

Notice of Meeting

Infrastructure Advisory Committee Meeting

An Infrastructure Advisory Committee Meeting of Byron Shire Council will be held as follows:

Venue	Conference Room, Station Street, Mullumbimby
Date	Thursday, 20 June 2024
Time	2.00pm

Phil Holloway
Director Infrastructure Services

I2024/926
Distributed 12/06/24

CONFLICT OF INTERESTS

What is a “Conflict of Interests” - A conflict of interests can be of two types:

Pecuniary - an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person or another person with whom the person is associated.

Non-pecuniary – a private or personal interest that a Council official has that does not amount to a pecuniary interest as defined in the Code of Conduct for Councillors (eg. A friendship, membership of an association, society or trade union or involvement or interest in an activity and may include an interest of a financial nature).

Remoteness – a person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to a matter or if the interest is of a kind specified in the Code of Conduct for Councillors.

Who has a Pecuniary Interest? - a person has a pecuniary interest in a matter if the pecuniary interest is the interest of the person, or another person with whom the person is associated (see below).

Relatives, Partners - a person is taken to have a pecuniary interest in a matter if:

- The person's spouse or de facto partner or a relative of the person has a pecuniary interest in the matter, or
- The person, or a nominee, partners or employer of the person, is a member of a company or other body that has a pecuniary interest in the matter.

N.B. “Relative”, in relation to a person means any of the following:

- (a) the parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descends or adopted child of the person or of the person's spouse;
- (b) the spouse or de facto partners of the person or of a person referred to in paragraph (a)

No Interest in the Matter - however, a person is not taken to have a pecuniary interest in a matter:

- If the person is unaware of the relevant pecuniary interest of the spouse, de facto partner, relative or company or other body, or
- Just because the person is a member of, or is employed by, the Council.
- Just because the person is a member of, or a delegate of the Council to, a company or other body that has a pecuniary interest in the matter provided that the person has no beneficial interest in any shares of the company or body.

Disclosure and participation in meetings

- A Councillor or a member of a Council Committee who has a pecuniary interest in any matter with which the Council is concerned and who is present at a meeting of the Council or Committee at which the matter is being considered must disclose the nature of the interest to the meeting as soon as practicable.
- The Councillor or member must not be present at, or in sight of, the meeting of the Council or Committee:
 - (a) at any time during which the matter is being considered or discussed by the Council or Committee, or

- (b) at any time during which the Council or Committee is voting on any question in relation to the matter.

No Knowledge - a person does not breach this Clause if the person did not know and could not reasonably be expected to have known that the matter under consideration at the meeting was a matter in which he or she had a pecuniary interest.

Non-pecuniary Interests - Must be disclosed in meetings.

There are a broad range of options available for managing conflicts & the option chosen will depend on an assessment of the circumstances of the matter, the nature of the interest and the significance of the issue being dealt with. Non-pecuniary conflicts of interests must be dealt with in at least one of the following ways:

- It may be appropriate that no action be taken where the potential for conflict is minimal. However, Councillors should consider providing an explanation of why they consider a conflict does not exist.
- Limit involvement if practical (eg. Participate in discussion but not in decision making or vice-versa). Care needs to be taken when exercising this option.
- Remove the source of the conflict (eg. Relinquishing or divesting the personal interest that creates the conflict)
- Have no involvement by absenting yourself from and not taking part in any debate or voting on the issue as of the provisions in the Code of Conduct (particularly if you have a significant non-pecuniary interest)

Committee members are reminded that they should declare and manage all conflicts of interest in respect of any matter on this Agenda, in accordance with the [Code of Conduct](#).

RECORDING OF VOTING ON PLANNING MATTERS

Clause 375A of the Local Government Act 1993 – Recording of voting on planning matters

- (1) In this section, **planning decision** means a decision made in the exercise of a function of a council under the Environmental Planning and Assessment Act 1979:
- (a) including a decision relating to a development application, an environmental planning instrument, a development control plan or a development contribution plan under that Act, but
- (b) not including the making of an order under that Act.
- (2) The general manager is required to keep a register containing, for each planning decision made at a meeting of the council or a council committee, the names of the councillors who supported the decision and the names of any councillors who opposed (or are taken to have opposed) the decision.
- (3) For the purpose of maintaining the register, a division is required to be called whenever a motion for a planning decision is put at a meeting of the council or a council committee.
- (4) Each decision recorded in the register is to be described in the register or identified in a manner that enables the description to be obtained from another publicly available document and is to include the information required by the regulations.
- (5) This section extends to a meeting that is closed to the public.

OATH AND AFFIRMATION FOR COUNCILLORS

Councillors are reminded of the oath of office or affirmation of office made at or before their first meeting of the council in accordance with Clause 233A of the Local Government Act 1993. This includes undertaking the duties of the office of councillor in the best interests of the people of Byron Shire and the Byron Shire Council and faithfully and impartially carrying out the functions, powers, authorities and discretions vested under the Act or any other Act to the best of one's ability and judgment.

BYRON SHIRE COUNCIL

BUSINESS OF MEETING

1. APOLOGIES

2. DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

3. ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

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4. STAFF REPORTS

Infrastructure Services

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ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

Report No. 3.1 Adoption of Minutes from Previous Meetings

5 **Directorate:** Infrastructure Services

File No: I2024/873

10 **RECOMMENDATION:**

That the minutes of the Infrastructure Advisory Committee Meeting held on 29 February 2024 be confirmed.

15 **Attachments:**

1 Minutes 29/02/2024 Infrastructure Advisory Committee, I2024/267 , page 8 

Report

The attachment to this report provides the minutes of the Infrastructure Advisory Committee Meeting of 29 February 2024 .

5

Report to Council

The minutes were reported to Council on

Comments

10

In accordance with the Committee Recommendations, Council resolved the following:

24-001 Resolved that Council adopts the following Committee Recommendation:

Report No. 4.3 Deficient Inspection Budget- Australian Defence Force Modular Steel Bridge

Committee Recommendation 4.3.1

That Council notes and takes into consideration funding considerations for the 2024/25 Budget for Australian Defence Force bridge inspections to ensure the safety of road users and the longevity of the structures:

- a) scheduled monthly, six-monthly, yearly and five yearly inspections
- b) live structural health monitoring investigation
- c) allowable cycle loading to determine expected design life.

Minutes of Meeting

Infrastructure Advisory Committee Meeting

Venue	Conference Room, Station Street, Mullumbimby
Date	Thursday, 29 February 2024
Time	11.30am



BYRON SHIRE COUNCIL

ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

3.1 - ATTACHMENT 1

BYRON SHIRE COUNCIL

INFRASTRUCTURE ADVISORY COMMITTEE MEETING MINUTES 29 FEBRUARY
2024

Minutes of the Infrastructure Advisory Committee Meeting held on Thursday, 29 February 2024

File No: I2024/267

PRESENT: Cr Michael Lyon (Mayor), Cr Duncan Dey, Cr Mark Swivel

Staff:

Samuel Frumpui (Manager Works)
James Flockton (Infrastructure Planning Coordinator)
Chris Soulsby (Acting Manager Assets and Major Projects)
David Haupt (Road and Bridge Engineer)
Zach Fryer (Construction Coordinator)
Nikki Bourke (Project Officer)
Dominika Tomanek (Minute Taker) – online

Community Representatives:

Anthony Pangallo
Andrew Winton-Brown

*Cr Lyon (Chair) opened the meeting at 11:50 am and acknowledged that the meeting
was being held on Bundjalung Country.*

ATTENDANCE VIA AUDIO-VISUAL LINK:

Cr Swivel

APOLOGIES:

Gareth James
Phillip Holloway (Director Infrastructure Services)

BYRON SHIRE COUNCIL

ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

3.1 - ATTACHMENT 1

BYRON SHIRE COUNCIL

INFRASTRUCTURE ADVISORY COMMITTEE MEETING MINUTES 29 FEBRUARY
2024

Absent:

Kellie Obrien

Genevieve Lee

DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

There were no declarations of interest.

ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

Report No. 3.1 Adoption of Minutes from Previous Meeting
File No: I2024/255

Committee Recommendation:

**That the minutes of the Infrastructure Advisory Committee Meeting held on 21
September 2023 be confirmed.** (Pangallo/Lyon)

The recommendation was put to the vote and declared carried.

BUSINESS ARISING FROM PREVIOUS MINUTES

There was no business arising from previous minutes.

PROCEDURAL MOTION

Committee Recommendation:

**That the Committee changes the order of business to deal with Reports 4.2 and 4.1,
4.3 and 4.4 next on the Agenda.** (Lyon/Dey)

The recommendation was put to the vote and declared carried.

BYRON SHIRE COUNCIL

INFRASTRUCTURE ADVISORY COMMITTEE MEETING MINUTES 29 FEBRUARY
2024

STAFF REPORTS - INFRASTRUCTURE SERVICES

Report No. 4.1 Myocum Quarry Precinct Update
File No: I2024/17

Committee Recommendation:

That the Committee notes the report. (Pangallo/Dey)

The recommendation was put to the vote and declared carried.

Report No. 4.2 Capital Works Program 2023/24
File No: I2024/176

Committee Recommendation:

That the Committee notes the 2023/24 Capital Works Program and 10-year Capital Works program. (Lyon/Pangallo)

The recommendation was put to the vote and declared carried.

Report No. 4.3 Deficient Inspection Budget- Australian Defence Force Modular Steel Bridge
File No: I2024/200

Committee Recommendation:

That Council notes and take into consideration:

- 1. Funding considerations for the 2024/25 Budget for Australian Defence Force bridge inspections to ensure the safety of road users and the longevity of the structures:**
 - a) scheduled monthly, six-monthly, yearly and five yearly inspections**
 - b) live structural health monitoring investigation**
 - c) allowable cycle loading to determine expected design life.**

(Lyon/Winton-Brown)

The recommendation was put to the vote and declared carried.

BYRON SHIRE COUNCIL

ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

3.1 - ATTACHMENT 1

BYRON SHIRE COUNCIL

INFRASTRUCTURE ADVISORY COMMITTEE MEETING MINUTES 29 FEBRUARY
2024

Report No. 4.4 Operations and Maintenance Works Update
File No: I2024/203

Committee Recommendation:

That the Committee notes the report. (Dey/Pangallo)

The recommendation was put to the vote and declared carried.

There being no further business the meeting concluded at 1:19 pm.

STAFF REPORTS - INFRASTRUCTURE SERVICES

Report No. 4.1 Kerb and Gutter Review

Directorate: Infrastructure Services

5 **Report Author:** Katie Hughes, Project Engineer

File No: I2024/708

Summary:

Council has approximately 500km of sealed roads and approximately 250km of kerb and gutter in varying condition.

10 Some locations where sealed roads do not have kerb and gutter experience pavement damage and cracking at the edges of the pavement where frequent traffic shoves and damages the unsupported edges on the seal. Some locations also experience stormwater issues where concentrated flows from the road and surrounding properties collect uncontrolled in the road verge, often passing these flows into private land.

15 Council regularly receives requests for kerb and gutter to be constructed across urban areas of the shire. This project aims to prioritise these requests against where our priorities should be according to existing issues. The result being a prioritised program for kerb and gutter improvements.

The priority list includes urban areas only and does not extend to rural roads.

20 The assessment covered a total of 77 sites. Based on the results of this investigation it is recommended Council review and investigate the high priority sites as soon as possible and develop an implementation schedule for progressive upgrade of the sites. The total estimated length of new kerb required is 36,811m and budget cost of \$37,190,000 with high priority sites accounting for \$10,925,000 worth of projects.

25

RECOMMENDATION:

That Council:

30 1. **Notes the need to improve the availability of kerb and gutter across the shire and the cost to do so is significant and difficult for Council to achieve with current funding availability.**


35 2. **Supports the Kerb and Gutter Upgrade Review (attachment 1) being developed into a prioritised implementation program that is considered as part of the annual budget and 10 year program development, subject to funding availability.**

BYRON SHIRE COUNCIL

STAFF REPORTS - INFRASTRUCTURE SERVICES

4.1

Attachments:

- 1 QC2003_006-REP-001-0 Byron Shirewide Kerb and Gutter Review - No Kerb Sites_Updated, E2024/61993 , page 22 [↓](#) 

5

Report

Key issues

Council has approximately 500km of sealed roads and approximately 250km of kerb and gutter in varying condition.

- 5 Some locations where sealed roads do not have kerb and gutter experience pavement damage and cracking at the edges of the pavement where frequent traffic shoves and damages the unsupported edges on the seal. Some locations also experience stormwater issues where concentrated flows from the road and surrounding properties collect uncontrolled in the road verge, often passing these flows into private land.
- 10 Council regularly receives requests for kerb and gutter to be constructed across urban areas of the shire. This project aims to prioritise these requests against where our priorities should be according to existing issues. The result being a prioritised program for kerb and gutter improvements.

The priority list includes urban areas only and does not extend to rural roads.

- 15 Below are examples of locations where a lack of kerb and gutter and adequate drainage has led to pavement damage and ponding stormwater.



Figure 1 Station Street Mullumbimby



Figure 2 Carlyle Lane Byron Bay



Figure 3 Federal Drive Federal



Figure 4 Slessor Lane Brunswick Heads

- 5 Council engaged a consultant to assess the urban locations where there is currently no kerb and gutter and create a priority list for upgrades where it was determined that kerb and gutter would be a benefit from a drainage and road support perspective.

- 10 The consultant undertook a desktop review and site inspection of urban areas that do not currently have kerb and gutter to determine which locations require this infrastructure based on the following factors:

- Location
- Flooding and stormwater issues
- Number of customer requests in location
- Value for money and
- 15 • Pavement damage and reducing maintenance burdens.

The assessment covered a total of 77 sites. Based on the results of this investigation it is recommended Council review and investigate the high priority sites as soon as possible and develop an implementation schedule for progressive upgrade of the sites. The total

estimated length of new kerb required is 36,811m and budget cost of \$37,190,000 with high priority sites accounting for \$10,925,000 worth of projects.

The assessment report and resulting recommendations are provided at attachment 1.

5 Next steps

It is recommended the kerb identified as high priority be developed into a prioritised implementation program that is considered as part of the annual budget and 10 year program development, subject to funding availability.

- 10 Council should also consider any updates or changes to current road maintenance program for kerb and roadside drainage maintenance across the shire.

Strategic Considerations

Community Strategic Plan and Operational Plan

CSP Objective	CSP Strategy	DP Action	Code	OP Activity
5: Connected Infrastructure	5.1: Provide a safe, reliable, and accessible transport network	5.1.2: Road renewal and upgrades - Deliver road renewal and upgrade capital works program	5.1.2.5	Annual replacement of damaged kerb and gutter program Shire-wide as per inspection report

Financial Considerations

- 15 A simple costing methodology was developed to identify approximate project costs per site for the purpose of budgeting.

The cost estimating basis is as follows:

- Site prep/demolition \$10/m
- Kerb install rate assumed \$140/m
- 20 • Road widening \$200/sqm
- Overheads (30%)
- Contingency (30%).

BYRON SHIRE COUNCIL

STAFF REPORTS - INFRASTRUCTURE SERVICES

4.1

As the focus of the assessment is limited to road works and installation of kerb and gutter, the following potential requirements have been omitted from estimates:

- No allowance for new drainage infrastructure (pits, pipes, open drains).
- No allowance for re surfacing or overlays of existing road pavements.
- 5 • No allowance for significant kerb regrading or road regrading to facilitate new kerb installation.

The following tables show the estimated cost for the kerb projects by priority and suburb.

Table 1 Estimated costs per priority

Priority	Number of sites	Estimated Cost
High	31	\$10,925,000
Medium	33	\$22,598,000
Low	13	\$3,667,000

Table 2 Estimated costs per suburb

Sites by Township	HIGH		MEDIUM		LOW	
Bangalow	2	\$80,000	3	\$616,000	1	\$ 0
Billinudgel	1	\$53,000	0	\$0	0	\$0
Brunswick Heads	3	\$459,000	1	\$575,000	1	\$96,000
Byron Bay	6	\$1,931,000	3	\$2,352,000	2	\$1,031,000
Federal	2	\$204,000	0	\$0	2	\$1,286,000
Main Arm	0	\$0	0	\$0	2	\$284,000

BYRON SHIRE COUNCIL

STAFF REPORTS - INFRASTRUCTURE SERVICES

4.1

Mullumbimby	7	\$3,224,000	20	\$17,687,000	3	\$686,000
New Brighton	4	\$1,637,000	6	\$1,368,000	2	\$284,000
Suffolk Park	6	\$3,337,000	0	\$0	0	\$0
TOTAL	31	\$10,925,000	33	\$22,598,000	13	\$3,667,000

Comment from Manager Finance

5 Notwithstanding the needs identified in this report, the availability of funding necessary to complete the scope of work entirely over ten years would require at least \$3.7million per annum on average at current costs. Without grant funding, this is way beyond the financial scope of Council's current revenue base. If it was the desire of Council to increase funding in this area, it would need to consider reduce other activities that it is currently undertaking to reallocate some funding. It comes down to the determination of priorities.

Consultation and Engagement

10 Prior to undertaking kerb and gutter improvements community consultation should be undertaken.



BYRON SHIRE COUNCIL

Shire Wide Kerb and Gutter Upgrade Planning

No Kerb Sites

QC2003_006-REP-001-0

1 MARCH 2024



DISCLAIMER

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Rev	Date	Description	Author	Reviewer	Project Mgr.	Approver
0	1/03/2024	Draft Issue	Braeden Alexanderson P.P.	Tim Randell	Braeden Alexanderson P.P.	Tim Randell
Signatures:						



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1. INTRODUCTION

Byron Shire Council (BSC or Council) has engaged Engeny to investigate its existing no kerb road assets to understand the quantum of capital works required to upgrade to kerbed roads, as well as priority sites that need capital works to mitigate ongoing road or drainage issues.

Council undertakes significant capital investment in kerb and gutter renewal and upgrade each year. Based on Councils asset management plan (#E2018/30888), Council spent \$708,378 on kerb projects in 2018 and the current function and capacity of kerb and gutter assets across the shire is considered fair to poor as shown in the extract in Figure 1.1.

It is understood council require a more rigorous condition assessment to determine where priority funding on kerb projects should be spent, and to inform capital planning for upgrades in future years.

Byron Shire Council Transport Asset Management Plan

#E2018/30888

Table 8 Kerb and Gutter Levels of Service

KERB AND GUTTER – CUSTOMER LEVELS OF SERVICES				
Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
Quality	Kerb and Gutter is in a condition appropriate for its use.	Free draining with no ponding of water.	To be confirmed (Fewer than 20 requests for maintenance of existing unsealed roads annually)	<i>CRM process to be reviewed to record kerb and gutter requests.</i> Actual Capital Expenditure of Kerb and Gutter \$ 704,378 (majority Renewal)
Function	Kerb and gutter conveys stormwater from roads in a safe, harm free and efficient manner.	Meets road hierarchy requirements for type, location and capacity.	Overall Condition Fair to Poor	Poor – kerb is discontinuous, uneven in grade and ponds water
Capacity	Stormwater flow is contained within kerb and gutter.	Over-kerb overflows are minimal.	Poor / Very Poor – Stormwater overflows kerb and gutter over sections or length	Overall Condition Fair to Poor

Figure 1.1: Extract from BSC Transport Asset Management Plan (#E2018/30888)

The purpose of this report is to investigate and understand councils existing project database and upgrade requirements in greater detail and evaluate problem areas within the shire in order to prioritise and inform works planning in future years. The evaluation of kerb and gutter infrastructure for Byron shire region is divided into two stages:

- **Stage 1** - Desktop database review and inspection of areas without kerb and gutter.
- **Stage 2** - Desktop database review and inspection of areas with kerb and gutter.

This report pertains to Stage 1 only, with Stage 2 planned in future.



2. ASSESSMENT DATA

2.1 Area of Assessments

Council have requested the following townships be reviewed for construction of new kerb and gutter:

- Byron Bay
- Suffolk Park
- Mullumbimby
- Bangalow
- Brunswick Heads
- Ocean Shores
- New Brighton
- Federal
- Billinudgel
- Main Arm.

The following townships were excluded from scope as Council advised these the street networks will not require kerb and channel:

- Ewingsdale
- South Golden Beach.

Figure 2.1 shows the GIS database of existing kerb and gutter infrastructure across the shire provided by Council.



Figure 2.1: Byron Shire GIS Road Network with existing kerb and Gutter (red)



2.2 Data

The kerb and gutter evaluation is based on sites identified within council's GIS data base, Council request management data base (CRM's) and any other streets within the Shire identified through inspection of aerial photos and Google street view.

The identified streets requiring kerb and gutter have been tabulated and assigned priorities rankings based off various attributes. These include road condition, assumed traffic volumes/road hierarchy and the existence of underground road drainage. The site priority ranking is explained in further detail in section 3.3. Following site prioritisation various attributes were measured and recorded to help inform the scope of works and cost estimation for construction of new kerb. These attributes include, lengths of kerb required, current drainage conditions, additional road widening and drainage infrastructure requirements.



3. ASSESSMENT APPROACH

3.1 Criteria

Based on the three different ways the sites have been identified (i.e. CRM, GIS drainage issue, Street view no kerb) slightly different approaches to evaluating and prioritising the site data was adopted to enable an effective method for ranking project upgrades. The methodology generally adopted criteria that is outlined in Table 3.1.

TABLE 3.1: ASSESSMENT CRITERIA DEFINITIONS

Criteria	Description
Road condition	<p>Categorized into three conditions, Good, Fair and Poor. This is related to road surfacing.</p> <p>Poor – refer to condition rating 4 and 5 Section 8.1 IPWEA conditions assessment.</p> <p>Fair – refer to condition rating 3 Section 8.1 IPWEA conditions assessment.</p> <p>Good – refer to condition rating 1 and 2 Section 8.1 IPWEA conditions assessment.</p>
Assumed Traffic Volumes/ Road Hierarchy	As Byron shire does not have a defined road hierarchy map and traffic data is sporadic, this attribute is a relative assessment based on the size of the surrounding urban area and relative traffic observed.
Observed Drainage issue	Ponding of 30mm deep or greater encroaching onto pavement. Refer Condition Rating 4 and 5, Appendix 2, Condition Assessment & Asset Performance Guidelines
Estimated kerb length (%)	Reported as a fraction of entire street length
Estimated kerb length (m)	Reported as total length required for both sides of road in metres Based on visual assessment /judgment only
Need for additional road widening and pavement to implement new kerb and gutter.	If proposed kerb location is greater than 0.5m from current road pavement edge
Likelihood of needing additional stormwater pit and pipe infrastructure in new kerb and gutter.	Based on visual assessment /judgment only
Budget project costing based on simple unit rates and roadworks allowances.	Refer section 3.2
Existing council priority (High/Med/Low).	Refer section 3.3
Potential footpath upgrade projects in the area.	Streets that have footpaths within their verge which may help with funding kerb renewal.

3.2 Project Budget Estimating

A simple costing methodology was developed to identify approximate project costs per site for the purpose of budgeting. The cost estimating basis is as follows:

- Site prep/demolition \$10/m
- Kerb install rate assumed \$140/m



- Road widening \$200/sqm
- Overheads (30%)
- Contingency (30%).

As the focus of the assessment is limited to road works and installation of kerb and gutter, the following potential requirements have been omitted from estimates:

- No allowance for new drainage infrastructure (pits, pipes, open drains).
- No allowance for re surfacing or overlays of existing road pavements.
- No allowance for significant kerb regrading or road regrading to facilitate new kerb installation.

It would be estimated the accuracy of the budget cost estimates may be in the order of -50% to +100% accuracy at this level of assessment.

3.3 Prioritisation

Engeny has undertaken its own priority ranking from the desktop review following assessment principles set out in IPWEA Condition Assessment and asset performance guidelines. The basis for the prioritisation of sites into High Medium and Low projects is outlined in the Table 3.1.

All priorities for GIS sites were pre-determined within the GIS data provided. All CRM data was listed as high priority due to these being complaints from the community where problem areas have been identified.

TABLE 3.2: ENGENY PRIORITY CRITERIA

Road Condition		Poor		Fair		Good	
Drainage Issues		YES	NO	YES	NO	YES	NO
Traffic Volumes	High	High	High	High	Medium	High	Low
	Medium	High	Medium	High	Medium	Medium	Low
	Low	High	Medium	Medium	Low	Low	Low

TABLE 3.3: PRIORITY MEANING

Priority	Urgency
High	Recommended to be rectified immediately, or as soon as practical
Medium	Recommended to be rectified within 2-5 years
Low	Recommended to be rectified within 2-10 years

3.4 Field Inspection

All sites with high priority ranking following the initial desktop review, as well as any sites with inconclusive drainage issues were inspected to take measurements and get a better understanding of the current kerb conditions. The inspections were undertaken on February 20-22 2024 by Braeden Alexanderson of Engeny (civil engineer). The observations and comments from the inspections are listed in the overall database in Appendix A, and select photos from the inspections in Appendix B.

Some thirty-five (35) sites were further investigated covering Federal, Main Arm, New Brighton, Billinudgel, Brunswick Heads, Bangalow, Mullumbimby, Suffolk Park and Byron Bay. Field inspections provided significant improvement in site scoping and understanding which is translated into the accuracy of the costing and priority ranking.



4. ASSESSMENT OUTCOMES

The assessment covered a total of 77 sites (35 of which were physically inspected). The total an estimated length of new kerb required of 36811m and budget cost of \$37,190,000 . The assessment results are summarised in Table 4.1 to Table 4.3.

TABLE 4.1: TOTAL KERB REQUIRED SUMMARY

Source Data	Number of sites	Length of Kerb Required	Cost estimate
CRM	9	2824	\$ 2,721,000
GIS Database	14	7778	\$ 10,140,000
Streets with no kerb	54	26209	\$ 24,329,000
Total	77	36811	\$ 37,190,000

TABLE 4.2: PRIORITIES AND COST ESTIMATE BY SUBURB

Sites by Township	Cost Estimate	High Priority Sites	Medium Priority Sites	Low Priority Sites
Bangalow	\$ 696,000	2	3	1
Billinudgel	\$ 53,000	1	0	0
Brunswick Heads	\$ 1,130,000	3	1	1
Byron Bay	\$ 5,314,000	6	3	2
Federal	\$ 1,490,000	2	0	2
Main Arm	\$ 284,000	0	0	2
Mullumbimby	\$ 21,597,000	7	20	3
New Brighton	\$ 3,289,000	4	6	2
Suffolk Park	\$ 3,337,000	6	0	0

TABLE 4.3: ESTIMATED COSTS PER PRIORITY RANKING

Site by Priority		
HIGH	31	\$ 10,925,000
MED	33	\$ 22,598,000
LOW	13	\$ 3,667,000



4.1 Discussion

The assessment has identified the scale of kerb installation required across Byron Shire, however further work is required by Council to review and confirm priorities and the focus of future work.

It should be noted:

- Streets identified via the CRM or GIS data, generally have localised drainage issues pertaining to specific properties within a street based on resident complaints and hence the scope of work is generally smaller for these sites.
- Where entire Streets are identified via Google maps, upgrades consider the streets as a whole where there is no kerb, and hence the scope of work is bigger.

Following the field investigation, the areas considered likely to realise the greatest benefit from upgraded kerb infrastructure are Mullumbimby, Suffolk Park and Byron Bay. These areas have relatively high populations and significant lengths of roads with informal drainage and in poor condition.

There are many areas throughout the shire where roadside parking is not formalised with cars parking on unsealed pavement, shoulder or grassed verge. With all proposed upgrades the impact to street parking requires consideration. In many cases informal street parking has also created potholes ruts and drainage issues within the roads, shoulders, and verges, resulting in water pooling in these sections. Ultimately this informal parking reduces the service life of pavement and kerb infrastructure and therefore Council should also consider parking strategies in any upgrades.

Many laneways, particularly in Mullumbimby and Byron Bay, are unsealed with no formal drainage. These lanes are located hard against the boundaries of properties. Any drainage issues that arise cause overflow effects to residents residing on the lane very quickly.

A common road profile in the shire is kerb and channel with half sealed roads and a gravel or grass strip upslope of the kerb and gutter. This increases for sediment build up in the kerb and gutter or where formal drains exists. Ultimately is recommended where possible to have fully sealed roads from kerb to kerb to allow for proper overland flow within the road reserve to reach the kerb and gutter and reduce maintenance requirements across the network.

During site inspection it evident that more frequent maintenance is required to maintain existing kerb and drainage assets to avoid premature deterioration or nuisance drainage issues.



5. RECOMMENDATIONS

The assessment covered a total of 77 sites (35 of which were physically inspected). The total an estimated length of new kerb required of 36811m and budget cost of \$ \$37,190,000. The assessment results are summarised in Table 4.1 and Table 4.2.

Based on the results of this investigation it is recommended Council review and investigate the high priority sites as soon as possible and develop an implementation schedule for progressive upgrade of the sites.

Additional data and assessment may provide further justification and difference to results. It is recommended council review the results within this report and consult residents to gain further understating of potential benefits construction new kerb. Following community consultation and internal review of site priorities it is recommended Council develop a plan for systematic upgrade of the sites.

It is recommended the kerb identified within this report as high priority be added to the upgrade plan for upgrading as soon as possible. Council should also consider any updates or changes to current road maintenance program for kerb and roadside drainage maintenance across the shire.

5.1 Further work and next steps:

Opportunities to improve the level of detail and understanding in the database are:

- Council to review priority rankings site by site and amend if required.
- Undertake community consultation to inform priority rankings.
- Further inspection of the remaining 42 lower priority sites could be undertaken by Council to improve the database.
- Review and update road maintenance schedule and undertake more frequent road maintenance.



6. QUALIFICATIONS

- (a) In preparing this document, including all relevant calculation and modelling, Engeny Australia Pty Ltd (Engeny) has exercised the degree of skill, care and diligence normally exercised by members of the engineering profession and has acted in accordance with accepted practices of engineering principles.
- (b) Engeny has used reasonable endeavours to inform itself of the parameters and requirements of the project and has taken reasonable steps to ensure that the works and document is as accurate and comprehensive as possible given the information upon which it has been based including information that may have been provided or obtained by any third party or external sources which has not been independently verified.
- (c) Engeny reserves the right to review and amend any aspect of the works performed including any opinions and recommendations from the works included or referred to in the works if:
 - (i) Additional sources of information not presently available (for whatever reason) are provided or become known to Engeny; or
 - (ii) Engeny considers it prudent to revise any aspect of the works in light of any information which becomes known to it after the date of submission.
- (d) Engeny does not give any warranty nor accept any liability in relation to the completeness or accuracy of the works, which may be inherently reliant upon the completeness and accuracy of the input data and the agreed scope of works. All limitations of liability shall apply for the benefit of the employees, agents and representatives of Engeny to the same extent that they apply for the benefit of Engeny.
- (e) This document is for the use of the party to whom it is addressed and for no other persons. No responsibility is accepted to any third party for the whole or part of the contents of this Report.
- (f) If any claim or demand is made by any person against Engeny on the basis of detriment sustained or alleged to have been sustained as a result of reliance upon the Report or information therein, Engeny will rely upon this provision as a defence to any such claim or demand.
- (g) This Report does not provide legal advice.

APPENDIX A: NO KERB SITE DATABASE

BYRON SHIRE COUNCIL

STAFF REPORTS - INFRASTRUCTURE SERVICES

4.1 - ATTACHMENT 1

QC2003_006-REG-001-E Shirewide KG review -Site Inspection

SUMMARY OF NO KERB SITE REVIEW

Engeny 01-03-24 Draft for Client Review

By: BA

Reviewed TR

ASSESSMENT SUMMARY

Source Data	Number of Sites	Length of Kerb Required	Cost Estimate
CRM	9	2824	\$ 2,721,000
GIS Database	14	7778	\$ 10,140,000
Streets with no kerb	54	26209	\$ 24,329,000
Total	77	36811	\$ 37,190,000

Priority sites - TOTALS

HIGH	31	\$ 10,925,000
MEDIUM	33	\$ 22,598,000
LOW	13	\$ 3,667,000

Sites by Township	Cost Estimate	HIGH	MEDIUM	LOW
Bangalow	\$ 696,000	2	3	1
Billinudgel	\$ 53,000	1	0	0
Brunswick Heads	\$ 1,130,000	3	1	1
Byron Bay	\$ 5,314,000	6	3	2
Federal	\$ 1,490,000	2	0	2
Main Arm	\$ 284,000	0	0	2
Mullumbimby	\$ 21,597,000	7	20	3
New Brighton	\$ 3,289,000	4	6	2
Suffolk Park	\$ 3,337,000	6	0	0
TOTAL	\$ 37,190,000	31	33	13

Sites by Township	HIGH	MEDIUM	LOW
Bangalow	2 \$ 80,000	3 \$ 616,000	1 \$ -
Billinudgel	1 \$ 53,000	0 \$ -	0 \$ -
Brunswick Heads	3 \$ 459,000	1 \$ 575,000	1 \$ 96,000
Byron Bay	6 \$ 1,931,000	3 \$ 2,352,000	2 \$ 1,031,000
Federal	2 \$ 204,000	0 \$ -	2 \$ 1,286,000
Main Arm	0 \$ -	0 \$ -	2 \$ 284,000
Mullumbimby	7 \$ 3,224,000	20 \$ 17,687,000	3 \$ 686,000
New Brighton	4 \$ 1,637,000	6 \$ 434,000	2 \$ 284,000
Suffolk Park	6 \$ 3,337,000	0 \$ -	0 \$ -
TOTAL	31 \$ 10,925,000	33 \$ 21,664,000	13 \$ 3,667,000

14sites removed from scope selection due to double ups per list below

GIS	ID 99	Gaggin street
	ID 121	Kingsley lane
CRM	030.2008.000090	Kingsley lane
	030.2009.000054	Station St
	030.2010.000086	Station St
	030.2017.000029	Marvel St
	030.2019.000106	Marvel St
	030.2020.000080	Riverside Drive
	030.2022.000043	Patterson St
	Byron	Ruskin Ln
	Byron	Ruskin St
	Mullumbimby	Carol Ave
	New Brighton	Riverside Lane
	Suffolk Park	Broken Head Road

Summary

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Data Source	ID	HOUSE NO	LOCATION	TOWN	COUNCIL DATABASE PROPOSAL	COUNCIL ASSESSMENT OF PROBLEM	Field Inspection undertaken	Road Condition	Assumed Traffic Volumes/ Road Hierarchy	Observed drainage issues	Engeny Priority Classification	Council Provided Priority	Estimated Kerb length required fraction of road total (%)	Total Kerb length (m) (both sides of road)	Pit/Pipe Drainage Required?	Road widening/ resurfacing required	Does the street have footpaths	Kerb Upgrade Budget Cost	ENGENY COMMENT
GIS		98	11 Gaggin Street	New Brighton	Possible large soakage pit, kerb and gutter, difficult one as area is so flat, may need a considerable design, check for easements	Water running off road and surrounding properties causes flooding around house and in garage	No	Fair	Medium	Yes	HIGH	MEDIUM	100%	380	yes	no	no	\$ 96,000	
GIS		111	0 Station Street	Mullumbimby	Consider additional pits, amplification of existing pits or upgrade of pipe system	Kerb and Gutter floods easily and does not get away very quickly	No	Poor	High	Yes	HIGH	MEDIUM		835	yes	yes	yes	\$ 1,199,000	
GIS		117	4 Wean Way	Federal	Resident has suggested Kerb and Gutter, maybe an option but could send more water near the neighbours house	Water running down road, on to drive and down to house	Yes	Poor	Low	Yes	HIGH	HIGH	100%	75	yes	yes	no	\$ 108,000	One way cross fall on road. Resident down hill from road at 4 Wean way. Resident has constructed a concrete channel to redirect water flow away from house. Road pavement is in poor condition. Drainage pits are required to redirect flow and fix issues rather than kerb and gutter.
GIS		126	105 Bangalow Rd	Byron Bay	Reconstruct footpath at higher level, including kerb and gutter to road and grade to existing pits	Footpath and front yard floods. Footpath users walking on road during flooding	No	Good	High	Yes	HIGH	MEDIUM		100	no	no	yes	\$ 25,000	Small length of road that requires kerb to keep verge from flooding
GIS		135	38 Byron Street	Byron Bay	Lower footpath to allow overland flow into drain. Will be resolved by Town Drainage Strategy.	Backyard floods because footpath does not allow water to drain	No	Good	Low	Yes	LOW	LOW	100%	700	no	yes	yes	\$ 1,006,000	
GIS		137	1 Ruskin Lane	Byron Bay	Possible new table drain or kerb and gutter to lane, will need design, probably retaining structure, lane construction and maybe sealing.	Water flowing overland from properties above onto lane, over lane and into Browning Street properties. Land gets 'boggy', flooding of 60 Tennyson Street reported. See E2015/6229 for info	Yes	Fair	Low	Yes	MEDIUM	HIGH	30%	304	yes	yes	no	\$ 437,000	Cowper to Tennyson St, Approx. 192m of kerb required on south side all the way 112m of kerb required on north side of road.
GIS		141	3 Thomas St	Bangalow	Kerb and gutter or grass swale along edge of road and drive access points	Water running along edge of bitumen. Ground is being scoured and this is causing problems for driveway entrances. Note, No.3 does not have a formal driveway crossing. Also see E2016/71455 for v drain across lane	Yes	Fair	Low	Yes	MEDIUM	MEDIUM	90%	160	no	no	no	\$ 41,000	Kerb on both sides of road required. Pavement in poor condition. Drainage at end of cul de sac street. Large drop off. Small footpath at end of street, would benefit from kerb and footpath upgrade.
GIS		144	16 Leslie Street	Bangalow	Kerb and Gutter down Leslie Street. Swale drain behind kerb and through driveways.	Stormwater is running off road and road reserve and flowing onto property and under house. Water ponds under the house.	Yes	Fair	Medium	Yes	HIGH	HIGH	40%	233	no	no	no	\$ 59,000	Two way crossfall within road. One side of road needs approx. 233m kerb and gutter. This side of road currently has a swale drain. Existing drainage pit available on corner.
GIS		146	8 Jubilee Avenue	Mullumbimby	Unknown - very tricky due to Fig Tree roots.	Fig Tree roots are prevent stormwater run off from road and properties reaching the creek. Property remains boggy and flooded after rain for extended periods	Yes	Fair	High	No	MEDIUM	HIGH	0%	0	yes	no	no	\$ -	This drainage issue does not appear to be kerb and gutter related. It appears to be drainage issues within the verge behind the back of kerb. Requires new gully pit and pipe connections to give relief to trapped low point, possibly back across the road and into Saltwater Creek
GIS		149	38 Kingsley Lane	Byron Bay	Kerb and gutter and system amplification to whole lane. Provide point of discharge to all houses along lane.	Minimal drainage infrastructure within lane. System become overwhelmed causing flooding to two units at 38 Kingsley. Flooding to land and one garage. Close to going inside house. E2015/75604	Yes	Fair	Low	Yes	MEDIUM	HIGH	70%	891	yes	yes	no	\$ 1,280,000	Some drainage infrastructure exists within lane. Additional drainage/kerb and gutter infrastructure is required. Repaving and extending to the boundary fence of Kingsley lane is required 111m of kerb. Road has 1 way cross fall 390m of road resurface / widening required with drainage 1 way cross fall changes may be required.
GIS		150	0 Kingsley Street	Byron Bay	Kerb and Gutter or grass swale to catch flows and run them down the road.	Water running off road and across properties. Flooding properties and garage. See E2015/ 82803	No	Good	High	Yes	HIGH	MEDIUM	80%	1300	yes	yes	no	\$ 1,867,000	
GIS		152	61 Tennyson Street	Byron Bay	Formalise better overland flow path between lane and green garage and Browning street / enlarge pipe system to take overland flow	Property floods inside lower floor and backyard, front yard. Property is lowest in the area and gets water from all surrounding streets. See E2016/42128	Yes	Fair	High	No	MEDIUM	HIGH	0%	0	no	no	yes	\$ -	This one coincides with Ruskin lane, Kerb on Tennyson seems adequate. Slight pooling in kerb at roundabout
GIS		154	60 Hollingworth Ln	Mullumbimby	Design system for whole lane. Alter kerb to flow north, add pipe behind kerb to drain backyards on both sides of the road.	Lane and back yard getting flooded due changes to lane by sub-divisions. See E2016/76975	No	Poor	Low	Yes	HIGH	MEDIUM	100%	1200	yes	yes	no	\$ 1,724,000	Drainage systema and road upgrade required
GIS		156	0 McGougans Ln	Mullumbimby	Upgrade entire lane to achieve holistic drainage solution	Lane floods. Piece meal upgrades due to developments not helping. See E2016/76987.	No	Fair	Low	Yes	MEDIUM	MEDIUM	90%	1600	yes	yes	yes	\$ 2,298,000	Drainage system and road upgrade required
CRM	030.2003.00 030911.001		Burns Street	Byron Bay	DO NOT USE	Pubsof - Gutter incomplete - pedestrians and cars come to grief on gut er. Directly opposite 6 Burns Street, Byron Bay (Barbar's Bed & Break fast).	Yes	Good	Medium	No	LOW	HIGH	50%	140	no	yes	yes	\$ 201,000	140m of kerb required on one side Opportunity to widen road on other side
CRM	030.2017.00 002384.001		Azalea Street	Mullumbimby	Stormwater - Mullumbimby - Misc.	Requesting stormwater drainage/guttering to funnel water away from houses. Currently in this section of the road there is no guttering causing all water to run downhill towards houses. (18 Azalea Street Mullumbimby)	Yes	Fair	Medium	Yes	HIGH	HIGH	5%	148	no	no	no	\$ 38,000	Opportunity to introduce new kerb on one side of road, large drop from road towards houses
CRM	030.2017.00 002966.001		Marvel Street	Byron Bay	Roads - Works - Byron Bay - Misc.	No kerb and gutter on corner outside 12 Marvel St (corner of Middleton and Marvel) - property has flooded 3 times in last month (not including the recent flood), garden is lost, garage is flooded and guests walking in a foot and a half of water. Resident feels it may be because of the lack of kerb and gutter. Please inspect and repair where necessary. Called in by Lyndon Garske 0490 009 500.	Yes	Good	High	No	LOW	HIGH	0%	0	no	yes	yes	\$ -	There is currently kerb and gutter at this location. Widening roadway 10m to allow for water to flow freely to existing kerb and facilitate formalised car parking
CRM	030.2020.00 008046.001		19 Riverside Drive	Mullumbimby	Roads - Kerb & Gutter - New	Jordan 19 Riverside Drive, Mullumbimby Phone 0421 850151 No Kerb	Yes	Fair	Medium	Yes	HIGH	HIGH	10%	150	no	no	no	\$ 38,000	One side of road requires kerb for residential frontage. Approx. 150m of kerb required
CRM	030.2022.00 006321.001		Alcorn Street	Suffolk Park	Stormwater - Suffolk Park - Misc.	REP2153 Lack of stormwater / curb & guttering along Alcorn Street allows water to accumulate and directs flow of excess water into our backyard. Attached photo at street-side is taken this week, turning the front strip into a muddy lake, while the second photo shows the stormwater run-off in our yard from the climate event in late March (500mm in yard, 200mm through the unit). This was reported in the Council survey - however as yet have not had any contact from Council regarding surveying etc. Opposite Sagitt Park. Refer Doc #E2022/72637 for images	Yes	Good	Medium	Yes	MEDIUM	HIGH	50%	1554	yes	yes	no	\$ 2,232,000	From Clifford St north, one side of road requires kerb 150m long , the other side of road has kerb but requires 2m widening of pavement to meet kerb. Kerb terminates at 138 Alcorn St., kerb needed to be extended on same side for the next portion by approx. 147m Just after park both sides of road require kerb - 311m to Wareham St. Whole street has two way fall. Remainder of street north requires kerb one side - 625m Existing pavement in generally fair to good condition.
CRM	030.2022.00 006759.001		Armstrong Street	Suffolk Park	Roads - Request For Infrastructure	Please consider installing Kerb & Gutter on the odd numbered side of Armstrong St, Suffolk Park. Called in by Michael 0415 242 524 (19 Armstrong St, Suffolk Park).	Yes	Good	Medium	Yes	MEDIUM	HIGH	50%	645	yes	no	no	\$ 164,000	Road length 645m 1 side has kerb the whole way the other doesn't. Road pavement medium in portions otherwise generally pretty good Has one way cross fall for some of the road
CRM	030.2022.00 009226.001		49 Granuaille Road	Bangalow	Stormwater - Bangalow - Misc.	49 Granuaille Rd, Bangalow - Property has no kerb & gutter and they're opposite the Macadamia Farm so when there's lots of rain, they flood. Insurance won't cover them again until the issue is rectified. All trades have said it's a Council issue. She might get someone to dig a drain as a temporary measure. If she does that will Council contribute? They took in more water last Sunday night following the heavy rain. Please inspect and assist with solution. Brownyn Hudson 0432 961 236.	Yes	Good	High	Yes	HIGH	HIGH	5%	82	yes	no	no	\$ 21,000	Major road. Kerb on one side for portion of road required to prevent overland flow as verge falls towards properties. Existing drainage pit can be utilised.

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CRM	030.2023.00 003372.001	20	Fawcett Street	Brunswick Heads	Roads - Request for infrastructure	REP5901 - Curb and gutter stops at 20 Fawcett Street Brunswick which is a commonly used path for people who then try and cross the road due to the pathway stopping. This is a dangerous spot for people crossing as cars are coming quickly from Tweed Street. Request is to extend the curb and gutter all the way to the Ampol service station ideally. This request/concern has been raised for many years including the previous owner (current owners mother in law) - Address - 20 Fawcett St, Brunswick Heads NSW 2483, Australia	Yes	Good	High	Yes	HIGH	HIGH	5%	55	no	yes widen 1 shoulder of r	yes	\$	14,000	New kerb and footpath to link up to petrol station. Widening of road required. No pit and pipe likely be required. Visual inspection looks like there is enough fall. Widen 1 shoulder 7m . Opportunity to widen whole street to facilitate formalised parking
CRM	030.2023.00 010712.001	69	Paterson Street	Byron Bay	Roads - Kerb & Gutter - New	Wanting to put kerbing and guttering at his property, if someone could contact the owner that would be great- Doug Moss 0411692154- 69 Paterson Street, Byron Bay	Yes	Fair	Medium	Yes	HIGH	HIGH	5%	50	no	no	no	\$	13,000	New residential house requiring kerb frontage. Approx. 50m kerb required
INSPECTION - NO K&G STREETS			Wilfred Street	Billinudgel			Yes	Fair	High	No	MEDIUM	HIGH	30%	208	yes	no	On portion of 200m on or	\$	53,000	Major road. Most of road has kerb. 50m of no kerb both sides where train lines are. 108m of side of road requires kerb up to Brunswick St intersection. It is currently a swale drain
INSPECTION - NO K&G STREETS																				Small laneway low density. Byron to Tweed Street - 220m of road has no kerb either side. Sewer runs underground within the centre of lane. There is one sag point with existing gully pit structure at the midpoint of the lane, No other drainage infrastructure in place. Pavement in poor condition and requires resurfacing or reconstruction. Can tie into kerb and gutter on joining Byron and Tweed Street intersections Tweed to Park St - 218m several existing gully pits but no kerb and channel, new kerb can tie into kerb at adjoining Tweed and Park St intersections. Park to Brunswick Terrace - most of lane has kerb and channel drainage. 80m of kerb and channel (total of both sides) missing. Pavement in poor condition, needs resurfacing
INSPECTION - NO K&G STREETS			Balun Lane	Brunswick Heads			Yes	Fair	Low	No	LOW	HIGH	100%	956	yes	no	no	\$	242,000	Small laneway low density Park St to Tweed St - Start of the lane has kerb and gutter drainage. 80m of lane doesn't have kerb and gutter on both sides. 40m of end section near Tweed St. missing kerb on one side. Tie into lay back kerb at end of street. Tweed to Byron St - 218m of lane has no kerb and channel, tie into intersection at end kerb and channel. 150m of lane needs resurfacing
INSPECTION - NO K&G STREETS			Slessor Lane	Brunswick Heads			Yes	Fair	Low	No	LOW	HIGH	100%	800	yes	no	no	\$	203,000	Small capacity gravel laneway. Currently facilitates swale drains of both sides of roadway. 400m long laneway. Sealed pavement construction potentially required .
INSPECTION - NO K&G STREETS			Murphy Lane	Mullumbimby			No	Poor	Low	Yes	HIGH	HIGH	100%	800	yes	yes	no	\$	1,149,000	Small capacity gravel laneway. Currently facilitates swale drains of both sides of roadway. 370m lane. 740m kerb required on both sides. Sealed pavement construction potentially required.
INSPECTION - NO K&G STREETS			Riley Lane	Mullumbimby			No	Poor	Low	Yes	HIGH	HIGH	100%	740	yes	yes	no	\$	1,063,000	Road and existing kerb in poor condition. 150m of new kerb required on one side of road and road widening. Sealed pavement construction potentially required.
INSPECTION - NO K&G STREETS			River Terrace	Mullumbimby			No	Poor	Medium	Yes	HIGH	HIGH	70%	150	no	yes	no	\$	215,000	Major road. Road widening and kerb required on both sides. Kerb already exists in certain areas with roadside Car parking. Widen pavement 7 metres to meet kerb - facilitate formalised carparking Pit/pipe drainage required on one side of road, deep drop of existing drainage - near Brunswick Terrace Opportunity to upgrade field inlet to greater capacity.
INSPECTION - NO K&G STREETS			Tincogan Street	Mullumbimby			Yes	Fair	High	Yes	HIGH	HIGH	80%	502	yes	yes	yes	\$	721,000	Road in poor condition. No clear delineation of road. Kerb potentially required both sides. 175m road in very close to Marshalls Creek. Don't know if kerb and channel is applicable due to proximity to creek. Residential street medium to low traffic. Road is in poor condition and needs repair. Drainage not required just regrade road and pavement works resilient to flooding.
INSPECTION - NO K&G STREETS			Cacons Road	New Brighton			Yes	Poor	Medium	Yes	HIGH	HIGH	100%	350	no	yes	no	\$	503,000	Ocean Ave Relatively good pavement. No kerb and gutter. Opportunity to formalise Carpark. Dish drain ponds with water at Tom Kerdall Reserve. Street 180m long
INSPECTION - NO K&G STREETS			Ocean Avenue	New Brighton			Yes	Poor	Medium	Yes	HIGH	HIGH	100%	350	no	yes	no	\$	503,000	400m kerb required on both sides
INSPECTION - NO K&G STREETS			Park Street	New Brighton			No	Fair	Medium	Yes	HIGH	HIGH	100%	400	no	yes	no	\$	575,000	100m street no kerb, need both sides. Can link up with intersecting street outflow to creek.35m end of street already has kerb with newer properties. Layback kerb.
INSPECTION - NO K&G STREETS			Short Street	New Brighton			Yes	Poor	Medium	Yes	HIGH	HIGH	100%	220	no	no	no	\$	56,000	from 136 to num 85 require both side kerb. Remainder requires kerb both sides = 363 1 side. 460 both sides, 650 1 sides = total kerb required = 1933
INSPECTION - NO K&G STREETS			Alcorn Street	Suffolk Park			Yes	Fair	Medium	Yes	HIGH	HIGH	50%	1933	yes	no	no	\$	490,000	Road 645m total Pavement in good condition Two way cross fall Sag drainage at middle of street. Lack of park. Should formalise road side parking
INSPECTION - NO K&G STREETS			Brandon Street	Suffolk Park			Yes	Fair	Medium	Yes	HIGH	HIGH	100%	645	yes	no	no	\$	164,000	McClean street is a gravel track. Requires kerb on both sides as well as pavement 200m
INSPECTION - NO K&G STREETS			McClean Street	Suffolk Park			Yes	Fair	Medium	Yes	HIGH	HIGH	100%	200	no	yes	no	\$	287,000	Wareham St. Road has one way cross fall existing gutter with . Road in good condition. No need for additional gutter
INSPECTION - NO K&G STREETS			Wareham Street	Suffolk Park			Yes	Fair	Medium	Yes	HIGH	HIGH	100%		no	no	no	\$	-	Federal drive (in town) both sides of road require kerb up to Roses St. Grated field inlet pits at bottom of street near Main Arm intersection can be utilised. Pavement in fair condition however road edges are falling and water pools in these areas. Opportunity to formalise road side carparking. Main Collector Road. Drainage doesn't appear to be an issue. Road does not appear to require kerb
INSPECTION - NO K&G STREETS			Federal Drive	Federal			Yes	Fair	High	Yes	HIGH	HIGH	50%	380	no	no	no	\$	96,000	Small laneway low density. Kerb required on one side of road. May require pit and pipe drainage due to limited fall within road reserve
INSPECTION - NO K&G STREETS			Bangalow Road	Bangalow			Yes	Good	High	No	LOW	LOW	0%	0	no	no	yes	\$	-	Kerb required on both sides of road. Road surface in good condition. Road crossfall varies along street. Many property are located lower than the street level. Driveways channels water towards residences. Kerb and channel would help alleviate issues.
INSPECTION - NO K&G STREETS			Shapcott Lane	Brunswick Heads			No	Fair	Low	No	LOW	LOW	100%	380	yes	no	no	\$	96,000	Both sides kerb required. Pavement in fair condition apart from patchy kerb at Federal/Roses intersection. Existing culvert sag half way up street. 2 way cross fall
INSPECTION - NO K&G STREETS			Coachwood Circuit	Federal			Yes	Good	Low	Yes	LOW	LOW	100%	800	yes	yes	no	\$	1,149,000	Major Rural road - no need for Kerb and channel on the entire length of road, but specific sections may require it. TBC by Council with further specific requirements.
INSPECTION - NO K&G STREETS			Roses Road	Federal			Yes	Fair	Low	No	LOW	LOW	100%	540	no	no	no	\$	137,000	Low Density, residential road. No drainage issues evident.
INSPECTION - NO K&G STREETS			Blindmouth Road	Main Arm			Yes	Fair	High	No	MEDIUM	LOW	5%	185	no	yes	no	\$	266,000	Low Density, residential road. No drainage issues evident.
INSPECTION - NO K&G STREETS			Cedar Street	Mullumbimby			No	Fair	Low	No	LOW	LOW	100%	250		yes	no	\$	359,000	Low priority for requirement of kerb. Drainage doesn't seem to be an issue and road in good condition. Road is 360m long. 720m kerb
INSPECTION - NO K&G STREETS			Coolamon Avenue	Mullumbimby			No	Fair	Low	No	LOW	LOW	100%	350	no	no	no	\$	89,000	
INSPECTION - NO K&G STREETS			Poplar Avenue	Mullumbimby			No	Fair	Low	No	LOW	LOW	100%	940	no	no	no	\$	238,000	
INSPECTION - NO K&G STREETS			Byron Street	New Brighton			No	Good	Medium	No	LOW	LOW	100%	720	no	no	no	\$	183,000	

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INSPECTION - NO K&G STREETS			Dolphin Lane	New Brighton		No	Fair	Low	No	LOW	LOW	100%	70		yes	no	\$ 101,000	Gravel road, kerb required on both sides. 70m of kerb.
INSPECTION - NO K&G STREETS																		Most of street (in town) has adequate kerb on both side of road.
INSPECTION - NO K&G STREETS			Main Arm Road	Main Arm	Yes		Good	Medium	No	LOW	LOW	5%	70	no		no	\$ 18,000	Kerb finishes just after Moran close on one side (North). Opportunity to add addition 70m of kerb to North side of road from Moran close onwards.
INSPECTION - NO K&G STREETS			Ballina Road	Bangalow	Yes		Fair	High	No	MEDIUM	MEDIUM	0%	0	no		no	\$ -	Pavement in good condition. Layback kerb
INSPECTION - NO K&G STREETS			Campbell Street	Bangalow	No		Poor	Medium	No	MEDIUM	MEDIUM	90%	400	no	yes	no	\$ 575,000	Main Collector Road. Drainage doesn't appear to be an issue. Road does not appear to require kerb.
INSPECTION - NO K&G STREETS			Park Street	Brunswick Heads	No		Fair	High	No	MEDIUM	MEDIUM	20%	400	yes	yes	yes	\$ 575,000	Hilly road. Road in poor condition. Swale on one side of road. One way cross fall within road.
INSPECTION - NO K&G STREETS			Cavanbah Street	Byron Bay	No		Poor	Medium	No	MEDIUM	MEDIUM	50%	320	no	yes	no	\$ 460,000	Major road through town. Most of the street already has kerb and channel. 200m portion of road does not. Road widening required
INSPECTION - NO K&G STREETS			Cooper Street	Byron Bay	No		Fair	Low	No	LOW	LOW	50%	100	no	no	no	\$ 25,000	Western section in poor condition approx 160m length requires kerb and reconstruction.
INSPECTION - NO K&G STREETS			Brunswick Terrace	Mullumbimby	No		Poor	Medium	No	MEDIUM	MEDIUM	100%	350	yes	yes	no	\$ 503,000	After further investigation kerb does exist within road. Opportunity to regrade portions of kerb to stop water and debris pooling
INSPECTION - NO K&G STREETS			Burringbar Street	Mullumbimby	No		Fair	High	No	MEDIUM	MEDIUM	50%	300	no	yes	yes	\$ 431,000	major road through town. Most of the street already has kerb and channel 150m portion of road does not.
INSPECTION - NO K&G STREETS			Byron Street	Mullumbimby	No		Poor	Low	No	MEDIUM	MEDIUM	100%	150		yes	no	\$ 215,000	
INSPECTION - NO K&G STREETS			Dalley Street	Mullumbimby	No		Fair	High	No	MEDIUM	MEDIUM	50%	1000	yes	yes	yes	\$ 1,437,000	Major road. Road widening and kerb required on both sides. 1000m kerb
INSPECTION - NO K&G STREETS			Fern Street	Mullumbimby	No		Fair	Medium	No	MEDIUM	MEDIUM	70%	500	yes	yes	no	\$ 718,000	Existing gutter exists for portion of road. Edge of bitumen does not reach gutter. Road widening required.
INSPECTION - NO K&G STREETS			Gordon Street	Mullumbimby	No		Fair	Medium	No	MEDIUM	MEDIUM	100%	1160	yes	yes	no	\$ 1,666,000	Sufficient swale drainage in place. Should not require kerb
INSPECTION - NO K&G STREETS			Hollingsworth Lane	Mullumbimby	No		Poor	Low	No	MEDIUM	MEDIUM	100%	500	yes	yes	no	\$ 718,000	Small capacity gravel laneway. Currently facilitates swale drains of both sides of roadway.
INSPECTION - NO K&G STREETS			Jubilee Avenue	Mullumbimby	No		Fair	High	No	MEDIUM	MEDIUM	70%	500	yes	yes	yes	\$ 718,000	Major road - Portions of road contain kerb other areas do not. School and bowls club located on this road.
INSPECTION - NO K&G STREETS			Mcgougans Lane	Mullumbimby	No		Poor	Low	No	MEDIUM	MEDIUM	90%	1600	yes	yes	no	\$ 2,298,000	Small capacity gravel laneway. Currently facilitates swale drains of both sides of roadway and inconsistent kerbs, and driveways.
INSPECTION - NO K&G STREETS			Mill Street	Mullumbimby	No		Poor	Low	No	MEDIUM	MEDIUM	100%	720	yes	no	no	\$ 183,000	Road in poor condition. Swale on both sides of road
INSPECTION - NO K&G STREETS			Myokum Street	Mullumbimby	No		Fair	Medium	No	MEDIUM	MEDIUM	100%	530		no	no	\$ 134,000	Sufficient swale drainage on both sides of the road in place. Should not require kerb
INSPECTION - NO K&G STREETS			Orchid Place	Mullumbimby	No		Poor	Low	No	MEDIUM	MEDIUM	100%	320	yes	yes	no	\$ 460,000	Road in poor condition. Swale on both sides of road
INSPECTION - NO K&G STREETS																		680m of roadway. New development has been completed recently along roadway. Poor drainage on this side, large quantities of water pooling with in swale drain, not sure if kerb and channel is the solution, likely requires underground drainage. Other side has kerb, road pavement required to meet kerb.
INSPECTION - NO K&G STREETS			Prince Street	Mullumbimby	Yes		Fair	Medium	Yes	HIGH	MEDIUM	0%	0	yes	yes	no	\$ -	Portion of road in centre of town already has kerb. Remaining portions of road has sufficient drainage, low priority to incorporate kerb and channel + road widening. 600m of road does not have kerb
INSPECTION - NO K&G STREETS			Stuart Street	Mullumbimby	No		Fair	Medium	No	MEDIUM	MEDIUM	50%	1200	yes	yes	yes	\$ 1,724,000	
INSPECTION - NO K&G STREETS			Train Street	Mullumbimby	No		Fair	Medium	No	MEDIUM	MEDIUM	80%	200		yes	no	\$ 287,000	200m of kerb needed
INSPECTION - NO K&G STREETS			Tyagarah Street	Mullumbimby	No		Fair	Medium	No	MEDIUM	MEDIUM	100%	600		yes	no	\$ 862,000	300m road. 600m kerb
INSPECTION - NO K&G STREETS			Whian Street	Mullumbimby	No		Poor	Medium	No	MEDIUM	MEDIUM	100%	440	no	no	no	\$ 112,000	220m road
INSPECTION - NO K&G STREETS			Brunswick Street	New Brighton	No		Fair	Medium	No	MEDIUM	MEDIUM	100%	220	no	no	no	\$ 56,000	110m road. Low priority of kerb required. Sufinece drainage on both sides of road
INSPECTION - NO K&G STREETS			N Head Road	New Brighton	No		Fair	Medium	No	MEDIUM	MEDIUM	100%	800	yes	no	no	\$ 203,000	Residential portion of road requires kerb
INSPECTION - NO K&G STREETS			Pacific Street	New Brighton	No		Fair	Medium	No	MEDIUM	MEDIUM	100%	310	no	no	no	\$ 79,000	155m of road. 310m of kerb required
INSPECTION - NO K&G STREETS			Riversea Lane	New Brighton	No		Fair	Medium	No	MEDIUM	MEDIUM	100%	380	yes	yes	no	\$ 546,000	gravel road. No kerb on either side 190m of road. 380m of kerb required
INSPECTION - NO K&G STREETS			Terrace Street	New Brighton	No		Poor	Low	No	MEDIUM	MEDIUM	100%	270	no	yes	no	\$ 388,000	135m road requires kerb on both side and road widening. 270m kerb required

APPENDIX B: SELECT PHOTOGRAPHS - FIELD INSPECTION FEBRUARY 2024



BANGALOW – BALLINA ROAD



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



BANGALOW – GRANUALILLE ROAD



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



BANGALOW – LESLIE ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



BANGALOW – THOMAS ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



BILLINUDGEL



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



BRUNSWICK – BALUN LANE



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



BRUNSWICK – FAWCETT ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



BRUNSWICK – SLESSOR LANE

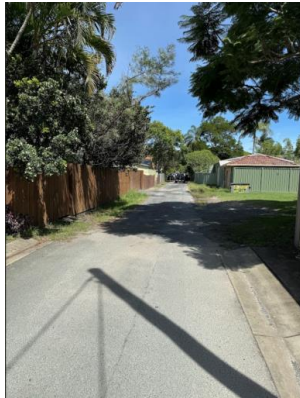


FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



BYRON – BURNS ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



BYRON – KINGSLEY LINE



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



BYRON – MARVEL ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



BYRON – PATERSON ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



BYRON – RUSKIN ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



BYRON – TENNYSON ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FEDERAL – COACHWOOD CT



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



FEDERAL – FEDERAL DRIVE



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



FEDERAL – ROSES ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



FEDERAL – WEAN WAY



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



MAIN ARM ROAD (IN TOWN)



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6

SHIRE WIDE KERB AND GUTTER | QC2003_006-REP-001-0

19



MAIN ARM – BLINDMOUTH ROAD



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



MULLUMBIMBY – AZALEA ST



FIGURE 1



FIGURE 2

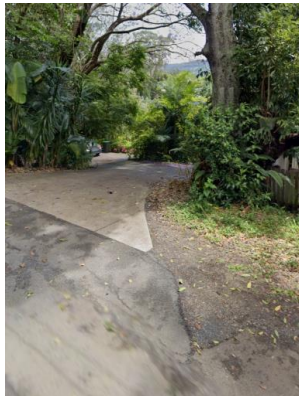


FIGURE 3



FIGURE 4



MULLUMBIMBY - JUBILEE



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



MULLUMBIMBY – PRINCE ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



MULLUMBIMBY – RIVERSIDE DRIVE

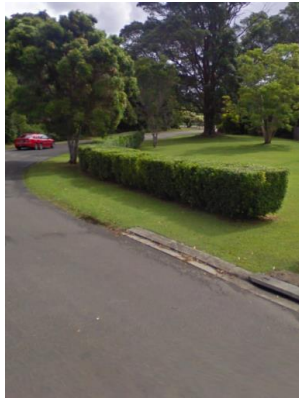


FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



MULLUMBIMBY – TINCOGAN ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



NEW BRIGHTON – CASONS ROAD



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



NEW BRIGHTON – OCEAN AVE



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



NEW BRIGHTON – SHORT ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



SUFFOLK PARK – ALCORN ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



SUFFOLK PARK – ARMSTRONG ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



SUFFOLK PARK – BRANDON ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



SUFFOLK PARK – MCCLEAN ST



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



SUFFOLK PARK – WAREHAM ST



FIGURE 1

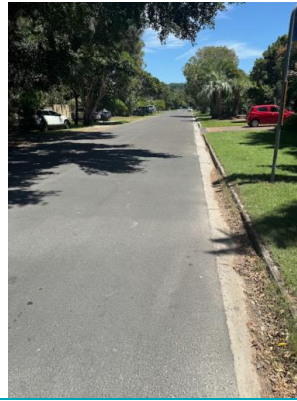


FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6