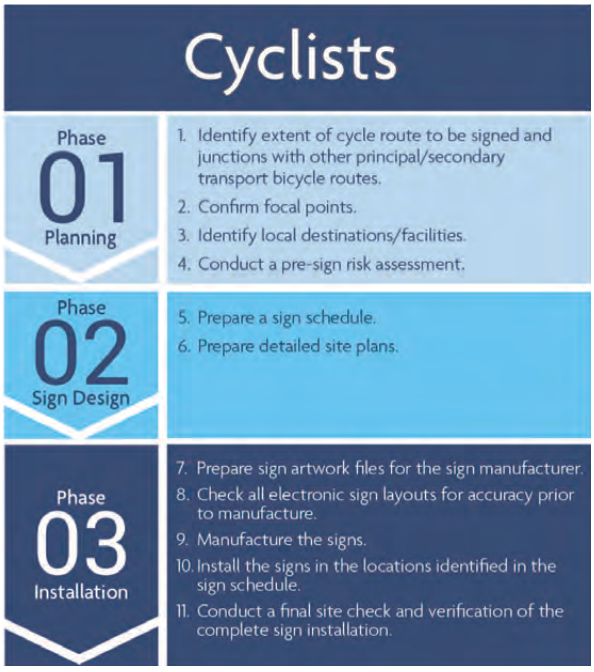
4. Sign asset managers will follow a common methodology for the planning, installation and maintenance of signs as set out in this Strategy to ensure consistent and effective service to the community. ICC's Infrastructure Planning Branch are to approve all signs before implementation.

5. Sign asset managers will utilise existing defect reporting and associated information to ensure the prompt replacement of any removed or damaged signs

Cycle Network Signing Methodology

The following methodology is recommended for all signing on the cycle network (refer Figure 8).

Figure 8: Planning a directional signage system for cyclists



Step 1: Identify extent of cycle route to be signed and junctions with other existing principal/ secondary cycle routes

The purpose of this stage is to confirm the project extents and its interaction with other principal/secondary cycle routes.

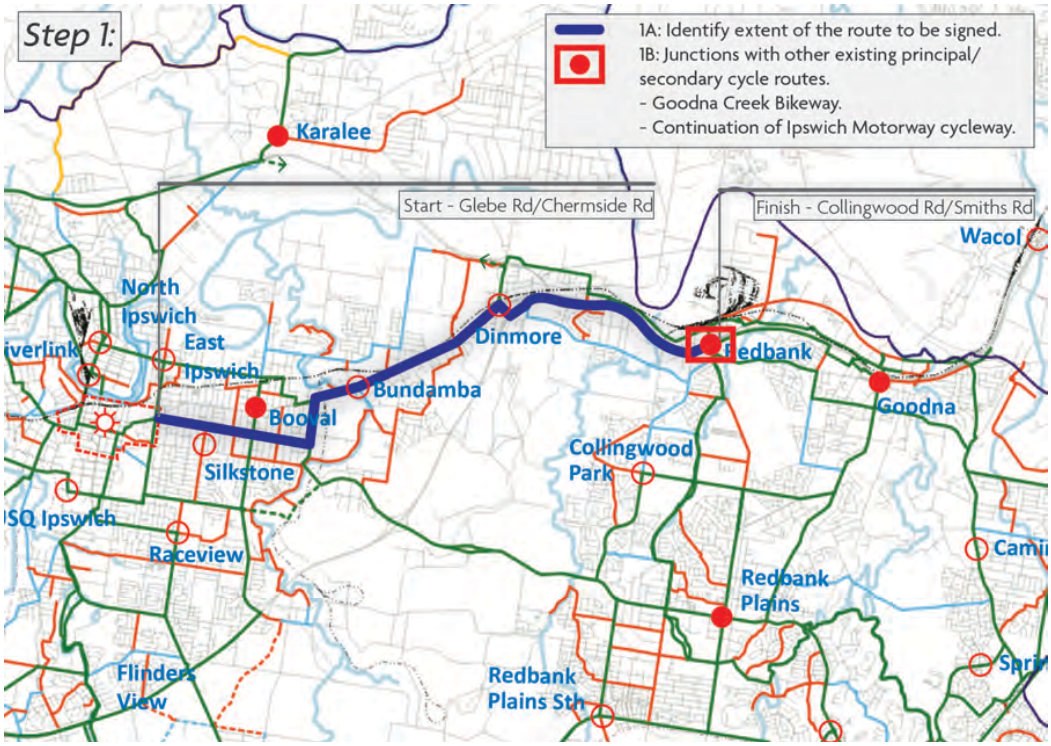
Signing a single route is relatively simple process of signing from point A to B, and all focal points in between. Signing a network is much more complex, as it functions as a web of routes rather a linear route. The purpose of this first step is to determine the correct route alignments to be signed, including start and end points and junctions with other cycle routes (or planned cycle routes).

The planning phase for signing cycle networks only concerns cycle routes and not facilities (e.g. shared paths, bicycle lanes etc). Instead, during sign installation the type and existence of cycling facilities are a key consideration because the precise siting of any directional signs will often be influenced by the facilities present.

The next part of this step is to identify all the existing interconnecting cycle routes and their destinations (the focal points). This planning is crucial, so that each route can be fully signed, not in isolation, but as part of the network. Route junctions are signed not only to indicate the destinations for the route being followed, but also to indicate the full range of destinations available at that location. For example, at a junction of two principal transport routes, the advance direction signs on each approach will list the next focal point for the route being followed, as well as the focal points accessible from the intersecting routes.

Figure 9 illustrates the tasks that would be undertaken for this step, utilising an example route to be signed between Ipswich Central and Redbank. The route interconnects with the existing Goodna Creek Bikeway and additional focal points may need to be signed at this location.

Figure 9: Step 1 Example – identifying extent of cycle route and junctions



Step 2: Confirm focal points

The focal point map is an essential planning tool used to define the destinations which appear on directional signs for the network. The key aim of the cycle network focal point map is to ensure rigid consistency across the network. Using ad hoc destinations on signs creates confusion and a lack of confidence in the wayfinding system. It is therefore essential that only those destinations appearing on the focal point map are used on cycle network signs.

A review of the City of Ipswich's Signage and Wayfinding Focal Point Map (refer Appendix C) should be undertaken for the route to be signed. Locations to be used as focal points and the name used by each focal point is also to be confirmed. In some cases, small modifications to focal point locations may be required due to the route alignment. Any changes to focal points locations or names should be recorded and updated regularly on the master focal point map (Appendix C).

Figure 10 illustrates defining and confirming focal points for the example route to be signed between Ipswich Central and Redbank. The figure illustrates the focal points names required for each section of the bikeway and also identifies the need to decide if the Booval focal point is signed from this route as an off-route focal point (refer Issues to consider when signing routes) or whether the location of the focal point is moved to the route being signed and the focal point map updated accordingly. It may also be appropriate to refer to the end destination of this route which is outside of Council boundaries (Brisbane City).

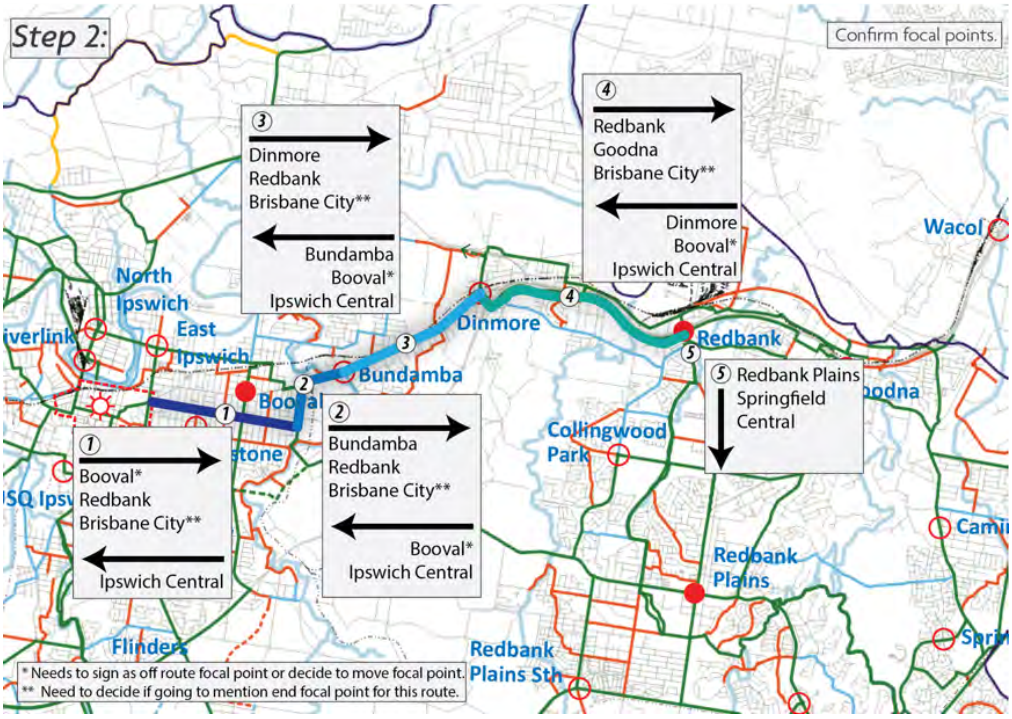
Document any route branding required on signs

At this stage of the process, any route branding required on signs can be identified. Currently the Ipswich ATN has not identified any route branding and therefore this step is not required. This step is therefore a place-marker for the future if/when Council decide to introduce route branding.

The application of route branding is an increasingly common way to improve promotional identity and greater user awareness. Branding usually involves adding conspicuous design elements such as branding logos and specialised support signage including route specific map panels and interpretive signage to give the route a distinctive and memorable appearance.

Further information on route branding can be found in *AP-R492-15 Research Report – Bicycle Wayfinding* (Austroads 2015) guidelines.

Figure 10: Step 2 Example – identify focal points



Step 3: Identify local destinations/ facilities

This step involves identifying local destinations or facilities such as local parks and shops along the cycle route to be signed, so appropriate reference can be made to these at appropriate locations and in a consistent manner. This process can also identify services or facilities such as police stations, toilets, bike parking which could be referred to on signs as pictograms. Refer to Appendix D for further guidance on Identifying local destinations/ facilities. These local facilities will need to be ground truthed, and others identified, during the site visit of the route to be signed (refer Step 4 and 5).

If a number of turns are required to access a local destination, local route signage should be continued along the entire length of the route. For example, a train station may be 1.5km off a principal transport route via a local transport route. If it is proposed to sign to this local destination from the route being signed then all decision points should be signed between the principal route and the local destination.

Figure 11 illustrates local destinations to be signed along the example route to be signed between Ipswich Central and Redbank.

Step 4: Conduct a pre-sign risk assessment

Prior to the installation of directional signs on a route it is recommended that a physical on-site risk assessment be made (see Table 3 example). This assessment will identify the cycle facilities to be used as part of the route and study the condition of these facilities to determine if it can be signed.

The condition of existing facilities on- and off-road, intersections/crossing points and any critical safety issues are to be noted. Where major high-risk deficiencies occur in the permanent infrastructure, remedial action is to be recommended and carried out prior to sign installation.

Recommendations for pre-sign risk-assessment procedures are provided in the Queensland Transport and Main Roads publication *A Guide to Signing Cycle Networks* (search title on the TMR website www.tmr.qld.gov.au).

The other tasks that can be undertaken as part of the pre-sign risk assessment include:

- Confirm local destinations – locations and other local destinations not already identified. The site visit can also identify any side streets that may need to be signed along the route. The need for signs to local side streets are more necessary along off road paths along creeks where existing street signs may not be visible.

- Confirm decision points along the route to be signed. These are in locations where users need to be directed to make a turn along the route or where the direction of the route is not obvious. Figure 11 illustrates potential decision points along the route to be signed.

Figure 11: Step 3 Example – identify local destinations

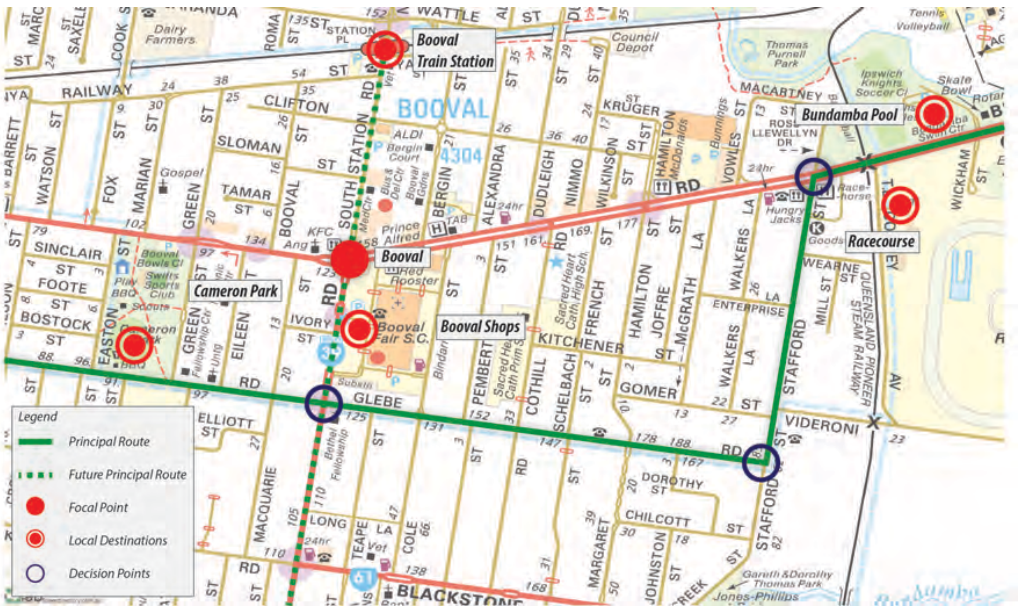


Table 3: Example of pre-sign risk-assessment issues and recommendations

Route	Route extent	Summary of issues to be resolved before sign installation	Recommended actions prior to sign installation
RA	MyTownA to MyTownB	XYZ Street closure not signed as a shared path. ABC Avenue (southern side between DEF Avenue and GHI Street not signed as a shared path. Narrow bridge across rail line near LMN Station. PQR Street contra-flow lane median needs a constructed gap to permit turn into XYZ Street.	Install shared path signs at the XYZ Street closure, ABC Avenue between GHI Street and DEF Avenue. Install guidance signs for cyclists to dismount on the narrow pedestrian bridge over the railway on LMN Road. Construct turning gap in PQR Street median at XYZ Street. Route signed as recommended in signage schedule.
RB	MyTownB to MyTownC	This route is currently rideable as described.	Route to be signed as recommended in signage schedule.

Step 5: Prepare a sign schedule

A sign schedule (see Figure 13 example and Appendix H) is the key product of this step and the reference document used to specify the content and location of all signs in a project. Details included in a sign schedule are:

- Content for all signs in the project (including destinations, distances and direction arrows etc). This should also include location and content of any map sign types.
- Sign type and reference number (refer Table 5 and the *Active Transport Sign Design Manual*).
- Travel direction to indicate the mounting orientation of the sign.
- Precise location of each sign. It is recommended that marked-up site photos, detailed site maps or diagrams be included with the sign schedule to ensure an accurate communication with the sign installer for each sign's particular siting requirements. Refer Step 6 for further details.
- Mounting details/requirements (e.g. new pole, existing poles, modifications to existing poles, type of mounting etc).
- New signs found necessary by the site assessment (e.g. missing regulatory signs, facility/services indicator signs, signs indicating connecting paths to the street system, additional signs at junctions for separate on- or off-road facilities and street name signs at junctions and route turnings.
- Redundant signs to be removed (e.g. old or contradictory wayfinding signage, incorrect regulatory signs).
- Additional works required to fully install the signs (e.g. minor tree pruning and branch removal where vegetation obscures signs when installed).

A site visit on bike is recommended in this step to identify suitable locations for signs, as well as existing relevant wayfinding signs. Signs are to be located at all decision points along the route (at a minimum) which is usually at route junctions/ intersections.

Figure 1 on page 12 illustrated the sign family decision tree for each route type in the Active Transport Network. Table 4 details the sign families and the sign types within each family to be used to guide the choice on sign type within the sign schedule.

Figure 12: Key Rules for Consistent Signing

Figure 13: Example Sign Schedule

Route Directional Signage Masterplan Schedule								Contractor Site Sur
Site Ref	Junction description	Sign No	Sign type	Ref No	Travel direction	Sign lettering	Remarks	Site Inspection Photo No.
1a	Lower River Terrace and V1 Cycleway	E1	Reassurance direction board		S	South East Freeway Bikeway Park Rd 1.5km Stones Cnr 2.9km Griffith University 11.2km Klump Rd 12.0km	Located on pole on southern side of Lower River Terrace at entrance to bikeway. This sign no longer meets TMR standards - Remove sign and poles	R1.1.E1.jpg
		E2	Advance direction board		N	← City via South Bank Parklands ---------- Kangaroo Point Bikeway →	Located on pole on southern side of Lower River Terrace at entrance to bikeway (back to back with above sign). This sign no longer meets TMR standards - Remove sign and poles	R1.1.E2.jpg
		E3	Fingerboard	BCC DR1-1		Goodwill Bridge 500m → Victoria Bridge 1.7km	Located on pole on northern side of Lower River Terrace, north of bikeway	R1.1.E3-5.jpg
		E4	Fingerboard	BCC DR1-2		Thornton St Ferry 1.2km → Holman St Ferry 1.83km	Located on pole on northern side of Lower River Terrace, north of bikeway - same pole as above	R1.1.E3-5.jpg
		E5	Fingerboard	BCC DR1-3		V1 Veloway → O'Keefe St 1.95km	Located on pole on northern side of Lower River Terrace, north of bikeway - same pole as above	R1.1.E3-5.jpg
		1	Fingerboard with numbered principal route	G2-C04-2	S	(V1) Stones Corner 2.4 → Tarragindi 4.8	New pole located adjacent fence on southern side of Lower River Tce, west side of bikeway. Sign to face south along bikeway	R1.1.1-2.jpg
		2	Fingerboard with numbered principal route	G2-C04-2	N	(V1) South Bank 500m → Brisbane City 1	New pole located adjacent fence on southern side of Lower River Tce, west side of bikeway. Sign to face north across Lower River Tce	R1.1a.1-2.jpg
1b	V1 Cycleway, south of Lower River Terrace	3	Reassurance direction board	G4-C02	S	V1 Cycleway Stones Corner 2.3 Tarragindi 4.8 Griffith University 8.7 Upper Mt Gravatt 12 Eight Mile Plains 14	New pole located adjacent pathway on eastern side approx 60m south of Lower River Tce. Sign to face north for southbound users	R1.1b.3.jpg
2	Allen Street and V1 Cycleway	4	Fingerboard with numbered principal route	G2-C04-2	S	(V1) Stones Corner 2.1 → Tarragindi 4.5	Clamp new pole to top of existing fence/upright pole on east side of path opp Allan St to keep sign clear of path. Sign to face south	R1.2.4-6.jpg
		5	Fingerboard with numbered principal route	G2-C04-2	N	(V1) South Bank 800m → Brisbane City 1.3	Clamp new pole to top of existing fence/upright pole on east side of path opp Allan St to keep sign clear of path. Sign to face north	R1.2.4-6.jpg
		6	Local Fingerboard	G2-C06-1	W	Stanley St 100m →	Clamp new pole to top of existing fence/upright pole on east side of path opp Allan St to keep sign clear of path. Sign to face west Place local sign last	R1.2.4-6.jpg
3	Pathway Access to Trinity Lane and V1 Cycleway	E6	Direction board		E	To South East Freeway Bikeway	On path leading to Trinity Lane, west side of V1 Bikeway. SIgn covered by vegetation. This sign no longer meets TMR standards - Remove sign and poles	R1.3.E6.jpg
		7	Fingerboard with numbered principal route	G2-C04-2	S	(V1) Stones Corner 1.8 → Tarragindi 4.3	Clamp new pole to top of existing fence/upright pole (last pole in fence) on east side of path opp Trinity Lane pathway to keep sign clear of path. Sign to face south	R1.3.7-9.jpg

Key to row colours used in the sign schedules

Colour	Explanation
	New sign as per instructions
	Existing sign to be removed
	Existing sign to be retained and remounted as per instructions
	Signs belonging to another route installed at junctions where routes overlap or cross. These duplicate rows are shown so all signs to be installed at a junction can be identified.
	Signs installed as part of another project but relevant to the route planned

Notes on the sign schedule

An example of an extract from a Sign Schedule is provided in Figure 13. It shows each sign as a separate row. Row colours (see table above) denote new signs, existing signs to remain in use or be removed. Existing signs showing inconsistent destinations are misleading and are recommended for replacement or removal in the schedule. These signs are shown in the schedule with a pink row colour. Retained and remounted signs are shown in green.

Each site to be signed is given a unique reference number (Column 1). All new signs are uniquely numbered – see Column 3. Existing signs to be retained or removed are given an identifying code letter.

The sign reference numbers in Column 5 refer to sign designs detailed in the City of Ipswich's *Active Transport Sign Design Manual*. Dimensioning and construction details for each sign type can also be found in the *Active Transport Sign Design Manual*.

Signs sites are described in a consistent travel direction. Travel direction codes (Column 6) indicate the orientation of signs along each route: W = signs face or direct westbound path users; E = signs face or direct eastbound path users. Additional direction indication in brackets eg: E (N), denotes the actual path direction of the route at specific sites, in this example the eastbound route actually travels north at this location. Advance direction and direction indication signs always face the traveller, fingerboards point in the direction of travel.

Table 4: Sign families and sign types used for each route type in the City of Ipswich Active Transport Network

		ROUTE TYPES			
		CYCLISTS			
		Principal transport	Secondary transport	Secondary recreation	Local transport
		Main arterials of an urban cycle network providing connections to and between major regional destinations	Main routes supporting the principal transport bicycle route network	Iconic recreational routes and identified touring/training routes	Routes connecting principal and secondary transport bicycle routes to local destinations
SIGN TYPES	Fingerboard signs	YES[1]	YES[1]	YES[1]	At start and finish of routes and where needed
	Direction indication signs	In place of fingerboards where they can't be used.	In place of fingerboards where they can't be used.	NO[2]	NO[2]
	Advance direction signs	Only on high speed commuter routes	NO	NO	NO
	Reassurance signs	Only on lengthy routes after major junctions	NO	NO[2]	NO[2]
	Facility/destination signs	YES	YES	YES	YES
	Location signs	YES, at underpasses	YES, at underpasses	YES, at underpasses	YES, at underpasses
	Route markers	Use direction indication signs	Use direction indication signs	YES	YES
	Map signs/columns	YES[3]	YES[3]	YES[3]	NO
	Street signs	YES[4]	YES[4]	YES[4]	YES[4]
	Pavement wayfinding markings	YES[5]	YES[5]	YES[5]	NO
	Pavement behaviour markings	YES[5]	YES[5]	YES[5]	NO

[1] At junctions with other routes and where routes change direction
[2] Use route markers instead
[3] At key gateway/ high demand locations. For pedestrian map columns, in Ipswich Central, Springfield Central, Goodna and Ripley activity centres only
[4] If none exist
[5] As needed and subject to approval by ICC's Infrastructure Planning Branch

Issues to consider when preparing sign schedules

Sign layouts for route junctions

Signing route junctions can be complex as they are a key decision point for the user. It is important to portray information simply, and provide this information in a visible location. Figures 14, 15 and 16 from the *AP-R492-15 Research Report – Bicycle Wayfinding* (Austroads 2015) show recommended intersection sign layouts for different route types. These are provided to guide location and content of signs at these complex intersections

Figure 14: Typical intersection sign placement layout for local transport routes, branching from principal/secondary transport routes

Example taken AP-R492-15 Research Report – Bicycle Wayfinding (Austroads 2015)

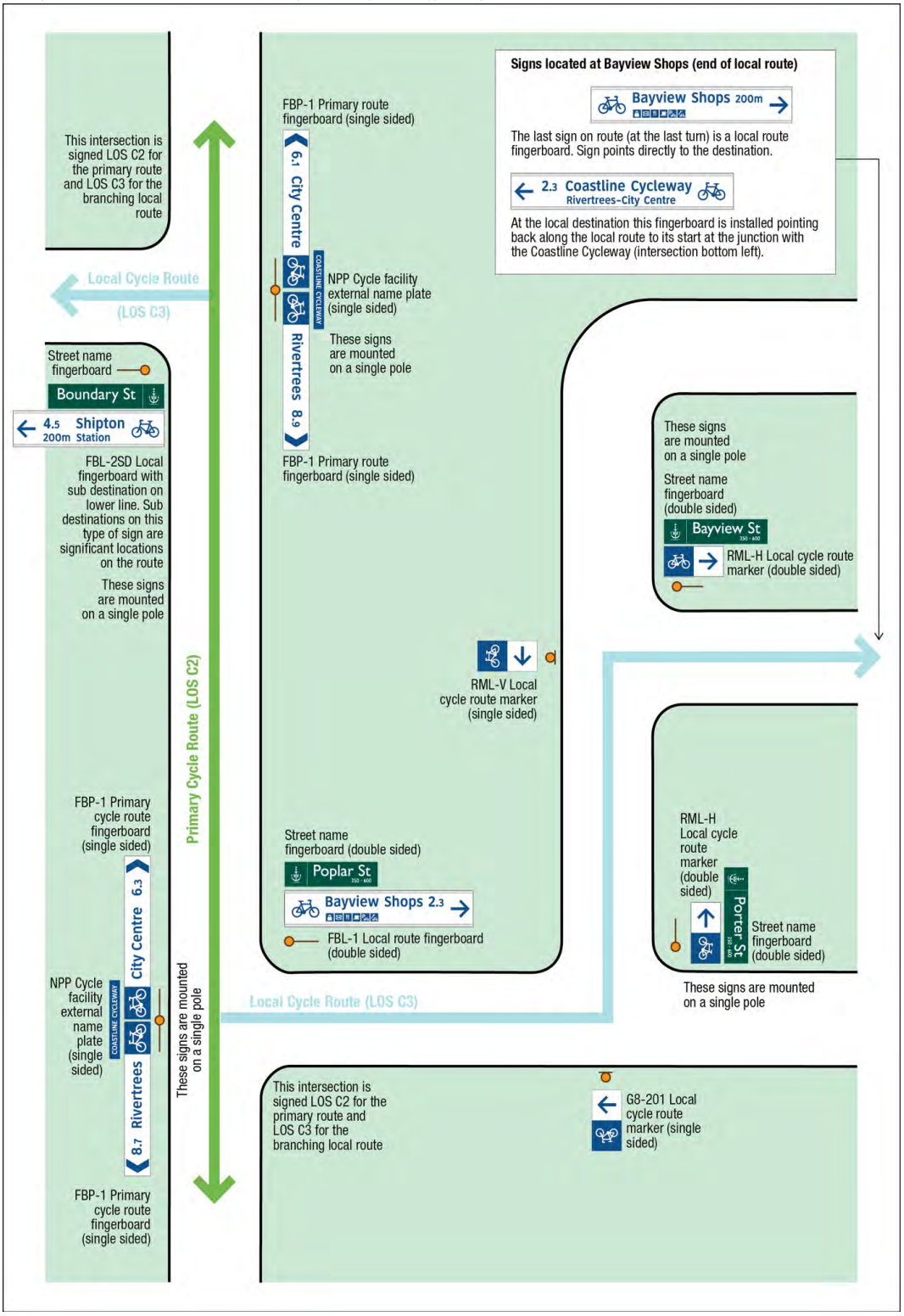


Figure 15: Typical intersection sign placement layout for secondary recreation bicycle route.

Example taken from AP-R492-15 Research Report – Bicycle Wayfinding (Austroads 2015)

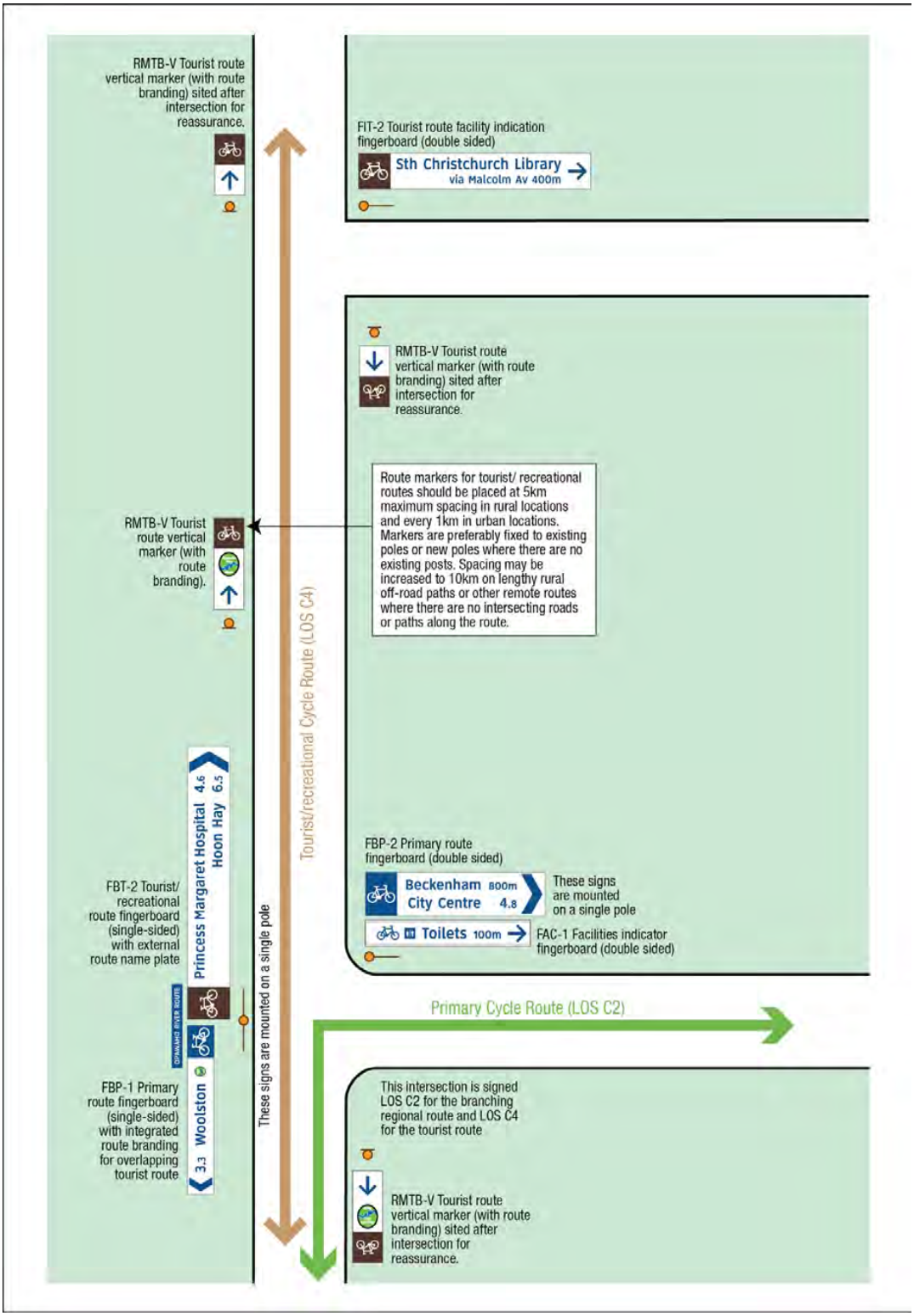
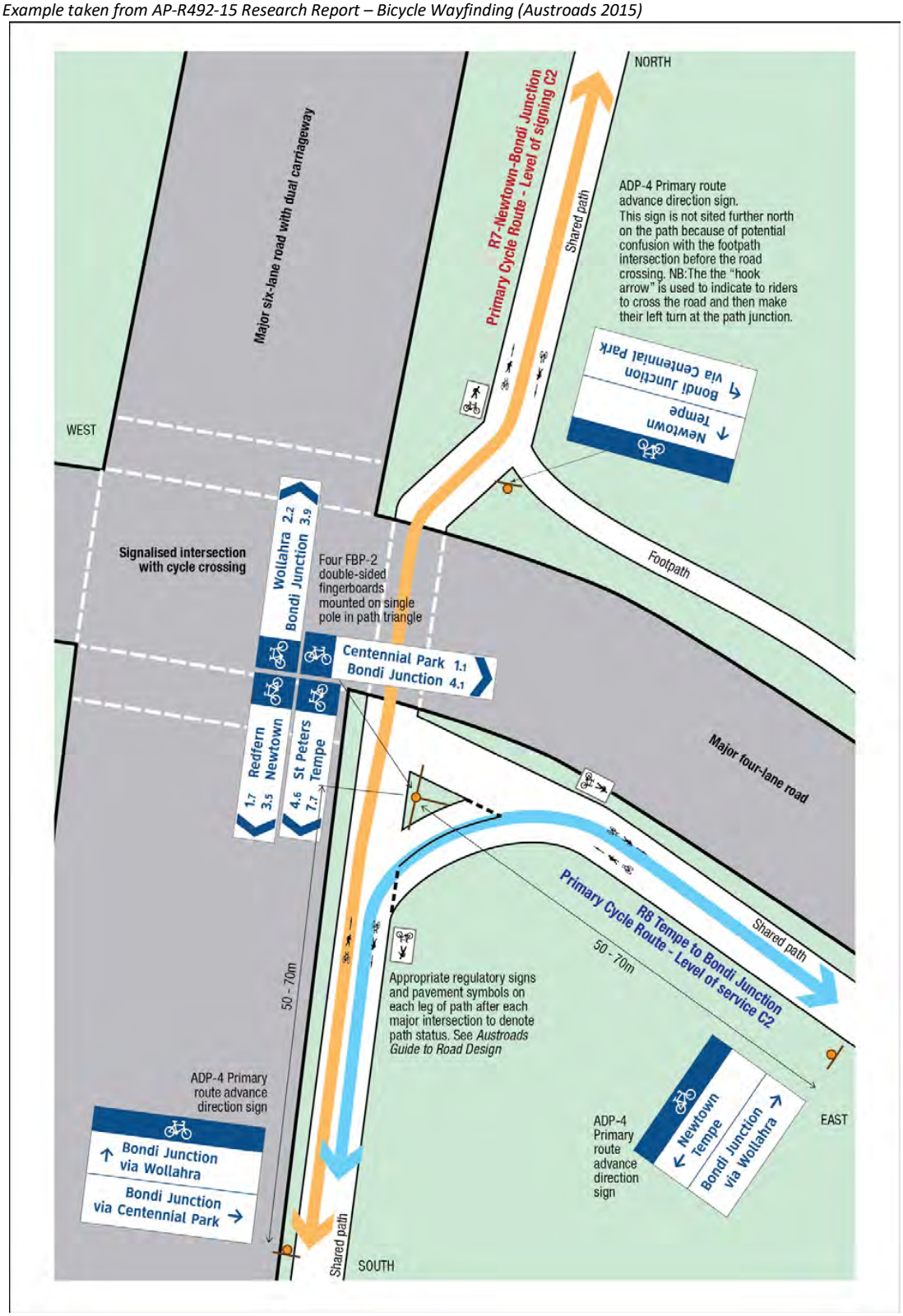


Figure 16: Typical intersection sign placement layout for primary/secondary transport routes.

Example taken from AP-R492-15 Research Report – Bicycle Wayfinding (Austroads 2015)



Focal points off-route

In some localities where the focal point is a well-known suburb which lacks a strong centre or where all the cycle routes in the area skirt the suburban activity centre, it is difficult to accurately measure to the focal point or determine where the focal point is reached along a route. There are two key issues in this example which should be dealt with separately (see Figure 17):

- **When is the focal point reached?** In theory, the suburban focal point is reached when the route crosses its suburban boundary. Practically, this should be the first cycle route junction within the suburb or some other point further along on the route leading to the suburb's centre.

- **Which point is the focal point measured to?** Distances that appear on signs are always measured for each route independent of other routes. Ideally the focal point should be measured to the suburb's activity centre. Where a route does not pass through the centre of a suburb, the measurement point is usually the closest junction providing route access to the centre. If there are no intersecting routes linking a peripheral route to the centre it is recommended that a local route be developed (or at least signed as an on-road route along residential streets) as shown in Figure 17.

Route measurement tables

An Excel spreadsheet (available as a separate file) has been developed to provide the distance information used on signs at route junctions. An example is provided in Appendix I.

Step 6: Prepare detailed site plans

Based on the Sign Schedules, detailed site plans are to be developed for routes to be signed. The aim of the site plan is to provide more information to aid the sign installation and avoid any confusion over the location of each sign. Detailed site plans include the following:

- Aerial photo map showing the exact location of each proposed sign at each site.

- Implementation instructions for each proposed sign at each site.

- Marked up street view photo further illustrating the location of each sign.

Figure 18 shows an example detailed site plan.

Figure 17: Example of a suburban focal point

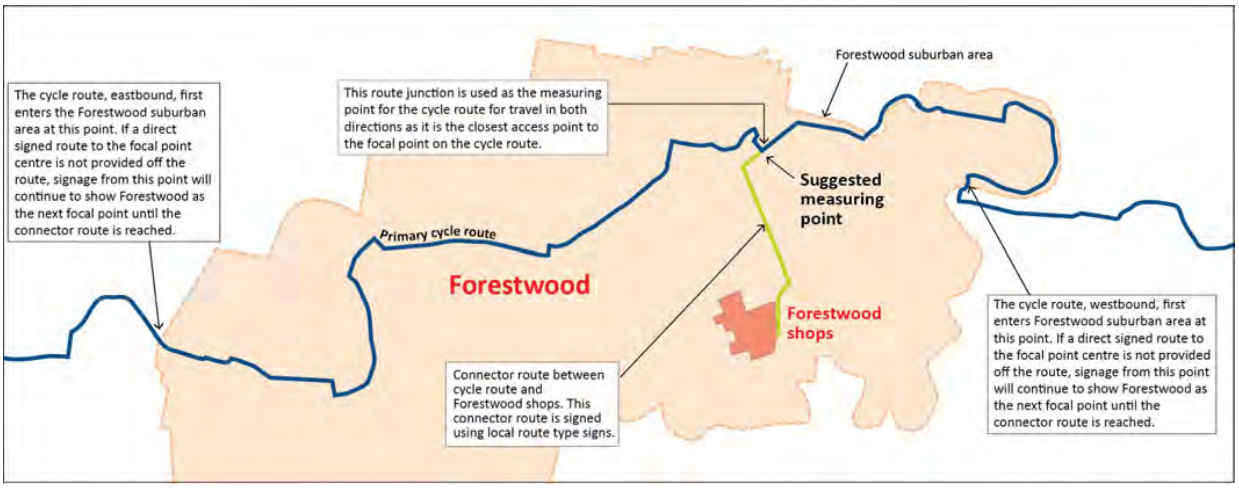


Figure 18: Example of a detailed Site Implementation Plan (Redbank Plains)

Steps 7-11: Sign specifications, installation and verification

The completed route sign schedules can now be used to manufacture the signs. Before this is done, it is recommended that the sign sites be 'ground truthed' against the schedule. This site inspection is necessary to correct any errors that may have occurred during the preparation of the schedules.

The finalised sign schedules are then sent to the sign maker along with sign dimensioning details (see *Active Transport Sign Design Manual*.) so that electronic sign artwork can be prepared. This work is usually undertaken by the sign manufacturer 'in-house' or by an external graphic artist. A final check of the electronic artwork should be made to correct errors at that point.

Sign artwork is then used to fabricate the signs. The manufactured signs are installed according to the details provided in the sign schedules plus additional detailed siting instructions (maps, diagrams and site photos) provided by the detailed site plans.

Following installation, sign content, location and orientation are checked on site by the sign planner. All signs need to point in the right direction and be easily visible to cyclists riding the route. Signs wrongly installed or containing inaccurate information are documented and supplied to the sign installer/maker for rectification.

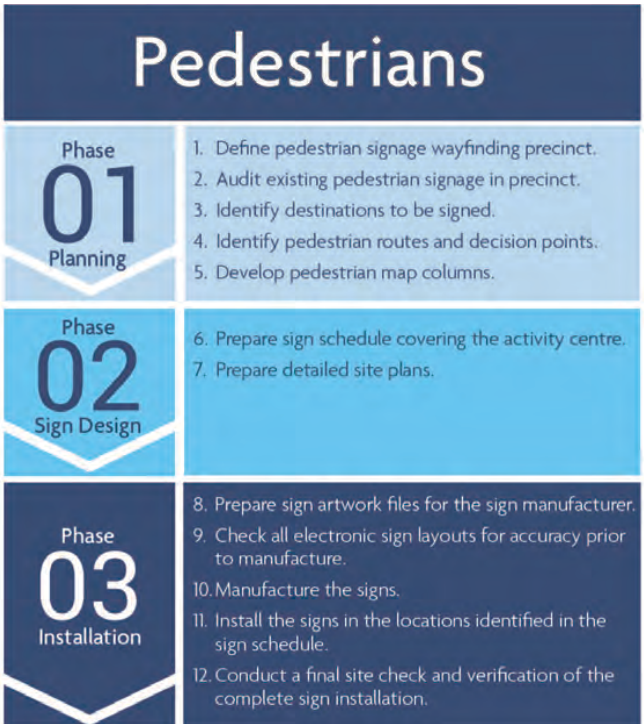
Ongoing maintenance of the signs should also occur to ensure they continue to be visible to users. Council have an on-line reporting system (MyIpswich) where users can report sign maintenance and graffiti damage.

Technical specifications and guidelines on the design of individual signs, sign manufacture, and maintenance is provided in the *Active Transport Sign Design Manual*.

Pedestrian Activity Centre Signing Methodology

The following methodology is recommended for pedestrian signage in activity centres (refer Figure 19).

Figure 19: Planning a directional signage system for pedestrian activity centres



Step 1: Define pedestrian signage wayfinding precinct

The first step in the process involves defining the location for pedestrian activity centre wayfinding signs. At this stage, implementation only involves rolling out pedestrian wayfinding signage in higher order activity centres including principal regional, sub-regional and district activity centres, as defined on the Pedestrian Activity Centre Wayfinding Precinct Map in Appendix B. The wayfinding precinct is generally defined by a 10min walk radius from the centre of the activity centre (approx. 800m radius but may vary depending on the scale of the centre).

In the future, these wayfinding precincts could be extended to other activity centres and townships, train stations and along pedestrian transport corridors (refer Appendix A).

Step 2: Audit existing pedestrian signage in precinct

Walking trips tend to be shorter and more fine-grained compared to cycling trips. There is also usually some existing pedestrian wayfinding in centres, often historic and of inconsistent styles and quality. As a result, it is recommended that a physical walking audit of the centre that is proposed to be signed occur as the next step in the signing process. The audit should aim to achieve the following:

- Document (photograph and identify location) and audit all existing active transport wayfinding signage in the activity centre;
- Undertake a high level physical risk assessment of the walking infrastructure in the activity centre. Critical safety issues and high risk deficiencies should be identified. If remedial action cannot be taken at these locations before signage implementation, then these locations may need to be avoided if possible; and
- Note destinations and facilities within the activity centre, including major entry points to these destinations, as well as associated desire lines.

Step 3: Identify destinations to be signed to

This step involves identifying and mapping out the destinations (e.g. hospitals), services (e.g. train stations) and facilities (e.g. toilets) which will appear on the activity centre's pedestrian wayfinding directional signs. These can be identified during the previous step's site audit and a desktop assessment. Appendix E

provides a guideline and hierarchy of recommended destinations/ facilities to sign to and provides an example working Pedestrian Activity Centre Destination Map.

This step is important for the same reason as a cycle network focal point map - to enable consistent naming conventions, reduce the number of signs required/provided and enable a user to negotiate their way logically around the activity centre. It is therefore essential that only those destinations identified on the developed Pedestrian Activity Centre Destination Map are used on the pedestrian wayfinding directional signs.

Step 4: Identify pedestrian routes and decision points

The wayfinding signage for pedestrians will be based on destinations. There will be a number of routes which people can use to access the destinations and therefore the next step is to identify the most logical pedestrian routes to these destinations and then the decision points in the activity centre where pedestrian wayfinding directional signs should be placed.

To help identify logical pedestrian routes, start at key origin locations (e.g. rail station or pedestrian mall) and radiate out to the Level 1 destinations picking up the other destinations on the way. When preparing the sign schedule, signage back to these origins does not need to be provided for all destinations, as users are likely to be able to find their way back. It is recommended that only key outlying destinations be chosen to sign the return journey (e.g in Ipswich Central this may be Queens Park, Ipswich Base Hospital, Top of Town, Riverheart Parklands and RiverLink).

Key examples of decision points include locations where people join the network (e.g. at rail or bus stations, car parks, outlying destinations), at destinations (considering linked journeys), intersections and open areas.

A map showing routes and decision points should be produced at the end of this step. An example Decision Point Map is provided in Appendix F

Step 5: Develop pedestrian map columns

If the pedestrian wayfinding project is located in a principal or sub-regional activity centre (e.g. Ipswich Central, Springfield Central, Goodna or Ripley) pedestrian map columns may also be incorporated into the sign planning. Map columns are typically located at major arrival points to the activity centre (e.g. rail station) as well as destinations where there may be a higher proportion of tourists or visitors (e.g. information centre, pedestrian mall, art gallery etc.).

After identifying locations for pedestrian map columns, the artwork for the map must also be prepared. Appendix G provides guidance on the required map scale and recommended map content and the *Active Transport Design Manual* provides detail on the required map design, layout and colour pallet.

Step 6: Prepare sign schedule covering the activity centre

A sign schedule (similar to the cycle network one - see Figure 13 example and Appendix H) is the key product of this step and the reference document used to specify the content and location of all signs in a project. Details included in a sign schedule are:

- Contents for all signs in the project (including destinations, distances, times, pictograms and direction arrows etc). This should also include Map column locations and content.
- Sign type and reference number (refer Table 5 and *Active Transport Sign Design Manual*).
- Travel direction to indicate the mounting orientation of the sign.
- Precise location of each sign. It is recommended that marked-up site photos, detailed site maps or diagrams be included with the sign schedule to ensure an accurate communication with the sign installer for each sign's particular siting requirements. Refer Step 8 for further details.
- Mounting details/requirements (e.g. new pole, existing poles, modifications to existing poles, type of mounting, stacking order etc).
- Redundant signs to be removed (e.g. old or contradictory wayfinding signage, incorrect regulatory signs).
- Additional works required to fully install the signs (e.g. minor tree pruning and branch removal where vegetation obscures signs when installed).

The Level 1 destinations should be the focus of the fingerboard signage provided, with signs located at key decision points defined in Step 4. Once a destination appears on a sign, it should continue to be signed at every subsequent decision point until the destination is reached. Level 2 and Level 3 destinations will only be signed at one decision point prior to the destination.

Another site visit on foot is recommended at this stage to identify suitable locations for signs. Fingerboard signs are to be located at all identified decision points. There is often competing demands for space on the footpath and reducing signage clutter is an issue to be considered when locating signs. It is important that signs are highly visible without creating a hazard, and that clear paths for pedestrians and people in wheelchairs are retained.

Figure 1 on page 12 illustrated the sign family decision tree for each route type in the Active Transport Network. Table 5 details the sign types within the pedestrian activity centre sign family to be used to guide the choice on sign type within the sign schedule.

Table 5: Sign types used for pedestrian activity centre signing

		PEDESTRIANS
		Activity centres
		Signed activity centre destinations within an 800m walking distance
SIGN TYPES	Fingerboards	YES[1]
	Map signs/columns	YES[2]
	Street signs	YES[3]
	Pavement wayfinding markings	School pavement markings near schools only[4]

[1] At identified decision points
[2] At key gateway/high demand locations in Ipswich Central, Springfield Central, Goodna and Ripley activity centres only
[3] If none exist
[4] As needed and subject to approval by ICC's Infrastructure Planning Branch

Step 7: Prepare detailed site plans

Based on the Sign Schedules, detailed site plans can be developed for routes to be signed, similar to the cycle network detailed site plans. The aim of the detailed site plan is to provide more information to aid the sign installation and avoid any confusion over the location of each sign. Site plans include the following:

- Aerial photo map showing the exact location of each proposed sign at each site.
- Implementation instructions for each proposed sign at each site.
- Marked up street view photo further illustrating the location of each sign.

Steps 8-12: Sign specifications, installation and verification

The completed route sign schedules can now be used to manufacture the signs. Before this is done, it is recommended that the sign sites be 'ground truthed' against the schedule. This site inspection is necessary to correct any errors that may have occurred during the preparation of the schedules.

The finalised sign schedules are then sent to the sign maker along with sign dimensioning details (see *Active Transport Sign Design Manual*) so that electronic sign artwork can be prepared. This work is usually undertaken by the sign manufacturer 'in-house' or by an external graphic artist. A final check of the electronic artwork should be made to correct errors at that point.

Sign artwork is then used to fabricate the signs. The manufactured signs are installed according to the details provided in the sign schedules plus additional detailed siting instructions (maps, diagrams and site photos) provided by the detailed site plans.

Following installation, sign content, location and orientation are checked on site by the sign planner. All signs need to point in the right direction and be easily visible to pedestrians walking the route. Signs wrongly installed or containing inaccurate information are documented and supplied to the sign installer/maker for rectification.

Ongoing maintenance of the signs should also occur to ensure they continue to be visible to users. Council have an on-line reporting system (MyIpswich) where users can report sign maintenance and graffiti damage.

Technical specifications and guidelines on the design of individual signs, sign manufacture, and maintenance is provided in the *Active Transport Sign Design Manual*.

References

Australian Standard *AS1742.9* and referenced Standards

Australian Standard AS1742 Manual of Uniform Traffic Control Devices – Part 9: Bicycle Facilities. 2000. Standards Australia. Sydney NSW.

Australian Standard AS1743 Road Signs – Specifications. 2001. Standards Australia. Sydney NSW.

Australian Standard AS1744 Forms of letters and numerals for road signs (known as Standard alphabets for road signs): 2015. Standards Australia. Sydney NSW.

Australian Standard AS2700 Colour Standards for General Purposes. 2011. Standards Australia. Sydney NSW.

Austroads project to develop new national cycle network sign guidelines

The project report, available on the Austroads website consists of signage research and recommendations and three technical appendices for inclusion in the relevant ANZ Standards and Austroads guidelines. These appendices are as follows:

Appendix A: Recommendation for *AS1742.9 – Bicycle Facilities*. The contents of this appendix are recommended as a replacement for the current guidance on directional signs for cycling networks described in Section 5 of *Australian Standard AS1742 – Part 9: Bicycle Facilities*.

Appendix B: Recommendation for Austroads Guide to Traffic Management – Part 10. The contents of this appendix are recommended for inclusion in Austroads Guide to Traffic Management Part 10 – Traffic Control and Communication Devices.

Appendix C: Recommendations for AS1743 – Sign Specifications. The contents of this appendix are recommended for inclusion in Australian Standard AS1743 Road Signs – Specifications as Appendix C – Design and Layout of Cycle Network Directional Signs.

Other relevant Australian guidelines referred to as part of the Austroads project research and this Strategy are listed below.

Australian Capital Territory

Municipal Infrastructure Standard – Part 5 Pedestrian and Cyclist Facilities Design. 2014. ACT Territory and Municipal Services Directorate. Canberra, ACT.

ACT Standard Drawings *ACTSD-0000 and ACTSD-0000 – WCN Directional Signage Designs and Specifications.* 2014. ACT Territory and Municipal Services Directorate. Canberra, ACT.

Planning for Cycling and Walking in the ACT. 2014. ACT Government. Canberra, ACT.

New South Wales

NSW Bicycle Guidelines. 2005. NSW Roads and Maritime Services. Sydney, NSW.

Bicycle Network Directional Signage Design Guidelines. 2010. City of Sydney. Sydney NSW.

Queensland

Traffic and Road Use Manual Section 1.36, Queensland Cycle Network Directional Signage Guidelines. 2009. Department of Transport and Main Roads. Brisbane, Queensland. Part of TRUM Volume 1

A Guide to Signing Cycle Networks. 2009. Department of Transport and Main Roads. Brisbane, Queensland.

Brisbane City Council Bicycle Signage Manual. 2014. Brisbane City Council. Brisbane, Queensland.

Western Australia

MRWA Technical Guideline – Bicycling directional Signs. 2014. Main Roads Western Australia. Perth, WA.
Web-based guidelines.

Tasmania

Cycle Route Directional Signage Resource Manual. 2013. Department of State Growth. Hobart, Tasmania. Downloadable from:
http://www.transport.tas.gov.au/passenger/cycling_and_walking/signage

City of Ipswich, Active Transport

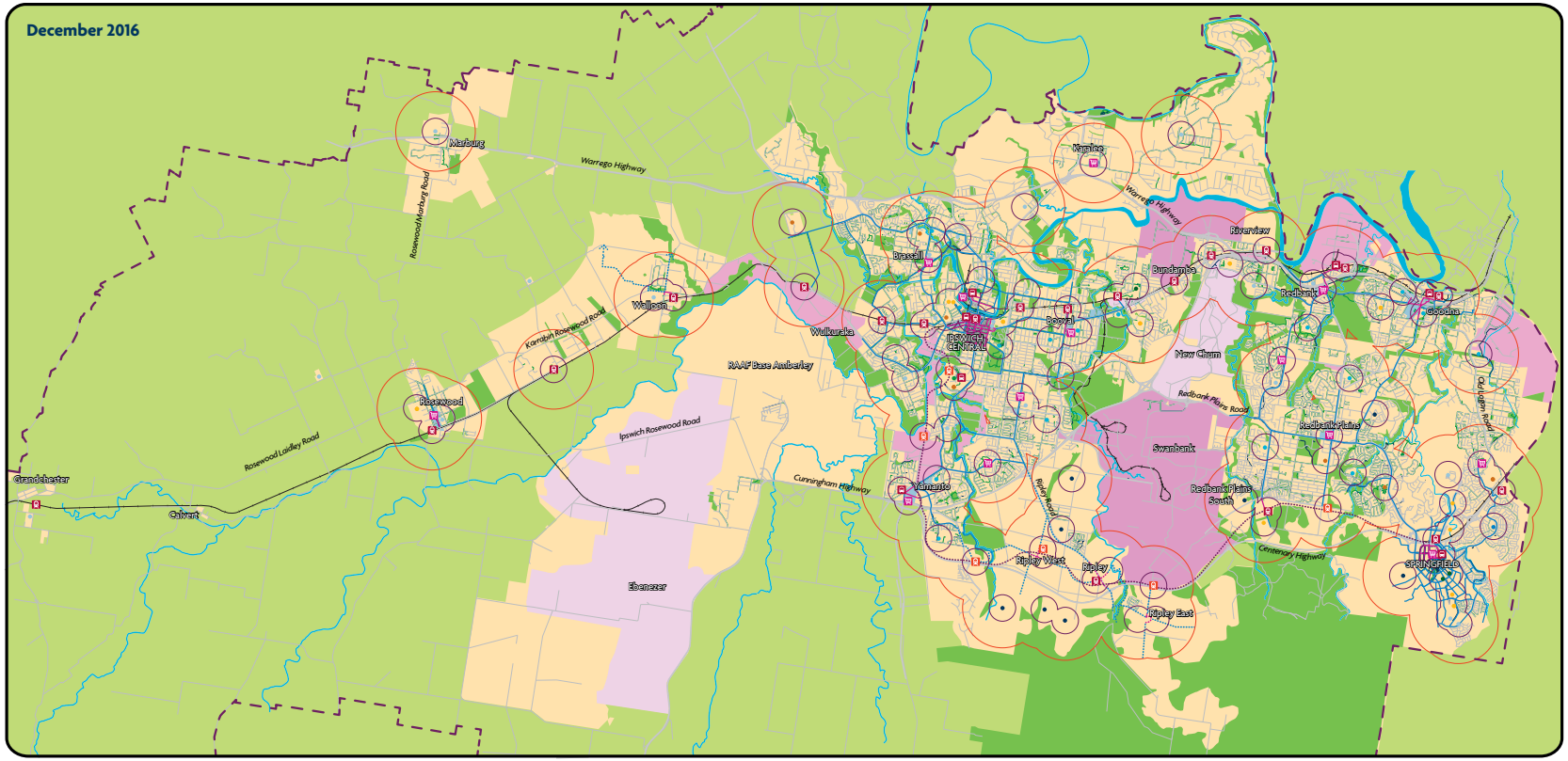
Appendices

City of Ipswich

City of Ipswich Transport Plan

Appendix A – iGO Pedestrian and Cycle Network Maps

Pedestrian Network Map



** All route alignments and configurations shown are subject to future investigation and corridor planning.*

LEGEND

EXISTING

- Road
- Rail
- Shared Footpath + 2.5m wide
- Footpath - 2.5m wide
- Train Station
- Bus Station
- Shopping Centre
- University/TAFE
- CBD
- Business & Industry
- Commercial
- Urban
- Recreation/ Conservation
- Rural
- LGA Boundary

PEDESTRIAN LINKS*

- Pedestrian Activity Street
- Pedestrian Activity Street (indicative)
- Pedestrian Transport Corridor
- Pedestrian Transport Corridor (indicative)
- Pedestrian Access Streets 400m Extents
- Pedestrian Access Streets 1200m Extents

PRIMARY SCHOOLS

- 34-500 students
- 501-1000 students
- 1001-1250 students

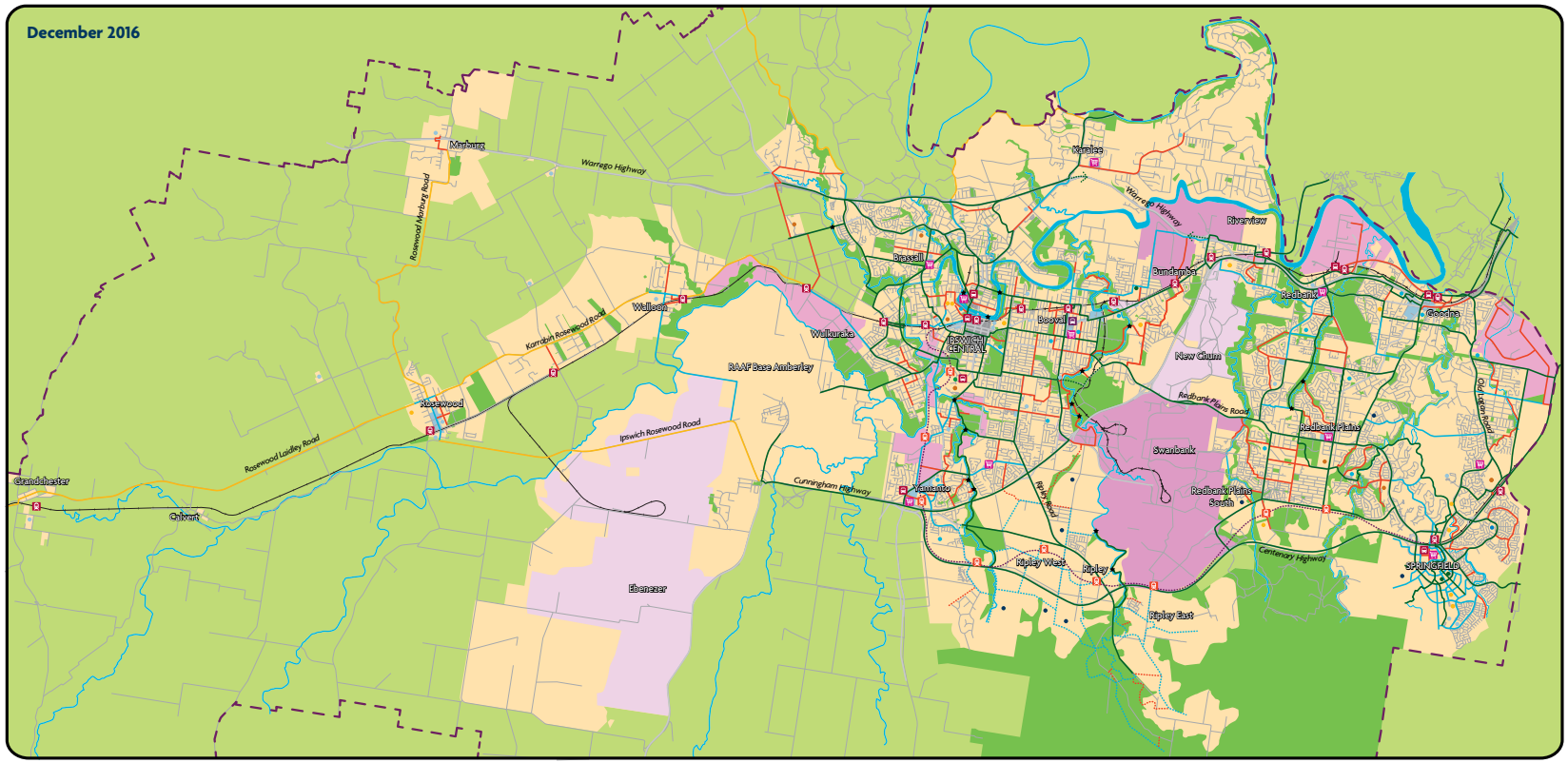
SECONDARY/PREP-YEAR 12 SCHOOLS

- 153-500 students
- 501-1000 students
- 1001-1500 students
- 1501-1750 students

FUTURE

- Future School
- Future Train Station
- Ipswich to Springfield Future Public Transport Corridor
- Future Business & Industry

Moving Ipswich Forward Cycle Network Map



** All route alignments and configurations shown are subject to future investigation and corridor planning.*

LEGEND

EXISTING

- Road
- Rail
- LGA Boundary
- Recreation/ Conservation
- Rural
- CBD
- Business & Industry
- Commercial
- Urban
- Train Station
- Bus Station
- Shopping Centre
- University/TAFE

PRIMARY SCHOOLS

- 34-500 students
- 501-1000 students
- 1001-1250 students

SECONDARY/PREP-YEAR 12 SCHOOLS

- 153-500 students
- 501-1000 students
- 1001-1500 students
- 1501-1750 students

FUTURE

- Future School
- Proposed Bridge Crossing
- Future Train Station
- Ipswich to Springfield Future Public Transport Corridor
- Future Business & Industry

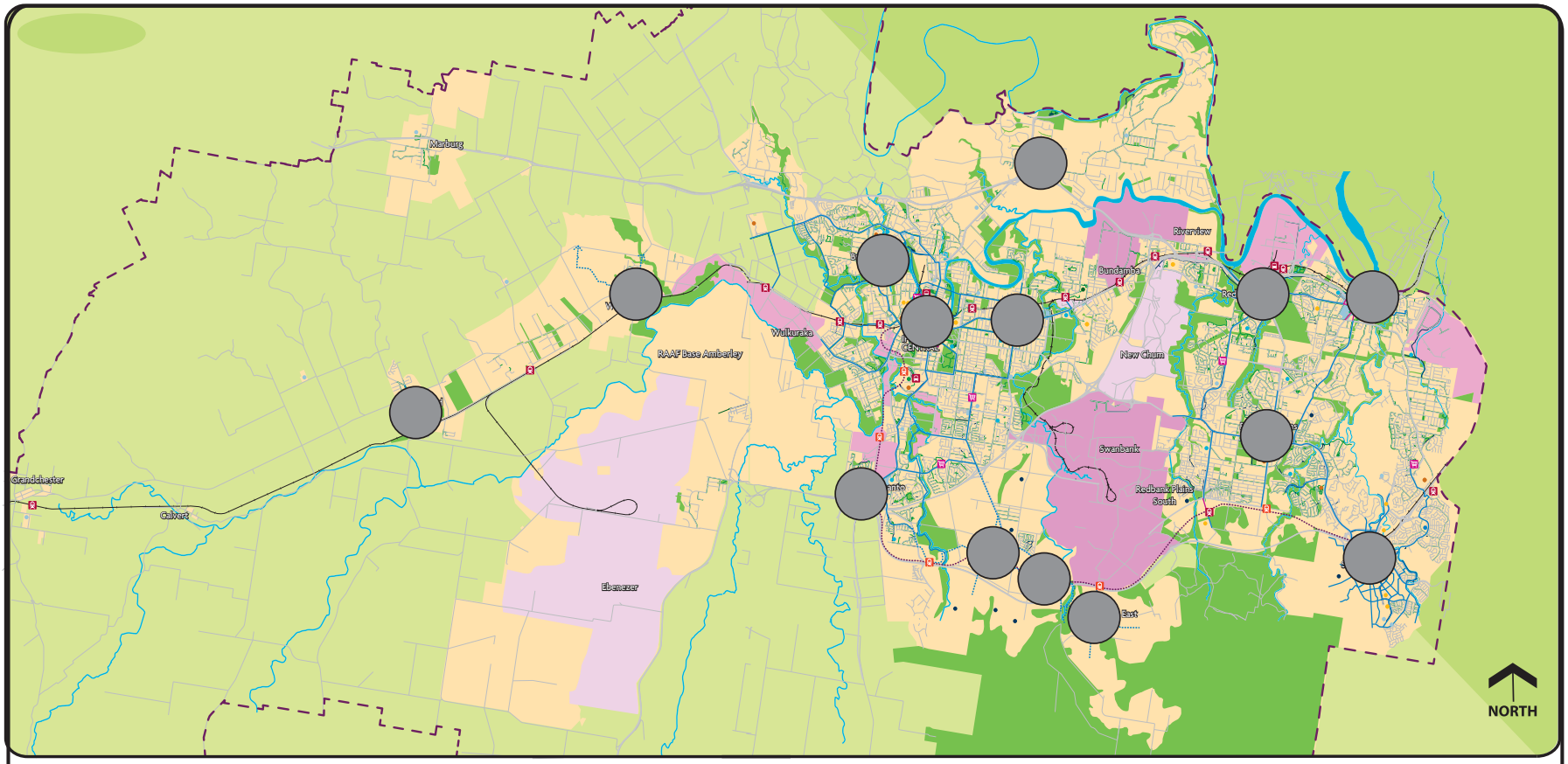
CYCLE LINKS*

- Principal Transport
- Principal Transport (future)
- Secondary Transport
- Secondary Transport (indicative)
- Secondary Recreation
- Local Transport
- Local Transport (indicative)

Appendix B – Ipswich Pedestrian Activity Centre Wayfinding Precincts

Ipswich Pedestrian Activity Centre Wayfinding Precincts Map

(Source of base map - iGO ATAP Pedestrian Network Plan, Dec 2016)



** All route alignments and configurations shown are subject to future investigation and corridor planning.*

Internal document for City of Ipswich reference only. Refer to Active Transport Wayfinding Strategy for further information.

LEGEND

EXISTING

- Road
- Rail
- Shared Footpath + 2.5m wide
- Footpath - 2.5m wide
- Train Station
- Bus Station
- Shopping Centre
- University/TAFE
- CBD
- Business & Industry
- Commercial
- Urban
- Recreation/ Conservation
- Rural
- LGA Boundary

PEDESTRIAN LINKS*

- Pedestrian Activity Street
- Pedestrian Activity Street (indicative)
- Pedestrian Transport Corridor
- Pedestrian Transport Corridor (indicative)
- Pedestrian Access Streets 400m Extents
- Pedestrian Access Streets 1200m Extents
- Pedestrian Wayfinding Precincts (approx 800m precincts)

PRIMARY SCHOOLS

- 34-500 students
- 501-1000 students
- 1001-1250 students

SECONDARY/PREP-YEAR 12 SCHOOLS

- 153-500 students
- 501-1000 students
- 1001-1500 students
- 1501-1750 students

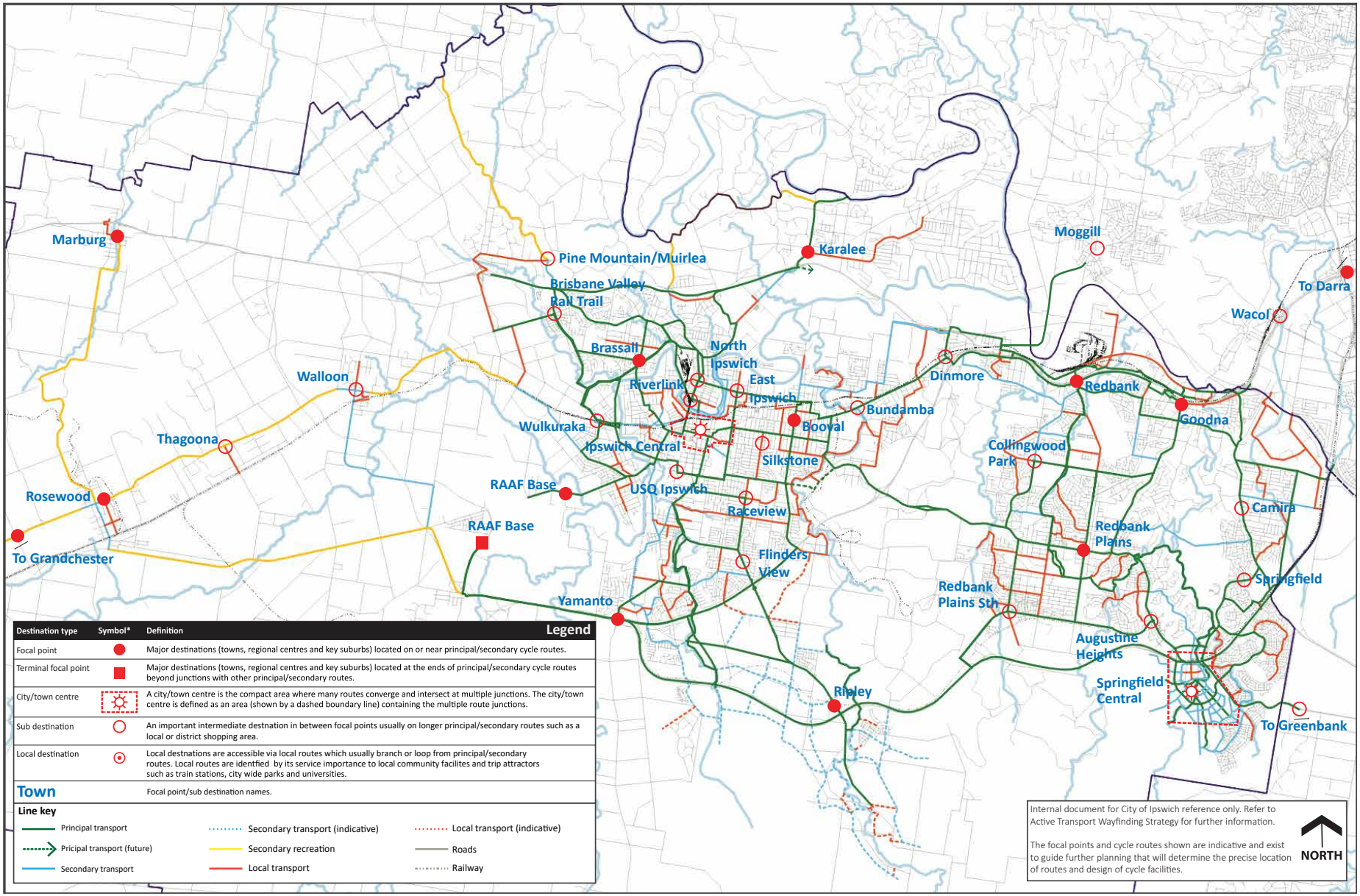
FUTURE

- Future School
- Future Train Station
- Ipswich to Springfield Future Public Transport Corridor
- Future Business & Industry

Appendix C – Ipswich Cycle Network Focal Point Map

City of Ipswich Cycle Signage and Wayfinding Focal Point Map

Map 1 - Cycle Network Map



Appendix D – Local Transport Cycle Route Destinations/ Facilities

The ICC Community Facility Name Signs Policy should also be referred to when identifying and naming destinations on active transport wayfinding signs.

Table D: Typical Local Cycle Destinations, including naming conventions

Types of local destinations	Naming convention	Further notes
Train Stations	As per Translink web site and include pictogram (e.g. Redbank Station and include pictogram)	Use in conjunction with PTR – Train Station pictogram as per the *Active Transport Sign Design Manual*. If other facilities present (e.g. bicycle parking, drinking water, public toilet, use corresponding pictogram on second line).
Bus Stations/interchanges	As per Translink web site (e.g. Redbank Bus Station and include pictogram)	Use in conjunction with PTB – Bus interchange pictogram
Local Shops	Suburb X Shops (e.g. Augustine Heights Shops)	It is inappropriate to refer to a commercial business, but a group of commercial establishments can be referred to
Community facilities (e.g.Town hall, civic centre, library, community centres)	Destination name without location* (e.g Town Hall, Library, Pool)	Churches are generally accessed by people in their immediate area who are familiar with the area. As such, it is recommended that churches not be signed as a local cycle destination. However, they may be identified on a cycle map to assist with user orientation.
Hospital (if not a focal point or sub-destination)	Destination name without location* (e.g Hospital)	Hospitals should have a casualty department before referring to them on the signs Medical centres will not typically be identified on the signage. Only hospitals with a casualty department are referred to on directional signs. Medical centres are not typically identified on directional signage
TAFE	TAFE*	
University (if not an identified focal point)	X Uni Or if a campus of USQ – USQ X Suburb	The Springfield University is within the boundary of the Springfield Central Town Centre and therefore needs to be identified on local signage within the town centre as USQ Springfield
Parks, Sporting and Open Space	Park Name (e.g. Collingwood Park, Ipswich Cycle Park)	
Streets	The local street to which a path connects to/from a principal/secondary transport cycle route can be provided on local transport signs	Do not include if the local street sign is visible from the path If the local street is visible from the path, the sign only needs to say "To X Street". If the local street in not visible from the path, the sign should include the distance and street name (e.g. "X Street 100m")
Schools	Not to be included on signs	Schools (including kindergartens, child care centres, pre-schools, primary and secondary schools) are usually accessed by people in the immediate area who are familiar

		with the area. As such, it is recommended that schools not be signed as a destination on any signs. However, they may be identified on a cycle map to assist with user orientation
Facilities such as toilets, information centres, police station, bike parking, bike maintenance or water fountain	Prefer a pictogram to be utilised	Refer to the *Active Transport Sign Design* Manual for a full list of potential pictograms

- * If there is more than one type of this destination that needs to be signed, then include the suburb or location name before the destination name or the destination's name if it is a non-commercial entity (e.g St Andrews Hospital or Ipswich Hospital)
- If there is an existing community facility sign already pointing to the above destinations, there is no need to provide another one unless it is incorrect. If it is incorrect, the sign should be removed and a community facility sign provided
- Avoid lengthy names

Appendix E – Pedestrian Activity Centre Fingerboard Destinations/Facilities

Table E1: Pedestrian Activity Centre Fingerboard Destinations and Definitions

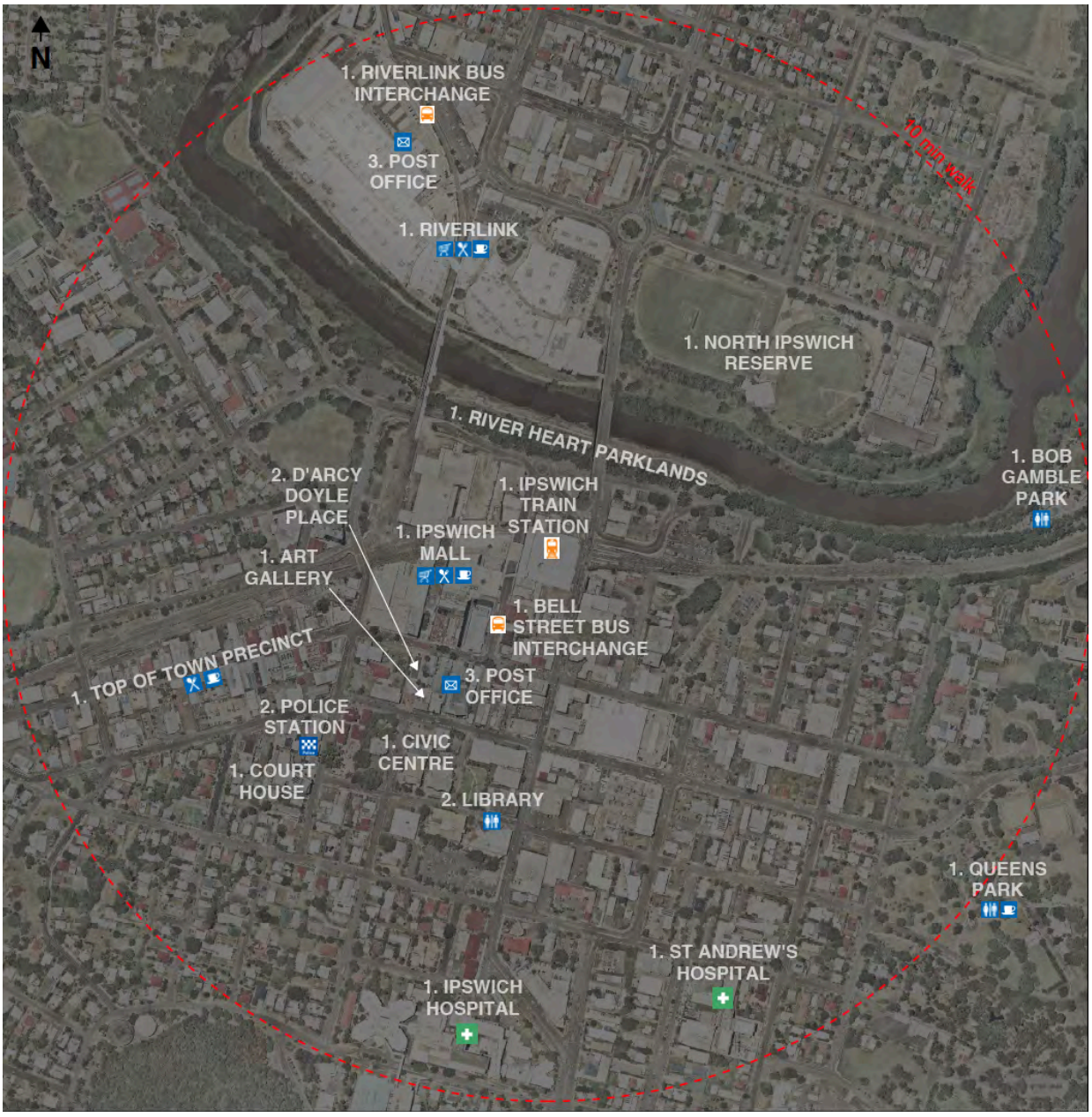
Destination Type	Definition	Examples
Level 1 – Major destinations	These are typically regional level or important destinations in the activity centre and are the main focus of the activity centre signage. Pictograms may be used on these signs in addition to words where appropriate.	Major shopping area Identified sub precincts (eg. Top of Town) Regional park or sports facilities Major tourist, cultural or community destination (e.g. town hall, museum, art gallery, civic centres, courthouse, civic centres, courthouse) Hospital Train Station or Bus Interchange Iconic Recreational Walking Paths (e.g. River Heart Parkland pathway)
Level 2 – Sub-destinations	These are lower level destinations in the activity centre and are typically only signed one decision point prior to the destination. Pictograms may be used on these signs in addition to words where appropriate.	Library Police Station Urban plazas Local parks and sporting facilities Community hall
Level 3 - Facilities	These are services or facilities to support the user on their trip around the activity centre and are typically only signed one decision point prior to the destination. These should be indicated with pictograms on signage.	Information centres Public toilets Post Office Public Telephone

Table E2: Guidance for Times on Pedestrian Wayfinding Fingerboards

Table E2 – Pedestrian walking times on signs

Distance	Walking time
100m	1min
200m	2min
300m	4min
400m	5min
500m	6min
600m	8min
700m	9min
800m	10min
900m	11min
1km	12min

Figure E: Example Pedestrian Activity Centre Destination Map



Appendix F – Pedestrian Activity Centre Decision Point Map

Figure F: Example Pedestrian Activity Centre Decision Point Map

Appendix G – Pedestrian Activity Centre Column Maps

The following provides some additional guidance on the production of maps on the Pedestrian Activity Centre column maps:

Overview Map - Scale

- Should aim to get most major destinations within the activity centre on the overall map
- A general guide for the map area is to show a 10 minute (800m walking catchment – 1.6km x 1.6km map scale) from the core of the activity centre. The walking catchment can be adjusted from the core slightly to include the most attractors. If the map area does not cover all major outlying destinations, it may be necessary to include arrows with "To X" on the edges of the map.
- To fit on the pedestrian map column, the map size is to be 450mm x 450mm

Column Map – Map details

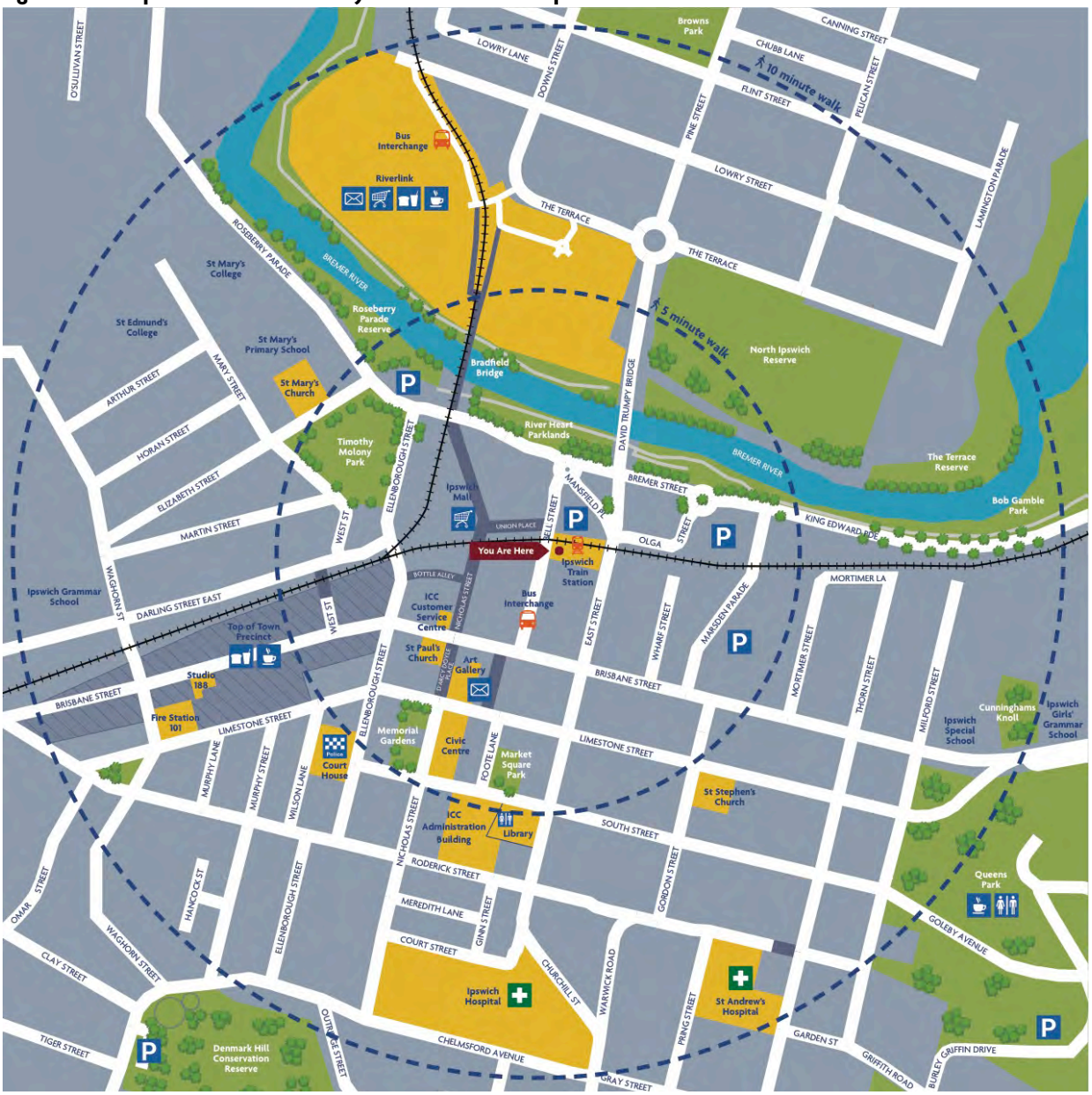
The following table provides recommendations on the content of the column map. It is noted that some destinations and information will differ from the list of destinations signed to on the pedestrian wayfinding directional signs. This is because additional information can be provided on the column map that may not be provided on the directional wayfinding signage (e.g. schools) and also enable the user to locate themselves within the network. An example pedestrian column map is provided over. More detail on the map (e.g. design/colour palette) is provided in the *Active Transport Sign Design Manual*.

Table G: Pedestrian Column Map Content

PRIMARY INFO	Examples
Pedestrian Areas	Streets showing footpaths Lanes and alleys accessible to pedestrians Shared paths not along a street Safe pedestrian crossings Routes through buildings (e.g. public arcades) Urban Plazas and Pedestrian Malls Underpass/overpasses/bridges for pedestrians Iconic recreational walking routes (e.g. Riverheart Parklands Pathway)
Building Footprints	Show major landmark building footprints and major destinations in yellow with a label displaying the name of the building/destination (e.g. town hall, Council customer service, Hospitals, Shopping centres and civic buildings such as art gallery, library and courthouse)
Public Transport	Rail Stations (use orange pictogram symbol*) and railway lines Major Bus Interchanges (use orange pictogram symbol*)
Public facilities	Information Centres (use blue pictogram symbol*) Public toilets, public off street car parks (use blue pictogram symbol*)
Parks and Open Space	Regional parks and sporting areas in green with name on map Local parks and sporting areas in green with name on map (option to not name these on maps if too cluttered) Schools (in yellow with name on map). These are provided to enable a user to locate themselves in the area but will not be shown as a fingerboard destination
YOU ARE HERE SYMBOL AND WORDS	This will vary depending on where the map is located and should be a brightly coloured arrow (facing the direction of travel) for visibility
Walking Catchments	Circle showing: 5min walking catchment and 10min walking catchment These should be located around the 'You are Here' symbol and in some locations may not be able to be shown in full

* refer to the *Active Transport Sign Design Manual* for pictogram symbols. It is noted that all pictograms in the manual are blue and this format should be utilised for Pedestrian Activity Centre directional signs. To enable the pedestrian column map to make public transport locations more visible, it is recommended that public transport pictograms be shown in orange on this map only. The Translink *Signage Manuals – Bus Network Infrastructure and Rail Stations* should be referred to for the colour details (Resene 'Trinidad' O61-167-048).

Figure G: Example Pedestrian Activity Centre Column Map



Appendix H – Example Sign Schedules

Schedule 1: V1 Cycleway – South Brisbane to Eight Mile Plains

Site Ref	Junction description	Sign No	Sign type	Ref No	Travel direction	Sign lettering	Remarks
1a	Lower River Terrace and V1 Cycleway	E1	Reassurance direction sign		S	South East Freeway Bikeway Park Rd 1.5km Stones Cnr 2.9km Griffith University 11.2km Klumpp Rd 12.0km	Located on pole on southern side of Lower River Terrace at entrance to bikeway. Remove sign and poles
		E2	Advance direction sign		N	← City via South Bank Parklands ---------- Kangaroo Point Bikeway →	Located on pole on southern side of Lower River Terrace at entrance to bikeway (back to back with above sign). Remove sign and poles
		E3	Fingerboard	BCC DR1-1		Goodwill Bridge 500m → Victoria Bridge 1.7km	Located on pole on northern side of Lower River Terrace, north of bikeway
		E4	Fingerboard	BCC DR1-2		Thornton St Ferry 1.2km → Holman St Ferry 1.83km	Located on pole on northern side of Lower River Terrace, north of bikeway - same pole as above
		E5	Fingerboard	BCC DR1-3		V1 Veloway → O'Keefe St 1.95km	Located on pole on northern side of Lower River Terrace, north of bikeway - same pole as above
		1	Fingerboard with numbered principal route	G2-C04-2	S	(V1) Stones Corner 2.4 → Tarragindi 4.8	New pole located adjacent fence on southern side of Lower River Tce, west side of bikeway. Sign to face south along bikeway
		2	Fingerboard with numbered principal route	G2-C04-2	N	(V1) South Bank 500m → Brisbane City 1	New pole located adjacent fence on southern side of Lower River Tce, west side of bikeway. Sign to face north across Lower River Tce
1b	V1 Cycleway, south of Lower River Terrace	3	Reassurance direction sign	G4-C02	S	V1 Cycleway Stones Corner 2.3 Tarragindi 4.8 Griffith University 8.7 Upper Mt Gravatt 12 Eight Mile Plains 14	New pole located adjacent pathway on eastern side approx 60m south of Lower River Tce. Sign to face north for southbound users
2	Allen Street and V1 Cycleway	4	Fingerboard with numbered principal route	G2-C04-2	S	(V1) Stones Corner 2.1 → Tarragindi 4.5	Clamp new pole to top of existing fence/upright pole on east side of path opp Allan St to keep sign clear of path. Sign to face south
		5	Fingerboard with numbered principal route	G2-C04-2	N	(V1) South Bank 800m → Brisbane City 1.3	Clamp new pole to top of existing fence/upright pole on east side of path opp Allan St to keep sign clear of path. Sign to face north
		6	Local Fingerboard	G2-C06-1	W	Stanley St 100m →	Clamp new pole to top of existing fence/upright pole on east side of path opp Allan St to keep sign clear of path. Sign to face west Place local sign last
3	Pathway Access to Trinity Lane and V1 Cycleway	E6	Direction sign		E	To South East Freeway Bikeway	On path leading to Trinity Lane, west side of V1 Bikeway. Sign covered by vegetation

Table : Key to row colours used in the sign schedules

Colour	Explanation
	New sign as per instructions
	Existing sign to be removed
	Existing sign to be retained and remounted as per instructions
	Signs belonging to another route installed at junctions where routes overlap or cross. These duplicate rows are shown so all signs to be installed at a junction can be identified.
	Signs installed as part of another project but relevant to the route planned

Schedule 2: Ipswich Central Pedestrian Wayfinding Signage Schedule Example

Sign no.	Junction description	Travel direction	Sign lettering
1a	Bell Street/Brisbane Street Intersection	N	Ipswich Train Station X min, X m
			River Heart Parklands X min, X m
1b	Bell Street/Brisbane Street Intersection	E	Queens Park X min, X m
			Ipswich Hospital X min, X m
1c	Bell Street/Brisbane Street Intersection	W	Top of Town X min, X m
			Court House X min, X m
2a	Brisbane Street/East Street Intersection	W	Ipswich Train Station X min, X m
2b	Brisbane Street/East Street Intersection	S	Queens Park X min, X m
			Ipswich Hospital X min, X m
3a	Brisbane Street/ D'Arcy Doyle Place Intersection	N	Ipswich Mall X min, X m
			Riverlink (via Bradfield Bridge) X min, X m
3b	Brisbane Street/ D'Arcy Doyle Place Intersection	E	Ipswich Train Station X min, X m
			Queens Park X min, X m
3c	Brisbane Street/ D'Arcy Doyle Place Intersection	S	Art Gallery (via D'Arcy Doyle Pl) X min, X m
			Court House X min, X m
3d	Brisbane Street/ D'Arcy Doyle Place Intersection	W	Top of Town X min, X m

Appendix I – Example Route Measurement Tables

V1 Cycle Route – South Brisbane to Eight Mile Plains

Location Description	Length metres	Northbound Total (to Bris City)	North bound FocalPt	To Eight Mile Plains	To Upper Mt Gravatt	To Griffith Uni	To Tarra-gindi	To Stones Corner	To South Bank	North bound SubDest	South bound Total	South bound FocalPt	To Tarra-gindi	To Griffith Uni	To Upper Mt Gravatt	To Eight Mile Plains	South bound SubDest
V1 Cycle Route - South Brisbane to Eight Mile Plains	**15,540**																
Brisbane City - Goodwill Bridge - QUT side		0.0	0.0							0.0	15.5	3.4	5.8	9.7	12.9	14.6	0.5
South Bank - Goodwill Bridge - Southbank side	480	0.5	0.5							0.5	15.1	2.9	5.3	9.2	12.4	14.1	2.9
Lower River Terrace and V1 Cycleway	510	1.0	1.0						0.5	0.5	14.6	2.4	4.8	8.7	11.9	13.6	2.4
V1 Cycleway, 60m south of Lower River Terrace	60	1.1	1.1						0.6	0.6	14.5	2.3	4.8	8.7	11.9	13.6	2.3
Allen Street and V1 Cycleway	230	1.3	1.3						0.8	0.8	14.3	2.1	4.5	8.4	11.6	13.3	2.1
Pathway Access to Trinity Lane and V1 Cycleway	260	1.5	1.5						1.1	1.1	14.0	1.8	4.3	8.2	11.4	13.1	1.8
Lockhart Street and V1 Cycleway	440	2.0	2.0						1.5	1.5	13.6	1.4	3.8	7.7	10.9	12.6	1.4
Ross Street and V1 Cycleway	80	2.1	2.1						1.6	1.6	13.5	1.3	3.8	7.7	10.8	12.5	1.3
Abingdon Street and V1 Cycleway	100	2.2	2.2						1.7	1.7	13.4	1.2	3.7	7.6	10.7	12.4	1.2
Park Road and V1 Cycleway	120	2.3	2.3						1.8	1.8	13.3	1.1	3.5	7.4	10.6	12.3	1.1
Morrissey Street and V1 Cycleway	250	2.5	2.5						2.1	2.1	13.0	0.8	3.3	7.2	10.4	12.1	0.8
Harrogate St/Bank Lane Ped-Cycle Overpass and V1 Cycleway	340	2.9	2.9						2.4	2.4	12.7	0.5	2.9	6.9	10.0	11.7	0.5
O'Keefe Street (west) and V1 Cycleway - where cycleway meets O'Keefe St	130	3.0	3.0						2.5	2.5	12.5	0.3	2.8	6.7	9.9	11.6	0.3
O'Keefe Street (west) and V1 Cycleway - at traffic signals	50	3.1	3.1						2.6	2.6	12.5	0.3	2.8	6.7	9.9	11.6	0.3
Stones Corner - O'Keefe Street (east) and V1 Cycleway	300	3.4	3.4						2.9	2.9	12.2	6.4	2.5	6.4	9.6	11.3	1.7

ATTACHMENT C

City of Ipswich

Active Transport Sign Design Manual

August 2018

This manual was prepared for

Ipswich City Council
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Amendment record

Version	Date	Description	Page No.
1.0	16/08/2018	Document as isssued	

Contents

Introduction

Ipswich City Council in association with key stakeholders has commenced construction of a high quality active transport network to enable residents and visitors to walk and cycle for transport, fitness and recreation on a daily basis. In order to ensure maximum use and access to this network, Ipswich City Council has developed an *Active Transport Wayfinding Strategy and Sign Design Manual.* The implementation of consistent wayfinding and directional signs assist cyclists and pedestrians to easily locate destinations, build user confidence in the system, increase personal safety and improve information and access to community facilities.

The *Active Transport Design Manual* (this document), details the design and manufacture of a comprehensive sign system covering principal transport, secondary transport, secondary recreation and local transport bicycle routes and activity centre signage designed for pedestrians. A separate document, the *Active Transport Wayfinding Strategy* details the methodology and process for the implementation of the sign system across the network. This manual should be read in conjunction with that document.

The signs detailed in this manual are fully compliant with current national guidelines: Austroads *Guide to Traffic Management – Part 10 Traffic Control and Communication Devices; Cycling Aspects of Austroads Guides* and the 2015 Austroads publication *APR-492-NR Bicycle Wayfinding* which contains more detailed information and specifications for the new bicycle wayfinding signage standards. Pedestrian route signage is based on international best practice designs used in the Legible London and Legible Parramatta signage projects.

The implementation of route directional signs on the existing network will be undertaken as a progressive rollout at priority locations and via development processes where appropriate. All new routes will include a sign component in accordance with this manual.

About this manual

This sign design manual is divided into five sections:

The active transport network. This section provides a brief overview of the sign system including the Ipswich active transport network route hierarchy, sign types and signing methodology.

Graphic standards. This section provides standards for typeface, colours and sign content layout.

Directional signs for active transport routes. This consists of sign designs to be used for principal transport, secondary transport, secondary recreation and local bicycle routes as well as pedestrian signs in activity centres. This section provides specific technical information, dimensions and layout templates for each sign design required to sign the different parts of the network.

Sign installation and mounting. This section includes recommendations on the mounting and siting of signs.

Construction, materials, and maintenance. This section includes general technical recommendations for the manufacture of signs and the on-going maintenance of the sign system.

City of Ipswich, Active Transport

Active transport signs overview

The active transport network
Sign families and sign types
Signing methodology

The active transport network

There are five types of routes which make up the Ipswich Active Transport Network.

Principal transport bicycle routes

These routes provide connections to and between major activity centres, public transport nodes, universities, schools, shopping or commercial centres, industrial areas and key recreational facilities. Principal transport bicycle routes are high-priority routes providing quick unhindered travel and offering the most direct access with minimal delays.

Secondary transport bicycle routes

These routes support the principal transport bicycle route network and provide additional network density linking major activity centres.

Secondary recreation bicycle routes

These routes are iconic recreational trails or routes which cater for sporting, training or touring longer distance cyclists..

Local transport bicycle routes

These routes are feeder routes from residential areas or provide connectivity between principal transport and secondary transport bicycle routes and key local destinations such as local shopping centres, schools, community centres and libraries.

Pedestrian activity centre signs

These signs are designed specifically for pedestrians and indicate destinations in an activity centre within a 800m walking radius..

Sign families and sign types

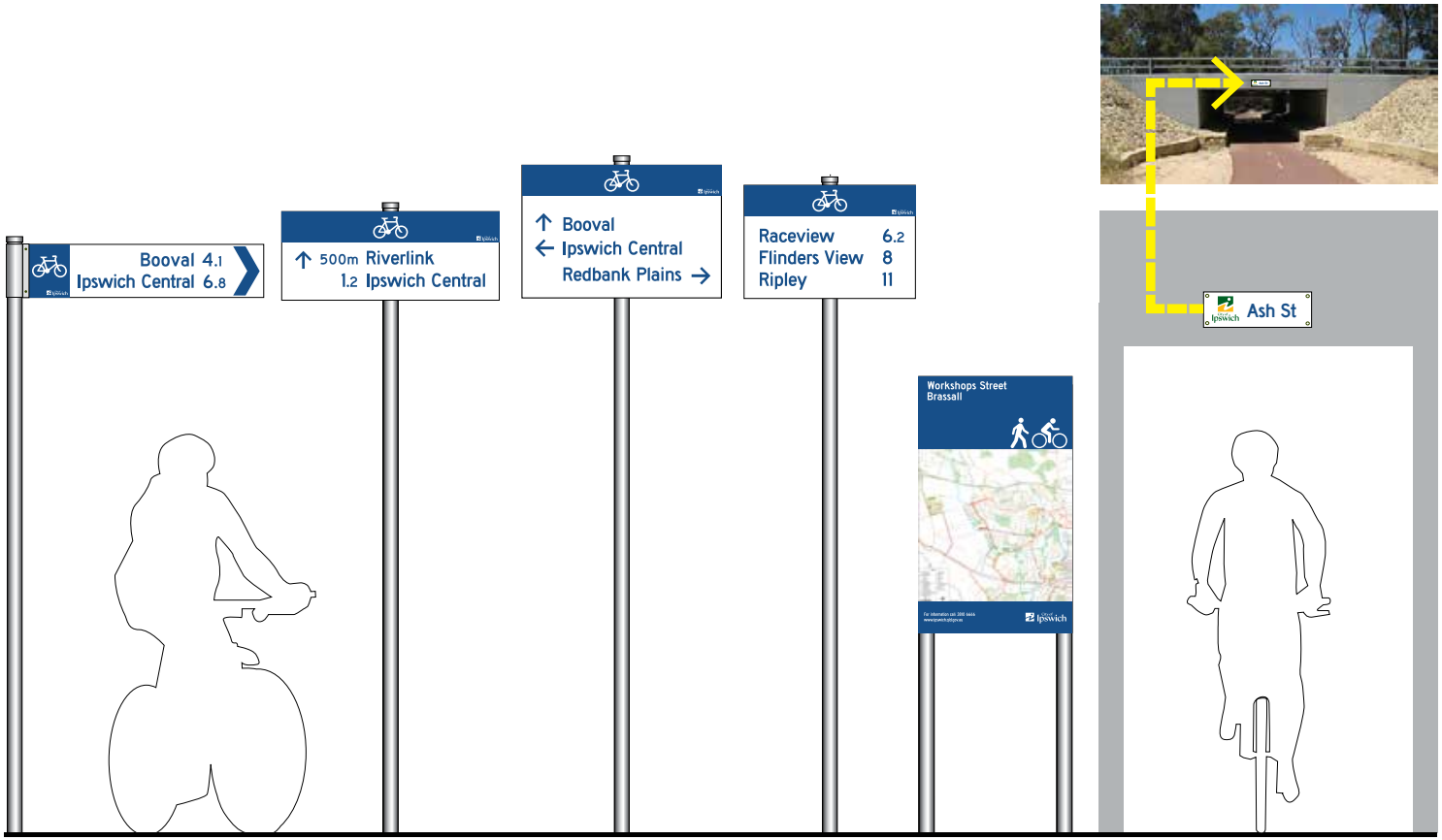
There are four sign families used to mark the Ipswich Active Transport Network (ATN). Each route type (see Table 1) uses a unique group of sign types which comprise its sign family. Principal transport bicycle routes, because of their importance in the network, use the highest level of signage. Design details for each sign family including sign variations and recommended usage are provided in the following subsections.

Table 1: Sign families and sign types used for each route type in the City of Ipswich Active Transport Network

		ROUTE TYPES				
		CYCLISTS				PEDESTRIANS
		Principal transport	Secondary transport	Secondary recreation	Local transport	Activity centres
		Main arterials of an urban cycle network providing connections to and between major regional destinations	Main routes supporting the principal transport bicycle route network	Iconic recreational routes and identified touring/ training routes	Routes connecting principal and secondary transport bicycle routes to local destinations	Signed activity centre destinations within an 800m walking distance
SIGN TYPES	Fingerboard signs	YES[1]	YES[1]	YES[1]	At start and finish of routes and where needed	YES[2]
	Direction indication signs	In place of fingerboards where they can't be used.	In place of fingerboards where they can't be used.	NO[3]	NO[3]	NO
	Advance direction signs	Only on high speed commuter routes	NO	NO	NO	NO
	Reassurance signs	Only on lengthy routes after major junctions	NO	NO[3]	NO[3]	NO
	Facility/destination signs	YES	YES	YES	YES	NO
	Location signs	YES, at underpasses	YES, at underpasses	YES, at underpasses	YES, at underpasses	NO
	Route markers	Use direction indication signs	Use direction indication signs	YES	YES	NO
	Map signs/columns	YES[4]	YES[4]	YES[4]	NO	YES[4]
	Street signs	YES[5]	YES[5]	YES[5]	YES[5]	YES[5]
	Pavement wayfinding markings	YES[6]	YES[6]	YES[6]	NO	School pavement markings near schools only[6]
	Pavement behaviour markings	YES[6]	YES[6]	YES[6]	NO	NO

[1] At junctions with other routes and where routes change direction
[2] At identified decision points
[3] Use route markers instead
[4] At key gateway/ high demand locations. For pedestrian map columns, in Ipswich Central, Springfield Central, Goodna and Ripley activity centres only
[5] If none exist
[6] As needed and subject to approval by ICC's Infrastructure Planning Branch

Principal transport and secondary transport bicycle routes sign family



FBP Principal/secondary transport fingerboard

DIP Principal/secondary transport direction indication sign

ADP Principal transport route advance direction sign

RDP Principal transport route reassurance direction sign

MSP Principal/secondary transport map sign

LPP Principal/secondary transport location sign

Principal transport and secondary transport bicycle routes sign types

FBP – Principal/secondary transport bicycle route fingerboard
Used at junctions of other principal/ secondary transport bicycle routes. Refer to drawings FBP-1 and FBP-2.

DIP – Principal/secondary transport bicycle route direction indication sign
Used to indicate change of direction in place of fingerboards. It can also be used along a route for reassurance. Refer to drawings DIP and DIP-1-3.

ADP – Principal transport bicycle route advance direction sign
Used on principal transport bicycle routes before junctions with other principal transport bicycle routes. Refer to drawings ADP and ADP-2-4.

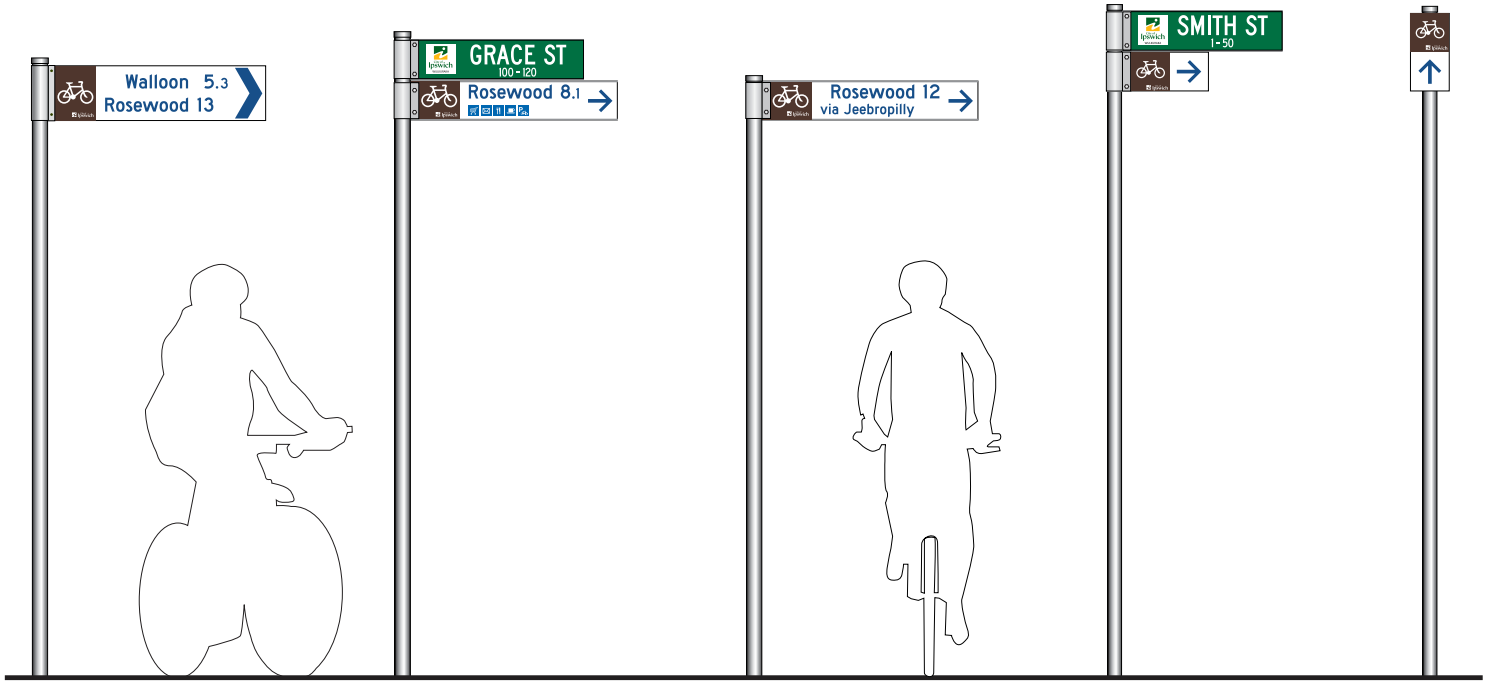
RDP – Principal transport bicycle route reassurance direction sign
Used on higher speed principal transport bicycle routes following junctions with other similar routes to reassure riders and indicate distances to destinations. Refer to drawing RDP.

LPP – Principal/secondary transport bicycle route location sign
Used to mark cross streets/roads on the faces of bridges over paths at underpasses. This sign can also be used on secondary recreation bicycle routes. Refer to drawings LPP.

MSP – Principal/secondary transport bicycle route map sign
Used at key network locations to show route possibilities in the area. Refer to drawings MSP-A to MSP-C and MSP-AD.

FAC – Facilities/services sign
Used to indicate facilities and services adjacent to a route and to indicate paths linking these routes to the local street system when located in parklands – see page 9. This sign is also used as a one-line fingerboard on local transport bicycle routes. Refer to drawing FAC.

Secondary recreation bicycle route sign family



FBR Secondary recreation bicycle route fingerboard

FIR Secondary recreation bicycle route facility indicator fingerboard

FDR Secondary recreation bicycle route destination indicator fingerboard

RMR-H Secondary recreation bicycle route horizontal route marker

RMR-V Secondary recreation bicycle route vertical route marker

Secondary recreation bicycle route sign types

FBR – Secondary recreation bicycle route fingerboard

Used on secondary recreation bicycle routes and where this type of route intersects with other route types. Refer to drawings FBR-1 and FBR-2.

FIR – Secondary recreation bicycle route facilities indicator signs

Used to indicate destinations and their facilities relevant to the route. These destinations are typically just off the route and do not require additional directional signs. Refer drawing FIR/FDR.

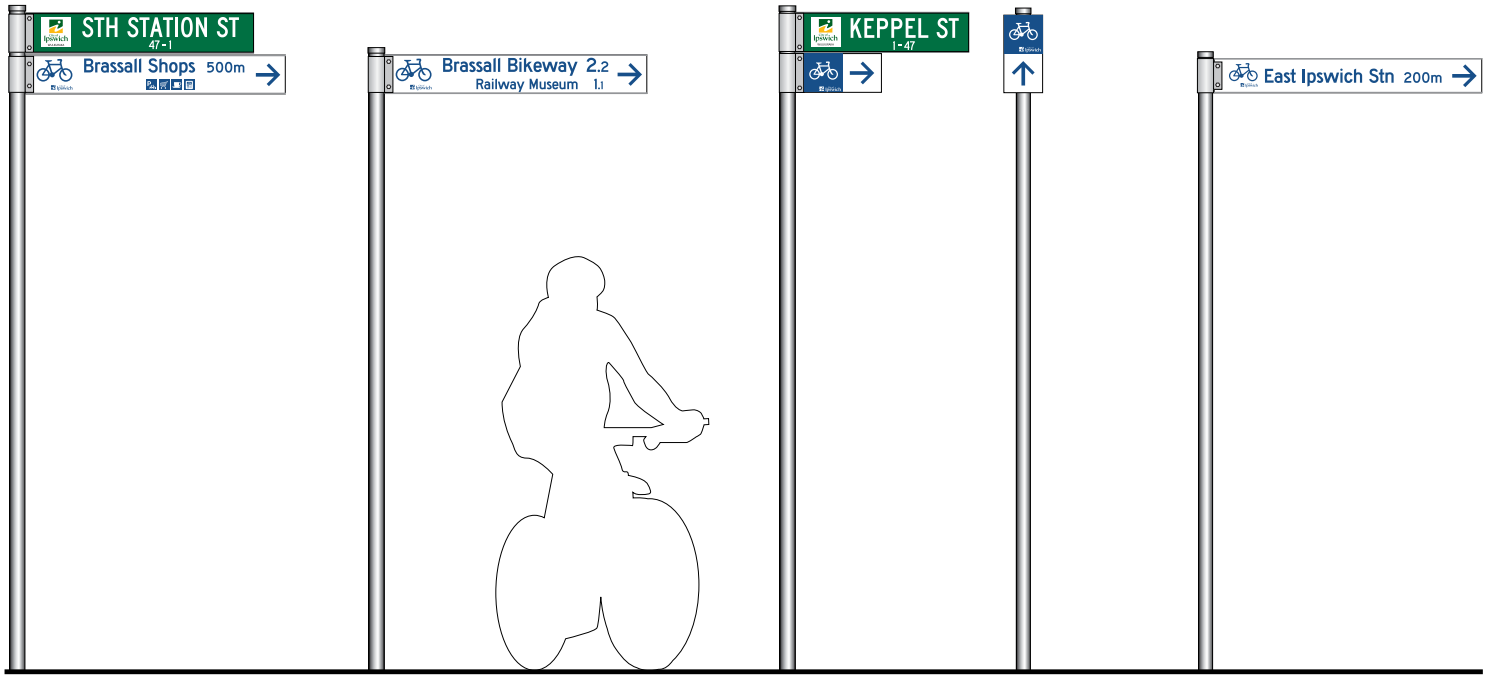
FDR – Secondary recreation bicycle route destination indicator signs

Used to indicate destinations relevant to the route with additional wayfinding information and a sub destination on the lower line of the sign. Refer drawing FIR/FDR.

RMR – Secondary recreation bicycle route markers

Used to indicate continuing direction and turnings for secondary recreation bicycle routes in between fingerboards. Refer to drawing RMR-H and RMR-V.

Local transport bicycle route sign family, facilities/services sign and route markers



FBL-F Local transport bicycle route fingerboard (with multiple pictograms)

FBL-D Local transport bicycle route fingerboard (two lines)

RMH Route marker horizontal

RMV Route marker vertical

FAC Facilities/services sign used as a one-line local transport bicycle route fingerboard

Local transport bicycle route sign types

FBL-F – Local transport bicycle route fingerboard with pictograms

Used to sign Local transport bicycle routes in conjunction with route markers. This fingerboard displays pictograms on the lower line to indicate facilities and services available at the destination. Refer to drawing. FBL.

FBL-D – Local transport bicycle route fingerboard (two lines)

Used to sign Local transport bicycle routes in conjunction with route markers. This fingerboard displays a sub destination or wayfinding information on the lower line to assist with route navigation. Refer to drawing. FBL.

RM – Route markers

Used to indicate continuing direction and turnings for local transport bicycle routes in between local transport bicycle route fingerboards. Refer to drawing RMH and RMV.

FAC – One line local transport bicycle route fingerboard (Facilities/services sign)

Used as a one-line direction sign on local transport bicycle routes. It can be used on all bicycle transport routes to indicate facilities and services adjacent to routes and to indicate paths linking to the local street system when a route is located in remote parklands or reserves. Refer to drawing FAC

Pedestrian activity centre sign family

FPR Fingerboard

MPR Map column

Pedestrian activity centre sign types

FPR – Pedestrian activity centre fingerboard

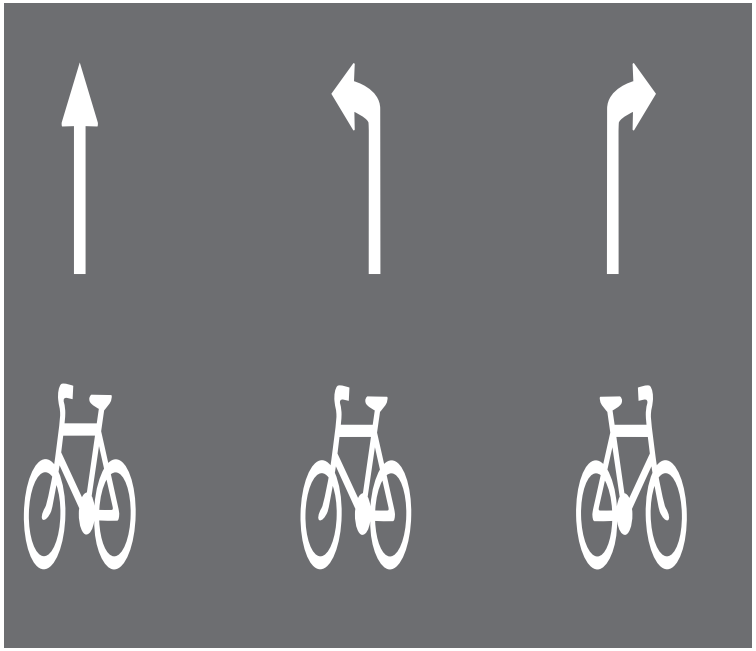
Used to provide pedestrian wayfinding to destinations within activity centres. Refer to drawing FPR.

MPR – Pedestrian map column

Used in strategic pedestrian locations within the Ipswich Central, Springfield Central, Goodna and Ripley activity centres to assist with pedestrian wayfinding within an area. Refer to drawings MPR-A and MPR-B.

Pavement wayfinding markings - on-road and off-road path markings

On-road pavement wayfinding markings for bicycle routes only

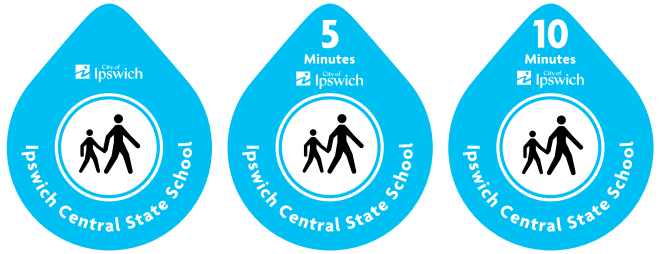


On-road bicycle route pavement indicator (RPM-S shown)
To indicate straight ahead route travel direction

On-road bicycle route pavement indicator (RPM-L shown)
To indicate left turn ahead route travel direction

On-road bicycle route pavement indicator (RPM-R shown)
To indicate right turn ahead route travel direction

Off-road path pavement wayfinding markings



Path markers for recommended walking routes to school (subject to Council approval prior to application)
Examples shown for 5, 10 minute and untimed (reassurance) pavement markers

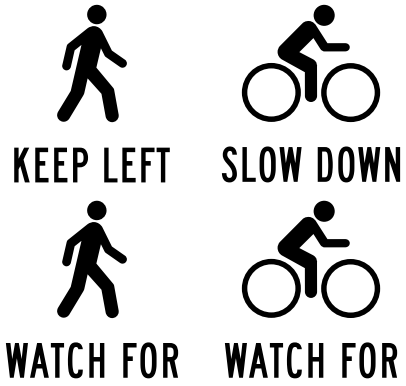
Pavement wayfinding marking types

On-road bicycle route wayfinding indicators
The Austroads bicycle wayfinding guidelines recommend the use of half size standard bicycle pavement symbols which are used in three combinations with standard size bicycle lane arrows to indicate the path of a cycling route. These markings are positioned in advance of a route turning. Refer to drawing RPM.

Off-road path wayfinding markers for recommended walking routes to school (subject to Council approval prior to application)
This suite of pavement markings indicates the recommended walking routes to selected schools. Lettering on markings will vary from school to school. Application of these markings is subject to safety assessment and approval by Council's Infrastructure Planning Branch prior to implementation. Refer to drawing PPM.

Off-road path pavement behavioural markings

PBM Path behavioural marking



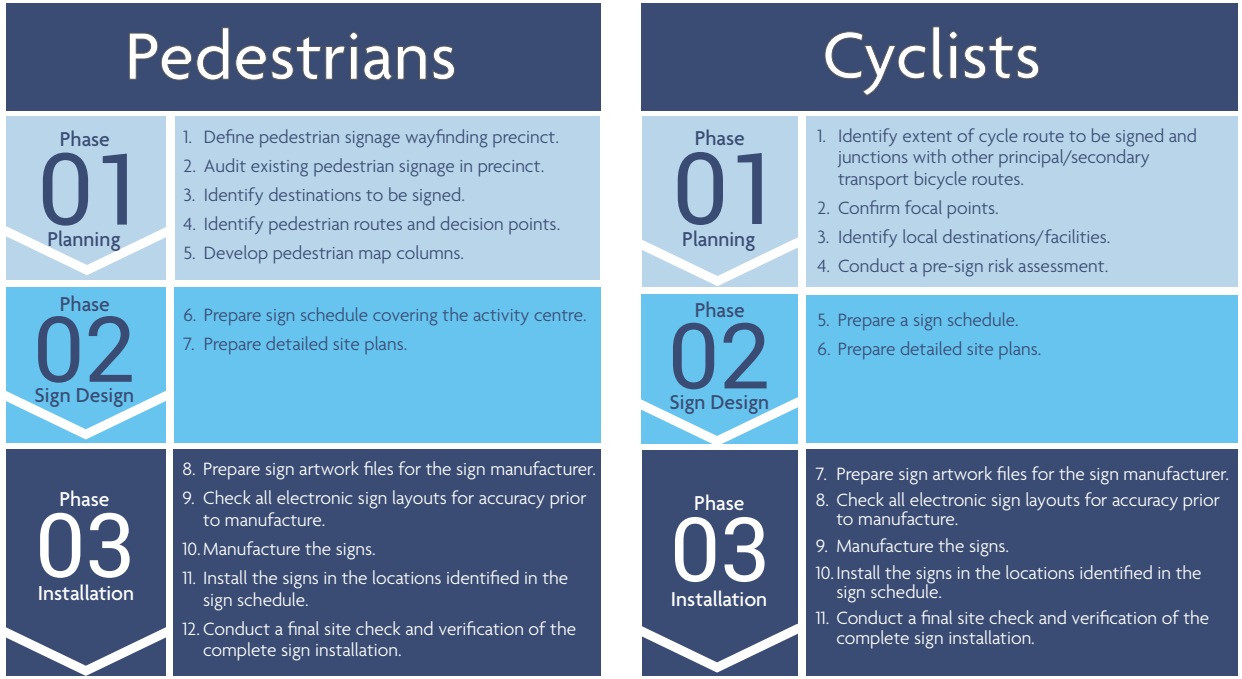
Additional PBM Path behavioural marking designs

Off-road path behavioural marker types

This suite of pavement markings indicates good path behaviour and is used only in areas where poor behaviour has been identified and remedial action is considered necessary to ensure safe path operation.
These markings are subject to safety assessment and approval by Council's Infrastructure Planning Branch prior to implementation. Refer to drawings PBM-A and PBM-B.

Signing methodology

The recommended Austroads methodology for sign projects is similar to highway and arterial road sign systems. A key requirement is that routes are planned and signed within the context of the active transport network so that a full range of destinations are available across a region rather than within a narrow corridor. The process for signing the cycle network and activity centres for pedestrians in Ipswich is outlined in the adjacent diagrams (right) and explained in detail in the ICC *Active Transport Wayfinding Strategy*.



City of Ipswich, Active Transport

Graphic standards

Designs common to all bicycle route signs
Distance numerals on bicycle route signs
Pedestrian activity centre signs
Typefaces
Colours and symbols
Pictograms
Arrow types
Graphical quality
Abbreviating destination names

Designs common to all bicycle route signs

All wayfinding signs for bicycle routes are faced with white retro-reflective background (Class 2, Super Engineering Grade retro-reflective material) and feature a contrasting coloured bicycle symbol on a coloured patch or white background adjacent to the mounting on fingerboards, and in the coloured header area at the top of other sign types – see individual sign design/layout diagrams in this manual. On principal/secondary transport bicycle routes the coloured patch is AS2700 B23 Bright Blue and on secondary recreation route signs it is AS2700 X65 Dark Brown. Local transport bicycle route signs have no colour patch and the entire sign face is white.

Destination lettering, distance numerals, arrows and pictograms on all bicycle route signs are AS2700 B23 Bright Blue.

The typeface used on all bicycle route signs is AS1744:2015 Series D (see page 16). In situations where lengthy names require fingerboards to exceed the recommended maximum length, AS1744:2015 Series C typeface may be used. All sign lettering is shown using mixed capitals and lower case as detailed in the individual sign layouts. Destination lettering and whole kilometre numerals are 60mm high (Cap X-height) unless specified otherwise in individual sign layouts/templates. Destinations are listed on signs with the destination closest to the sign site at the top of the sign with other destinations below in increasing distance order.

All direction arrows used on signs are in accordance with the diagrams/templates shown in the Arrow Types section following. The size and type of direction arrows is specified on individual sign layout diagrams/templates.

Distance numerals on bicycle route signs

Distances to destinations on bicycle route signs are displayed as follows:

- Destination distances are only shown on signs where active travel routes cross, commence or terminate.
- Distances less than 100m are not shown on signs.
- Distance numerals on fingerboards are located between the destination name and the direction arrow spaced and aligned as per the individual sign layout drawings.
- Distance numerals on reassurance direction signs are shown to the right of each destination.
- Distances to destinations are shown in kilometres. The abbreviation 'km' is not shown on signs.
- Distance numerals one kilometre and above are the same point size as destination names.
- Distances above 10km are rounded to the nearest kilometre.
- Distances less than 10km and greater than 1km are shown to the nearest 100 metres in standard decimal form to one decimal place. The numeral to the right of the decimal point is shown at 75% of the height of whole kilometre numerals (usually 45mm Cap X-height unless specified otherwise in individual sign layouts/templates).
- Distance numerals one kilometre and above are aligned on the decimal point.
- Numerals for distances less than one kilometre are rounded to the nearest 100 metres and are shown with the 'm' abbreviation (no space in between) at 75% of the height of whole kilometre numerals.
- For distances less than one kilometre, the numerals and the 'm' abbreviation are right aligned with other destination numerals as indicated on sign layouts.

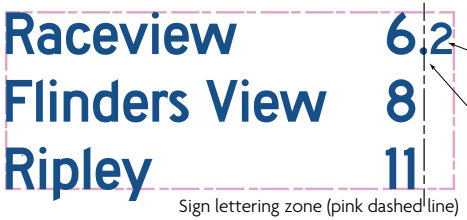
Pedestrian activity centre signs

Pedestrian activity centre signs are faced with white retro-reflective background (Class 2, Super Engineering Grade retro-reflective material) with coloured/white contrast lettering on a printed AS2700 B23 Bright Blue background. For sign layout details see Drawing FPR and notes on pages 54 and 55. The typefaces used on pedestrian activity centre signs and map column are shown on page 16 and detailed on sign/map column drawings on pages 54 to 59.

The method of displaying distances to destinations on pedestrian activity centre fingerboards is similar to that used on bicycle route signs. In addition:

- The abbreviation "km" is appended to distances of one kilometre and above (no space between eg: 1.5km). The abbreviation 'm' is appended to distances less than a kilometre as per above. The numeral to the right of the decimal point and distances less than one kilometre are shown 75% of the height of the whole kilometre numerals.
- Distances are located below the destination name and next to the arrow. Walk times are shown below the destination name and aligned towards the mounting end of the sign. A comma and space are used to separate distances and times. See page 54 for the calculation of walk times for pedestrian activity centre fingerboards.
- Distances below 100m are not shown on signs.

FPR Pedestrian Activity Centre Fingerboard
Sample sign showing placement of destination, arrow, time and distance.



Primary/secondary transport reassurance direction sign - distance numerals layout and alignment
Numerals for distances less than one kilometre and the sub-kilometre part of distances under 10km have a 45mm Cap X-height

Distance numerals flush right, aligned on the decimal point

For signs showing distances in metres, these distance numerals are aligned flush right with the edge of the sign lettering zone

FBP-2 Two-line principal transport route fingerboard
Reverse face showing location and alignment of arrow, distance numerals, distance lettering and bicycle symbol patch.

FBP-2 Two-line principal transport route fingerboard
Showing distance numeral alignment for destinations less than a kilometre.

Typefaces

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

AS1744:2015 Series D - blue letters on a white sign base - for use on bicycle route signs

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

AS1744:2015 Series C - for use on bicycle route fingerboards to reduce length

All measurements for lettering heights on signs refer to the height of the capital letter 'X' referred to in text and in all diagrams as the 'Cap X height'.

Cap X-height

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Agenda Bold - for use on pedestrian activity centre fingerboards and map columns

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Agenda Medium - for use on pedestrian activity centre fingerboards and map columns

The fonts shown on this page and the individual sign design drawings are to be used for all text and numerals shown except where specifically stated otherwise. No other versions of typefaces will be accepted.

It is the responsibility of the sign maker to purchase the correct font. No other versions, similar or otherwise will be accepted.

AS1744:2015 Series D

The AS1744:2015 Series D typeface is to be used on principal transport, secondary transport, local transport and secondary recreation bicycle route signage for all destination names, distance numerals, arrows and pictograms where blue lettering on a white base is specified as detailed on individual sign type layout diagrams. Make sure all lettering is true to its letter form in face weight and construction.

AS1744:2015 Series C

The AS1744:2015 Series C typeface may be used on principal transport, secondary transport, local transport and secondary recreation bicycle route signage where lengthy sign content will increase sign size above the recommended maximum length.

Agenda Bold

The Agenda Bold typeface is to be used on pedestrian activity centre fingerboards and map columns as detailed on individual sign type layout diagrams. Make sure all lettering is true to its letter form in face weight and construction.

Agenda Medium

The Agenda Medium typeface is to be used on pedestrian activity centre fingerboards and map columns as detailed on individual sign type layout diagrams. Make sure all lettering is true to its letter form in face weight and construction.

Colours and symbols

Primary sign colours

AS2700 B23 Bright Blue
RGB 23, 79, 137
Pantone 7686C

AS2700 X65 Dark Brown
RGB 79, 54, 45
Pantone 476C

Yellow
RGB 246, 229, 0
Pantone Process Yellow

Pictogram/symbol colours

Standard pictograms White symbol on AS2700 B23 Bright Blue

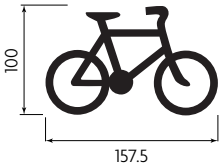
Visitor Centre Yellow symbol on AS2700 B23 Bright Blue

Fire Station White symbol on AS2700 R13 Red

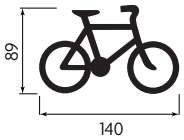
Hospital White symbol on AS2700 G13 Emerald Green

Police Station White symbol on AS2700 B23 Bright Blue

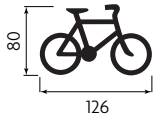
Symbols used on directional signs



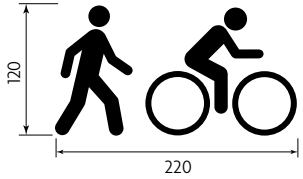
Used on fingerboards for principal/secondary transport, secondary recreation and local transport bicycle routes. Used in blue sign header on direction indication, advance direction, reassurance direction signs for principal/secondary transport bicycle routes.



FBP-1 fingerboards and all types of vertical and horizontal markers

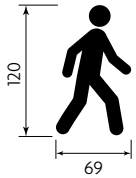


One-line FAC fingerboards

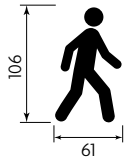


MSP map sign header panel

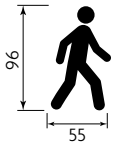
Use electronic vector artwork for all logos and pictograms in sign fabrication process. Electronic files available on request from ICC Infrastructure Planning Branch.



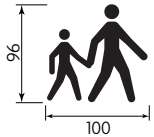
Pedestrian activity centre fingerboards



Pedestrian activity centre map column header



Pole cap symbol on pedestrian activity centre fingerboard sign poles



Adult and child walkers symbol on school off-road path wayfinding marking

Colours

Colours as specified to be used for all parts and faces as noted on the sign layout drawings.

AS2700 B23 Bright blue
Used on all bicycle route signs for distance names and numerals, sign mastheads as indicated on individual sign layouts. This colour is also used as the base colour for pedestrian activity centre signs and map columns as per individual design drawings.

AS2700 X65 Dark brown
Used on all secondary recreation bicycle route signs as indicated on individual sign layouts.

Pantone Process Yellow
Used on pedestrian activity centre fingerboard signs for distance and time information.

AS2700 G13 Emerald Green
Used as the background colour on the hospital/medical centre pictogram.

AS2700 BR13 Signal Red
Used as the background colour on the Fire Station pictogram.

Symbols

Only the symbols as shown on the individual sign design drawings are to be used. No other versions will be accepted. All direction signs use either bicycle or pedestrian symbols depending on the user type. See individual sign layout templates in this manual for details.

Digital versions of symbols should be used and should be scaled proportionally. These are available on request from the ICC Infrastructure Planning Branch.

Pictograms

PPS - Police Station

PHM - Hospital or Medical Centre

PFS - Fire Station

PVI* - Visitor Information Centre

PPO - Post Office

PRE - Restaurant

PCA - Cafe

PPT - Public Telephone

PAP - Airport

PTR - Train Station

PTB - Bus interchange

PWS - Walking path entrance

PLO - Lookout

PMF - Public Toilets

PSP - Swimming pool or beach

PSC - Shops or Shopping Centre

PDW - Drinking Water

PBP - Cycle Parking

PBS - Cycle Shop (Repairs)

PAT - Auto Teller Machine

PHS - Historic Site

PWI - WiFi available

PVI* - NB This pictogram may only be used to indicate an accredited visitor information centre

Pictograms

Pictograms are selected appropriate to the service/facility available for each signed destination.

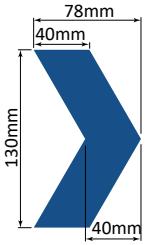
Digital format pictograms are to be used and must be scaled proportionally.

Note: Digital format pictograms can be obtained from the ICC Infrastructure Planning Branch upon request.

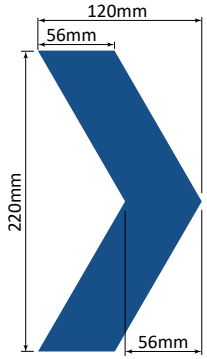
When nominating pictograms, use the codes provided eg: (PTR) = Train station symbol.

Arrow types

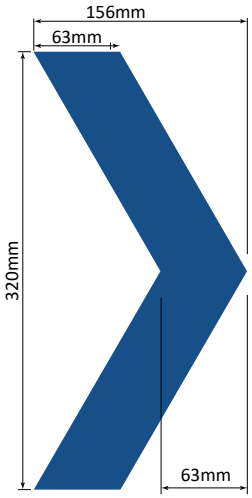
Arrows used for principal transport, secondary transport and secondary recreation bicycle route fingerboards



FBDA-1
Direction arrow for one-line fingerboard



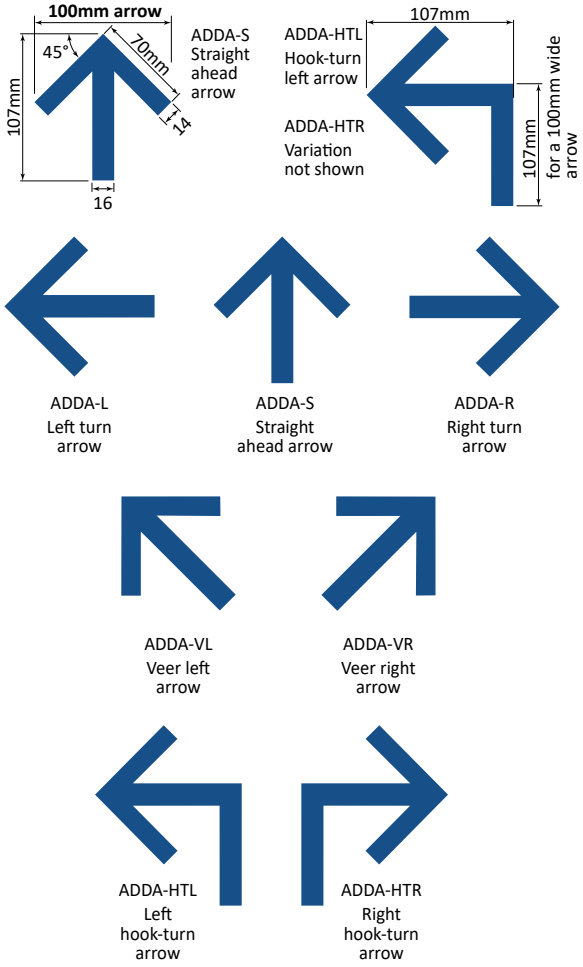
FBDA-2
Direction arrow for two-line fingerboard



FBPA-3
Direction arrow for three-line fingerboard

Arrow templates for direction arrows used on all other sign types (including pedestrian activity centre fingerboards) are shown below

The arrow size specified for all other sign types is the width of the arrow head as indicated in the sample below left. Arrow widths are specified on individual sign layouts.



Arrows

Major arrows (chevrons) on bicycle route fingerboards are also shown dimensioned on individual sign type layout diagrams. Smaller arrows as shown on this page are used for bicycle route signs and pedestrian activity centre fingerboards,

The artwork will be provided digitally and must be scaled proportionately.

No other versions, similar or otherwise, are accepted.

Graphical quality

The following rules of graphic quality apply:

- All lettering shall be true to its letter form in face, weight and construction.
- All graphics are to be electronically, photographically or mechanically reproduced. Digital versions of graphics, symbols and layout drawings in this manual are available from the ICC Infrastructure Planning Branch.
- All colours are as specified in AS2700 colour reference system or other specified colour.

Sign messages are to be created from electronic artwork to faithfully reproduce the shapes and typefaces specified. The graphic layouts shall follow the guidelines outlined in the individual sign layout drawings. These drawings can be provided in electronic format from the ICC Infrastructure Planning Branch.

It is the responsibility of the sign maker to ensure that all electronic files are accurately converted and match the individual sign layout drawings provided in form, size & colour.

The individual sign type drawings shown are to be used as the principal reference.

Vinyl graphics are cut from self-adhesive vinyl by computer operated flatbed knife cutter or other accurate technique.

Abbreviating destination names

Where a destination name is lengthy and greatly increases the potential size of a sign, an abbreviation may be used to reduce the overall size and cost of the sign.

Table 2 lists abbreviations which may be used on ICC ATN signs. Contact the ICC Infrastructure Planning Branch for advice on other words not listed below.

Table 2 – Sign abbreviations

Name	Abbreviation
Avenue	Av
Brook	Bk
Centre	Ctre
Court	Ct
Creek	Ck
Crescent	Cr
East	East
Highway	Hwy
Island	Is
Junction	Jct
Kilometre, also Kilometres	Km
Kilometres per hour	Km/h
Metre	m
Motorway	Mwy
Mountain	Mt
North	Nth
Parade	Pde
Park	Pk
Queensland	Qld
Railway	Rly
Reserve	Res
Road	Rd
South	Sth
Square	Sq
Station	Stn
Street	St
Terrace	Tce
University	Uni
West	West

Directional signs for active transport routes

Principal/secondary transport bicycle routes signs

FBP Fingerboard sign
DIP Direction indication sign
ADP Advance direction sign
RDP Reassurance direction sign
LPP Location sign
FAC Facility/services sign
MSP Route map sign

Secondary recreation bicycle route signs

FBR Fingerboard sign
FIR Facility indicator sign and FDR Destination indicator sign
RMR Route markers

Local transport bicycle route signs

FBL Fingerboard sign
RMH and RMV route markers

Pedestrian activity centre signs

FPR Pedestrian activity centre fingerboard sign
MPR Pedestrian activity centre map column

Pavement wayfinding markings

RPM On-road wayfinding markings
PPM Off-road path wayfinding markings

Pavement behaviour markings

PBM Off-road path behaviour markings

Principal transport and secondary transport bicycle routes signs

FBP Principal/secondary transport bicycle routes fingerboard sign

Purpose

The principal/secondary transport bicycle routes fingerboard sign is used at junctions with other routes in the ATN or at route turnings/intersections along a route.

Fingerboards may show one or two destinations and the distances to those destinations. The closest destination is always listed at the top of the fingerboard. Distances are only shown on fingerboards when used at junctions with other principal transport, secondary transport, local transport or secondary recreation bicycle routes. At all other route turnings where fingerboards are used, distances are not listed.

Destinations shown on fingerboards usually consist of a sub destination and the next focal point destination beyond. It is an essential principle of signing that once a destination is listed on a sign it continues to be listed on all subsequent signs in the series until the destination is reached. Once a sub destination has been reached, the next sub destination is then listed until it too is reached. Similarly with focal point destinations.

Two focal points are not listed when sub destinations are present. When sub destinations are not present on a route, it is acceptable practice to list the next two focal points.

In a situation where two or more routes with different signed destinations share a common path (overlap each other) for a short distance, individual fingerboards for each of these routes are erected together and stacked one under another.

If two or more overlapping routes share a common path for a full network segment (between two focal points) a common fingerboard may be used for both routes.

Refer to drawings FBP-1 and FBP-2 for layouts and technical details.

Location

Route fingerboards are located at intersections and indicate the travel direction along a street/road or path. Fingerboards are sited clear of turning traffic and in full visibility of the route.

For ease of navigation it is preferable to locate all fingerboards on the one pole in a prominent location. Signs in split locations are carefully sited to be 'read' intuitively by the user. For example, at a right turn of the route it may be useful to locate one fingerboard on the right side of the street in the direction of travel. This draws the eye of the user in the direction of travel (right turn). Avoid locating signs outside the users' normal field of vision.

Sign posts are set a minimum of 500mm from the road/path edge, preferably on the same side as the direction of travel.

Site verification

Where applicable, fingerboards direct pathway users to the most appropriate direction to easily follow the route. Position fingerboards to minimise confusion at path junctions, particularly where there are multiple junctions.

Fingerboards located near roads are positioned to minimise confusion with other road signs and names.

All sign sites need to be individually assessed taking likely user travel needs and conditions into consideration.

FBP fingerboard variations

FBP-1

One-line fingerboard
Refer to drawing FBP-1 for graphic, construction details and sign layout.

FBP-2

Two-line fingerboard
Refer to drawing FBP-2 for graphic, construction details and sign layout.

FBP-1 Principal/secondary transport bicycle routes fingerboard - layout and dimensions

FBP-1 One-line fingerboard - artwork template

FBP-1 One-line fingerboard mounting arrangement.

FBP-1 One-line fingerboard reverse face layout

Sign content notes

1. The principal/secondary transport bicycle routes fingerboard is a double-sided sign. See example (left) for reverse face layout.
2. The white bicycle symbol on a blue background is located at the mounting end of each sign face. The cycle symbol always faces in the direction of travel.
3. Distances are shown on signs as specified on page 15 of this manual.
4. Maximum length of fingerboard is 1200mm.

FBP-1 Technical details

Construction details

1. 150mm high (length to suit lettering) 6mm aluminium Standard Grade H5005 H34 with 5mm radius corners. Maximum length 1200mm subject to content.
2. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.
3. Mount using standard galv/steel or aluminium sign clamp.

Graphic details

Digital printed graphics in AS2700 B23 Bright Blue using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

DESTINATIONS/DISTANCES
60mm cap X-height AS1744:2015 Series D Numerals: ≥1km 60mm cap X-height, <1km 45mm cap X-height

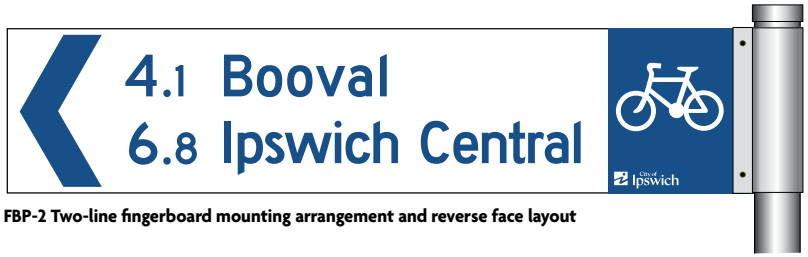
SYMBOL
White bicycle symbol 157.5 x 100mm

ARROWS
FBDA-1 fingerboard arrow

Drawing number:
FBP-1

FBP-2 Principal/secondary transport bicycle routes fingerboard - layout and dimensions

FBP-2 Two-line fingerboard - artwork template



FBP-2 Two-line fingerboard mounting arrangement and reverse face layout

FBP-2 Two-line fingerboard layout for distances less than a kilometre.

Sign content notes

1. The principal/secondary transport bicycle routes fingerboard is a double-sided sign. See example (left) for reverse side layout.
2. A white bicycle symbol on a blue background is located at the mounting end of each sign face. This symbol always faces in the direction of travel.
3. Distance numerals are shown on signs as specified on page 15 of this manual.
4. Maximum length of fingerboard is 1200mm subject to lettering content.

FBP-2 Technical details

Construction details

1. 240mm high (length to suit lettering) 6mm aluminium Standard Grade H5005 H34 with 5mm radius corners. Maximum length 1200mm subject to content.
2. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.
3. Mount using standard galv/steel or aluminium sign clamp.

Graphic details

Digital printed graphics in AS2700 B23 Bright Blue using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

DESTINATIONS/DISTANCES
60mm cap X-height AS1744:2015 Series D
Numerals: ≥1km 60mm cap X-height, <1km 45mm cap X-height

SYMBOL
White bicycle symbol 157.5 x 100 mm

ARROWS
FBDA-2 fingerboard arrow

Drawing number:
FBP-2

DIP Principal/secondary transport bicycle routes direction indication sign

Purpose

The principal/secondary transport bicycle route direction indication sign is used to mark routes in the ATN where fingerboards cannot easily be installed due to site mounting issues such as road overlap or insufficient sightlines. Direction indication signs can be used in place of fingerboards at ATN bicycle route junctions. At these locations distance numerals are shown on DIP signs. Distances are not shown on DIP signs at route turnings or intersections in between ATN bicycle route junctions. DIP signs only indicate a single route direction. For multiple route directions use an advance direction sign.

Direction indication signs can list up to two destinations. The closest destination is always listed at the top of the sign. Destinations shown on direction indication signs usually consist of a sub destination and the next focal point following the sub destination. An essential principle of signing is that once a destination is listed on a sign it continues to be listed on all subsequent signs in the series until the destination is reached. Once a sub destination has been reached, the next sub destination is then listed until it too is reached. Similarly with focal points.

Two focal points are not listed when sub destinations are present. When sub destinations are not present on a route, is acceptable practice to the next two focal points. In a situation where two or more routes with different signed destinations share a common path (overlap each other) for a short distance, individual direction indication signs for each of these routes are erected together and stacked one under another. If two or more overlapping routes share a common path for a full network segment (between two focal points) a common direction indication sign may be used for both routes.

The travel/turn arrow always points out of the sign body away from its associated destination name(s). Straight ahead, left turn and veer left arrows are located to the left of their destination names and right turn and veer right arrows to the right of their destination names. Destination names grouped with a single direction arrow are justified to the side closest to the arrow. When distances are shown on direction indication signs these are located between the arrow and the associated destination name.

Refer to drawings DIP and DIP-1-3 for layouts and technical details.

Location

Direction indication signs are located at route turnings or intersections. They can be located either before or after an intersection, whichever offers the most visible and legible siting. The actual siting of these signs depends on the road/path situation. On a downhill approach, signs may need to be located on the approach side of the intersection to provide adequate warning of a turning. The optimal siting for a direction indication sign may be on the far side of large or complicated intersections to draw the eye of the user through the intersection along the street or road to be followed.

Direction indication signs are ideally located on the left side of the road/path with good approach visibility.

Sign posts are sited at a minimum of 500mm from the road/path edge on the same side as the direction of travel.

Site verification

All sign sites need to be individually assessed taking likely user travel needs and conditions into consideration.

DIP sign variations

DIP-1

One-line direction indication sign
Refer to drawing DIP for graphic and construction details and drawing DIP-1-3 for sign layout.

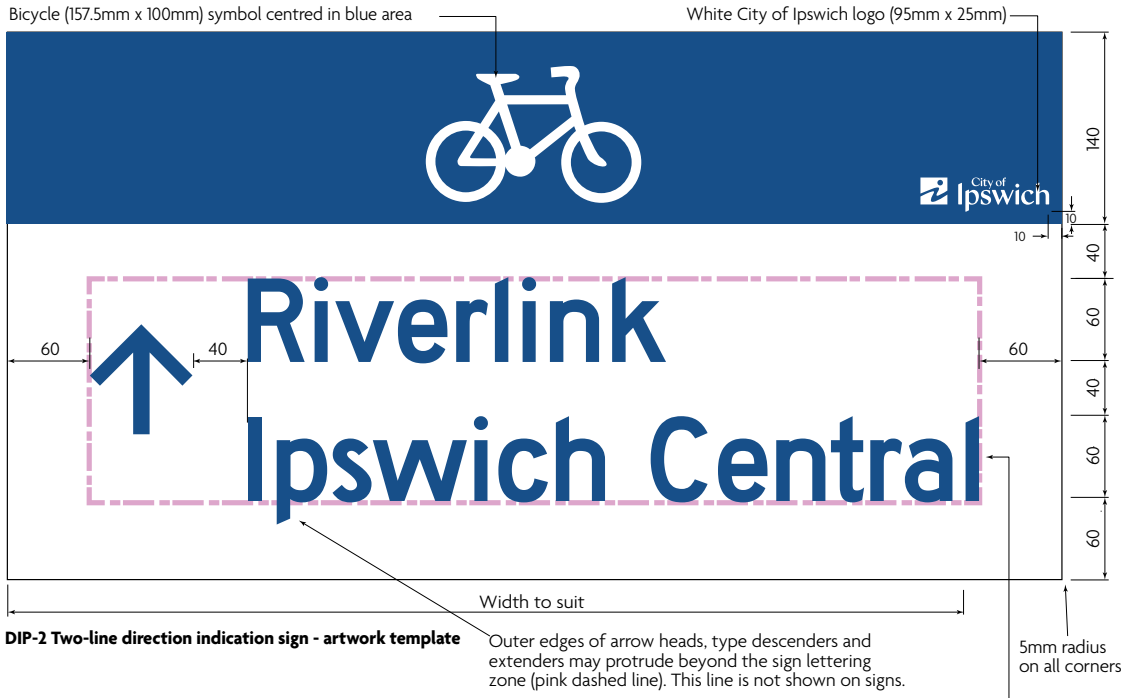
DIP-2

Two-line direction indication sign
Refer to drawing DIP for graphic and construction details and drawing DIP-1-3 for sign layout.

DIP-3

Three-line direction indication sign
Refer to drawing DIP for graphic and construction details and drawing DIP-1-3 for sign layout.

DIP Principal/secondary transport bicycle routes direction indication sign - layout and dimensions



DIP-2 Two-line direction indication sign - artwork template

DIP-2 Two-line direction Indication sign showing layout when distances are shown

Sign example shows layout arrangement when distances less than 1km are shown. When both distances are above one kilometre the numerals are aligned on the decimal point.

Sign content notes

1. Only the route being followed is indicated by DIP signs as shown in the examples.
2. DIP signs list the same destinations used on fingerboards along the route.
3. Focal point and subdestinations can be shown on the sign.
4. A single sign may be used for overlapping routes sharing a common focal point or sub destination.
5. The direction arrow always points outwards from the sign towards the direction of travel.
6. Straight ahead and left turn arrows are always shown on the left side of the destination(s) with the destination names left justified as shown. The arrow is centred vertically for two or more destinations. For right turns, the arrow is positioned to the right of the destination lettering which is right justified towards the arrow.
7. Distance numerals can be shown on DIP signs when used in place of fingerboards at junctions with other routes. Distance numerals are located between the direction arrow and the destination name.
8. Distances, when used, are shown on signs as specified on page 15 of this manual.

DIP Technical details

Construction details

1. 1.6mm aluminium type 5251, tempered H38 sign panel with 5mm radius corners and digitally printed graphics.
2. Type 1 aluminium stiffener rails centred widthways, 100mm less of sheet width, mounted to galvanised post using straps and buckle.
3. Fix sign panel to aluminium stiffener rails using self-piercing riveting system (eg. Henrob).
4. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.

Graphic details

Digital printed graphics in AS2700 Bright Blue B23 using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

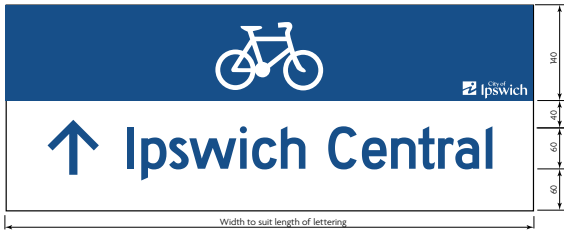
DESTINATIONS
60mm cap X-height AS1744:2015 Series D. Distances only used when DIP sign is located at a route junction in place of a fingerboard.

SIGN MASTHEAD
AS2700 B23 Bright Blue panel, 140mm high and width of sign
White bicycle symbol 157.5 x 100 mm

ARROWS
ADDA type 80mm

Drawing number:
DIP

DIP-1, DIP-2 & DIP-3 Direction indication signs: one- two- and three-line versions

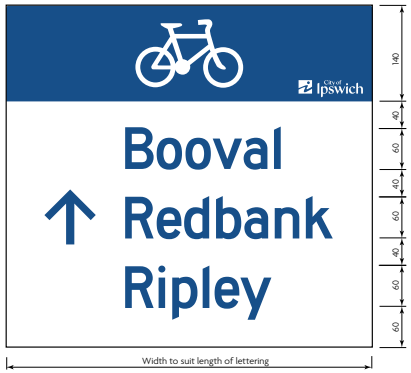


DIP-1 One-line direction indication sign - artwork template

This version of the DIP sign can be used in two ways:
(a) in advance of an intersection to clearly indicate the continuing route direction; and, (b) in place of a fingerboard at a minor route turning (where distances are not shown on signage).

DIP-2 Two-line direction indication sign - artwork template single route with sub destination

This version of the DIP sign is used instead of a fingerboard to indicate a route turning at an intersection. Distance numerals are not shown where the intersection/turning is not a junction with another route.



DIP-3 Three-line direction indication sign - artwork template two parallel routes with shared destination

This version of the DIP sign is used instead of a fingerboard to indicate a route turning at an intersection or for reassurance along a route. The immediate destination "Booval" is shared by both routes and their subsequent focal points are listed with the closest first. Distance numerals are not shown where the intersection/turning is not a junction with another route.

Notes

1. Refer to general notes for all DIP signs on page 25.
2. Refer to sign design and fabrication notes for DIP signs on page 26.

DIP Technical details

DIP-1

One-line direction indication sign.
Refer to drawing DIP for graphic and construction details.

DIP-2 without distances

Two-line direction indication sign.
Refer to drawing DIP for graphic and construction details.

DIP-2 with distances

Two-line direction indication sign with distance numerals shown.
Refer to drawing DIP for graphic and construction details.

DIP-3

Three-line direction indication sign.
Refer to drawing DIP for graphic and construction details.

Drawing number:

DIP-1-3

ADP Principal transport bicycle route advance direction sign

Purpose

The principal transport bicycle route advance direction sign provides advance warning of route junctions between principal routes. They are not used on other types of routes or when principal routes intersect with other types of bicycle routes. Fingerboards only are used at these junctions.

Advance direction signs list the focal point destinations for the route being followed and any other principal transport bicycle route passing through the junction. Sub destinations are not used on advance direction signs.

Distances to destinations are not listed on advance direction signs. Distances are provided on fingerboards at the actual junction.

The route being followed is always shown to the top of the sign. Destinations are grouped according to their common travel direction. The travel/turn direction for each focal point, or group of focal points sharing a common direction, is indicated by a single arrow pointing in the travel direction to be taken through the junction.

Where different routes are crossed, use a horizontal line to show separate routes that cross or branch at the junction.

Travel/turn arrows always point out of the sign body away from their associated destination names. Straight ahead, left turn and veer left arrows are located to the left of their destination names and right turn and veer right arrows to the right of their destination names. Where two or more destination names are grouped with a single direction arrow, the destinations are justified to the side closest to the arrow.

Destinations listed on advance direction signs should be consistent with fingerboards and other signs used on all routes feeding into the junction.

Refer to drawings ADP and ADP-2-4 for layouts and technical details.

Location

Advance direction signs are located between 30 and 50 metres in advance of the intersection. Mounting distance and actual sign siting depend on the road/path situation. On a downhill approach, signs may need to be located at the extent of the range or further back up the hill to account for a high approach speed.

Advance direction signs are always located on the left side of the road/path with good approach visibility.

Sign posts are sited at a minimum of 500mm from the road/path edge on the same side as the direction of travel.

Site verification

All sign sites need to be individually assessed taking likely user travel needs and conditions into consideration.

ADP Sign Variations

ADP-2

Two-line advance direction sign
Refer to drawing ADP for graphic and construction details.
Refer to drawing ADP-2-4 for sign layout.

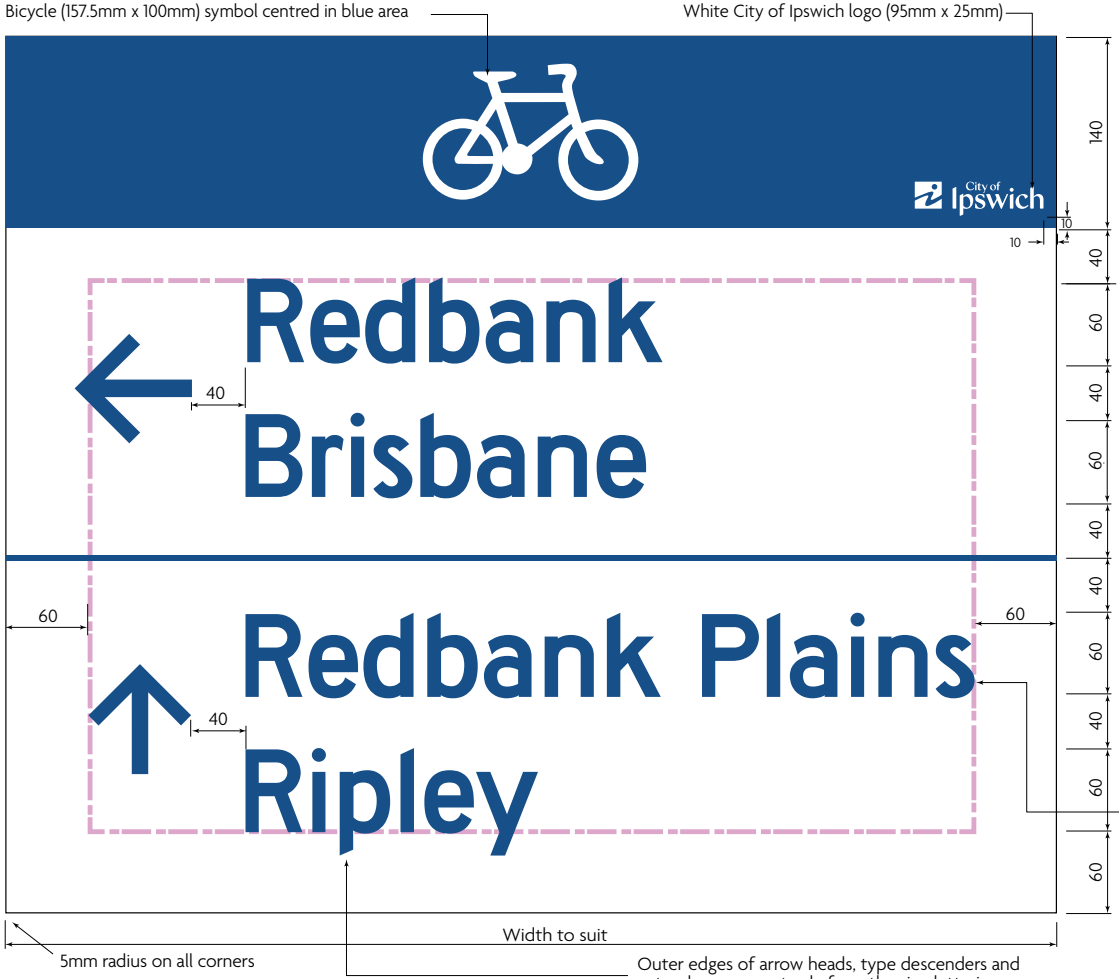
ADP-3

Three-line advance direction sign
Refer to drawing ADP for graphic and construction details.
Refer to drawing ADP-2-4 for sign layout.

ADP-4

Four-line advance direction sign
Refer to drawing ADP for graphic and construction details.
Refer to drawing ADP-2-4 for sign layout.

ADP Principal transport bicycle route advance direction sign - layout and dimensions



ADP-4 Four-line advance direction sign - artwork template

Sign content notes

1. Only focal point destinations are used on advance direction signs. Sub destinations are not used.
2. The route being followed is always listed at the top of the destination list regardless of the direction of the arrow.
3. Focal points for parallel overlapping routes (which share a common direction), are listed with a single direction arrow. Within grouped items the closest destination is listed to the top.
4. Multiple destinations are grouped with a single destination arrow with the arrow centred vertically between the destinations.
5. Focal point destinations for other principal/secondary transport routes crossing or branching from the route being followed are shown below and separated by a 4mm line.
   In the example shown, the route being followed is to Brisbane via Redbank. At the indicated junction two overlapping routes branch off - one to Redbank Plains and the other to Ripley.
6. Straight ahead and left turn arrows are always shown on the left side of the destination(s). Right turn arrows are always shown to the right of destinations.
7. Destinations are left justified towards the arrow for straight ahead and left turns and right justified for right turns - see other examples next page.

The longest line combination of lettering, arrow and spacing associated with a single direction arrow determines the sign width. For this sign the lower arrow-destination group in the list sets the width for this sign.

ADP Technical details

Construction details

1. 1.6mm aluminium type 5251, tempered H38 sign panel with 5mm radius corners and digitally printed graphics.
2. Type 1 aluminium stiffener rails centred widthways, 100mm less of sheet width, mounted to galvanised post using straps and buckle.
3. Fix sign panel to aluminium stiffener rails using self-piercing riveting system (eg. Henrob).
4. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.

Graphic details

Digital printed graphics in AS2700 B23 Bright Blue using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

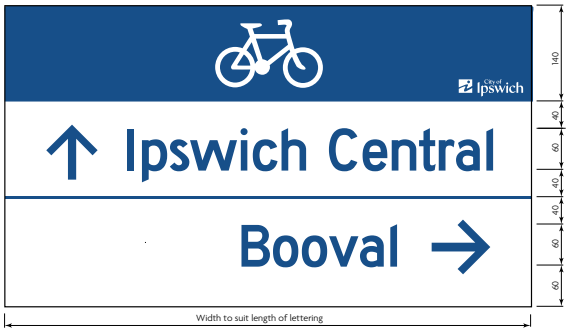
DESTINATIONS
60mm cap X-height AS1744:2015 Series D. Distances not used.

SIGN MASTHEAD
AS2700 B23 Bright Blue panel, 140mm high and width of sign
White bicycle symbol 157.5 x 100 mm

ARROWS
ADDA type 80mm

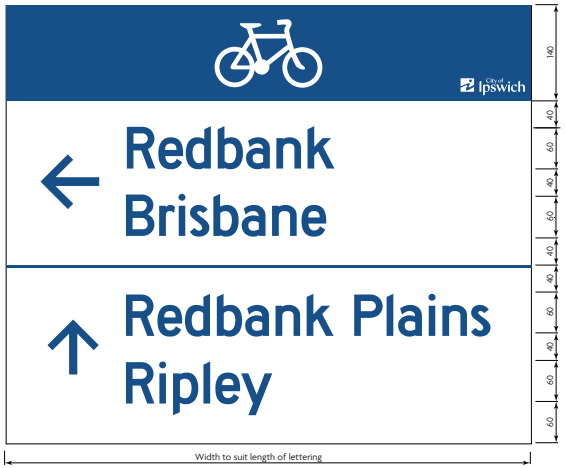
Drawing number:
ADP

ADP-2, ADP-3 and ADP-4 Advance direction signs – two- three- and four-line versions



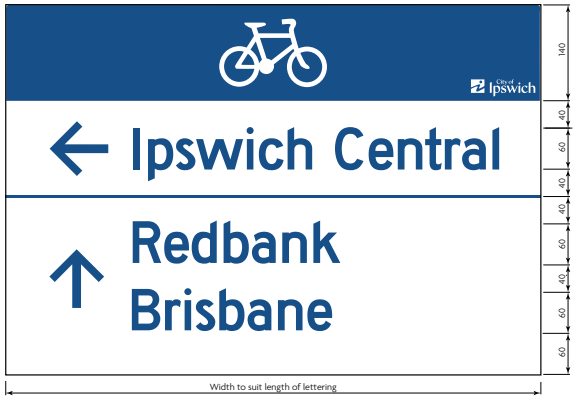
ADP-2 Two-line advance direction sign - artwork template

This version of the AD sign indicates direction for the principal route being followed and another right branching principal route.



ADP-4 Four-line advance direction sign - artwork template

This version of the AD sign indicates direction for a principal route (above the line) and two other principal routes (below the line) sharing the same alignment and branching from this route beyond the junction.



ADP-3 Three-line advance direction sign - artwork template

This version of the AD sign indicates a change of direction for the principal route being followed and straight ahead for the principal route branching from this route.

Notes

1. Refer to general notes for all ADP signs on page 28.
2. Refer to application and usage notes for ADP signs on page 29.

ADP Technical details

ADP-2

One- and two-line advance direction sign.
Refer to drawing ADP for graphic and construction details.

ADP-3

Three-line advance direction sign.
Refer to drawing ADP for graphic and construction details.

ADP-4

Four-line advance direction sign.
Refer to drawing ADP for graphic and construction details.

Drawing number:

ADP-2-4

RDP Principal transport bicycle route reassurance direction sign

Purpose

The principal transport bicycle route reassurance direction sign is used only on high-speed limited access routes or on lengthy remote routes to indicate travel distances to upcoming destinations along the route. This sign is not used on other types of routes. The sign provides confirmation to users following junctions with other principal bicycle transport routes and assures users that they have joined the correct route or are continuing on it.

A maximum of three destinations per sign can be listed in descending distance order with the closest destination at the top of the list. Focal point destinations and the next sub destination can be listed on reassurance destination signs.

Refer to sign layout drawings RDP, RDP-2-3 for layouts and technical details.

Location

Reassurance direction signs are installed 50 – 100m following junctions with other principal transport bicycle routes. They are not used at junctions with other types of bicycle routes.

Sign posts are sited at a minimum of 500mm from the road/ path edge on the same side as the direction of travel.

Site verification

All sign sites need to be individually assessed taking likely user travel needs and conditions into consideration.

RDP Sign variations

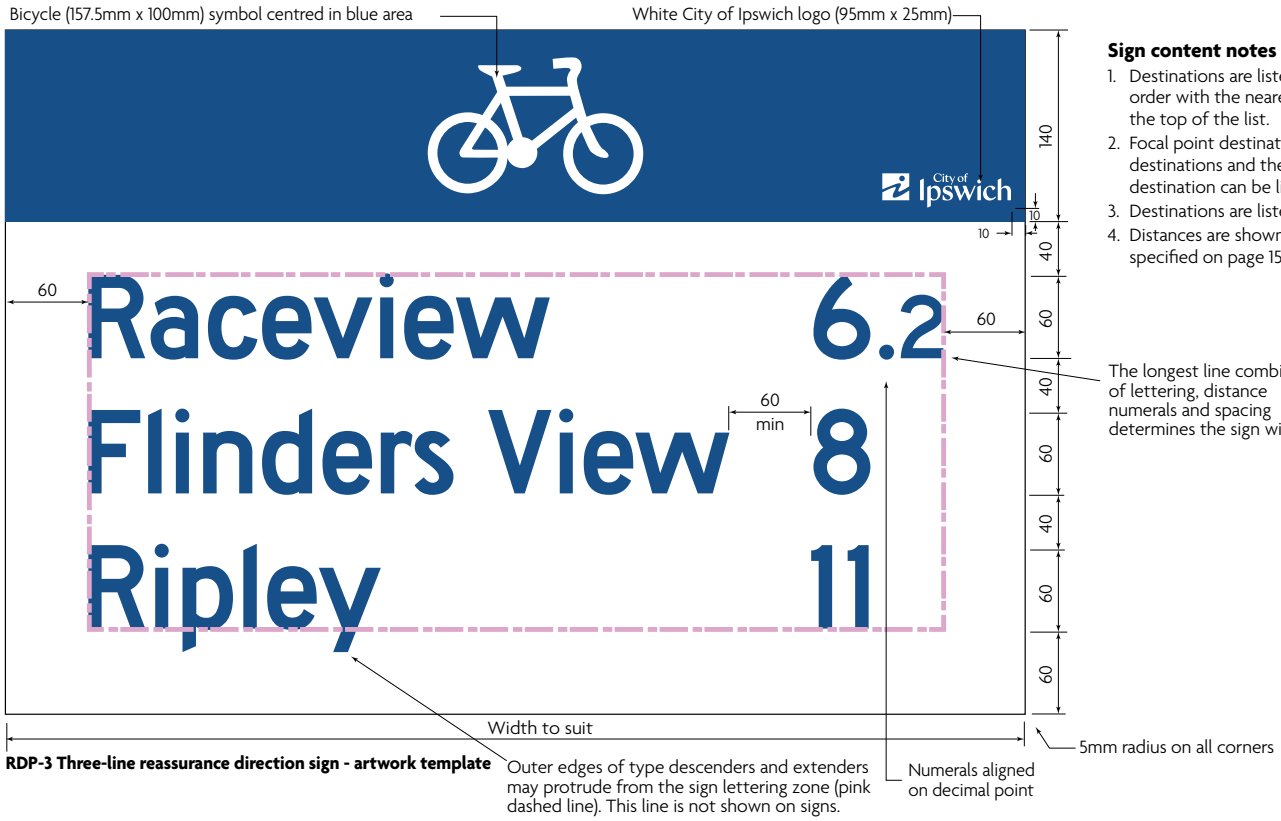
RDP-2

Two-line reassurance direction sign
Refer to drawing RDP for graphic and construction details.
Refer to drawing RDP-2-3 for sign layout.

RDP-3

Three-line reassurance direction sign
Refer to drawing RDP for graphic and construction details.
Refer to drawing RDP-2-3 for sign layout.

RDP Principal transport route reassurance direction sign - layout and dimensions



RDP-3 Three-line reassurance direction sign - artwork template

Sign content notes

1. Destinations are listed in distance sort order with the nearest destination at the top of the list.
2. Focal point destinations, terminal destinations and the next sub destination can be listed.
3. Destinations are listed flush left.
4. Distances are shown on signs as specified on page 15 of this manual.

RDP Technical details

Construction details

1. 1.6mm aluminium type 5251, tempered H38 sign panel with 5mm radius corners and digitally printed graphics.
2. Type 1 aluminium stiffener rails centred widthways, 100mm less of sheet width, mounted to galvanised post using straps and buckle.
3. Fix sign panel to aluminium stiffener rails using self-piercing riveting system (eg. Henrob).
4. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.

Graphic details

Digital printed graphics in AS2700 B23 Bright Blue using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

DESTINATIONS/DISTANCES
60mm cap X-height AS1744:2015 Series D
Numerals: ≥1km 60mm cap X-height, <1km 45mm cap X-height

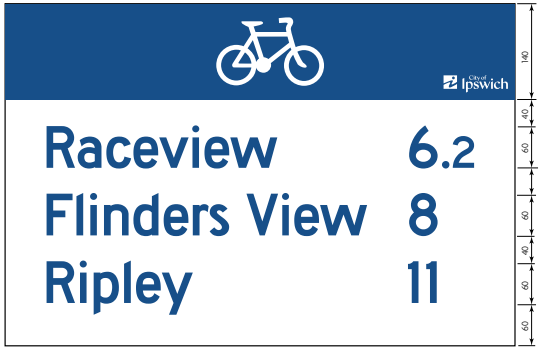
SIGN MASTHEAD
AS2700 B23 Bright Blue panel, 140mm high and width of sign
White bicycle symbol 157.5 x 100 mm

ARROWS
Not used

Drawing number:
RDP

RDP-2 and RDP-3 Reassurance direction sign – two- and three- line variations

RDP-2 Two-line reassurance direction sign - artwork template



RDP-3 Three-line reassurance direction sign - artwork template

Notes

1. Refer to general notes for all RDP signs on page 31 of this manual.
2. Refer to design and fabrication notes for RDP signs on page 32 of this manual.

RDP Technical details

RDP-2

Two-line reassurance direction sign. Refer to drawing RDP for graphic and construction details.

RDP-3

Three-line reassurance direction sign. Refer to drawing RDP for graphic and construction details.

Drawing number:

RDP-2-3

LPP Principal/secondary/local transport and secondary recreation bicycle routes location sign

Purpose

The principal/secondary/local transport and secondary recreation bicycle routes location sign is located on bridge structures or above underpass portals where a route passes under a significant road or cross street. Location signs are not used to mark junctions with other routes – fingerboards are used at these intersections.

The location sign lists only the name of the street or road being crossed via the underpass. This sign does not show distances or direction arrows though in rare cases a direction arrow may be used as a further aid to route navigation where the associated underpass has a bend in the path direction or change of grade.

Refer to drawing LPP for layout and technical details.

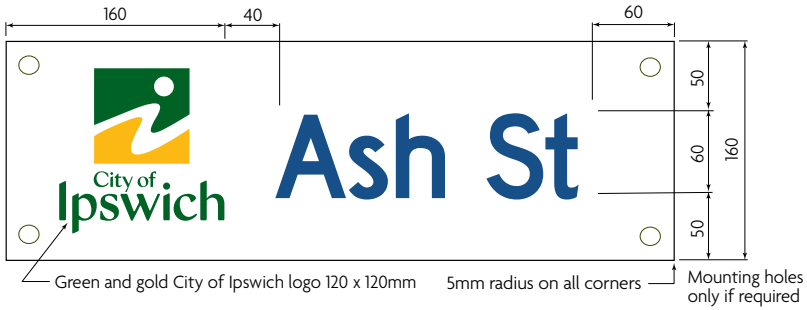
Location

Location signs are located above the path on both approaches to underpasses and bridges to clearly identify the street or road being crossed at different grade/level to the path. The optimal siting for a location sign is on the face of a bridge/overpass structure, easily seen from, and directly above, the path. Signs are permanently affixed to the bridge/overpass structure. The method of fixing takes into account the type, age and materials used in the structure.

Site verification

All sign sites need to be individually assessed taking likely user travel needs and conditions into consideration.

LPP Principal/secondary/local transport and secondary recreation bicycle routes location sign - layout and dimensions



LPP One-line location sign - artwork template
Length of sign to suit sign content.

Sign content notes

1. Maximum length of the location plate is 1200mm subject to lettering content.
2. Destinations or distance numerals are not used on this type of sign.
3. LPP location plate signs may be used on all types of routes where appropriate.

LPP One-line location sign - application example

LPP Technical details

Construction details

1. 1.6mm aluminium type 5251, tempered H38 sign panel with 5mm radius corners and digitally printed graphics.
2. Sign glued, screwed (or other) and permanently fixed to the face of overhead structures where the cycleway travels under or over a cross street/road.

Graphic details

Digital printed graphics in AS2700 B23 Bright Blue using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

DESTINATIONS
60mm cap X-height AS1744:2015 Series D. Distances not used.

CITY OF IPSWICH LOGO
Affix green and gold vertical format logo 120 x 120mm positioned as shown.

ARROWS
Not used

Drawing number:
LPP

FAC Principal/secondary/local transport bicycle routes facility/services sign

Purpose

The facility/services sign is a one-line fingerboard type sign used to indicate single destinations (usually services and facilities of use to cyclists – toilets, shops, bike repair etc), or to sign exit/entry paths leading to the street system from a route through parklands. On secondary recreation bicycle routes the FIR Facility/services fingerboard is used to direct path users to facilities.

Facility/services signs can be used on local transport bicycle routes as one-line destination fingerboards.

Facility/services signs are made from standard 150mm street sign aluminium extrusion. Only one destination, facility or service is indicated per sign. This type of sign is designed for end mounting with bracketing usually on existing street poles or newly installed steel poles.

Refer to sign layout drawings FAC for layouts and technical details for facility/destination fingerboards.

Location

Facility/services signs are located at intersections and path junctions and point directly to the destination, service or facility off the main path/route. Distances to these facilities or services are usually short and no other signs should be needed. If the route to the destination, facility or service has additional turnings, RMH or RMV route markers may be installed along the way to clearly mark the intended route.

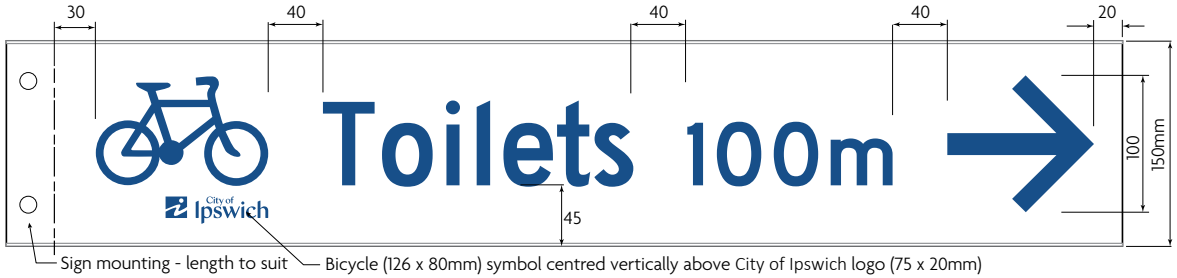
Facility/services signs are sited at a minimum of 500mm from the road/path edge, preferably on the same side as the direction of travel.

Site verification

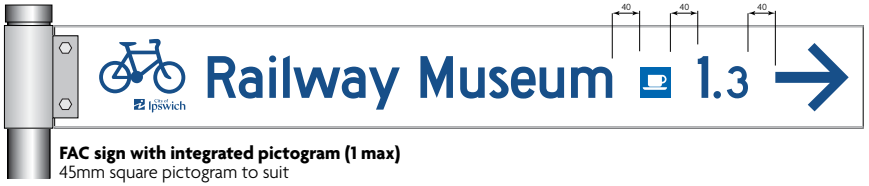
Position facility/services signs to minimise confusion at path junctions, particularly where there are multiple junctions.

Facility/services signs when located near roads are positioned to minimise confusion with other road signs.

FAC Principal/secondary/local transport routes facility/services sign - layout and dimensions



FAC Facility/services sign - artwork template
Example used to indicate facilities and services adjacent to a route.



FAC sign with integrated pictogram (1 max)
45mm square pictogram to suit

FAC sign used to mark an access path connecting a principal/secondary transport bicycle route to the local street system when located in parklands

FAC sign can also be used as a one-line local transport bicycle route fingerboard
See drawing FBL for additional details

Sign content notes

1. The facility/services sign is a double-sided fingerboard. See drawings FBP-1 and FBP-2 for typical details of a reverse face layout.
2. The FAC sign lists one destination per sign.
3. This sign can be used to sign facilities and services adjacent to all bicycle transport route types. This sign is also used as a one-line fingerboard on local transport bicycle routes
4. The direction arrow always points outwards from the sign mounting towards the direction of travel. Upward pointing arrows are not used.
5. A pictogram (1 max) may be used to indicate additional facilities and services not referred to in the destination lettering. The top sign shown in this drawing may be reduced in size by the replacement of the lettering "Toilets" with the PMF (public toilets pictogram).
6. Distances are shown on signs as specified on page 15 of this manual.
7. Maximum length of fingerboard is 1200mm.

FAC Technical details

Construction details

1. Standard street sign aluminium extrusion 150mm high (length to suit lettering). Standard Grade H5005 H34.
2. Mount sign to pole using standard galv/steel or aluminium sign clamp.
3. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.

Graphic details

Digital printed graphics in AS2700 B23 Bright Blue using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

SYMBOL
Blue bicycle symbol 126 x 80 mm

ARROWS
ADDA type 100mm

Drawing number:
FAC

MSP Principal/secondary transport bicycle routes map sign

Purpose

The principal/secondary transport bicycle routes map sign is used to assist wayfinding within an area. Maps can show people a full range of wayfinding possibilities offered by the AT network within the area covered by the map. Network maps show major trip attractors such as universities, schools, technical colleges, shopping centres, railway stations and the general street system.

The MSP map has a coverage of approximately 6km x 6km and uses a high quality street directory type base map which includes the following features:

- road network
- existing ATN routes and facilities (on- and off-road)
- parks, sporting or recreation grounds
- major destinations such as shopping centres and employment nodes
- public transport facilities
- activity centres
- educational facilities
- police stations
- hospitals
- public libraries
- places of worship
- public toilets
- waterways, water reservoirs, and significant natural landmarks

Maps are orientated north in line with conventional street directory mapping. Maps are produced at an appropriate scale to ensure the path and surrounding features are easily identifiable with a "you are here" indicator approximately in the centre of the map. Significant trip attractors that exist outside the map area are marked with text and an arrow indicating the direction of the facility or destination (e.g. city centre 4km).

Refer to map sign layout drawings MSP-A to MSP-C for layouts and technical details.

Location

Map signs are placed at strategic network junctions or at 'gateway' locations (city centre periphery etc) which provide access to a large section of the network. This may be adjacent to a major access pathway or at key route junctions.

Map signs are preferably sited in a map viewing bay (see Drawing MSP-C) adjacent to a path. Map signs ideally are located to allow path users to view the map when facing in a northerly direction to facilitate easy map orientation.

When siting map signs near paths where no viewing bay is provided, map boards are located at least one metre from the path edge to ensure there is sufficient space to move off the path to read the sign and not create a hazard for other path users.

To indicate desired/safe rest stops along paths, the location of map signs, where appropriate, can be co-located with other path infrastructure such as seats, lights, racks, shelters etc.

The location of signs in lit areas is recommended to extend the functional hours the signs are usable.

Site verification

Map signs are positioned so that cyclists can easily read the information from the map in relation the surrounding environment. All maps are positioned with maximum visibility for street and path users travelling in all directions.

Careful siting of the map sign for maximum visibility also provides casual surveillance from passers-by which may discourage vandalism to the sign.

All map sign sites need to be individually assessed taking likely user travel needs and conditions into consideration.

See drawings MSP-A to MSP-C for sign layout and siting details.

MSP Sign variations

MSP-A

Map sign for general use on the ATN
Refer to drawing MSP-A to MSP-C for graphic and construction details.

MSP-B

Map sign for use on a bikeway
Refer to drawing MSP-A to MSP-C for graphic and construction details.

MSP Principal/secondary transport bicycle routes map sign - general arrangement and mounting

MSP-A map sign - front view
Variation A for general use

MSP-B map sign - front view
Variation B for use on a bikeway

MSP map sign
Side view

MSP Technical details

Construction details

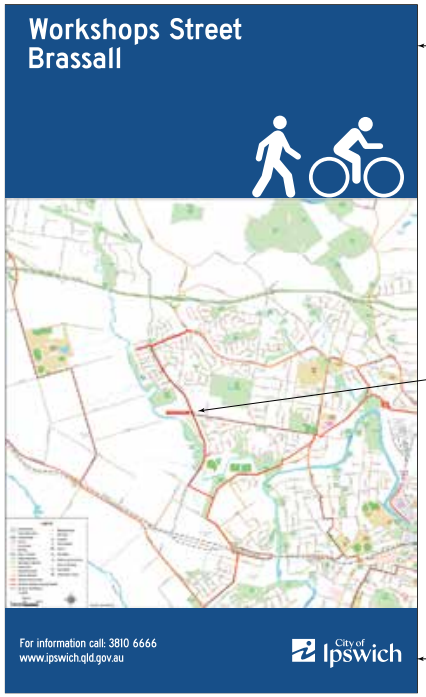
1. 1.6mm aluminium type 5251, tempered H38 as specified in DTMR TCDM, sign panel with 5mm radius corners and digitally printed graphics.
2. Type 1 aluminium stiffener rails centred widthways 100mm less of sheet width with mounted to galvanised post using straps and buckle.
3. Fix sign panel to aluminium stiffener rails using self-piercing riveting system (eg. Henrob).
4. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.

Graphic details

Digital printed graphics onto white material. Panel and lettering colours as per MSP-B. Map colours as shown using full solvent inks with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Drawing number:
MSP-A

MSP Principal/secondary transport bicycle routes map sign - map panel layout and dimensions

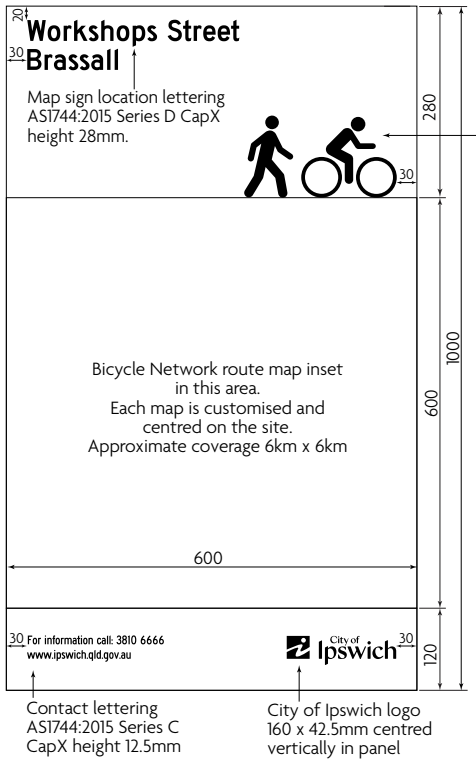


Background AS2700 B23 Bright Blue. White lettering and symbols.

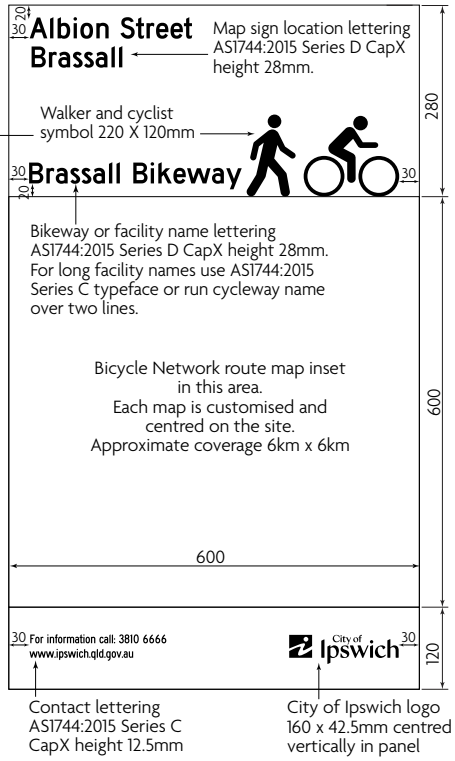
"You are here" marker on map

Background AS2700 B23 Bright Blue. White lettering and logos.

MSP-A Map sign - sample sign panel layout



MSP-A Map sign variation A for general use Sign panel artwork template



MSP-B Map sign variation B for use on a bikeway Sign panel artwork template

MSP Technical details

Graphic details

Digital printed graphics and background colour as indicated. Use full solvent inks onto 100x 600mm White Cast Vinyl sheet with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

MAP SIGN HEADER
Location: 28mm cap X-height AS1744:2015 Series D AS2700 white lettering
Bikeway name (if used): 28 mm cap X-height AS1744:2015 Series D AS2700 white lettering

YOU ARE HERE POINTER AND TEXT
10mm cap X-height AS1744:2015 Series D AS2700 R13 Red as shown

MAP SIZE
600mm x 600mm

CONTACT DETAILS TEXT
12.5mm cap X-height AS1744:2015 Series D black as shown

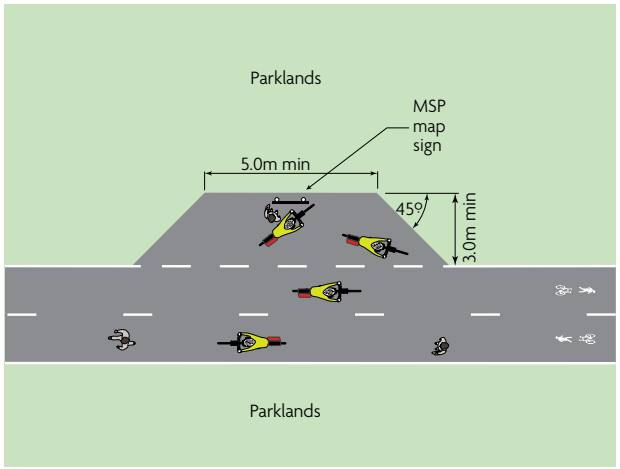
Map Details

Base map: Custom mapping (using Open Street Map base) with current ICC Bicycle Network linework overlay, legend (as shown) and 'You Are Here' pointer indicating map sign site. See Drawing MSP-C for sample map layout.

Drawing number:
MSP-B

MSP-AD Principal/secondary transport bicycle routes map sign - map details and viewing bay layout

MSP Map sign - detail of sample map customised with route linework to ICC specification
Customised street map (Open Street Map) to include an overlay of current ICC Active Travel Network linework to match map legend. Map artwork supplied in electronic vector graphical format suitable for printing. Map size 600 x 600mm.



MSP Map sign - viewing bay for off-road path
Showing recommended layout for high-use path map sign viewing bay.

Map sign - viewing bay example
This photograph above shows an existing variation of a map sign viewing bay constructed adjacent to a high-use shared path in Roma Street Parklands, Brisbane.

MSP Map sign viewing bay technical details

Layout for MSP map sign viewing bay for off-road routes

The map is sited for optimal viewing in the map viewing bay as detailed in the diagram on this drawing.

Drawing number:
MSP-C

Secondary recreation bicycle route signs

FBR Secondary recreation bicycle route fingerboard sign

Purpose

Secondary recreation bicycle route fingerboards are used to indicate route direction at decision points or intersections along a route. Focal point destinations for the route, plus any intermediate sub destinations, are shown on fingerboards.

If advance warning or reassurance signs are needed to ensure adequate route wayfinding on secondary recreation bicycle routes, secondary recreation bicycle route markers should be used.

Refer to sign layout drawing FBR for layouts and technical details for secondary recreation route fingerboards.

Location

Secondary recreation bicycle route fingerboards are located at route intersections and point to the travel direction along the route facility. Fingerboards are sited clear of turning traffic and in full visibility of cyclists using the route.

For ease of navigation it is preferable to locate all fingerboards on the one pole in a prominent location. Signs in split locations are carefully sited to be easily read. For example, at a right turn of the route it may be useful to locate one fingerboard on the right side of the street in the direction of travel. This draws the eye of the user in the correct direction of travel. Avoid locating signs outside the user's normal field of vision.

Sign posts are sited at a minimum of 500mm from the road/path edge, preferably on the same side as the direction of travel.

Site verification

Position secondary recreation bicycle route fingerboards to minimise confusion at path junctions, particularly where there are multiple junctions.

Fingerboards when located near roads are positioned to minimise confusion with other road signs.

FBR Sign variations

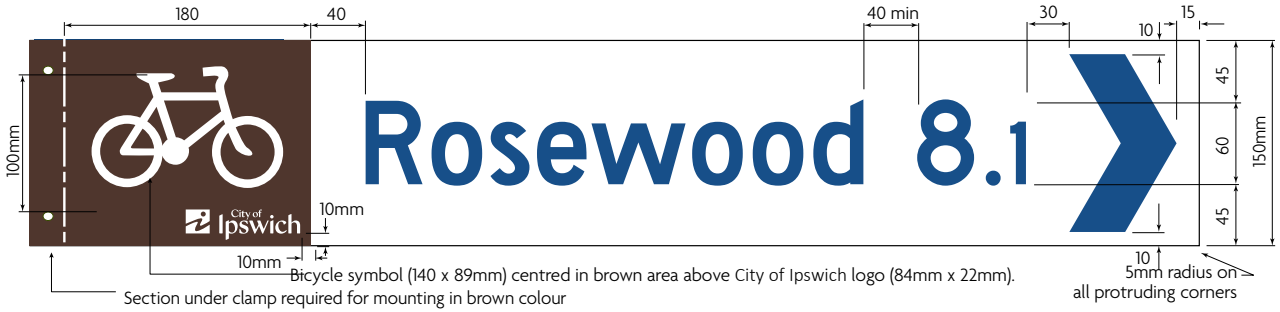
FBR-1

One-line fingerboard
Refer to drawing FBR for sign layout, graphic and construction details.

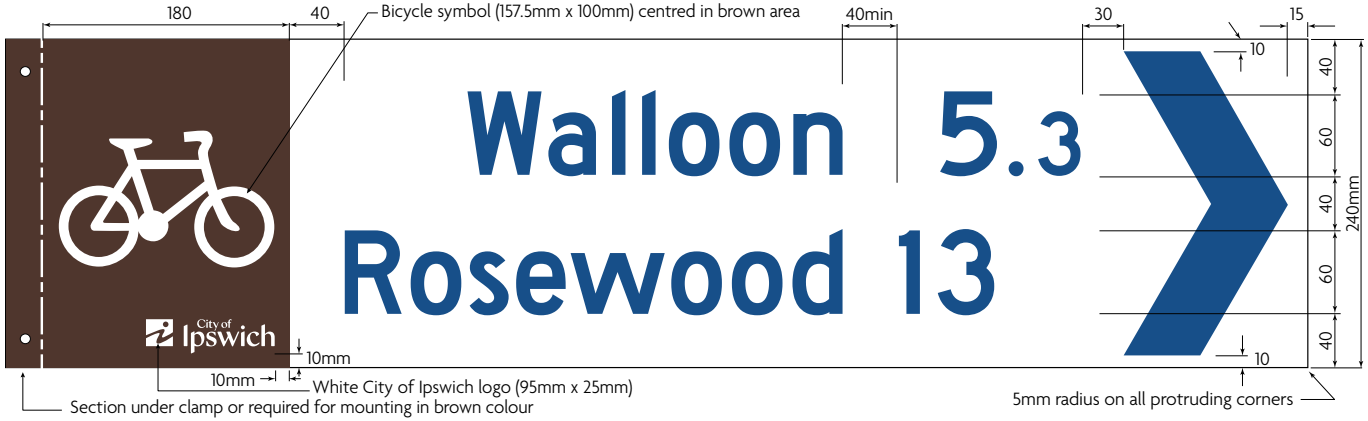
FBR-2

Two-line fingerboard
Refer to drawing FBR for sign layout, graphic and construction details.

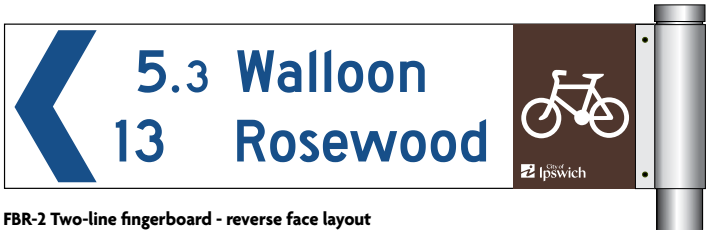
FBR-1 and FBR-2 Secondary recreation bicycle route fingerboards - layout and dimensions



FBR-1 One-line fingerboard - artwork template



FBR-2 Two-line fingerboard - artwork template



FBR-2 Two-line fingerboard - reverse face layout

Sign content notes

1. Secondary recreation bicycle route fingerboards are double-sided signs. See example (left) for reverse face layout.
2. A white bicycle symbol on a brown background is located at the mounting end of each sign face. This symbol always faces in the direction of travel.
3. Distances are shown on signs as specified on page 15 of this manual.
4. Maximum length of fingerboard is 1200mm.

FBR Technical details

Construction details

1. 6mm aluminium Standard Grade H5005 H34 with 5mm radius corners. Maximum length 1200mm subject to content.
2. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.
3. Mount using standard galv/steel or aluminium sign clamp.

Graphic details

Digital printed graphics in AS2700 X65 Dark Brown and AS2700 B23 Bright Blue using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

DESTINATIONS
60mm cap X-height AS1744:2015 Series D

DISTANCES
AS1744:2015 Series D, ≥1km 60mm cap X-height, <1km 45mm cap X-height

SYMBOL
White bicycle symbol 157.5 x 100mm

ARROW
FBR-1: FBDA-1 type
FBR-2: FBDA-2 type

Drawing number:
FBR

FIR Secondary recreation bicycle route facility indicator sign

Purpose

This fingerboard-type sign is used on secondary recreation bicycle routes to direct riders to destinations with significant facilities and services of use to users. They are used at route junctions and intersections or access roads adjoining the route.

The destination name is shown on the fingerboard along with distances to the destination along with a maximum of five pictograms on the bottom line indicating facilities and services available at the destination.

Refer to sign layout drawing FIR/FDR for layout and technical details.

Location

Secondary recreation bicycle route facility indicator signs are located at route intersections and point along side streets and paths towards the signed destination. These signs are sited clear of turning traffic and in full visibility of cyclists using the route.

Sign posts are sited at a minimum of 500mm from the road/path edge, preferably on the same side as the direction of travel.

Site verification

Position secondary recreation bicycle route facility indicator fingerboards to minimise confusion at path junctions, particularly where there are multiple junctions.

Where applicable, fingerboards direct users to the most appropriate direction to enable them to easily follow the route.

Fingerboards when located near roads are positioned to minimise confusion with other road signs.

FDR Secondary recreation bicycle route destination indicator sign

Purpose

This fingerboard-type sign is used on secondary recreation bicycle routes to direct riders to destinations where some additional wayfinding information is needed (a lower line on the sign). They are used at intersections or access roads adjoining the route.

The name of the destination is shown on the fingerboard along with distances to the destination. Additional wayfinding information, or in some cases an additional sub destination which can be reached along the route, is shown on the lower line of the sign.

Refer to sign layout drawing FIR/FDR for layout and technical details.

Location

Secondary recreation bicycle route destination indicator signs are located at route intersections and point along the travel direction towards the destination. These signs are sited clear of turning traffic and in full visibility of cyclists using the route.

Sign posts are sited at a minimum of 500mm from the road/path edge, preferably on the same side as the direction of travel.

Site verification

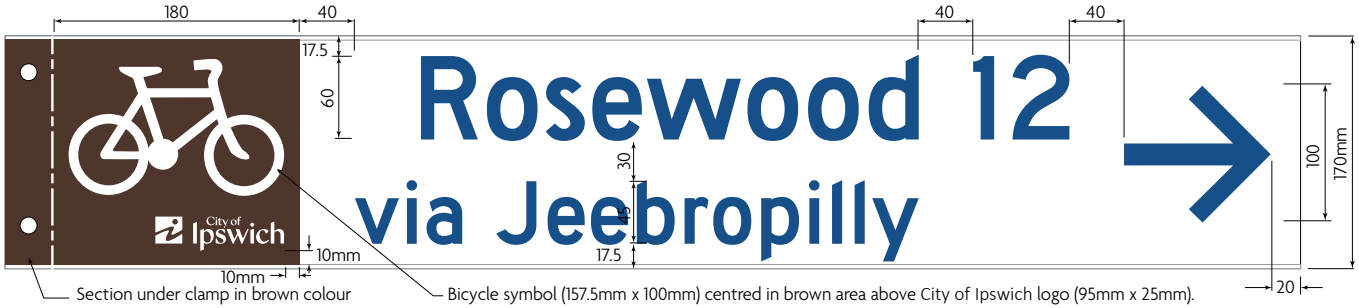
Position secondary recreation bicycle route destination indicator fingerboards to minimise confusion at path junctions, particularly where there are multiple junctions.

Where applicable, fingerboards direct users to the most appropriate direction to enable them to easily follow the route.

Fingerboards when located near roads are positioned to minimise confusion with other road signs.

Secondary recreation bicycle route signs: FIR facility indicator & FDR destination indicator - layout and dimensions

FIR Facility indicator fingerboard with pictograms (max 6) on lower line - artwork template
See Sheets FBL-1 and FBR for typical fingerboard reverse face layout.



FDR Destination indicator fingerboard with additional wayfinding information on lower line - artwork template

FIR Facility indicator fingerboard showing mounting details with local street name sign
See Sheets FBP-1 and FBP-2 for typical fingerboard reverse face layouts.

Sign content notes

1. The FIR sign uses one listed destination per sign. The bottom row may contain pictograms to assist wayfinding.
2. The FDR sign has two rows of text. The second row can indicate a sub destination or additional wayfinding information
3. A white bicycle symbol on a brown background is located at the mounting end of each sign face. This symbol always faces in the direction of travel.
4. Distances are shown on signs as specified on page 15 of this manual.
5. Maximum length of fingerboard is 1200mm.

FIR and FDR Technical details

Construction details

1. Standard ICC street sign aluminium extrusion 170mm high (length to suit lettering). Standard Grade H5005 H34. Maximum length 1200mm subject to content.
2. Mount sign to pole using standard galv/steel or aluminium sign clamp.
3. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.

Graphic details

Digital printed graphics in AS2700 X65 Dark Brown and AS2700 B23 Bright Blue using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

DESTINATIONS
60mm cap X-height AS1744:2015 Series D

DISTANCES
AS1744:2015 Series D, ≥1km 60mm cap X-height, <1km 45mm cap X-height

SYMBOL
White bicycle symbol 157.5 x 100mm

PICTOGRAMS
FIR sign – maximum 5

ARROWS
ADDA type 100mm

Drawing number:
FIR/FDR

RMR Secondary recreation bicycle route markers

Purpose

Secondary recreation bicycle route markers are an aid to navigation used to supplement fingerboard signs. Markers can be used as reassurance on longer stretches between fingerboards at route junctions. When used in this way they are placed at intervals 5km or less. Markers can also be used on trails as advance direction signs to warn of turnings or at complex intersections to supplement fingerboards.

There are two versions of secondary recreation bicycle route markers: a horizontal layout type marker (RMR-H) double-sided and designed for bracketed side mounting usually on the poles below standard street name signs (for routes following streets), and; a vertical type marker (RMR-V) single-sided and designed to face cyclists along a route or at a turning. These markers are mounted on new or existing poles.

Refer to sign layout drawings RMR-H and RMR-V for layouts and technical details for secondary recreation bicycle route markers.

Location

Secondary recreation bicycle route markers indicate travel direction along a route. Markers are sited in full visibility of cyclists using the route.

Route markers on rural routes are placed at 5km maximum spacing and generally located on existing sign posts or new route marker posts where there are no existing sign posts. Spacing may be increased to 10km along remote routes where there are limited or no entry/ exit points to the route. In urban environments, markers are placed at 1km intervals increasing to 2km where there are no intermediate junctions.

All marker posts are to be set a minimum of 500mm from the road/path edge, preferably on the same side as the direction of travel.

Site verification

Position secondary recreation bicycle route markers to minimise confusion at path junctions, particularly where there are multiple junctions.

Markers when located near roads are positioned to minimise confusion with other road signs.

RMR Sign variations

RMR-H

Route marker, horizontal format
Refer to drawing RMR-H for graphic and construction details.

RMR-V-SA

Route marker, vertical format with arrow indicating straight ahead
Refer to drawing RMR-V for graphic and construction details.

RMR-V-LT

Route marker, vertical format with arrow indicating left turn
Refer to drawing RMR-V for graphic and construction details.

RMR-V-VL

Route marker, vertical format with arrow indicating veer left
Refer to drawing RMR-V for graphic and construction details.

RMR-V-RT

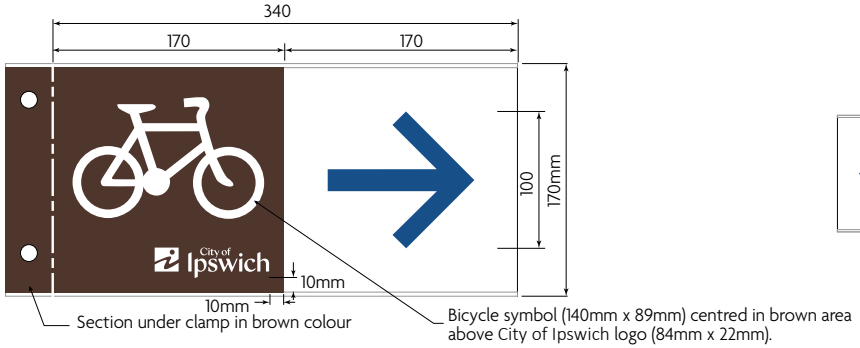
Route marker, vertical format with arrow indicating right turn
Refer to drawing RMR-V for graphic and construction details.

RMR-V-VR

Route marker, vertical format with arrow indicating veer right
Refer to drawing RMR-V for graphic and construction details.

RMR-H Secondary recreation bicycle route markers horizontal type - layout and dimensions

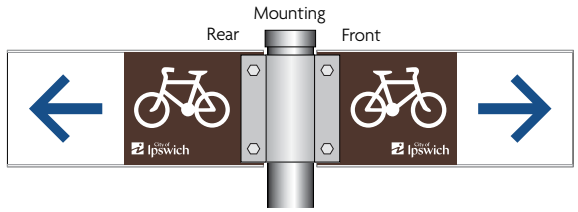
RMR-H Route marker mounted with street name sign



RMR-H Route marker horizontal format - artwork template

Sign content notes

1. Horizontal markers are double-sided and are designed to mount with street name signs to indicate route turnings.
2. Markers are mounted with the arrow pointing in the direction of travel. The arrow should always point outwards from the mounting on each side of the marker.
3. The bicycle symbol always faces in the same direction as the arrow on both sides of the marker plate.
4. In built-up areas route markers are mounted below and on the same pole as street name signs as shown (left).



RMT-H Route marker double-sided layout arrangement

RMR-H Technical details

Construction details

1. Standard street sign aluminium extrusion 170mm high. Standard Grade H5005 H34.
2. Mount sign to pole using standard galv/steel or aluminium sign clamp.
3. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.

Graphic details

Digital printed graphics in AS2700 X65 Dark Brown and AS2700 B23 Bright Blue using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

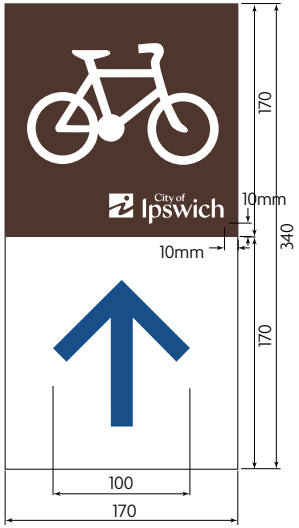
Sizes

SYMBOL
White bicycle symbol 140 x 89mm

ARROWS
ADDA type 100mm

Drawing number:
RMR-H

RMR-V Secondary recreation bicycle route markers vertical type – layout details



RMR-V Route marker vertical format - artwork template

Bicycle symbol (140 x 89mm) centred in brown area above City of Ipswich logo (84mm x 22mm).

Direction arrow centred in lower half of marker.

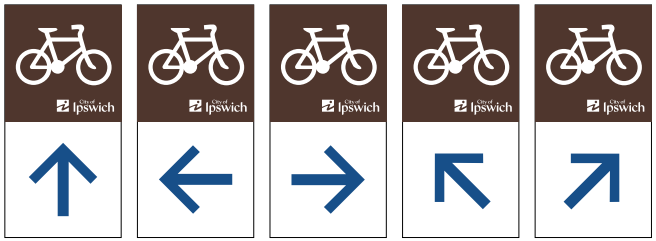
RMR-V Route marker vertical layout

RMR-V-SA shown mounted on new or existing pole

Sign content notes

1. Vertical markers are single-sided and are designed to mount on new or existing street poles to indicate route turnings.
2. The marker is mounted with the arrow pointing in the direction of travel.
3. The bicycle symbol faces in the same direction as the arrow. For 'Up arrow' markers the symbol faces to the right.
4. 5mm radius on all exposed corners.

RMR-V Route marker vertical format - layout variations



RMR-V-SA
Straight ahead

RMR-V-LT
Left turn

RMR-V-RT
Right turn

RMR-V-VL
Veer left

RMR-V-VR
Veer right

RMR-V Technical details

Construction details

1. 6mm aluminium Standard Grade H5005 H34 with 5mm radius corners.
2. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.

Graphic details

Digital printed graphics in AS2700 X65 Dark Brown and AS2700 B23 Bright Blue using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

SYMBOL
White bicycle symbol 140 x 89mm

ARROWS
ADDA type 100mm

Drawing number:
RMR-V

Local transport bicycle route signs

FBL Local transport bicycle route fingerboard signs

Purpose

FBL Local transport bicycle route fingerboards are used on routes to mark both ends of a route to a significant local destination. Local transport bicycle routes may also include feeder routes to and through local residential areas not directly served by principal/secondary transport bicycle routes.

When signing local transport bicycle routes, fingerboards are used as the first and last sign of the route with intermediate intersections/turnings indicated by RMH or RMV markers.

At the junction of local transport and principal/secondary transport bicycle routes, it is usual practice to install fingerboards for the principal/secondary transport bicycle route as well as for the local transport bicycle route.

There are three types of fingerboard signs used to mark local transport bicycle routes:

- The FBL-F sign lists a single destination with distance and direction arrow. This design allows for the addition of pictograms to indicate facilities available at the local destination.
- The FBL-D fingerboard lists a single main local transport destination with additional wayfinding information on the lower line showing an intermediate sub destination with distance routing information or via an intermediate facility (named bikeway) or locality etc.
- The FAC sign lists a single destination with distance and direction arrow.

Local transport bicycle route fingerboards are designed to mount with standard street name signs where possible. It is preferable to mount these fingerboards on the same pole and below street name signs.

See sign layout drawing FBL for two-line FBL-F and FBL-D fingerboards and drawing FAC for one-line fingerboard.

Location

Local transport bicycle route fingerboards are usually located at each end of a route. Local transport bicycle route fingerboards are sited clear of turning traffic and in full visibility of cyclists using the route.

For ease of navigation it is preferable to locate all fingerboards on the one pole in a prominent location. Signs in split locations are carefully sited to be easily 'read' by the user. For example at a right turn of the route it may be useful to locate one fingerboard on the right side of the street in the direction of travel. This draws the eye of the user in the correct direction of travel. Avoid locating signs outside the user's normal field of vision.

Sign posts are sited at a minimum of 500mm from the road/path edge, preferably on the same side as the direction of travel.

Site verification

Position local fingerboards to minimise confusion at path junctions, particularly where there are multiple junctions.

Where applicable, fingerboards direct pathway users to the most appropriate direction to enable them to easily follow the route.

FBL Sign variations

FBL-F

One-line fingerboard with services pictograms
Refer to drawing FBL for sign layout, graphic and construction details.

FBL-D

Two-line fingerboard with sub destination indication or additional wayfinding indication.
Refer to drawing FBL for sign layout, graphic and construction details.

FAC

One-line fingerboard for single destinations with distances
Refer to drawing FAC for sign layout, graphic and construction details.

FBL-F, FBL-D and FAC* Local transport bicycle route fingerboards - layout and dimensions

FBL-F Facility indicator fingerboard with pictograms (max 6) on lower line - artwork template
See Sheets FBP-1 and FBP-2 for typical fingerboard reverse face layouts.

FBL-D Destination indicator fingerboard - artwork template

FBL-F Facility indicator fingerboard co-mounted with street name sign

Sign content notes

1. Local transport bicycle route fingerboard signs are double-sided. See drawings FBP-1, FB-2 and FAC for reverse face layout details.
2. The FBL-F fingerboard has only one listed destination per sign. The bottom row may contain pictograms (maximum 6).
3. The FBL-D sign may show a sub destination (accessible along the route) on the lower line. Alternatively the lower line may show wayfinding information similar to the FDR sign example.
4. Distances are shown on signs as specified on page 15 of this manual.
5. Maximum length of fingerboard is 1200mm.

FAC Facilities/services sign used as a one-line fingerboard
This sign can be used on local transport bicycle routes as a destination fingerboard (shown) or to indicate facilities/services near the route.

*See drawing FAC for additional details

FBL Technical details

Construction details

1. FBL-F and FBL-D both use standard ICC street sign aluminium extrusion 170mm high (length to suit lettering). Standard Grade H5005 H34. Maximum length 1200mm subject to content.
2. Mount sign to pole using standard galv/steel or aluminium sign clamp.
3. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.

Graphic details

Digital printed graphics in AS2700 B23 Bright Blue using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

DESTINATIONS & DISTANCES
Top line: 60mm cap X-height, ≥1km 45mm cap X-height AS1744:2015 Series D
Bottom line: 45mm cap X-height <1km 33.75mm cap X-height AS1744:2015 Series D

SYMBOL
Blue bicycle symbol 157.5 x 100mm

ARROWS
ADDA type 100mm

Drawing number:
FBL

RM Route markers

Purpose

Route markers are used to mark route turnings on local transport bicycle routes between the fingerboards located at either end of a route. Markers can also be used routes as reassurance on long sections between fingerboards.

There are two versions of the RM route marker. The RMH horizontal layout type is double-sided and designed for bracketed side mounting, usually on the same pole and below a standard street name sign. The RMV vertical type marker is a single-sided marker designed to face cyclists along a route or at a turning. This type of marker is mounted on a new or existing pole.

Refer to sign layout drawings RML and RMV for layouts and technical details for RM route markers.

Location

Route markers are usually located at intersections and indicate the route travel direction along a street or path. Markers are sited in full visibility of cyclists using the route.

Marker posts are set a minimum of 500mm from the road/ path edge, preferably on the same side as the direction of travel.

Site verification

Position route markers to minimise confusion at path junctions, particularly where there are multiple junctions.

Where applicable, markers direct users to the most appropriate direction to enable them to easily follow the route.

Markers when located near roads are positioned to minimise confusion with other road signs.

RM Marker variations

RMH

Route marker horizontal format
Refer to drawing RMH for graphic and construction details.

RMV-SA

Route marker vertical format, arrow indicating straight ahead
Refer to drawing RMV for graphic and construction details.

RMV-LT

Route marker vertical format, arrow indicating left turn
Refer to drawing RMV for graphic and construction details.

RMV-RT

Route marker vertical format, arrow indicating right turn
Refer to drawing RMV for graphic and construction details.

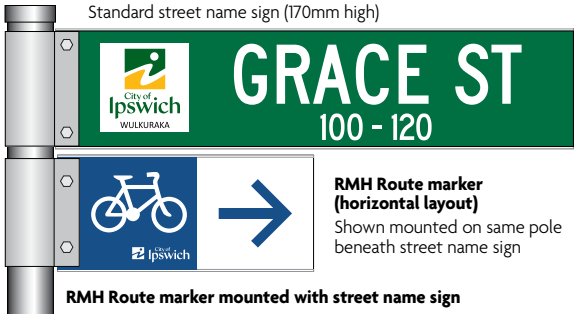
RMV-VL

Route marker vertical format, arrow indicating veer left
Refer to drawing RMV for graphic and construction details.

RMV-VR

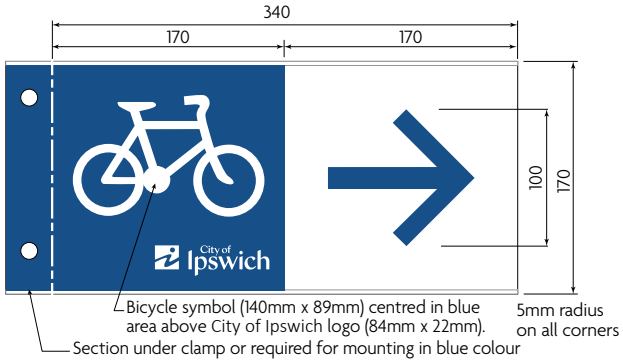
Route marker vertical format, arrow indicating veer right
Refer to drawing RMV for graphic and construction details.

RMH Route marker horizontal type - layout and dimensions



RMH Route marker (horizontal layout)
Shown mounted on same pole beneath street name sign

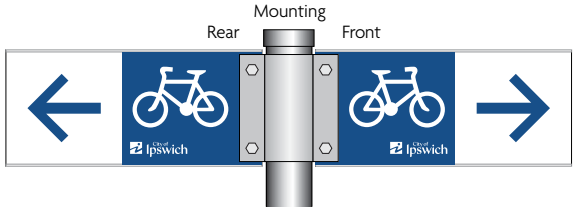
RMH Route marker mounted with street name sign



RMH Route marker horizontal format - artwork template

Sign content notes

1. Horizontal markers are double-sided and are designed to mount singly or with (and below) street name signs.
2. The marker arrow points in the direction of travel. The arrow should always point outwards from the mounting on each side of the marker.
3. The bicycle symbol always faces in the same direction as the arrow on both sides of the marker plate.



RMH Route marker double-sided layout arrangement

RMH Technical details

Construction details

1. 340mm wide x 170mm high. 6mm aluminium Standard Grade H5005 H34 with 5mm radius corners.
2. Mount sign to pole using standard galv/steel or aluminium sign clamp.
3. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.

Graphic details

Digital printed graphics in AS2700 B23 Bright Blue using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

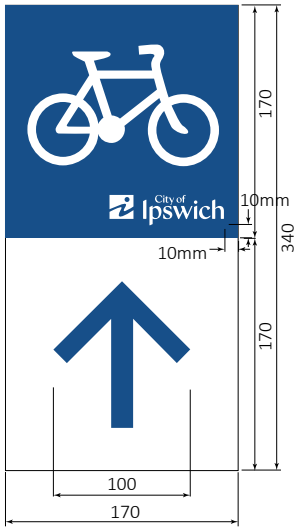
Sizes

White bicycle symbol 140 x 89mm

ARROWS
ADDA type 100mm

Drawing number:
RMH

RMV Route marker vertical type - layout and dimensions



RMV Route marker vertical format - artwork template

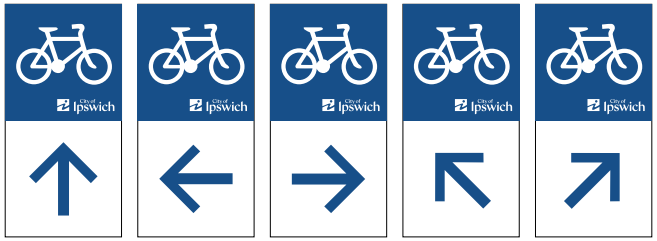
Bicycle symbol (140 x 89mm) centred in blue area above
City of Ipswich logo (84mm x 22mm).
Direction arrow centred in lower half of marker.

RMV Route marker vertical layout
RMV-SA shown mounted on new or existing pole

Sign content notes

1. Vertical markers are single-sided and are designed to mount on new or existing street poles to indicate route turnings.
2. The marker is mounted with the arrow pointing in the direction of travel.
3. The bicycle symbol faces in the same direction as the arrow. For 'Up arrow' markers the symbol faces to the right.
4. 5mm radius on all exposed corners.

RMV Route marker vertical format - layout variations



RMV-SA
Straight ahead

RMV-LT
Left turn

RMV-RT
Right turn

RMV-VL
Veer left

RMV-VR
Veer right

RMV Technical details

Construction details

1. 170mm wide x 340mm high. 6mm aluminium Standard Grade H5005 H34 with 5mm radius corners.
2. Mounting on 50mm or 60mm diameter poles (depending on sign loading). Footings are 300mm diameter and 600mm deep.

Graphic details

Digital printed graphics in AS2700 B23 Bright Blue using full solvent inks onto white Class 2 super engineering grade retro-reflective material sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

White bicycle symbol 140 x 89mm

ARROWS
ADDA type 100mm

Drawing number:
RMV

Pedestrian activity centre signs

FPR Pedestrian activity centre fingerboard sign

Purpose

Pedestrian activity centre fingerboards indicate the direction to destinations and facilities within an activity centre. Fingerboards show a single destination along with the distance and average walking time to the destination. A pictogram may also be incorporated on the sign where appropriate.

Refer to sign layout drawings FPR for layouts and technical details for pedestrian activity centre fingerboards.

Fingerboards are fixed to the flat sides of a square section stainless steel pole. Four fingerboards may be mounted at the same stack height with the maximum stack height of two signs (ie fingerboards indicating destinations in the same direction). See Drawing FPR for details of fingerboard mounting arrangement.

Calculation of travel time

Times shown on pedestrian activity centre fingerboards are calculated using an average walking speed of 4.8km/h as shown in Table 3. Times are displayed as 00min and are located on the row below the destination name and at the end of the sign closest to the mounting. Distances are shown as indicated on page 15 of this manual.

Table 3 – Pedestrian walking times on signs

Distance	Walking time
100m	1min
200m	2min
300m	4min
400m	5min
500m	6min
600m	8min
700m	9min
800m	10min
900m	11min
1km	12min

Location

Pedestrian activity centre fingerboards are located at route decision points to indicate the route travel direction along a path. They are sited clear of turning traffic and in full visibility of pedestrians using the route.

For ease of navigation it is preferable to locate all fingerboards on the one pole in a prominent location. Signs in split locations are carefully sited to be easily 'read' by the user. For example, at a right turn of the route it may be useful to locate one fingerboard on the right side of the street in the direction of travel. This draws the eye of the user in the correct direction of travel. Avoid locating signs outside the user's normal field of vision.

Sign posts are sited at a minimum of 500mm from the road/path edge, preferably on the same side as the direction of travel.

Site verification

Position pedestrian activity centre fingerboards to minimise confusion at path junctions, particularly where there are multiple junctions.

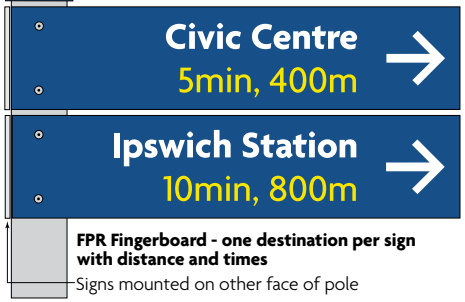
Fingerboards when located near roads are positioned to minimise confusion with other road signs.

FPR Pedestrian activity centre fingerboard - layout and dimensions

FPR Pedestrian activity centre fingerboard - artwork template

Four-sided pole cap featuring the City of Ipswich logo and walker symbol

Sign fixed to pole with recessed hex key bolts



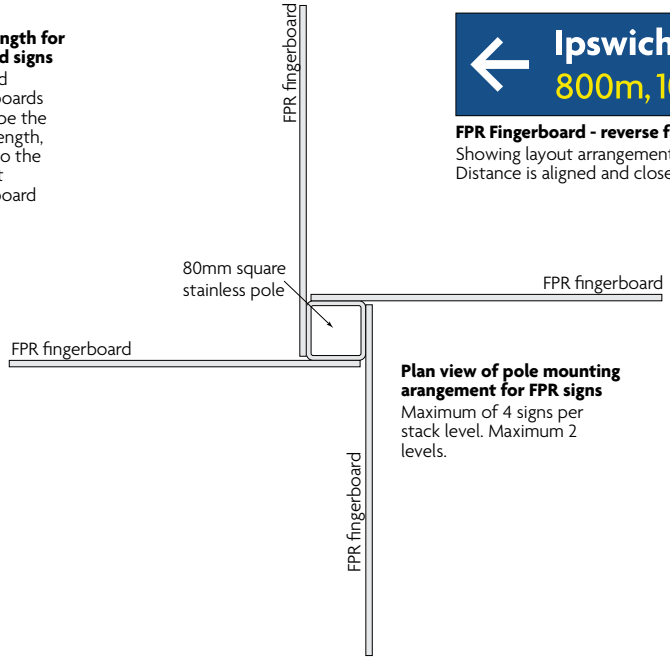
Sign length for stacked signs
Stacked fingerboards are to be the same length, equal to the longest fingerboard

FPR Fingerboard - one destination per sign with distance and times

Signs mounted on other face of pole

60mm square stainless pole

FPR Fingerboard showing pictogram location (when used)
40mm square pictogram on top line of sign



Plan view of pole mounting arangement for FPR signs
Maximum of 4 signs per stack level. Maximum 2 levels.

Sign content notes

1. Pedestrian route fingerboards are double-sided signs. See example below for reverse side layout.
2. Distances and times are located below the destination name. The direction arrow always points outwards from the sign mounting towards the direction of travel.
3. Times are shown on signs as specified on Table 3, Page 54 of this manual. Lettering sizes as shown right.
4. Signs are mounted on square section 80mm stainless poles.
5. A blue 4-sided pole cap is fitted to each sign pole. The pole cap has a white pedestrian symbol and City of Ipswich logo below showing on each face.
6. Yellow colour for walking times and distances is Pantone Process Yellow. See page 17 of this manual.
6. Maximum length of fingerboard is 1200mm.

FPR Fingerboard - reverse face
Showing layout arrangement for above fingerboard. Distance is aligned and close to arrow.

FPR Technical details

Construction details

1. 6mm aluminium Standard Grade H5005 H34 with 5mm radius corners. Maximum length 1200mm subject to content.
2. Mount sign to pole using stainless broad head hex key bolts.
3. Mounting on 80mm square section stainless poles. Footings are 300mm diameter and 600mm deep.

Graphic details

Digital printed graphics on a sign base colour AS2700 B51 Periwinkle Blue. Destination lettering colour: White. Distances and times: AS2700 Y15 Sunflower yellow. Use full solvent inks onto white cast vinyl sheeted with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

DESTINATIONS
36mm cap X-height Agenda Bold, white lettering

DISTANCE AND TIME
36mm cap X-height Agenda Medium, yellow lettering

POLE CAP SYMBOL
White pedestrian symbol 69 x 120mm

ARROW
ADDA type 80mm

Drawing number:
FPR

MPR Pedestrian activity centre map column

Purpose

The MPR map column shows a detailed map surrounding an activity centre with facilities and points of interest for pedestrians. Maps are north orientated in line with conventional mapping and are based on an 800m walking radius around the activity centre and are sized to be 450mm x 450mm on the map column. A "you are here" indicator showing the map column location is provided on the map. Any significant trip attractors that exist outside the map area are marked with text and an arrow indicating the direction of the facility or destination.

Refer to sign layout drawing MPR for layouts and technical details.

Location

Map columns are usually in the hub of identified pedestrian activity centres. Map columns ideally are located to allow pedestrians to view the map when facing in a northerly direction to facilitate easy map orientation.

Map columns are located at least one metre from a path edge to ensure there is sufficient space to move off the path to read the sign and not create a hazard for other pedestrians.

The location of map columns, where appropriate, can be co-located with other pedestrian infrastructure such as seating, lighting, shelters etc.

The location of map columns in lit areas is recommended to extend the functional hours the map column is usable.

Site verification

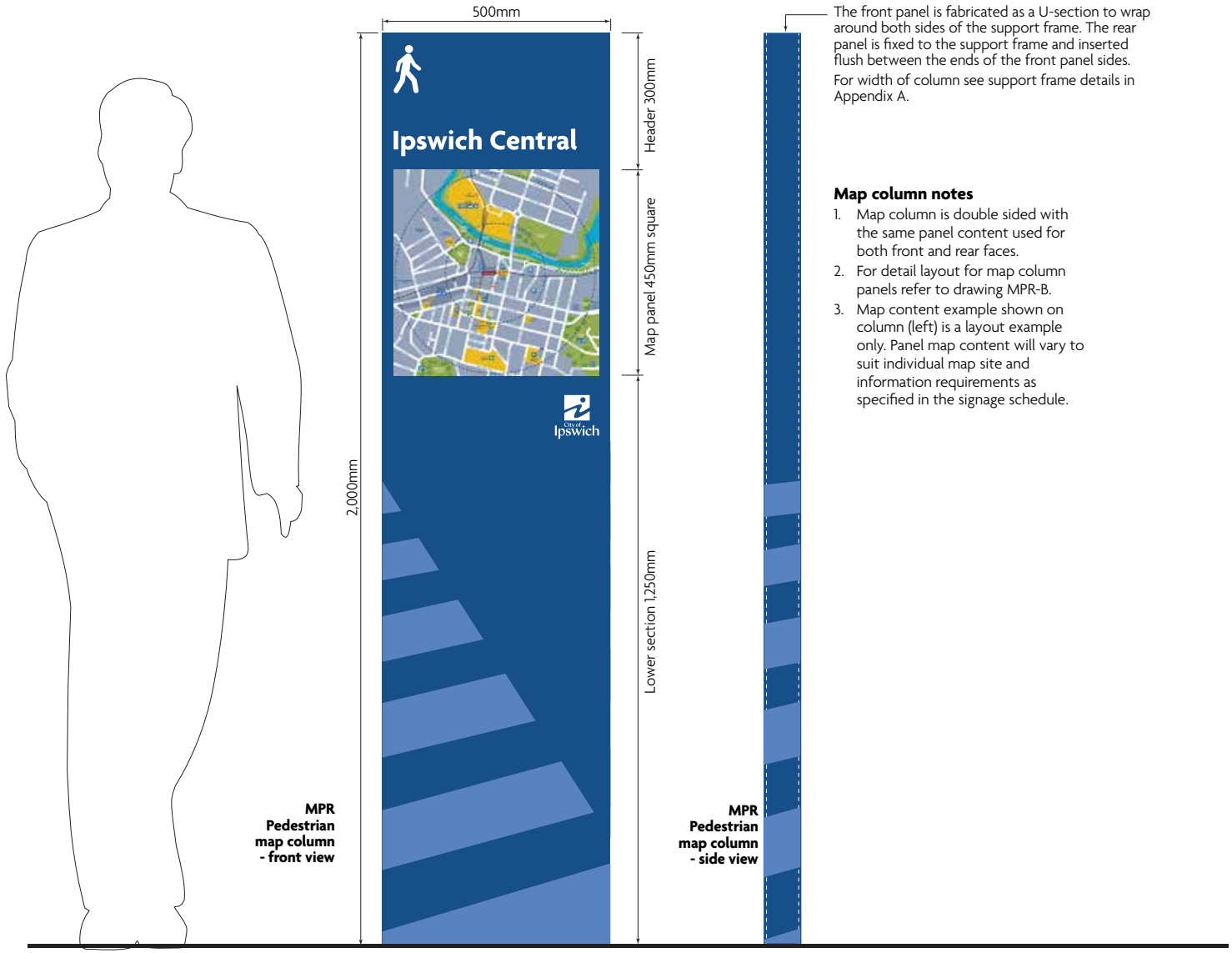
Map columns are positioned where pedestrians can easily translate the information from the map to the surrounding environment with maximum visibility for pedestrians travelling in all directions.

Careful siting of the map column for maximum visibility also provides casual surveillance from passers-by which may discourage vandalism to the column.

All map column sites need to be individually assessed taking likely user travel needs and conditions into consideration.

See drawings MSP-A and MSP-B for map column design layout and templates.

MPR Pedestrian map sign column - general and content



The front panel is fabricated as a U-section to wrap around both sides of the support frame. The rear panel is fixed to the support frame and inserted flush between the ends of the front panel sides.

For width of column see support frame details in Appendix A.

Map column notes

1. Map column is double sided with the same panel content used for both front and rear faces.
2. For detail layout for map column panels refer to drawing MPR-B.
3. Map content example shown on column (left) is a layout example only. Panel map content will vary to suit individual map site and information requirements as specified in the signage schedule.

MPR Technical details

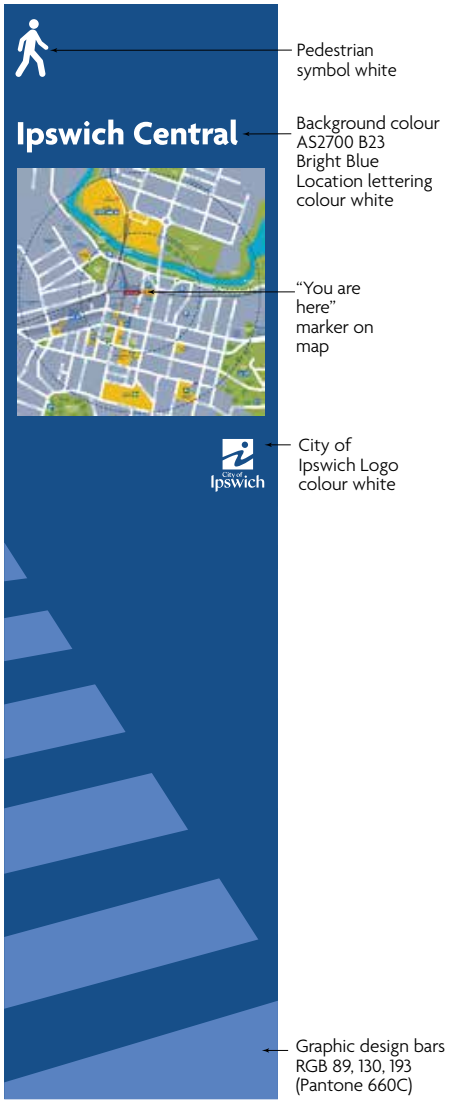
Construction details

1. Map sign column supporting frame construction details and panel mounting arrangement as per Appendix A of this document.
2. Map column panels are 6mm aluminium type 5251, tempered H38 sign panel with square corners.
3. Map column panels are fixed to the supporting frame as per Appendix A of this document. Front panel is U-section to wrap around the edges of the support frame. Rear panel is flat.
4. Support frame footings are as per Appendix A of this document.

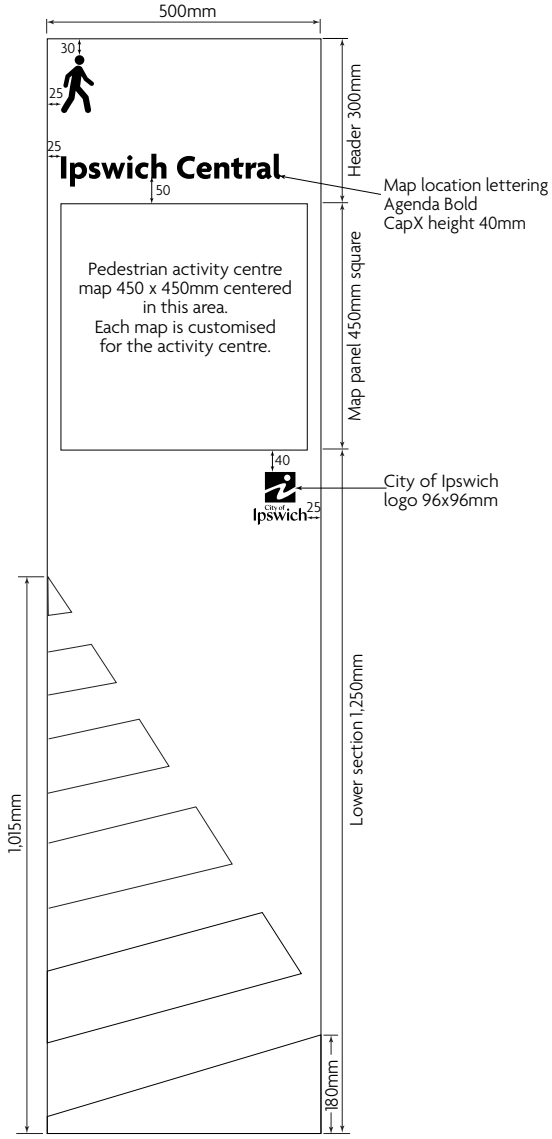
Drawing number:

MPR-A

MPR Pedestrian map sign column - front/back panel layout and dimensions



MPR Pedestrian map column front/rear panel - colours



MPR Pedestrian map column front/rear panel - artwork template

MPR Technical details

Graphic details

Digital printed graphics and background colour as indicated. Use full solvent inks onto 1400 x 550mm White Cast Vinyl sheet with anti-graffiti overlay film NI-EF 40801-12-45 or equivalent.

Sizes

MAP SIZE
450mm W x 450mm H

PEDESTRIAN SYMBOL
White pedestrian symbol 61 x 106mm

MAP LOCATION LETTERING
40mm cap X-height Agenda Bold, white lettering

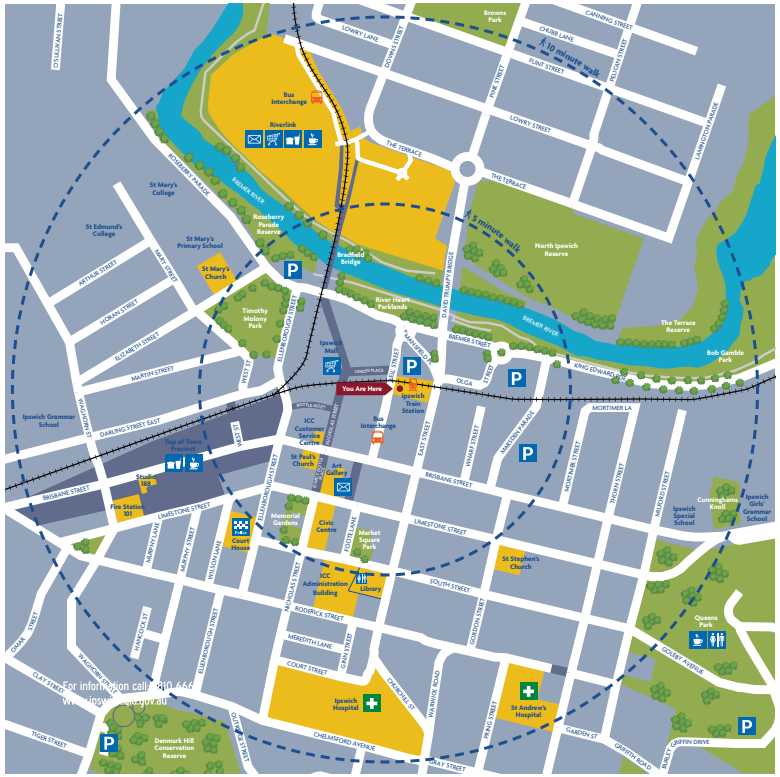
YOU ARE HERE POINTER AND TEXT
10mm cap X-height Agenda Bold
Pantone 1955C Red as shown

Map Details

Each map contains information specific to the site (You Are Here pointer). Use the current approved version of the relevant pedestrian activity centre mapping.

Drawing number:
MPR-B

MPR-AD Pedestrian map sign column - map details



MPR Map sign - sample of pedestrian activity centre map to ICC Marketing specification
Customised pedestrian activity centre street map to include 5 and 10 minute walking radii. Map artwork supplied in electronic vector graphical format suitable for printing. Map size 450 x 450mm.

Colours (Pantone) used on pedestrian activity centre mapping

- Background - 644c
- Parks - 7495c
- River - 801c
- Destination - 7408c
- You Are Here - 1955c
- Icons - 225c
- Transport Symbols - 1655c
- Pedestrian Paths - 7545c
- Type – 2945c

Special pictograms used only on pedestrian activity centre mapping

PCP - Cafe

PKP - Kiosk

PTP - Train Station

PBP - Bus interchange

MSP Map technical details

Base map for pedestrian activity centre with local features, destinations, facilities and "You are here" marker shown. Maps supplied to ICC Marketing specification.

Drawing number:
MPR-C

Pavement wayfinding markings

On-road bicycle route wayfinding markings

Purpose

Bicycle route on-road pavement wayfinding markings are used only on principal/secondary bicycle routes to indicate on-road route turnings and as an aid to navigation. They provide an important supporting role to signage.

Half size standard MUTCD symbols are used in three combinations to indicate the path of a bicycle route, straight ahead, turn to the left and turn to the right.

Bicycle route on-road pavement wayfinding markings warn cyclists of upcoming turns particularly with on- to off-road transitions. Route pavement markings are a useful aid to navigation with routes through complex urban street networks with many turnings.

Refer to layout drawing RPM for layouts and technical details.

Location

Bicycle route on-road pavement wayfinding markings are usually located between 50 and 20 metres in advance of a route turning. The actual siting location is determined by the road conditions and environment on the intersection approach.

Site verification

All sites need to be individually assessed taking likely user travel needs and conditions into consideration.

Off-road path wayfinding markings

Purpose

These are a suite of off-road pavement wayfinding markings which indicate recommended walking routes to schools. These markings are only to be placed near schools and are to compliment Council's programs/initiatives for schools.

The use of these markings is subject to safety assessment and approval by Council's Infrastructure and Planning Branch prior to application.

Colour vinyl adhesive markers are used in three versions of the basic design to indicate the path of a walk to school route.

Refer to layout drawing PPM for layouts and technical details.

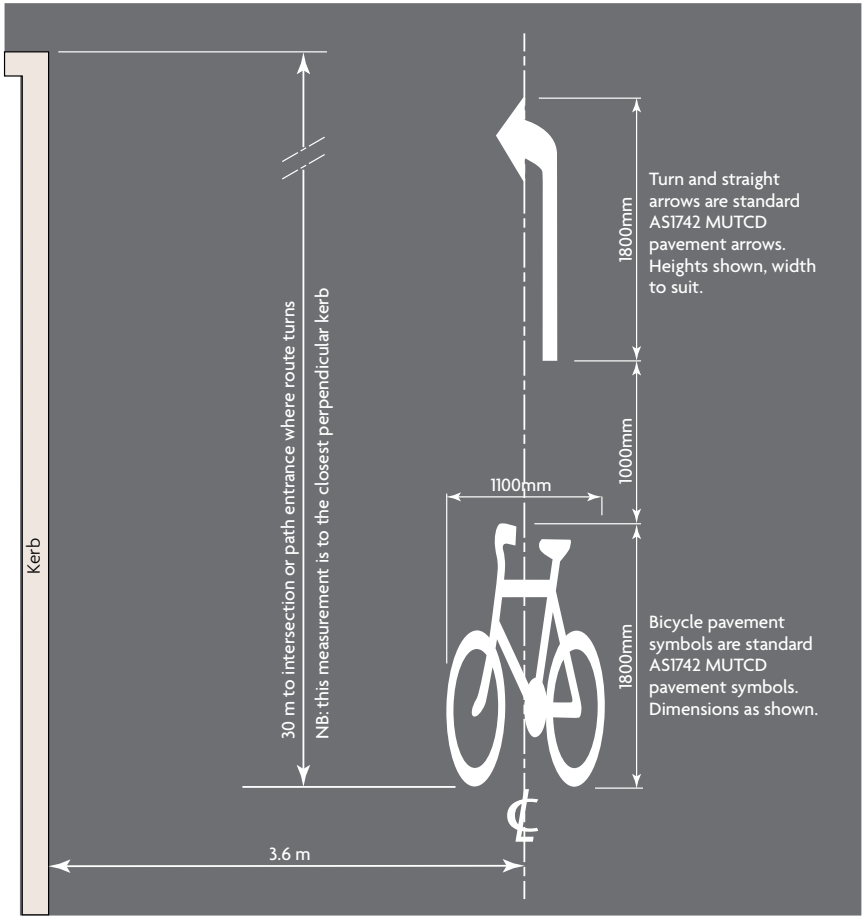
Location

Off-road recommended walking route to school pavement markers with times (5 and 10 minutes) are located at set distances along the route corresponding to the times printed on the markers. Untimed pavement markers are used for general reassurance and at route turnings along the walk route. The actual siting location is determined by the path and adjacent road environment.

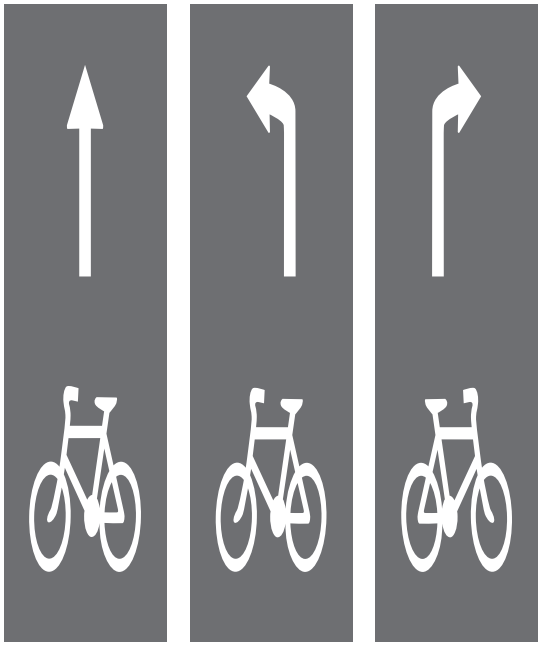
Sit verification

All sites need to be individually assessed taking likely user travel needs and conditions into consideration.

RPM On-road wayfinding markings



RPM On-road pavement wayfinding marking. RPM-L left-turn marker shown.
Size and positioning as shown applies to all three marker designs.



RPM-S On-road pavement wayfinding marker.
Marker indicates straight ahead route direction.

RPM-L On-road pavement wayfinding marker.
Marker indicates left turn ahead route direction.

RPM-R On-road pavement wayfinding marker.
Marker indicates right turn ahead route direction.

RPM Technical details

Construction details

1. Cut out stencil applied to road pavement using white anti-slip road-based paint to relevant Australian Standard.
2. Alternatively use anti-slip, pre-cut, heat-fixed thermoplastic.

Graphic details

White bicycle symbol and arrows to AS1742 MUTCD pattern.

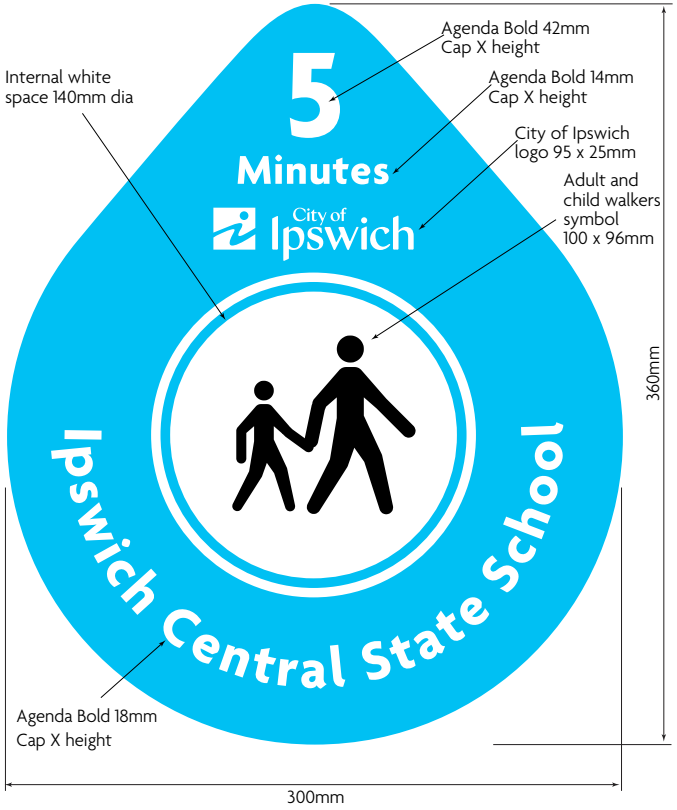
Sizes

ARROW
Elongated AS1742 turn arrow, 1800mm high, width proportionate

SYMBOL
Elongated AS1742 1100 x 1800mm

Drawing number:
RPM

PPM Off-road path wayfinding markings for recommended walking routes to school (subject to Council approval prior to application)



PPM Path wayfinding marking - artwork template
PPM-05 (5 minutes) variation shown

PPM Path wayfinding marking (no time) used for reassurance and change of path direction

PPM-10 Path wayfinding marking (10 minutes)

PPM Technical details

Construction details

1. Printed die-cut pavement grade sticker applied to off-road pavement as per manufacturer's instructions.
2. Sticker material covered with anti-slip film.

Graphic details

Adult and child walkers symbol, and City of Ipswich logo as shown (left).

Sizes

MARKING
As shown in diagram left.

Application

The use of these markings is subject to safety assessment and approval by Council's Infrastructure Planning Branch prior to application.

Drawing number:
PPM

Pavement behaviour markings

Off-road path behaviour markings

Purpose

Where continuing instances of a range of poor path user behaviour and conflict between different types of users are recorded, single message off-road path-use markings may be selectively applied to improve path operation and to increase enjoyment and mutual respect among path users.

The use of these off-road markings is subject to safety assessment and approval by Council's Infrastructure Planning Branch prior to application.

Refer to layout drawing PBM for layouts and technical details.

Location

Off-road path pavement behaviour markings are designed for use on high-volume paths or where shared path conflict has been often reported by the community.

Site verification

Locations are selected where there are no existing markings, to avoid over-use of this medium.

PBM marker variations

Refer to layout drawing PBM for graphic details and dimensions.

PBM-STP

SHARE THE PATH markings are placed on the main path at access points.

PBM-KLF

KEEP LEFT markings are placed intermittently on a path, at distances no closer than 400m apart.

PBM-SLD

SLOW DOWN markings are only placed at known 'hot spots' of speeding cyclists, or at blind/ narrow curves in the path.

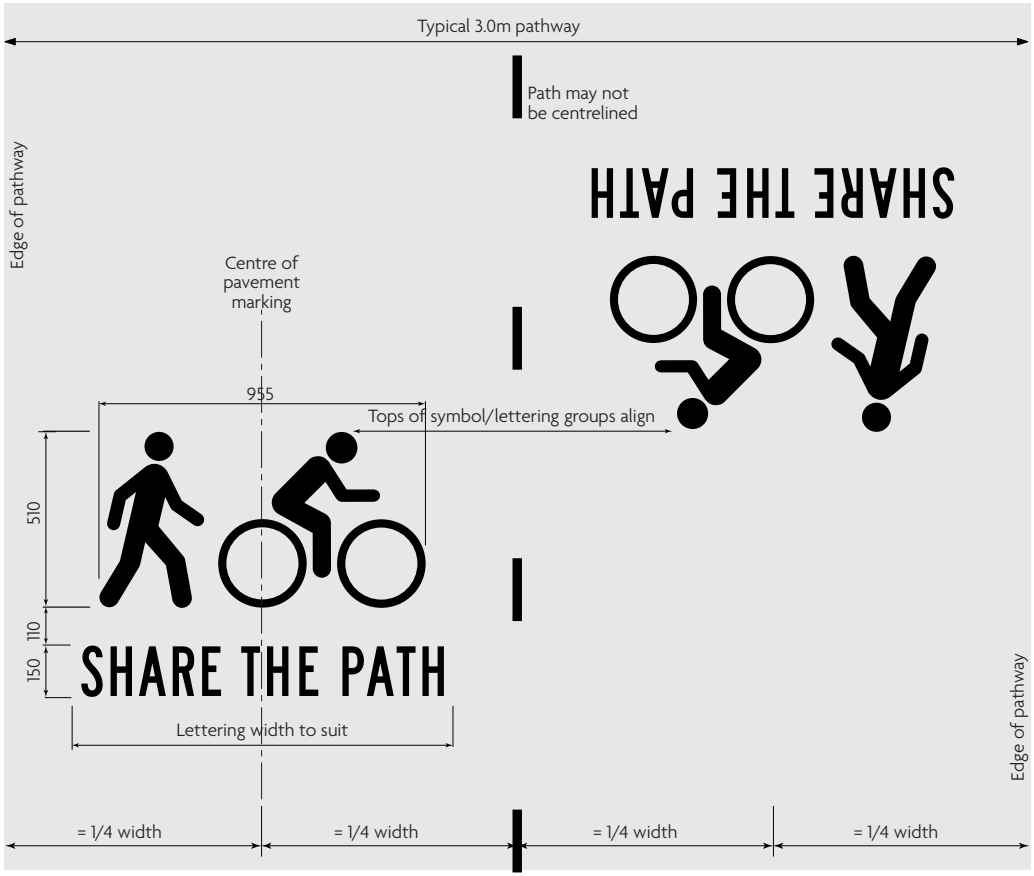
PBM-WFC

WATCH FOR CYCLISTS markings are only placed at identified path 'hot spots' where path sharing issues have been regularly observed.

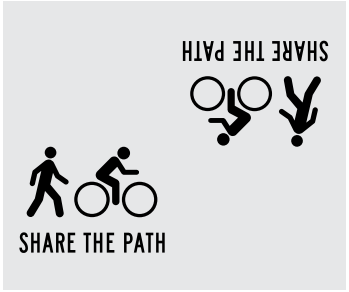
PBM-WFP

WATCH FOR PEDESTRIANS markings are only placed at identified path 'hot spots' where path sharing issues have been regularly observed.

PBM Off-road path behaviour pavement markings



PBM-A Path behaviour pavement markings - typical layout and dimensions. See Drawing PBM-B for additional message designs.
Example above is for a 3.0m shared path constructed from light coloured concrete. See examples right for paths less than 3.0m wide.



PBM-A Path behaviour pavement markings
Example shows a 2.5m shared path without a centrelinine

PBM Technical details

Construction details

1. Cut out stencil applied to off-road path pavement using white anti-slip road-based paint to relevant Australian Standard.
2. Alternatively use anti-slip, pre-cut, heat-fixed thermoplastic.

Graphic details

Anti-slip external grade paint to relative Australian Standard.

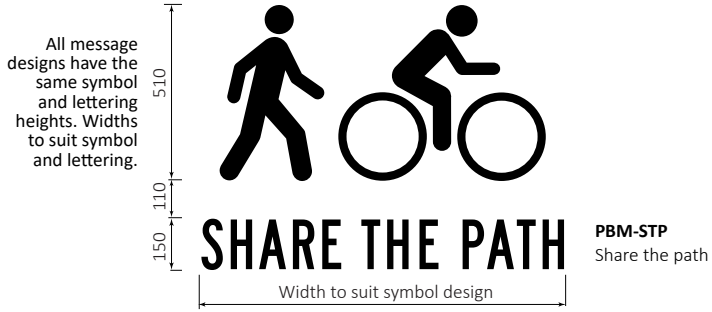
Sizes

MAIN MESSAGES
150mm cap X-height AS1744:2015 Series C

WALKER and CYCLIST SYMBOLS
955mm x 510mm, centred, 110mm from lettering

Drawing number:
PBM-A

PBM Off-road path behaviour pavement markings - message layouts



PBM-STP
Share the path

KEEP LEFT

PBM-KLF
Keep left

SLOW DOWN

PBM-SLD
Slow down

WATCH FOR

PBM-WFP
Watch for pedestrians

WATCH FOR

PBM-WFC
Watch for cyclists

PBM Technical details

Construction details

1. Cut out stencil applied to off-road path pavement using white anti-slip road-based paint to relevant Australian Standard.
4. Alternatively use anti-slip, pre-cut, heat-fixed thermoplastic.

Graphic details

Use electronic artwork for making stencils for painting or thermoplastic heat-fixed stencils.

Sizes

MAIN MESSAGES
150mm cap X-height AS1744:2015 Series C, widths to suit

SYMBOLS
510mm H, centred, 110mm from lettering, widths to suit

Drawing number:
PBM-B

City of Ipswich, Active Transport

Sign installation and mounting

Sign mounting and clearances
Sign stack mounting order

Sign mounting and clearances

Bicycle route signs are mounted in full view of cyclists using the route and located so that they provide clear unambiguous directions at critical turning points or junctions. Care should be taken to site signs where their message will not be compromised or overwhelmed by proximity to other road signs or structures.

Bicycle route signs should be sited so that they do not diminish the effectiveness of, or conflict with, existing road signs and create ambiguity for other road users. Bicycle route signs, like highway signs, are a discrete system designed to guide cyclists through often complex road environments. Integrated route sign messages are not included with, or mounted on, main/arterial road directional signs or sign supports.

Minimise sign clutter by utilising existing sign poles and street poles where this does not compromise the effectiveness of the direction sign or the host sign. Mounting on existing power poles is permissible as is the co-use of parking sign poles as a clutter reduction measure.

Mount bicycle route signs and pedestrian activity centre signs at a clearance height of 2.5m and preferably no higher than 4.0m (see figure on this page). Sign supports need a minimum of 0.5m clearance from the path or roadway. Do not mount signs so that they overhang the roadway or interfere with turning vehicles. Where there is a risk that signs could be rotated by either wind or vandalism, use anti-rotational fittings or fixing screws. This is particularly important on fingerboard signs which indicate travel direction at intersections.

Mount bicycle route fingerboard signs in a highly visible location so that they can be clearly read by cyclists at a minimum of 15 metres from the intersection.

Place signs consistently. If two signs indicating separate directions cannot be mounted on the same pole on one corner of an intersection due to site conditions, consider separately mounting these signs. Consider also mounting signs on existing poles provided that such mounting offers superior sight lines and visibility for the sign(s).

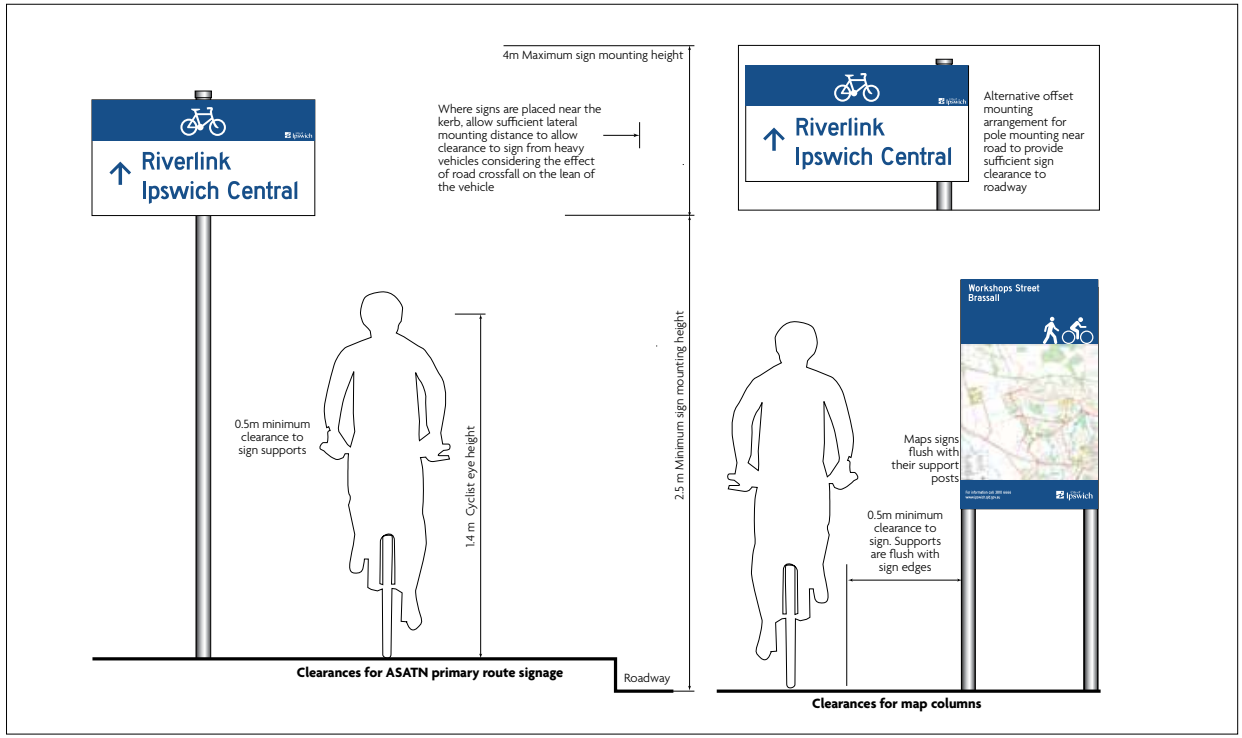
Advance direction signs when used on principal transport bicycle routes, are placed before route junctions/decision points and are located to take into account cyclist travelling speeds. This is particularly important in hilly areas. When placing advance direction signs it is essential to take into account all local variables such as slope and sight distances. Locate signs to provide adequate warning of a change of direction depending on the site. Table 4 lists recommended mounting distances for advance directional signs. Allow a greater distance where there is a downhill grade towards the intersection or where the approach visibility is restricted. For grades steeper than 8%, additional warning signs are recommended in advance of the intersection.

Table 4: Advance direction sign mounting before intersections

Design speed	Route type	Recommended mounting distance from intersection
Above 30km/h	High-speed principal transport bicycle route	50-70m
30km/h	Principal/secondary transport bicycle route	35-50m

Mount map signs with sufficient horizontal clearance (1.5m minimum, 2.0m preferred) to permit cyclists to comfortably view the map sign and still provide clearance to other path users.

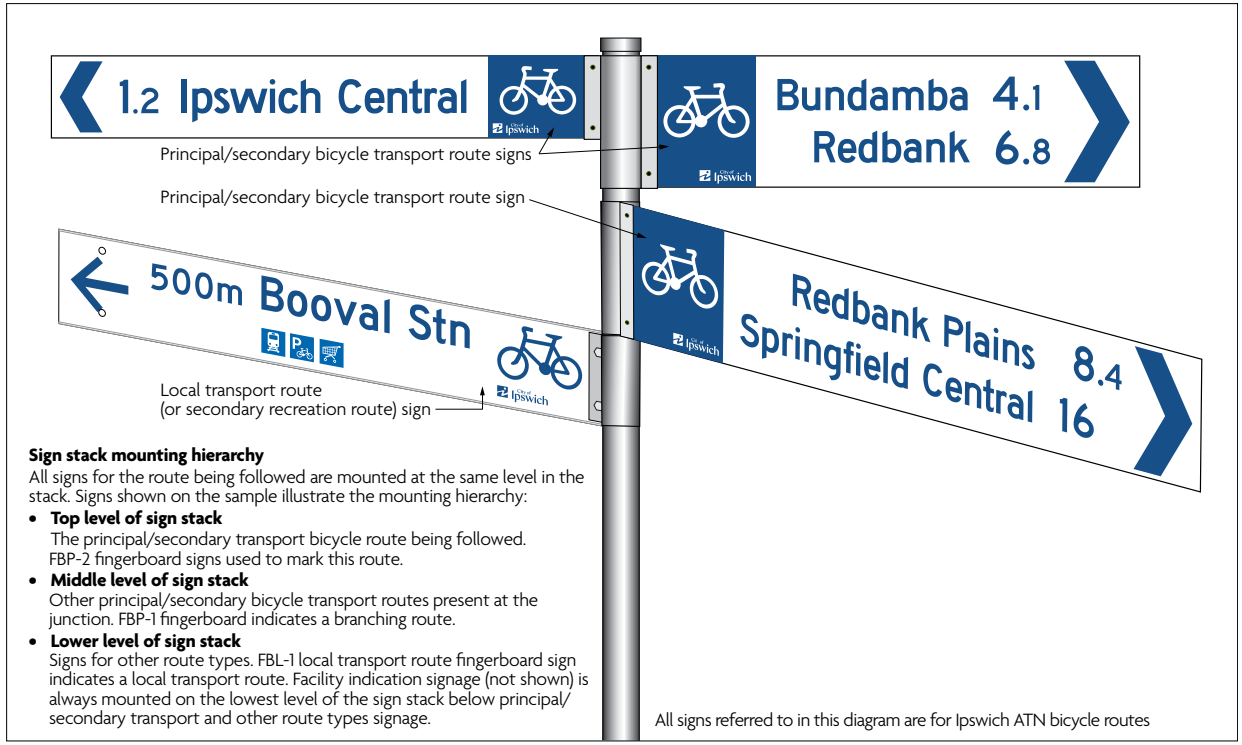
Recommended sign mounting heights and clearances (modified from Austroads Signage Guidelines for use on the Ipswich ATN)



Sign stack mounting order

At major junctions it is important to place bicycle route fingerboards in a logical vertical order so that cyclists can easily follow the signs for a particular route. Ideally fingerboard pairs for the same route are mounted at the same level but this may not be possible due to mounting system limitations (see the figure (right) modified from the Austroads bicycle signage guidelines for details). Always consider sign visibility from different approaches for large sign installations when multiple routes pass through junctions.

For sign stack layout recommendations for pedestrian activity centre fingerboards refer to sign layout drawing FPR on page 55 of this manual.



Recommended sign stack mounting order (diagram modified from the Austroads Bicycle Signage Guidelines: *Bicycle Wayfinding*. September 2015. Austroads, Sydney. Publication number AP-R492-15)

City of Ipswich, Active Transport

Construction, materials and maintenance

Construction and installation standards

Sign maintenance

City of Ipswich

City of Ipswich Transport Plan

Construction and installation standards

Construction

All work and materials shall generally comply with Ipswich City Council construction standards.

For construction, the highest industry standards are to be followed. Ensure sign materials, drilled holes and fixings are consistent from one sign to another.

Screws, adhesives and silicones shall be concealed and or made flush with the surface.

Fit components with care. Graphic standards shown in other sections of this manual are to be carefully adhered to.

Installation

Site inspections are to be carried out prior to installation to verify locations and confirm all mounting conditions.

All installations are to be plumb and level, at the heights indicated, and securely mounted with theft-resistant fixings.

Work shall be complete with all bolts, rivets and other fittings to adequately transmit the loads and stresses imposed.

Where bolting of metal work to concrete is specified, fixings to be of approved masonry anchors of the required size.

Proper edge clearances are observed so there is no risk of possible damage to concrete or structural framing.

Packing of fixings is permitted to approved tolerances to level and square installations.

Sign maintenance

Graffiti damage and damage to signs can be reported to Ipswich City Council via the MyIpswich website at: www.myipswich.com.

General cleaning

Step 1
Wipe clean with mild detergent and soft lint-free cloth.

Step 2
When panels have dried, apply Mr Sheen or similar.

Note - DO NOT use abrasive cleaners, solvents or chemicals.

Touch up paint

Use only 2 pack polyurethane paint (in the specified colours) when repairing minor chips, cracks, etc.

For major damage, panels will need to be removed and sprayed professionally.

Graffiti removal

Procedure as outlined below:

Step 1
Use general purpose thinners such as Acetic Acid Alcohol, Toluene or IPA (Isopropyl Alcohol) to clean graffiti from the surface.

Step 2
Wipe off with clean white rag (Do not re-use dirty rags). If more than 2 applications are needed to remove stubborn stains, rinse the area with clean water and wipe dry before additional application.

Step 3
Rinse all cleaned surfaces with water.

Step 4
Allow surface to dry. Disregard used rags in closed container.

City of Ipswich, Active Transport

Appendix A – Pedestrian activity centre map column structure

Construction drawings and sign column assembly details

City of Ipswich

Infrastructure and Emergency Management Committee	
Mtg Date: 9.10.18	**OAR:** Yes
Authorisation: Charlie Dill	

27 September 2018

M E M O R A N D U M

TO: INFRASTRUCTURE PLANNING MANAGER

FROM: TECHNICAL OFFICER (TRAFFIC)

RE: REPEAL OF TEMPORARY SEALS FOR DUST SUPPRESSION ON GRAVEL ROADS POLICY

INTRODUCTION:

This is a report by the Technical Officer (Traffic) dated 27 September 2018 concerning the repealing of the Temporary Seals for Dust Suppression on Gravel Roads Policy in line with Ipswich City Council's review cycle.

BACKGROUND:

On 18 February 1998 a 'Temporary Seals for Dust Suppression on Gravel Roads' policy was adopted by Council resolution. This resolution was subsequently amended on 4 November 1998. A copy of the policy is shown in Attachment A.

As per Council requirement, this policy was due and has now been subject to a review.

ASSESSMENT:

Due to the age of the existing policy an assessment has been undertaken to identify any changes to standards outlined in Austroads, relevant Australian Standards, supplier documentation and Ipswich City Council Standard Drawings which may require amendments to the policy.

Upon review of the existing policy in conjunction with the above documentation it was identified that there have been significant developments in proprietary products to aid dust suppression and surface longevity. There is now increased scope for the utilisation of these products in a variety of environments and situations in lieu of temporary bitumen seals.

As a result of these developments, it was found that the existing policy is too restrictive in when these measures can be considered. It is therefore suggested that this policy is repealed and the use of temporary bitumen seals, for dust suppression or other alternative purposes, are assessed on a case by case basis.

CONCLUSION:

It was a requirement of Council to review the 'Temporary Seals for Dust Suppression on Gravel Roads' policy. An assessment of the existing policy against current standards has indicated that the policy should be repealed to allow each proposed site to be assessed individually. Therefore it is suggested that this policy is repealed accordingly.

ATTACHMENTS:

Name of Attachment	Attachment
Temporary Seals for Dust Suppression on Gravel Roads	Attachment A

RECOMMENDATION:

That the Interim Administrator of Ipswich City Council resolve:

That the policy titled "Temporary Seals for Dust Suppression on Gravel Roads", as detailed in Attachment A of the report by the Technical Officer (Traffic) dated 27 September 2018, as per resolution No. 20.07 of the Works Committee of 9 February 1998, adopted at Council on 18 February 1998 and amended on 4 November 1998, be repealed.

Dylan Wingfield
TECHNICAL OFFICER (TRAFFIC)

I concur with the recommendation contained in this report.

Tony Dileo
INFRASTRUCTURE PLANNING MANAGER

I concur with the recommendation contained in this report.

Charlie Dill
CHIEF OPERATING OFFICER (INFRASTRUCTURE SERVICES)

TEMPORARY SEALS FOR DUST SUPPRESSION ON GRAVEL ROADS

CRITERIA FOR THE USE OF STAGED CONSTRUCTION FOR DUST SUPPRESSION ON GRAVEL ROADS

1. The proposed sealing works are to be limited by the area to be sealed and should not exceed a cost of $ 10 000.

2. The proposed sealing works are to be justified as being a benefit to the general public by a significant number of dust nuisance complaints.

3. The section of roadway proposed to be sealed should be well drained to avoid failure due to moisture penetration and subsurface moisture infiltration.

4. The section of roadway to be sealed should have adequate vertical and horizontal geometry to eliminate major surface correction.

5. The section of the roadway to be sealed meets the Engineering Design Standards (traffic volumes) for future pavement upgrading to full standards at the end of the life of the temporary seal.

6. That any future experimental sealing of gravel roads be undertaken only if the gravel pavement has a design life of ten years or more.

ITEMS FOR CONSIDERATION FOR ROAD DESIGN TO MEET THE CRITERIA FOR DUST SUPPRESSION ON GRAVEL ROADS

1. The existing pavement construction should be adequate so as not to cause the temporary dust suppression seal to suffer distortion and subsequent premature failure. If the existing pavement is deemed inadequate, consideration is to be given to the placement of additional gravel to increase the pavement life to that of the temporary seal.

2. The pavement design should be undertaken with regard to the following items. Short term and long term design life to minimise the whole of life cost. Current traffic volumes and future traffic volumes for the road.

3. The geometric road design should be corrected with regard to the future use of the road if necessary.

4. Surface drainage should be designed and necessary underground culverts included to divert surface stormwater runoff away from the road pavement and eliminate water infiltration of the pavement.

Date of Council Resolution: 18 February 1998
Committee Reference and Date: Works Committee - 9 February 1998
No of Resolution: 20.07

Date of amendment to Council Resolution: 4 November 1998
Committee Reference and Date: Works Committee - 26 October 1998
No of Resolution: 20.01

Infrastructure and Emergency Management Committee	
Mtg Date: 09-10-2018	OAR: YES
Authorisation: Charlie Dill	

TD:MT
H:\5-Infrastructure Planning\Infrastructure Planning Team\Committee Reports\River Road, Bundamba.docx

24 September 2018

M E M O R A N D U M

TO: CHIEF OPERATING OFFICER (INFRASTRUCTURE SERVICES)

FROM: INFRASTRUCTURE PLANNING MANAGER

RE: PETITION REGARDING RIVER ROAD, BUNDAMBA
DIVISION 4

INTRODUCTION:

This is a report by the Infrastructure Planning Manager dated 24 September 2018 concerning a petition received from the community regarding the potential opening of River Road, Bundamba at the intersection with Nelson Street.

BACKGROUND:

At its Ordinary Meeting on 29 May 2018, former Councillor Kylie Stoneman presented to Council a petition from the local community to consider opening River Road, Bundamba north of Nelson Street.

A copy of the letter presented to Council from the former Councillor can be viewed in Attachment A of this report.

It is suggested that if River Road was made available to through traffic it would provide vehicles with a safe access to the Warrego Highway. In addition, it is suggested that by opening River Road it would alleviate traffic around the Bundamba TAFE and the nearby intersection of Bognuda Street and Law Street, which is a four way stop.

EXISTING ROAD NETWORK AND DEVELOPMENT:

Attachment B is a map showing the existing road network and key land use activities relevant to this report.

Historically, the Archer Street road reserve was unformed and only an unsealed track existed along a small section of the road reserve for the purpose of accessing the then Ipswich Water, [now Queensland Urban Utilities (QUU)] sewer pump station. In 2006, Council was approached by SEQWater regarding gaining access to and constructing a road along the Archer Street road reserve. Temporary vehicular access was permitted for the development of a major recycled water pipeline project, specifically the Western Corridor Recycled Water Project, including Advanced Water Treatment Plant (AWTP). The scope of road works along Archer Street were recommended to provide optimal haulage routes for construction and operation vehicles based on a review of permissible truck routes and historical accident data. Notably, Archer Street would allow construction vehicles access to the AWTP site from the east through the industrial estate using Bognuda Street and Ashburn Road from the Warrego Highway. This proposed access was to also minimise heavy truck movements through the surrounding residential areas by avoiding use of River Road south of the AWTP site. Importantly, this access route is equally relevant to the QUU treatment plant and associated activities. Furthermore, access from River Road, Bundamba was closed to maintain the desired separation of construction vehicles and QUU treatment plant vehicles accessing these facilities from the nearby residential area and all access was to be via Archer Street.

After construction was complete, Archer Street was to be closed and access was meant to be via River Road. However, this was not actioned due to the continued high demand for recycle wastewater taken from the QUU Treatment Plant. This high demand was related to imposed SEQ State water restrictions. Accordingly it was deemed appropriate to maintain Archer Street as a plant vehicular access road only (not as a thoroughfare) and for River Road to remain closed. This is still the current arrangement concerning Archer Street and River Road. It should be noted that as part of the State Government's development activities in the CitiSwitch industrial precinct, a traffic impact assessment (TIA) report was prepared by Engineering Consultants GHD in 2006. The TIA recommended that after construction, River Road should be closed with AWTP operational vehicles to access the site via Archer Street.

The construction of Archer Street did not consider any hydraulic requirements and therefore would not meet any flood immunity requirements. In addition, it was designed to have a minimum pavement, it did not achieve any on maintenance and no quality assurance documentation or certification were provided in conjunction with the road construction. To reconstruct the carriageway to meet current road design standards would be a significant cost to Council. The integrity of the current road construction is not capable of facilitating through traffic movements.

During construction activities by the State Government, a concrete island and construction vehicles only access gate was installed at the intersection of Nelson Street and River Road. This was installed in an effort to restrict through traffic movements north of the intersection along River Road. However, once the development activities ceased, it was determined by Council that the gate access that was left in place was inadequate as a result of ongoing vandalism. Therefore, in 2010, Council installed a series of bollards across the road reserve as a more permanent measure. The works also included the installation of the relevant chevron linemarking, edgelines and centreline to guide traffic safely around the intersection curve and to discourage through movements along River Road from the south to the north.

FUTURE ROAD NETWORK AND DEVELOPMENT:

As noted above, given the design and construction of Archer Street was of a temporary nature, Council's Planning and Development Department have been working towards providing alternate network connectivity. The current Reconfiguring a Lot (RAL) approvals are based upon a partial road closure of Archer Street. Further, this planning work has endeavoured to create the desired separation of industrial traffic from the surrounding residential area. Attachment C provides a layout of the ultimate road network within this area of the Bremer Business Park development within Citiswitch. As outlined in Attachment C, access to the industrial precinct straight through from River Road remains closed and the Archer Street road reserve is proposed to be converted to private land (as part of stage 4B of the development). This proposed approved development layout ensures that industrial traffic continues to be separated from residential areas. The residential precincts within the development will have the opportunity to be connected to the broader road network, in particular access to the Warrego Highway, from the new road connections within stage 6 of the Bremer Business Park development.

Of particular note, the intersection of River Road and Nelson Street will be reopened in future to provide an alternate access to new residential development in stage 6 of the Bremer Business Park development. A new intersection will then be installed north of Nelson Street along River Road to make provision of an east-west collector street, eventually connecting to Bognuda Street.

MAINTENANCE ACTIVITIES:

Since installation of the bollards at the intersection of River Road and Nelson Street, Council has undertaken several maintenance activities and remedial actions in the area. Of particular note and concern, vehicles have traversed around the bollards, travelled through private property and damaged fences. On several occasions bollards have been knocked down or been removed. Council's City Maintenance Branch has indicated that since 2016 there have been six occasions where they have attended the site to replace bollards. In an attempt to reduce the number of recurrent incidences, Council replaced two removable bollards and installed permanent bollards with a slip rail in 2016.

COMMUNITY CONCERNS RAISED IN THE PETITION:

Attachment D is a copy of the letter that was presented to the community seeking their response to potentially opening River Road. In response to the letter, the petition that was then presented to Council had a total of 80 responses. The majority of responses (75 in total) were in favour of opening River Road to through traffic, and a total of 5 responses were not in favour of opening River Road. Although there was a significant majority in favour, those that did not agree had a much more considered response in their reasoning behind why it was not agreed upon. Table 1 below summarises the information provided by petitioners that were in favour of opening River Road. Some petitioners had multiple reasons as to why they would like River Road opened, which is captured in Table 1. A breakdown of each petitioner's reason for their decision can be viewed in Attachment E.

TABLE 1 – PETITIONERS OUTLINING REASONS FOR OPENING RIVER ROAD

Reasons for Opening River Road	Total Number of Responses
No reason provided	26
Reduced travel time	9
Reduced congestion in surrounding streets / areas	20
Improved access to TAFE	6
Improved / safer access to Warrego Highway	24
Overall safety improvements	10
Vandalism of existing bollards	4
Ability to bypass TAFE	17
Improved access to Archer Street	1
General convenience	2
Improved property access	1
Reduce speeding	1

Table 2 below summaries the information provided by petitioners that were not in favour of opening River Road. Once again, some petitioners had multiple reasons as to why they formed their opinion on this matter. A breakdown of each petitioner's reason for their decision can be viewed in Attachment F.

TABLE 2 – PETITIONERS OUTLINING REASONS FOR NOT OPENING RIVER ROAD

Reasons for Not Opening River Road	Total Number of Responses
Increased volumes of traffic	3
Increased incidents of speeding	4
Road condition is not adequate	4
Road hierarchy	1
Security for nearby infrastructure plant	1
Flooding	2
Lack of pedestrian facilities	1
Insufficient street lighting	1
Increased Noise	1
Increased illegal dumping	1
Connection would be of benefit of developer not residents	1
Increased crashes	1
Benefit does not warrant the cost involved	2
No reason provided	1

PROPOSED ACTION:

A thorough consideration of all of the collated information was undertaken to determine proposed actions with regards to the River Road petition. In formulating an outcome, the following were considered:

a) Prior to the State Government development works, Archer Street was an unformed, undeveloped and unsealed track. Therefore, direct access to the Warrego Highway was never available to motorists or local residents;
b) Following the State Government development, Archer Street was intended to be closed. However, due to the high demand for recycled wastewater taken from the QUU plant it was deemed appropriate to leave Archer Street open for access reasons;
c) As part of a Traffic Impact Assessment undertaken for development activities in Citiswitch, engineering consultants recommended limiting through access movements along River Road north of Nelson Street;
d) The current Archer Street pavement does not meet any adequate road design standards, and in particular does not address flood immunity requirements. Opening River Road north of Nelson Street would require Council to make significant financial investment towards upgrading both Archer Street and River Road;
e) Based on future development of the Bremer Business Park, it has always been intended to close River Road, north of Nelson Street. A new east west link will be provided through stages 6 of this development. In addition, the Archer Street road reserve will be permanently closed and converted to industrial land (in stage 4B). This future development will facilitate separate road links for industrial traffic and residential traffic;

Based on the above considerations, it is proposed to retain the closure of River Road, north of Nelson Street. However, due to the ongoing maintenance and safety concerns, Council will need to consider a more permanent means of closing this access. The most effective treatment would be to install a series of concrete barriers to ensure that motorists are prevented from further traversing past this point whilst also minimising future maintenance activities.

Once development in the area has progressed, as per the approved lot layout in Attachment C of this report, the concrete barriers will be removed. At this time, traffic will be able to travel along appropriately designed functional roads for east-west movements, Archer Street will be closed and the existing temporary road will be removed.

CONCLUSION:

A petition regarding River Road, Bundamba was presented to Council at its Ordinary Meeting on 29 May 2018. Following detailed investigations into the background, current road network, the proposed future road network, ongoing maintenance in the area and responses from surrounding residents regarding the petition, it is considered appropriate for Council to retain the closure of River Road to through traffic. In an effort to ensure the River Road closure remains inaccessible to through traffic, it is proposed to remove the existing bollards and slide rail and install more permanent infrastructure such as concrete barriers.

ATTACHMENTS:

Name of Attachment	Attachment
Letter regarding petition on River Road, Bundamba presented to Council at its Ordinary Meeting on 29 May 2018 (Full petition can be viewed in objective under reference number A4865783)	Attachment A
Map showing the existing road network and key land use activities	Attachment B
Approved lot and road layout of the Bremer Business Park development within Citiswitch bordering the land between Archer Street, River Road, Nelson Street and Bognuda Street, Bundamba	Attachment C
Letter to surrounding residents seeking their input into the potential opening of River Road	Attachment D
Collation of Petitioner's responses supporting the opening of River Road, Bundamba	Attachment E
Collation of Petitioner's responses not supporting the opening of River Road, Bundamba	Attachment F

RECOMMENDATION:

That the Interim Administrator of Ipswich City Council resolve:

A. That the current road closure on River Road, Bundamba north of Nelson Street remain in effect to restrict through traffic access.

B. That the existing bollards and slide rail be removed from River Road and more permanent infrastructure such as concrete barriers be installed.

C. That the petitioners be advised of the outcomes of this report.

Tony Dileo
INFRASTRUCURE PLANNING MANAGER

I concur with the recommendations contained in this report.

Charlie Dill
CHIEF OPERATING OFFICER (INFRASTRUCTURE SERVICES)

ATTACHMENT A - LETTER REGARDING PETITION PRESENTED TO COUNCIL

Cr Kylie Stoneman
Ipswich City Council
Councillor for Division 4

28 May 2018

Mr Gary Kellar
Acting Chief Executive Officer
Ipswich City Council
PO Box 191
Ipswich QLD 4305

Dear Gary

Petition to open River Road, Bundamba at the Nelson Street intersection

On behalf of the Division 4 residents referred to in Appendix A, I respectfully petition Ipswich City Council to take such steps as to open River Road, Bundamba at the Nelson Street intersection, to provide vehicles with safe access to the Warrego Highway.

Since my election in 2016, I have advocated for improved safety on local roads across Division 4.

I believe opening River Road, Bundamba at the Nelson Street intersection would provide residents with a safer route to the highway and reduce traffic around Bundamba TAFE and at the nearby four-way stop signed intersection of Bognuda and Law Streets.

As part of this petition I have included the responses of those supporting opening the intersection (Appendix A) as well as those opposed (Appendix B).

Clearly this idea has strong support in the community and I ask that this petition be received and referred to the appropriate committee for consideration.

Yours sincerely

K. Stoneman

Councillor Kylie Stoneman
Division 4

Shop 2/38 South Station Road, PO Box 61, Booval QLD 4304
Tel: 07 3816 2444 **Mobile:** 0497 020 604 **Email:** kylie.stoneman@ipswich.qld.gov.au **Web:** Ipswich.qld.gov.au

ATTACHMENT B - EXISTING ROAD NETWORK AND KEY LAND USE ACTIVITIES

ATTACHMENT C - APPROVED FUTURE LOT LAYOUT AND ROAD CONNECTIONS FOR THE BREMER BUSINESS PARK DEVELOPMENT WITHIN CITISWITCH

ATTACHMENT D – Letter Distributed to Surrounding Residents

18 April 2018

Dear Resident

Seeking your feedback on opening River Road, Bundamba

For the last two years I have advocated within Council for the opening of River Road, Bundamba at the Nelson Street intersection, to allow traffic to access the Warrego Highway.

I believe this would improve safety on several Bundamba roads particularly around and near TAFE. For residents in your area, an open River Road would be an easier and safer route to the highway.

I have been contacted by many Bundamba residents asking for River Road to be opened and others who wish it to remain closed. That's why I'm asking for your input.

Please let me know your thoughts by emailing me at kylie.stoneman@ipswich.qld.gov.au or by calling me on 3816 2444. Your feedback will help me ensure informed representation for our community.

Yours sincerely

K. Stoneman

Cr Kylie Stoneman
Ipswich City Council – Division 4

ATTACHMENT E - COLLATION OF PETITIONER'S RESPONSES SUPPORTING THE OPENING OF RIVER ROAD, BUNDAMBA

Petitioner Response Number	Reasons Provided for Decision												Additional Comments/ Requests
	No Reason	Reduced travel time	Reduced congestion in surrouding streets/areas	Improved access to TAFE	Improved/ safer access to Warrego Highway	Overall safety improvements	Vandalism of existing bollards	Ability to bypass TAFE	Improved Access to Archer St	General Convenience	Improved property access	Reduce Speeding	
1		1	1										
2		1											
3	1												
4				1									
5	1												
6			1		1								Would like River Road ajdacent to the sewerage works to be re-surfaced as well as the Archer Street section of road leading to Bognuda Street
7			1			1							
8			1		1								Would like Traffic Calming
9					1								
10			1		1		1	1					
11	1												
12				1									
13					1				1				
14							1			1			
15		1			1								
16				1	1	1							
17		1	1		1								Request for Stop/Give-way signs at the Nelson St intersection Request fo road upgrades
18	1												Request for traffic claming
19					1								
20	1												Request for traffic claming in William Street
21			1										
22			1					1					
23		1			1								
24				1		1							Concerned about increased traffic volumes
25						1		1					
26					1			1					
27			1										Concerns over speeding
28								1					
29			1		1			1					
30	1												
31	1												Has requested a footpath on Craies Street

32					1								Has request traffic calming on River Road
33								1					Requested Nelson Street is joined to Bognuda Street Concerned about speeding on River Road
34		1	1		1						1		
35			1					1					
36			1					1					
37	1												
38		1											Concerned about the associated cost vs limited benefit
39					1	1		1					
40	1												Would also like to connect Hanlon Street with River Road
41					1								
42			1		1			1					
43	1												
44	1												Suggested finishing construction of Hanlon Street
45	1												
46			1									1	
47			1					1					Would like Hanlon Street opened to River Road also
48						1							
49						1							
50			1		1								
51	1												
52					1								
53				1	1								
54	1												Suggested Hanlon Street be constructed
55	1												Place roundabout at intersection of River Road and Nelson Street
56	1												
57	1												Suggested Hanlon Street be constructed
58	1												Place a stop sign at Nelson Street
59	1												
60	1												
61	1												
62			1			1		1		1			Would also like speed bumps on River Road
63			1		1		1						
64	1												
65					1			1					
66	1												
67		1				1		1					
68						1		1					
69		1			1								
70	1												
71	1												
72	1												
73			1										
74				1	1		1						
75								1					
TOTAL	**26**	**9**	**20**	**6**	**24**	**10**	**4**	**17**	**1**	**2**	**1**	**1**	

ATTACHMENT F - COLLATION OF PETITIONER'S RESPONSES NOT SUPPORTING THE OPENING OF RIVER ROAD, BUNDAMBA

Petitioner Response Number	Reasons Provided for Decision													
	Increased volumes of traffic	Increased incidence of speeding	Road condition not adequate	Road Hierarchy	Security for nearby infrastructure plant	Flooding	Lack of pedestrian facilities	Insufficent street lighting	Increased Noise	Increased illegal dumping	Connection is for the benefit of local developers not residents	Increased crashes	Benefit does not warrant the cost involved	No Reason Given
1	1	1	1			1							1	
2	1	1	1	1										
3	1	1	1		1	1	1	1						
4		1	1						1	1	1	1	1	
5														1
TOTAL	**3**	**4**	**4**	**1**	**1**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**1**