

Kyogle Council

Road Network Management Plan



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1 PURPOSE

Council's document titled **Road Network Management Plan** outlines the need to manage risk and to formalise maintenance practice in relation to roads and road related infrastructure. Capital works and routine maintenance works are the mechanism by which the condition of the Road Network infrastructure is maintained and improved. While capital works are eventually required, routine maintenance must keep the Road Network essentially safe. To achieve this, assessment, monitoring and rectification of hazards and their potential consequences are required.

The procedure controls the process of determining the level of hazards that require consideration for repair, setting priorities and the timeframe that repairs should be undertaken within the Road Network maintenance budget.

While this document outlines many of the required processes, it should be noted that service level agreements, and other accepted standards are not superseded. These procedures are supplementary to the many processes of road infrastructure management.

This document is also to be applied to the State Road Network in terms of the processes and procedures involved in meeting the Roads and Traffic Authority (RTA) Single Invitation Maintenance Contract (SIMC) requirements. Where any discrepancy exists between this document and the conditions of the RTA SIMC, the RTA SIMC conditions shall prevail.

2 OBJECTIVES

2.1 Local and Regional Road Network

Within the available resources of council's to:

- Provide safe roads for use by road users;
- Provide a system of proactive maintenance;
- Identify areas that require maintenance;
- Establish a priority system for carrying out maintenance on Council roads;
- Allow council to schedule maintenance where required;
- Provide a system of identifying areas that require capital works, and
- Provide information to assist council in allocating funds for capital works

To assist in meeting the Strategic Governance targets outlined in Council's Management Plan;

- To identify and address the need for improvement of the Regional Road Network
- To identify and address the needs for the improvement or expansion of the Urban Local Road Network and to improve the level of service to residents in the village areas
- To identify and address the needs for the improvement of the Rural Local Road Network and to improve the level of service to the general public and residents of the Council area
- Promote the responsible management of the roadside environment
- Promote road safety
- To identify and address the needs for the improvement of the Kyogle Council Bridge Network

- To work towards the upgrading of bridges to provide a higher level of service to the public and lower annual maintenance costs
- To control private structures on roads and road openings and to ensure all works are carried out to adopted standards
- To work towards the upgrading of stormwater drainage systems in the urban areas to provide a higher level of service to the public
- Raise public awareness of stormwater issues

2.2 State Road Network

Where Council is engaged by the RTA to provide road maintenance and inspection services:

- Ensure all contractual requirements are met;
- Provide safe roads for use by road users;
- Provide a system of proactive inspection;
- Identify areas that require maintenance;
- Program and conduct maintenance works to ensure compliance with SIMC
- Identify areas requiring Provisional Ordered Works and Additional Ordered Works
- Program and conduct Ordered Works to ensure compliance with SIMC

To assist in meeting the Strategic Governance targets outlined in Council's Management Plan;

- To identify and address the need for improvement of the State Road Network

3 SCOPE

This document covers all matters relating to the management of Council's Road Network. This includes but is not limited to, programmed and routine maintenance work, capital works, External Works, Private Works and works under contractual arrangements or other agreements such as the RTA SIMC. All these works have the potential to impact on the safety and amenity of road users and this risk must be managed in order to control the exposure to Council.

4 DISCUSSION

Council has a duty of care under common law to ensure that the Road Network is as safe for the road user as it can be made within the reasonable resources of Council. To achieve this, implementation of management systems and documented procedures is needed to determine the allocation of resources. These aim to strike a balance between optimal maintenance, minimised whole of life costs, user amenity and value for money in a Risk Management context.

Roads and road related infrastructure vary considerably in their construction and the environment in which they are required to function. Hence the requirements to maintain and repair them also vary. The main concern for users of Council roads is Defects, which can limit access to roads or can compromise user safety.

Competing demands for resources across the full range of Council services means that the resources available to carry out pro-active and reactive maintenance to the Road Network are not always sufficient to fully address all the identified Defects in the network. Inappropriate allocation of funding will leave council's just as liable as poor prioritisation or the execution of faulty works. Council must be aware of their legal responsibility in regard to maintaining and repairing the Road Network.

In terms of budget allocation, Council will generally allocate funding to routine and programmed maintenance in consideration of the total funds available in a financial year and historical data available from the previous years.

Council will have in place a system for maintaining roads and road related infrastructure that reduces the possibility of error or omission and thus reduces the possibility of a public liability claim being made, or in the event of such a claim, increases council's likelihood of successfully defending the claim. Figure 1 is a simplified but typical flowchart showing the process for repair and maintenance of the Road Network.

Kyogle Council promotes a collaborative and multi-skilled approach to management of the Road Network. Within this document the various responsibilities and tasks of staff are outlined for certain tasks. Whilst a certain staff member may be assigned responsibilities within this document this is not intended to limit these tasks discussed to only that staff member. Where skills and resources allow some tasks may be carried out by staff members other than those discussed in this document.

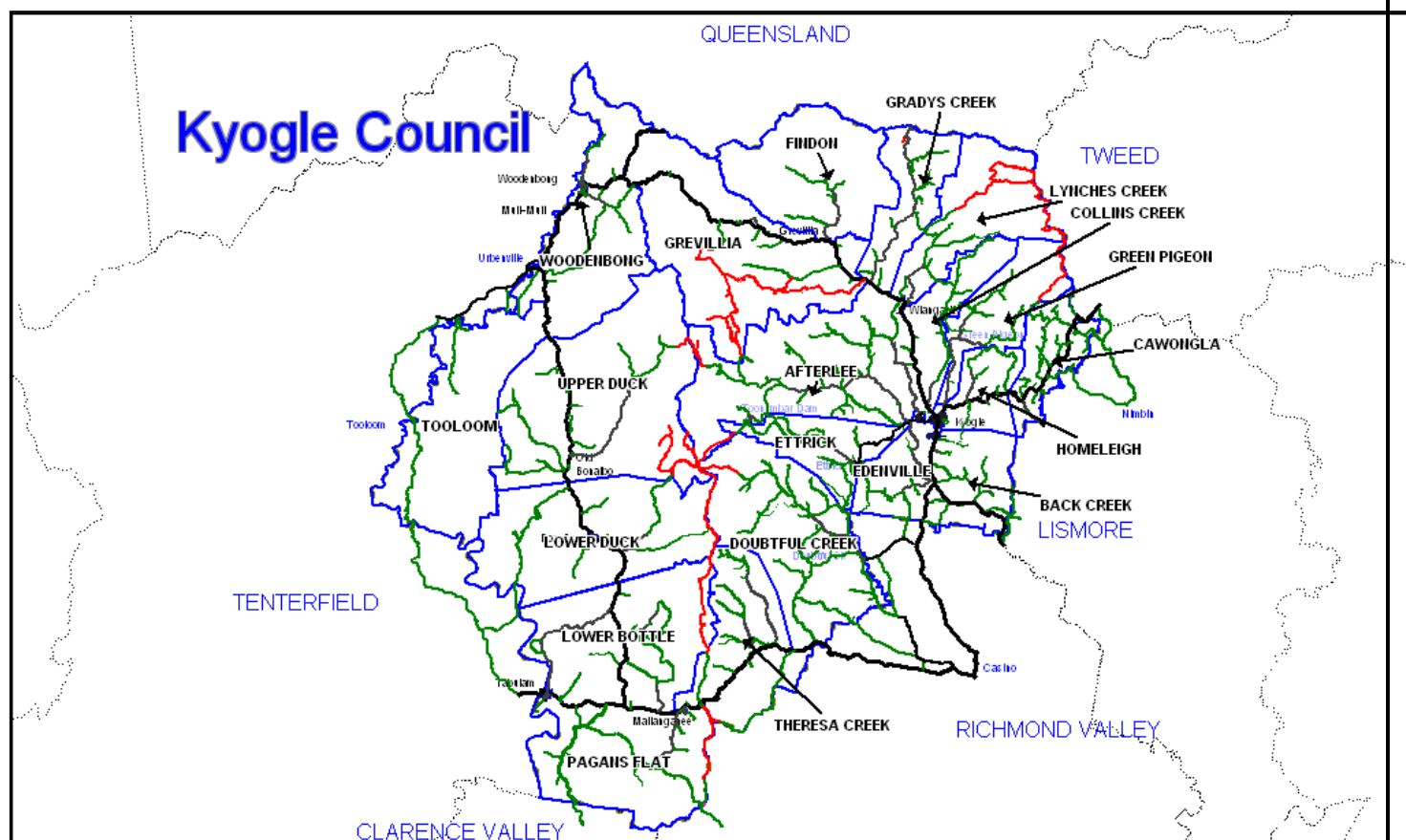
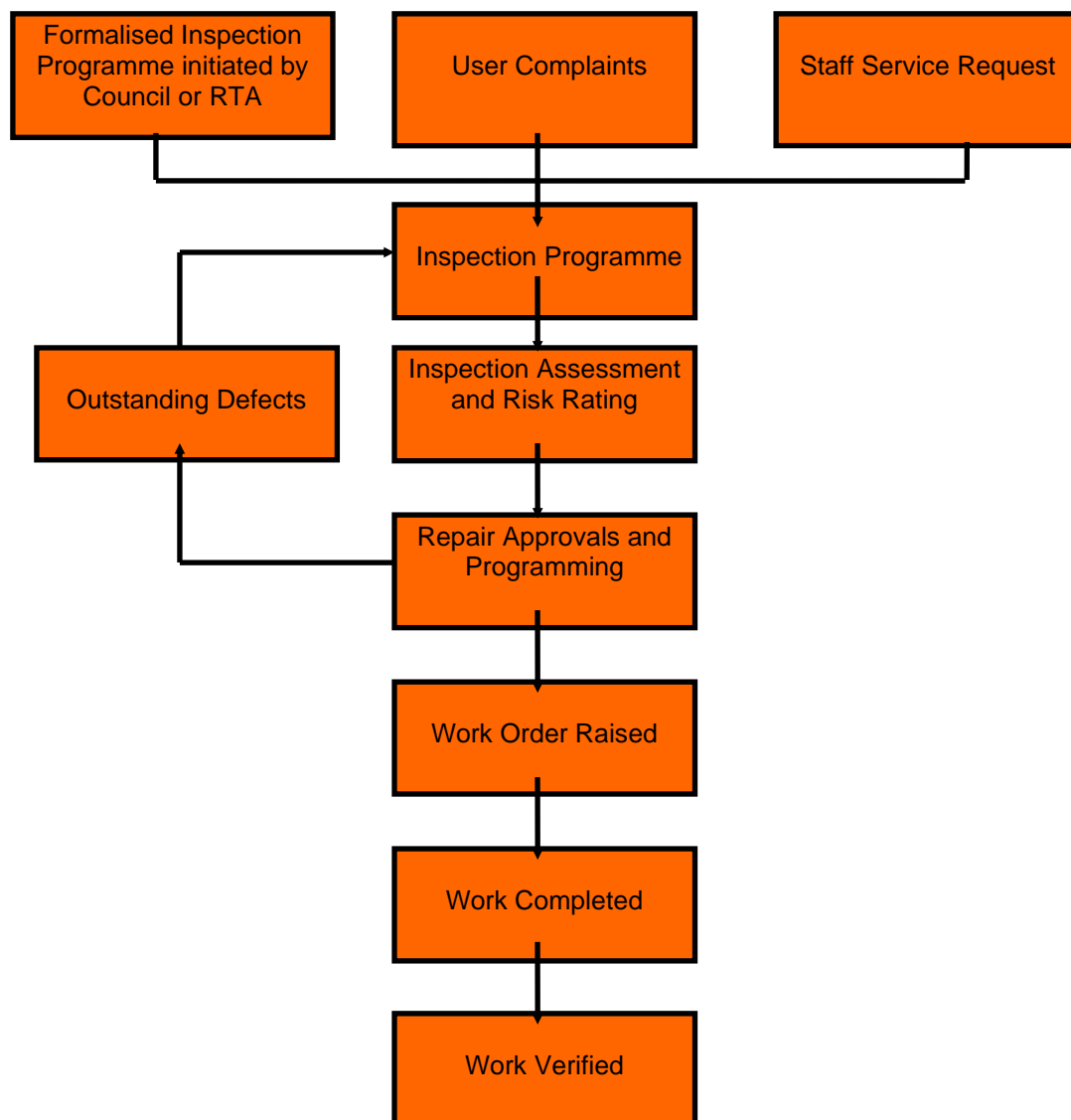


Figure 1. Overview of the Kyogle Council Road Network with Section 94 catchments

Figure 1. Road Network Risk Management Flowchart.



This procedure has been compiled to specifically address the process of determining the level of hazards that require consideration for repair and a method for prioritising the allocation of resources to undertake repair works as well as a system of verifying the quality of works.

5 ROAD NETWORK

At the time of publication Kyogle Council controls a Road Network of approximately 1338 km, with a total of 419 bridges. This information is taken from Council's Road Register and is subject to change. The entire Road Network can be summarised as shown in Table 1.

Table 1 – Summary of the Kyogle Council Road Network as at June 30, 2004

Network	Totals
Local Roads	
Rural Sealed	200km
Rural Unsealed	840km
Urban	53km
Kerb and Gutter	29 km
Footpath	13 km
Urban Stormwater Open Drains	71 km
Urban Stormwater Underground Pipes	14.5 km
Urban Stormwater Structures	1020
Timber Bridges	282
Concrete/Steel Bridges	71
Causeways	107
Public Gates and Grids	499
Signs	1685
Regional Roads	
Rural Sealed	106km
Rural Unsealed	15km
Urban	7km
Timber Bridges	18
Concrete/Steel Bridges	5
State Roads	
MR 83 Summerland Way	
Sealed Road	78km
Bridges	31
SH 16 Bruxner Highway	
Sealed Road	37km
Bridges	12

Details of Council's Road Network are stored in Council's Road Register. This records each road in detail using Segments. A Segment is defined where the nature of the road changes or a structure is present on the road. The Segments all use the same naming convention to assist in the identification of assets. This is a combination of the road number and the chainage along the road from the start datum. For example;

- 2-7206 describes a Major Culvert on Afterlee Road at a distance of 7206 meters from the intersection with Anzac Drive
- 31-163 describes a Public Gate and Bypass on Chestnut Road at a distance of 163 meters from Afterlee Road

For State and Regional Roads a similar convention is used, but the Segment naming convention uses ROADLOC Segment Numbers in conjunction with the road number.

These ROADLOC Segment Numbers are as set down by the RTA, and are measured from defined ROADLOC Link Points. For example;

- 83-8010 describes a section of the Summerland Way defined as being between 2637 meters and 3233 meters from ROADLOC Link 83-350 which is defined as the intersection of McDonalds Bridge Road and the Summerland Way.

The start datums used for each road are defined in the Road Register and listed in Appendix D. These start datums are also used for the purposes of Rural Addressing, ensuring a consistent method of identifying and locating entrances and assets is used. The Rural Road Numbering signs erected at each property entrance can then be used to assist staff to locate assets and Segments.

6 INSPECTIONS

6.1 Inspection Practices

As part of the Risk Management process, inspections are carried out as a formalised and independent assessment of sections of the Road Network, looking for hazards that may require repair and maintenance. Knowledgeable and skilled personnel carry out the inspections with due regard to standards and safety principles.

Council will endeavour to ensure Roads are inspected in accordance with the program in Table 2. The information gathered by this program shall be used as the main method of identifying all the known hazards and risks associated with the Road Network.

Generally speaking, an inspection program will be initiated through one of the following mechanisms:

- ⊕ Formal scheduled inspections
- ⊕ Service requests from road users, the general public or Councillors, and
- ⊕ Service reports received from Council employees.

Council needs to break up the roads into manageable zones and the inspections executed over a set period of time. The frequency of the inspections should tie into Council's requirements to fulfil their maintenance obligations.

Generally speaking, Kyogle Council's inspection program will be as follows:

- Inspections of State Roads – in accordance with RTA SIMC requirements a separate inspection calendar will be developed and submitted to the RTA
- Routine Maintenance Inspection – formal recording of existing Defects ideally conducted by Section 94 Catchments to stay ahead of maintenance crews
- Investigation of Complaints from road users – conducted on an as needed basis and referenced to maintenance inspections where possible
- Night Inspections – should be conducted regularly for all roads to identify Defects relating to vision at night and reflectivity of roadside furniture

- Capital Works Inspections – should be conducted for all roads and streets and capital works reports completed by March 1, for inclusion in Council Management Plan for the following financial year.

The above sources of information allow Council to gauge the condition of its Road Network. Without this information, it is impossible to have a true and accurate picture of the condition of the network and therefore, impossible to ascertain the level of risk that Council is exposed to.

6.2 Scheduled Inspections

It is imperative that Council's have in place a formal proactive inspection programme. In the past Kyogle Council had in place an informal reactive inspection procedure where employees travel the roads by car gathering information that was verbally relayed back to the Technical Services Department for scheduling and allocation of resources.

Council has now set in place targets for inspection frequencies, and set formats for the recording of inspection results. Table 2 sets out the target inspection frequencies.

Road Network inspections are conducted in a formal set format identifying the extent of existing Defects and determining the work activity and quantity of work required to rectify the Defect. This format is based on the Statewide Mutual Best Practice Road Maintenance Manual, and the RTA SIMC requirements.

6.3 Service Requests from the Community

Service requests from the community are a valuable source of knowledge about the state of the Road Network between inspections. Each request is registered with Council's customer services section and recorded using the Customer Action Request System.

Each request is then assigned to a staff member who will investigate the request by way of making a physical inspection of the site and recording the details of the inspection.

6.4 Service Requests from Council Staff

Council staff regularly travel the Road Network on the way to and returning from work locations at various points throughout the LGA. During this travel Council staff are encouraged to inspect and report any Defects encountered using Council's Customer Request System. Once a customer request is logged it is handled as any other request.

6.5 Customer Action Request System

In most instances, the Technical Services Assistant or other customer service staff are the first people to record the nature of a customer request. The decision process that proceeds after the request has been received, is as vital as that of repairing the road.

Customer requests when received are recorded through the use of the **DataWorks** record management system. **DataWorks** makes the initial record of the customer request, and prints this information onto an applicable hard copy Customer Action Request Form template, which is transferred to the appropriate officer, usually one of the two Maintenance Overseers. During this process **DataWorks** also creates "Tasks" assigned to relevant Council officers to ensure customer requests are

followed up. Any outstanding or non-actioned “Tasks” are also reviewed by the General Manager and the department heads regularly.

In the case where the customer services officer deems the complaint to have the potential to create an immediate hazard, verbal contact is to be made with a works department staff member as soon as possible detailing the nature of the complaint.

The officer receiving the complaint completes a section of the Customer Action Request Form documenting the method of notification to the appropriate staff member, and places the hard copy form in the appropriate officers tray.

The relevant inspection officer will document the details of the inspection and record any Defects identified. This information is then passed onto the appropriate staff member for action, if any is required.

The Customer Action Request Form is then completed by the actioning officer and the completed form returned to the Technical Services Assistant. The details of the follow-up are then recorded in the **CAR Database** developed in house to track inspection and action response times, and other information as required. The “Tasks” generated in **DataWorks** are then signed off by the Technical Services Assistant.

6.6 Formal Inspections

The purpose of these formal inspections is to identify:

- a) The date and nature of the inspection conducted
- b) The roads inspected
- c) The chainage in meters of any Defects along the road and/or Segment
- d) The nature of the Defects (as defined in Appendix B)
- e) The Class of the Defects (as defined in Table 3)
- f) The severity of the Defects
- g) The location of the Defects (as defined in Table 4)
- h) The work activity needed to rectify each Defect (as defined in Appendix C)
- i) The quantity of this work activity required to rectify each Defect
- j) Any other comments relating to each Defect

The inspections are to be recorded either in hard copy or electronically as suits each inspecting officer. The inspection results are to be submitted to the Technical Officer who will enter the results into Council’s **Road Register** where they are stored in electronic format. Inspection forms used to record this information are attached in Appendix F.

Inspectors are to generate a report listing the existing Defects already recorded and not targeted for rectification on a road prior to conducting an inspection. The results of the observations during the inspection in relation to each previously identified Defect should be recorded against this report and returned to the Technical Officer to update the **Road Register**.

During inspections Defects may be identified where immediate action is required. In some cases this will mean the temporary identification and/or signage of a hazard so that road users are warned of its existence. Each inspecting officer should ensure they have the appropriate access to equipment to ensure this can be done.

In the case of State Roads the inspecting officer also needs to be aware of the need to identify a Defect where the intervention level has been exceeded. These Defects result in a Non-Conformance needing to be generated in accordance with RTA SIMC requirements.

6.7 Bridge Inspections

The Bridge Superintendent will generally conduct bridge inspections, as these require detailed knowledge of bridge structures. Inspections are conducted in accordance with the Vic Roads Bridge Inspection Manual, and are recorded in **BridgeAsyst** where they are stored in electronic format.

Table 2 – Target Inspection Frequencies

Inspection or Asset Type/s	Inspection Frequency	Totals	Description – refer Appendix A for definition and classification criteria
Roads & Furniture	* Annually	287 km	Residential Access Road
Roads & Furniture	* Annually	217 km	Feeder Road
Roads & Furniture	* 6 monthly	330 km	Collector Road
Roads & Furniture	* 3 monthly	206 km	Arterial Road
Roads & Furniture	* 3 monthly	128 km	Regional Roads (Rural and Urban)
Streets, Footpaths & Drainage	* 3 monthly	53 km	Urban Streets
Capital Works	Every Two Years	1040 km	All Local and Regional Roads and Streets
Bridges	* Every two years	300 bridges	Timber Bridges
Bridges	* Every four years	76 bridges	Concrete Bridges
Roads, Bridges & Furniture	In accordance with RTA SIMC requirements	115 km 43 bridges	State Roads
Joint Planning Assessment	In accordance with RTA SIMC requirements	115 km 43 bridges	State Roads

*** One Annual night inspection for delineation and sign reflectivity Defects**

7 ASSESSMENT

7.1 Defect Classifications

Each Defect has a classification to determine the assessment process required. These codes are used in the **Road Register** to ensure appropriate response processes are followed. These Defect codes are as shown in Table 3;

Table 3 - Defect Classifications

Defect Class Code	Description
SIMC	RTA SIMC Routine Maintenance items
SINC	RTA SIMC Routine Maintenance item requiring a Non-Conformance to be recorded
SI24	RTA SIMC items requiring notice to the RTA within 24 hours
SIPO	RTA SIMC Provision Ordered Works items
SIAO	RTA SIMC Additional Ordered Work items
RM	Local and Regional Road routine maintenance items
CW	Local and Regional Road capital works items
PW	Private works or contract items
EW	External responsibility to conduct works

7.2 Local and Regional Road Defect Assessment

Once inspection information has been collected each Defect needs to be evaluated and criteria applied to determine a priority based on a risk rating.

Criteria to be used:

- Location of Defect within the road reserve – see Table 4
- Road hierarchy – see Table 5
- Defect hazard type and severity – see Appendix B

Each of these criteria is broken into five categories, Category 1 being less severe than Category 2 and so on. These categories are based on the RTA's - Road Maintenance Guide, with minor modification.

Table 4 - Defect Location within the Road

Location Category	Location Description
1	Road reserve or median.
2	Road Shoulder.
3	Parking Lane.
4	Traffic lane.
5	Total carriageway.

Table 5 - Road Class Weighting

Class Weighting (Roads)	Bridge Class from BridgeAsyst	Total Length (km)	Description – refer Appendix A for definition and classification criteria
1	E	287 and 25	Residential Access Road and Access Street
2	D	217 and 11	Feeder Road and Local Street
3	C	330 and 13	Collector Road and Collector Street
3	C	206 and 5	Arterial Road and Distributor Street
4	B	128	Regional Roads (Rural and Urban)
5	A	115	State Roads (rural and Urban)
5	A	287 and 25	Residential Access Road and Access Street

After the Defects have been evaluated against these three criteria, the numerical values for each category are transposed into a set method of calculation and the answer is the Road Risk Rating (RRR) for the hazard identified. This Road Risk Rating allows Council to prioritise the corrective action it intends to take, or allows the control measures to be scheduled.

The Road Risk Rating is calculated by applying the inspection data into Equation 1.

Equation 1 – Road Risk Rating Calculation Methodology

Location (Refer Inspection Form)	+	(Road Hierarchy) (Built into Road Register)	x2	+	Risk Category (Shown in Defect Types Report)	=	Road Risk Rating
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The Road Hierarchy weighting is optional however, Kyogle Council have adopted a weighting of 2, to highlight the importance of the Road Hierarchy in determining the probability of an event from happening.

7.3 Bridges

Reports generated through **BridgeAsyst** are used to assist in the prioritising and programming of bridge maintenance and replacements. The process used within **BridgeAsyst** to score or rank bridge repairs and replacements is documented within the BridgeAsyst Users Manual. The Bridge Classes listed in Table 5 are used by BridgeAsyst in these calculations.

7.4 State Road Defect Assessment

In the case of State Roads there are some additional classification of Defects and notifications required under the RTA SIMC. Generally these relate to the codes described in Table 3 as outlined below;

7.4.1 RTA SIMC Routine Maintenance items (SIMC)

This Defect class relates to the defects that must be rectified as part of RTA SIMC ROUTINE SERVICES where the Defect observed has not exceeded an UPPER DEFECT SEVERITY measure. In these cases the documented intervention levels and response times must be met.

7.4.2 RTA SIMC Routine Maintenance item requiring a Non-Conformance to be recorded (SINC)

This Defect class relates to the defects that must be rectified as part of RTA SIMC ROUTINE SERVICES where the Defect observed has already exceeded an UPPER DEFECT SEVERITY measure. In these cases the documented intervention levels and response times must still be met, in addition to the raising of a Non-Conformance.

7.4.3 RTA SIMC items requiring notice to the RTA within 24 hours (SI24)

This Defect Class relates to the REPORTABLE DEFECTS specified in the RTA SIMC where Council is required to notify the RTA within 24 hours of observing the defect. To simplify the reporting process this same Defect class is to be used on any REPORTABLE DEFECTS with a reporting time other than at the request of the RTA. These REPORTABLE DEFECTS essentially relate to PROVISIONAL ORDERED WORK items under the RTA SIMC. Council is not required to rectify these Defects until an RTA Work Order is issued.

7.4.4 RTA SIMC Provision Ordered Works items (SIPO)

This Defect Class relates to the REPORTABLE DEFECTS specified in the RTA SIMC where Council is not required to notify the RTA within a designated time frame. These Defects must be recorded in Council's Defect Register and reported to the RTA as requested. These REPORTABLE DEFECTS essentially relate to PROVISIONAL ORDERED WORK items under the RTA SIMC. Council is not required to rectify these Defects until an RTA Work Order is issued.

7.4.5 RTA SIMC Additional Ordered Work items (SIAO)

This Defect class is mainly used during pro-active inspections to identify works required outside the ROUTINE SERVICES and PROVISIONAL ORDERED WORK specified in the RTA SIMC. In general these will be identified by the RTA and Council during JOINT INSPECTION or the annual BUS INSPECTION and will not be entered into Council's Defect Register. When the RTA has funding to complete these works an RTA Work Request will be sent to Council to price and return an RTA Work Proposal. This Defect class is set up so that Council can be pro-active and use this inspection information to

generate an RTA Work Proposal without waiting for the RTA to issue an RTA Work Request.

8 CONTROL

8.1 Control Measures

The management of risk exposure requires control measures to be implemented. Road Network risk exposure is a very specific issue. No two exposures are the same. The type and style of the control technique adopted will depend on the resources, facilities and expertise available to Council. However, there are some basic control measures that can be generally implemented;

- Use of warning signs and lights to alert road user of the potential hazard that exists up ahead,
- Erection of temporary barriers or barricades and lights around the area until it can be repaired,
- Effecting repair of the damaged area, or
- Planning and allocating resources for the long term replacement or upgrade of the area.

Accepting that each exposure is unique and will require a specific control measure, there is a factor that must be consistent throughout the process. That factor is the time to respond. In the case of local Road Network the targets are set out below. These targets may not always be achievable, depending on the availability of resources and equipment. For the RTA SIMC all response times are as set out in the contract documents. These response and notification times must be used during the Defect assessment stage. Table 6 sets out generic reaction criteria for the local Road Network.

Table 6 Generic Road Risk Action Response for Local and Regional Roads

Risk Rating	Priority	Control Mechanism	Response Time
4 or less	Low	Monitor	# Not applicable
5 to 9	Low	Programmed into maintenance works. => Effect repair. =>	# As resources permit. # Within 6 months.
10 to 14	Medium	Programmed into maintenance works. => Effect repair. =>	# As resources permit. # Within 3 months.
15 to 18	High	Inspect by competent person and make safe=> Effect Repair. =>	# Within 24 hours. # Within 2 working weeks.
> 18	Urgent	Inspect by competent person and make safe=> Effect Repair. =>	# Within 4 hours. # Within 2 working days.

Response times shown above are generic only and are dependant upon resources available and work load at the time of notification.

8.2 External Works Notification

All identified Defects requiring works to be completed by parties other than Council are to be reported to the Engineer Asset Services. The EAS is responsible for the notification of the responsible party and follow up in accordance with relevant policies and/or contract obligations.

9 INVESTIGATION AND DESIGN

9.1 Preliminary Investigations

Some more significant works will require investigation and design works to enable scoping and preliminary estimates to be compiled for the works approval process. In general this will be undertaken by the Design Engineer based on criteria set down by the Director Technical Services and/or current specifications and standards. Some of these works may be conducted by external service providers where workloads require.

In the case of RTA SIMC Provisional Ordered Works and Additional Ordered Words scoping and determination of quantities will generally be done by the Technical Officer Quality, with costs to be determined by the Manager Engineering Works and reported to the RTA in the required format.

9.2 General Survey and Design

Council's Design Engineer and GIS and Survey Officer are responsible for survey and design works in the case of roads, streets and drainage designs. In general these designs will be finalised by the Design Engineer for subsequent approval by the Director of Technical Services. This includes but is not limited to the survey and design of rural roads, urban streets, footpaths, kerb and guttering, stormwater drainage works, and other ancillary works.

9.3 Bridges Survey and Design

In general bridge replacement investigation works will be undertaken by the Design Engineer. In some case external service providers may be used for geotechnical investigations and environmental assessments. These investigation works include but are not limited to;

- Undertaking of preliminary site assessments and/or Review of Environmental Factors
- Survey and concept design suitable replacement structure
- Application for approvals from NSW Fisheries for Dredging and Reclamation Permits
- Survey and design of proposed approaches
- Survey and design of bridge deck heights

Utilising this preliminary investigation information, detailed bridge design works will either be incorporated into design and construct contracts based on preliminary investigations, or undertaken in house by the Works Engineer or Manager Engineering Works.

9.4 Environmental Investigations

The Design engineer and Works Engineer will be responsible for conducting any necessary environmental investigations prior to finalising the design or programming of works. In addition to engineering design considerations, consideration must be given to;

- Applicable State Environmental Planning Policies
- Aboriginal and European Heritage issues
- Recommendations of Council's Roadside Vegetation Management Plan
- Recommendations of Council's Urban Stormwater Management Strategy
- Control of Erosion and Sedimentation on and adjacent to the work site
- Proximity to National Parks and native State Forests
- Management and disposal of waste

9.5 Review of Environmental Factors

Where deemed appropriate or required by legislation a detailed Review of Environmental Factors (REF) is to be completed. The REF may be compiled by the Design Engineer or the Works Engineer. Any completed REF should be signed off by the Director Technical Services. Pro-forma REFs are available from the RTA, and Council has developed generic REFs for bridge replacement works.

9.6 Project Specific Management Plans

Where contract conditions require the development of project specific Quality, OH&S and Environmental Management Plans these should be developed by the Works Engineer in consultation with the Technical Officer Quality and the Manager Engineering Works. Council has developed generic Construction Quality Plan (CQP), Construction Environmental Management Plan (CEMP), and Project Safety Management Plan (PSMP) for this purpose.

All project Specific CQPs, CEMPs, and PSMP must all be authorised by the Director Technical Services prior to submission to the relevant authority. Control of project specific management plan documentation is the responsibility of the Engineer Asset Services.

10 MATERIALS AND EQUIPMENT PROCUREMENT

10.1 Purchased Materials

The Plant and Quarries Manager shall arrange purchasing in accordance with Council policy, including submission of any test results to verify the material characteristics prior to delivery.

The Storekeeper is responsible for receipt of materials delivered to Council's depot, and the relevant Works Overseer for receipt of materials delivered directly to a work site. This involves checking that supply orders are complete, identified and undamaged, and also that any required documentation such as certificates of compliance and test results are submitted by the supplier.

The Manager Engineering Works is responsible for reviewing all inspection and test documents submitted by the supplier for the incoming goods to verify that all quality requirements have been met.

Any nonconforming materials shall be clearly labelled by the Storekeeper or relevant Works Overseer and kept separate from conforming products pending a decision on their disposal. The Storekeeper or relevant Works Overseer shall keep a detailed written record of any such actions.

If any material is required urgently for maintenance work before all QA receiving inspection checks are finalised (ie. subject to positive recall), the Storekeeper or relevant Works Overseer is to clear this with the Manager Engineering Works before the item is used, then note in their diary what items have been urgently used and their location.

10.2 Materials Supplied by Council

The Plant and Quarries Manager shall arrange any source testing and production testing of any materials to be supplied by Council (eg. from gravel pits) in accordance with the applicable standards and specifications.

10.3 Materials Supplied by RTA

If any materials are supplied by RTA, the Storekeeper shall take delivery and carry out receiving inspection as for purchased materials to check on any RTA certificates that the materials comply with the specified quality requirements. The Plant and Quarries Manager or Storeman must keep records of deliveries in accordance with internal procedures.

Immediately advise the Manager Engineering Works of any shortages, deficiencies, contamination or materials found damaged or otherwise unsuitable for use. The Manager Engineering Works shall promptly notify the customer in writing.

Handle and store materials so that no damage or deterioration will occur and ensure they are under adequate security. Periodically inspect the condition of materials in storage. Keep records of these checks as necessary.

10.4 Quarry Materials

Quarry materials will generally be sourced from Council operated quarries. Where Council operated quarries are unable to meet demand materials are to be sourced from external quarry operators in accordance with Council policies and procedures. The Plant and Quarries Manager is responsible for procurement of all quarries materials both from Council operated quarries and externally operated quarries.

10.5 General Stores Items

Council's Plant and Quarries Manager will ensure that adequate stocks of frequently used materials and equipment are kept in Council's store at the Kyogle Depot. This includes but is not limited to the provision of small plant, safety clothing, consumables, emergency response equipment and all traffic control signage and delineators.

10.6 Signage Ordering and Tracking

All permanent roadside signage matters are to be referred to the Technical Officer who will order signs, track and issue Works Orders for signage in all cases.

10.7 Subcontractors

The Manager Engineering Works will be responsible for the engagement of subcontractors for all works. The Manager Engineering Works will ensure all subcontractors adhere to the relevant requirements for safety, quality and environmental matters. Supervision of subcontractors will be the responsibility of project overseers and the Works Engineer in all cases with the exception of RTA SIMC works where the Technical Officer Quality is responsible for supervision of subcontractors.

The Manager Engineering Works or Engineer: Asset Services will advise what subcontractor surveillance is needed. This generally comprises inspecting work then signing off either the subcontractor's checklists or Council's checklists. Surveillance personnel are to maintain daily records of surveillance activities and notify the Works Engineer or Technical Officer Quality of any Non-Conformances. The following subcontracted Activities are examples where the subcontractor will require surveillance by Council:

Subcontracted Work	Surveillance Method
<i>Supply and spray bitumen for primer seal</i>	<i>Instructions for checking bitumen spraying subcontractor are on Inspection Test Plan Sealing Surveillance Checklist</i>
<i>Supply and incorporation of Stabiliser</i>	<i>Client instructions to apply</i>

10.8 Plant and Vehicles

The Plant and Quarries Manager will be responsible for all plant related matters including the maintenance and upkeep of Council owned plant, and the hiring of external plant. All use of external plant is to be authorised by the Plant and Quarries Manager prior to entering onto any Council work site.

10.9 Materials Schedule

The Manager Engineering Works is responsible for preparing a Materials Schedule for all materials needed to carry out maintenance work. The Materials Schedule should show:

- source(s) of supply (eg. gravel pits, suppliers);
- anticipated quantities and dates for use;
- applicable specifications to be used for purchase;
- if supplier is to carry out tests, frequency of testing;
- if Council is to carry out tests, applicable Compliance Test Plan.

10.10 Measuring and Test Equipment

Measuring and test equipment shall be selected to suit the accuracy of the proposed application and only be used within its range of accuracy. The Plant and Quarries Manager is responsible for ensuring that all equipment used for inspection, measuring and testing is regularly calibrated and maintained in good working order to ensure reliable performance and accurate results.

If an item of equipment is knocked or dropped or if out-of-calibration is suspected, the user shall immediately check its calibration, where possible, by comparing measurement against a similar item. Alternatively, the user shall promptly tag the item "NOT TO BE USED" and arrange for it to be recalibrated. If equipment is damaged, the user shall immediately notify the Plant and Quarries Manager who shall promptly arrange repairs.

10.11 Handling, Storage, Packaging and Delivery

It is necessary to take care with handling, storage, packaging and delivery of goods and materials (where appropriate) to ensure that product quality is not impaired during these operations. The relevant Works Overseer is responsible for the preparation of storage areas, in locations as agreed with the Works Engineer.

The relevant Works Overseer is responsible for secure storage arrangements. The following general guidelines are to be observed:

- store bulk materials such as aggregates, sands and roadbase on paved or firm cleared ground in separate stockpiles to avoid mixing or contamination.
- store steel reinforcement in a location where there is minimal risk of it being run over by vehicles. If required by specifications, store it under a waterproof shelter and supported clear of the ground.
- store timber on a cleared level site and support it above the ground.
- store fuels, chemicals and explosives in accordance with regulatory requirements and hold applicable Material Safety Data Sheets (MSDS) in a readily accessible location on site.
- store under shelter products which may degrade after becoming wet.
- store other products as directed by the Manager Engineering Works.

The Plant and Quarries Manager or Storekeeper are responsible for periodically inspecting products with limited shelf life. If the shelf life has expired, the product shall not be incorporated in the Works.

The relevant Works Overseer or Ganger shall be responsible for handling operations and shall ensure that products are handled carefully to avoid damage.

Cranes and other lifting equipment shall be operated by personnel who are suitably qualified and competent. Lifting slings and ropes shall be inspected periodically and shall be discarded when they deteriorate.

11 PROGRAMMING OF WORKS

11.1 Approval to Conduct Works

Approvals to conduct works are generally determined by the Manager Engineering Works. However due to the nature of the various works conducted within Council's Road Network, responsibilities for approval of works are as outlined below.

11.1.1 Local and Regional Roads Routine Maintenance

The results of inspections and the Defect assessment process are issued to the Manager Engineering Works. The Manager Engineering Works is responsible for assessing the information provided and approving works for completion. This decision making process involves the best utilisation of the available resources and funds, as well as the adherence to RTA SIMC requirements.

11.1.2 Local and Regional Roads Capital Works

Capital Works items are to be reported to the Director Technical Services for consideration and recommendation to Council. The authorisation of Capital Works within the existing Management Plan shall be at the discretion of the Director Technical Services. Any programming of Capital Works not included in the current Management Plan will require approval by Council and inclusion in the Management Plan prior to approval of works.

11.1.3 State Road RTA SIMC Routine Maintenance

The results of inspections and the Defect assessment process are issued to the Manager Engineering Works. The Manager Engineering Works is responsible for assessing the information provided and approving works for completion. This decision making process involves the best utilisation of the available resources and funds, as well as the adherence to RTA SIMC requirements.

11.1.4 Private Works

Any requests for Private Works are to be authorised by the Director Technical Services. In most cases this will be based on an estimate prepared by the Manager Engineering Works, and will require pre-payment before being authorised.

11.1.5 External Works

External Works are to be authorised by the Engineer Asset Services. In the case of developer works this will require approval of design plans prior to applying to conduct works. Approval of Vehicular Access, issuing of Public Gate Permits, notices of repairs required, and approval of design plans do not constitute an approval to conduct works. A separate application must be made prior to commencing works in accordance with Council's Road Reserve Policy.

11.2 Issuing of Work Orders

11.2.1 Local, Regional and State Roads Routine Maintenance

Once works are approved, this information is to be provided to the Technical Officer. The Technical Officer will update Council's **Road Register** and generate Work

Orders for issue to relevant Overseers. In the case of bridges the Work Orders will be generated through **BridgeAsyst** by the Works Engineer or Bridge Superintendent.

11.2.2 Local and Regional Roads Capital Works

Once approved Capital Works items are approved and any design or investigation works completed the appropriate internal Work Orders are to be generated by the Technical Officer Quality using Council's **Road Register**. These Work Orders are then issued to the Works Engineer for scheduling.

11.2.3 Private Works

Once an external request for works has been approved by the Director Technical Services the appropriate internal Work Orders are to be generated by the Technical Officer Quality using Council's **Road Register**. These Work Orders are then issued to the Works Engineer for scheduling.

11.2.4 External Works

Work Orders are not issued for External Works. Instead an approval to conduct works is issued in writing by the Engineer Asset Services detailing the conditions of the approval. This approval only remains current for the time period specified on the approval.

11.2.5 RTA Work Orders

Once an approved RTA Work Order is received by Council the appropriate internal Work Orders are to be generated by the Technical Officer Quality using Council's **Road Register**. These Work Orders are then issued to the Works Engineer for scheduling.

11.3 Programming of Works

Programming of works is generally the responsibility of the Manager Engineering Works. The Manager Engineering Works is assisted in this planning process through weekly works meetings. These meetings are to be attended by the works overseers, Works Engineer, Bridge Superintendent, Engineer Asset Services, Plant and Quarries Manager, Human Resources and OH&S Officer, and any other staff as required.

The purpose of these meetings is to discuss matters relating to the programming of works such as availability of staff and plant, access to materials, safety and training matters, and design and investigation requirements.

12 UNDERTAKING OF WORKS

12.1 Work Methods

Activities are predefined description of the actual work required to repair a Defect or improve the condition or standard of a Road Network asset. For the Local Road Network Activities are as defined in the Road Network Management Plan, and subject to change as required. For the state Road Network the Activities are as defined within the RTA SIMC documentation. Whenever possible the Activity definition should be the same for the local Road Network and the State Road Network.

Council has produced two registers containing guidelines for conducting certain Activities. The First is a Register of Activity Specific Work Method Statements, the second a Register of Safe Work Method Statements.

In all cases where a Work Method Statement has been prepared and approved for a particular work activity, this Work Method Statement should be followed. In all other cases works are to be conducted to the most appropriate level in accordance with standards and best practice at the time.

All Council staff are encouraged to look out for and suggest opportunities for improving the approved procedures and Activity guidelines. If any difficulty is

experienced in following an of Activity Specific Work Method Statement, or Safe Work Method Statement, the staff member experiencing difficulty should notify their relevant Works Overseer.

12.1.1 Activity Specific Work Method Statements

Activity Specific Work Method Statements are based on the Safe Work Method Statement format but are activity specific and incorporate all quality, OH&S and environmental requirements for the particular Activity. These are provided to direct staff on the "right" way to carry out and check work to meet all specified requirements.

Activity Specific Work Method Statements may involve the use of various Safe Work Method Statements where applicable. This could include Safe Work Method Statements for items such as Traffic Control or the operation of specific items of plant. Where this is the case the Activity must be conducted in accordance with all applicable work method statements.

For some Activities such as heavy patching, details of test methods, frequency and acceptance criteria for final testing are contained in an accompanying Compliance Test Plan. If a process is complex, unusual or where safety is a major concern, a detailed Activity Specific Work Method Statement should be formulated and approved for use by the Director Technical Services.

12.1.2 Safe Work Method Statements

Safe Work Method Statements are produced in the format required by the OHS&R Regulation. These usually apply to specific areas or operations of particular plant items, as mentioned above. If an Activity is deemed to be high risk, a Safe Work Method Statement must be formulated and approved for use by the Director Technical Services.

12.1.3 Work Standards and Specifications

In all cases where a Work Method Statement has been prepared and approved for a particular work activity, this Work Method Statement should be followed. In all other cases works are to be conducted to the most appropriate level in accordance with specifications, standards, and best practice at the time.

12.2 Induction and Training

12.2.1 Induction

Employees are not to perform maintenance or construction tasks unless they are competent to do so. The Manager Engineering Works and Council's Occupational Health Safety and Training Officer are responsible for briefing employees on their specific roles and responsibilities and ensuring they are inducted into Council's processes and procedures. This induction shall focus on how to comply with each work instruction and to check that completed work meets Council requirements.

The Council's Health and Safety Officer and Works Superintendent shall also arrange induction briefings for subcontractors regarding quality and safety responsibilities (where appropriate) and keep records of who has been briefed.

12.2.2 Training in Work Activities

Council's Occupational Health Safety and Training Officer is responsible for ensuring that all Council employees receive training in the relevant Activity Specific Work Methods Statements in their area of normal duties.

12.2.3 Additional Training

A Training Plan is to be prepared for each employee and reviewed at least annually in conjunction with the employee performance review process. Any additional training requirements due to legislative changes or changes in licensing or certification

requirements are to be monitored and addressed by the Occupational Health Safety and Training Officer.

The weekly Works Meetings are the appropriate forum for planning and assigning individuals to specific training sessions.

12.3 Recording Accomplishment

Accomplishment is to be recorded on either the Work Order issued, or a Daily Running Sheet (refer Appendix G). Both the Daily Running Sheet and internal Work Order have the same structure and appearance. The only difference is that a Work Order will have the details of the work to be conducted completed prior to issuing. Accomplishment should be recorded by the ganger or supervisor responsible for undertaking the works. The work Activity quantities shown on the Work Orders should be checked and amended as required by the ganger or supervisor.

Each Ganger or the relevant Works Overseer is required to provide written evidence that each area of completed maintenance work has passed all inspections and tests. This means that each discrete work area must be identified on the Work Order or Daily Running Sheet. This allows records to be re-examined if any problems are observed at a later date. Source of any materials incorporated in the work is also to be noted on the Work Order or Daily Running Sheet for traceability if ever required.

These accomplishment records and any associated documentation are then issued to the Technical Officer for processing and archiving. This includes but is not limited to risk assessments, environmental checklists, materials quality documentation and hold point release forms.

Each staff member conducting works is also to record the hours worked and plant usage on their time sheets. The job numbering used should reflect the work Activity conducted and the road it was conducted on. This is to ensure that the principles of Activity based costing are adhered to enable Council to benchmark its performance and determine realistic unit rates for work Activities.

If any other accomplishment recording requirements are nominated in contract or agreements, these must also be adhered to in addition to the general requirements above.

13 VERIFICATION OF WORKS

The relevant Works Overseer is required to check that Works Orders and Daily Running Sheets are accurate and that visual inspections have been properly recorded. For heavy patching and any RTA SIMC maintenance work requiring laboratory testing, the Daily Running Sheets are then forwarded to the Technical Officer Quality to review all inspection and testing.

13.1 Local and Regional Roads

Verification of works conducted is the responsibility of the relevant works overseers. Generally Non-Conformances are not raised for substandard works, matters are dealt with by discussion with gangers and staff conducting works. Where a satisfactory result is not obtainable training or disciplinary action is to be identified.

13.2 State Roads

The Technical Officer Quality is responsible for verification of all works conducted under the RTA SIMC. This will generally be done in close consultation with works

overseers and the Works Engineer. Where Non-Conformances are observed these are to be recorded and documented in accordance with the RTA SIMC requirements. Where a serious concern is raised a Corrective Action Request is to be raised.

13.3 External Works

The Engineer Asset Services and the Design Engineer are responsible for the verification of External Works. Generally the Design Engineer will inspect and verify works on Vehicular Accesses, Public Gates and Grids, and Road Openings. Any developer works and other External Works are generally inspected and verified by the Engineer Asset Services.

For further details on the management and administration of External Works refer to the Kyogle Council Road Reserve Management Plan.

13.4 Private Works

Private Works are to be inspected and verified by the Works Engineer.

13.5 Bridge Works

Bridge maintenance works are to be verified by the Bridge Superintendent. Bridge construction works are to be verified by the nominated Superintendent in the case of contract works, and by the Works Engineer in the case of construction by Council.

14 CONTROL OF NONCONFORMING WORK

Employees are required to carry out their work in such a manner as to prevent Non-Conformance. However, the Council recognises that Non-Conformance may occur from time to time within its own work and that of its subcontractors.

14.1 Identifying Non-Conformances

A Non-Conformance is a deficiency in the work which makes the product unacceptable in terms of the specified requirements. In general evaluating Non-Conformances and deciding how to rectify them will be the responsibility of the Technical Officer Quality. In the absence of the Technical Officer Quality the Works Engineer will perform this task subject to review by the Manager Engineering Works. The officer identifying the Non-Conformance will be responsible for restricting further processing of Non-Conforming work until a rectification method has been finalised.

14.2 Minor Defects

A Minor Defect is used where work is acceptable for Practical Completion but needs minor finishing off prior to full acceptance. Minor defects which are a normal part of construction and which get rectified in the normal course of events need not be documented as Non-Conformances. In general all non-complying works on Local and Regional Roads will be identified as Minor Defects except in exceptional circumstances where a Non-Conformance should still be issued. The Works Overseers shall keep a Minor Defects list (eg. in Notebook or diary). Rule out, initial and date each listed defect after that defect has been satisfactorily rectified.

14.3 Non-Conformance Processing

When nonconforming work is detected by Council personnel, the Non-Conformance shall be notified promptly to the Works Engineer. The Works Engineer shall also be advised promptly if RTA notifies a Non-Conformance. Actions to be taken are:

- (a) immediately arrange for the non-conforming work to be suitably identified by labels, flags, markers or other appropriate means to distinguish it from conforming work or materials. Wherever possible, physically isolate the nonconforming work.
- (b) immediately record the nature of the Non-Conformance on a Non-Conformance Report.
- (c) assess whether the construction process is likely to produce more non-conforming work and whether further output should be restricted. Consider the significance of the Non-Conformance and the progress of the project. Where appropriate, restrict production until an acceptable rectification method for the Non-Conformance has been resolved and note this on the Non-Conformance Report.
- (d) immediately examine the nature of the Non-Conformance and determine the appropriate rectification method. This may be by rework, repair, replacement or use-as-is. Record the rectification method and when you intend to undertake it, on the Non-Conformance Report.
- (e) Where the proposed rectification method involves a change from specifications, submit a copy of the Non-Conformance Report to the Manager Engineering Works and/or the RTA representative for concurrence to the rectification. Do not commence rectifying the Non-Conformance without the concurrence of the Manager Engineering Works and/or RTA representative.
- (f) Where the Works Engineer has determined the rectification method in the absence of the Manager Engineering Works, the Manager Engineering Works shall review the Non-Conformance Report to determine if any further action is needed.
- (g) The rework, repair or replacement shall be inspected or tested in accordance with the Inspection and Test Plan or as otherwise agreed with the Manager Engineering Works and/or RTA representative to ensure that the required quality has been achieved. This shall be confirmed on the Non-Conformance Report.
- (h) Where required by the RTA representative a HOLD POINT shall apply prior to covering up rectification work. In such cases notify the RTA representative when the rectification work has achieved conformance.

14.4 Subcontractor Non-Conformances

For subcontractors working under Council's management systems, subcontractor Non-Conformance shall be resolved as described above.

Where a subcontractor is working under its own quality system, Non-Conformance may be recorded on the subcontractor's Non-Conformance Report forms. The subcontractor shall notify the Manager Engineering Works or Technical Officer Quality if the Non-Conformance rectification involves a change from the applicable specifications or if there is a possibility that other project work could be affected. The Manager Engineering Work's approval must be obtained in such instances. The rectification method shall be submitted for RTA acceptance if a change to an RTA specification is proposed.

File a copy of the subcontractor's Non-Conformance Report where Council has been involved in resolving the Non-Conformance, but do not fill out an internal Non-Conformance Report.

14.5 Corrective and Preventive Action

Where non-conforming work occurs or where the potential for non-conforming work becomes apparent, a review will be carried out to investigate the cause and determine appropriate actions which will prevent future occurrence of the Non-Conformance. Any customer complaints will be reviewed in the same way. Employees should be encouraged to suggest opportunities for improving the quality system.

The Works Engineer or Technical Officer Quality are to notify the Manager Engineering Works of any deficiencies with procedures or suggestions for improvement on a Fix-it Form.

APPENDIX A – Road Classification System

THE KYOGLE COUNCIL ROAD CLASSIFICATION SYSTEM AS PER RESOLUTION 10A (2) 210201(005), AND AS AMENDED BY RESOLUTION 10A (1) 170504(006) AND 210806/8

Selection Criteria

❑ State Highway

- Must be classified as an RTA State Highway

❑ RTA Main Road

- Must be classified as an RTA Main Road

❑ Regional Road

- Must be a Regional Road

❑ Arterial Road

Description:

- Must be regionally significant route for movement from town to town or to major industry or tourism area.

Must meet one of the criteria below:

- Is an alternate route for, or relieves traffic from RTA Main Roads or Regional Roads.
- Is a designated road-train or B-double route.

❑ Collector Road

Description:

- Connect the Feeder Roads and Residential Access Roads to the RTA Main Roads, Regional Roads or Arterial Roads

Must meet one of the criteria below:

- Any road identified by the Road Network Committee to have significant heavy vehicle traffic.
- Any road with a 7 day ADT of over 40 vehicles per day.

Other conditions:

- May be part of a school bus route
- Should be at least one within each section-94 contribution boundary.

❑ Feeder Road

Description:

- Connect the Residential Access Roads to the Collector Roads, Arterial Roads or RTA main Roads or Regional Roads.

Must meet one of the criteria below:

- Provide access to over 10 assessments.
- Provides the only route for heavy vehicles to industry.
 - Any road with a 7 day ADT of over 20 vehicles per day.

Other conditions:

- May be part of a school bus route

❑ Residential Access Road

Description:

- Provides access to properties but generally do not have more than one connection to the Road Network.

Must meet one of the criteria below:

- 10 or less assessments served
- Does not provide access to any ancillary roads under control of Kyogle Council.

Other conditions:

- Not a school bus route

❑ **Unclassified Roads**

Must meet one of the criteria below:

- Details of road construction unknown.
- Unconstructed paper roads.
- Unformed tracks.

The urban street classifications are defined as follows;

1. Distributor Street

Referred to as a Distributor Road in the above figure and the “*Northern Rivers Local Government Development and Design Manual*”. This is the highest order road within a residential development and should have as its main function the convenient and safe distribution of traffic generated by the development. Direct access should not generally be provided for single dwelling allotments but access can be provided multi-unit developments and non-residential land uses. The Distributor Street should serve only the development and should not attract through traffic.

2. Collector Street

The second highest order of urban street has a residential function but also carries higher volumes of traffic collected from the lower order streets. A reasonable level of residential amenity and safety is maintained by restricting traffic volumes and speeds, however, amenity and resident safety do not have the same priority as access or local streets.

3. Local Street

The next level of urban street is a local residential street and this class should provide a balance between the status of that street in terms of its access and residential amenity functions. Resident safety and amenity are dominant but to a lesser degree than access streets.

4. Access Street

The lowest order urban street having as its primary function, residential space – amenity features which facilitate pedestrian and cycle movements, and where vehicular traffic is subservient in terms of speed and volume, to those elements of space, amenity, pedestrians and cyclists.

Construction Standards

❑ State Highway

- Specified by RTA

❑ RTA Main Road

- Specified by RTA

❑ Regional Road

- Minimum where sealed 8/8 with 300mm gravel base (8m seal)
- Minimum where unsealed 8/8 with 300mm gravel base

❑ Arterial Road

- Minimum 6/6 with 200mm compacted gravel base and 100mm compacted gravel shoulders (6m seal required where road is sealed)
- Desired sealed 7/8 with 300mm compacted gravel base and 150mm compacted gravel shoulders (7m seal required where road is sealed)

❑ Collector Road

- Minimum standard for sealed road 6/6 with 150mm compacted gravel base and 75mm compacted gravel shoulders (6m seal required)
- Desired standard for sealed road 6/8 sealed with 150mm compacted gravel base and 75mm compacted gravel shoulders (6m seal required)
- Minimum unsealed 4/6 with 150mm compacted gravel base and 75mm compacted gravel shoulders
- Desired unsealed 5/8 with 150mm compacted gravel base and 75mm compacted gravel shoulders

❑ Feeder Road

- Minimum unsealed 4/6 with 100mm compacted gravel base and 50mm compacted gravel shoulders
- Desired unsealed 4/6 with 150mm compacted gravel base and 75mm compacted gravel shoulders

❑ Residential Access Road

- Minimum unsealed 4/6 with 100mm compacted gravel base and 50mm compacted gravel shoulders
- Desired unsealed 4/6 with 150mm compacted gravel base and 75mm compacted gravel shoulders

❑ Unclassified Roads

- No construction standard required

Note: 4/6 represents a 6m wide compacted formation with a 4m wide compacted gravel pavement area

Note: Pavement depths specified are subject to variation where a pavement design in accordance with Council's design and construction standards and AUSTROADS Guidelines is produced and approved by Council.

APPENDIX B – Local and Regional Road Defects

DEFECT ID	DESCRIPTION OF DEFECT	MEASURE	RISK CATEGORY	RESPONSE TARGET	REPAIR ACTIVITY	CAPITAL WORKS
	OBSTRUCTIONS AND SUBSTANCES ON ROAD					
	<u>Obstructions</u>					
101_A	Small sized object or debris with a maximum dimension of < 100mm	Lane km	1	Based on Risk Rating and resource availability	1410	
101_B	Medium sized object or debris with a maximum dimension between 100 and 200mm	Lane km	2	Based on Risk Rating and resource availability	1410	
101_C	Large object or debris with a maximum dimension of greater than > 200mm	Lane km	3	Based on Risk Rating and resource availability	1410	
101_D	Loose Stone or Gravel build up > 1m2	Lane km	4	Based on Council allocation of capital funds and Risk Rating	1410	
	SPILED MATERIALS ON ROADS					
	<u>Material Spills</u>					
102_A	Moderate spills of granular materials	Lane km	1	Based on Risk Rating and resource availability	1410	
102_B	Large spills of granular materials, any spills of oil or other slippery substance	Lane km	2	Based on Risk Rating and resource availability	1410	
102_C	Large spills of oil, wet clay or other slippery substance	Lane km	5	Based on Risk Rating and resource availability	1410	
	POTHoles					
	<u>Potholes</u>					
103_A	Pothole diameter 200mm to 300mm and/or depth of 50mm to 75mm	Pothole	1	Based on Risk Rating and resource availability	1110	
103_B	Pothole diameter > 300mm and/or depth > 75mm	Pothole	3	Based on Risk Rating and resource availability	1110	
	SHOVING AND/OR RUTTING					
	<u>Surface Deformations</u>					

104_A	Deformations 50mm - 100mm deep and > 4m long	Pothole	1	Based on Risk Rating and resource availability	1110	
104_B	Deformations > 100mm deep and > 4m long and/or ponding hazard	Pothole	1	Based on Risk Rating and resource availability	1110	
	EDGE DROP AND PAVEMENT JOINTS					
	<u>Surface Height</u>					
105_A	Drop 50mm to 75mm and > 5m long	Length (m)	1	Based on Risk Rating and resource availability	1150	
105_B	Drop 75mm to 150mm and > 5m long	Length (m)	2	Based on Risk Rating and resource availability	1150	
105_C	Drop >150mm and > 5m long	Length (m)	4	Based on Risk Rating and resource availability	1150	
	SURFACE DEFECTS					
	<u>Seal Stripping</u>					
106_A	Seal Stripping	Pothole	1	Based on Risk Rating and resource availability	1110	
	RUTTING AND SCOURING					
	<u>Rutting and Scouring</u>					
201_A	Up to 50mm deep and 150mm - 300mm wide and < 10m long.	km	1	Based on Risk Rating and resource availability	1160	
201_B	Up to 50mm deep and 150mm - 300mm wide and > 10m long.	km	2	Based on Risk Rating and resource availability	1160	
201_C	50mm - 100mm deep, < 150mm wide and < 10m long	km	2	Based on Risk Rating and resource availability	1160	
201_D	50mm - 100mm deep, < 150mm wide and > 10m long	km	3	Based on Risk Rating and resource availability	1160	
201_E	50mm - 100mm deep, 150mm - 300mm wide and < 10m long	km	3	Based on Risk Rating and resource availability	1160	
201_F	50mm - 100mm deep, 150mm - 300mm wide and > 10m long	km	4	Based on Risk Rating and resource availability	1160	
201_G	> 100mm deep and > 300mm wide	km	5	Based on Risk Rating and resource availability	1160	
	<u>Heavy Rain Damage</u>					

201_H	Corrugations, scour channels, wind rows of material, ruts after heavy rainfall, soft and slippery areas, or course surface text	km	4	Based on Risk Rating and resource availability	1160	
201_I	Corrugations, scour channels, wind rows of material, ruts after heavy rainfall, soft and slippery areas, or course surface text	km	3	Based on Risk Rating and resource availability	1160	
	POTHOLES					
	<u>Potholes</u>					
202_A	diameter 150mm to 300mm, depth < 50mm and length affected < 10m.	km	1	Based on Risk Rating and resource availability	1160	
202_B	diameter 150mm to 300mm, depth < 50mm and length affected > 10m.	km	2	Based on Risk Rating and resource availability	1160	
202_C	dia 150mm to 300mm, depth 50mm - 100mm and length affected < 10m.	km	2	Based on Risk Rating and resource availability	1160	
202_D	dia 150mm to 300mm, depth 50mm - 100mm and length affected > 10m.	km	3	Based on Risk Rating and resource availability	1160	
202_E	dia > 300mm, depth 50mm - 100mm and length affected < 10m.	km	3	Based on Risk Rating and resource availability	1160	
202_F	dia > 300mm, depth 50mm - 100mm and length affected > 10m.	km	4	Based on Risk Rating and resource availability	1160	
202_G	dia > 300mm and/or depth > 100mm.	km	5	Based on Risk Rating and resource availability	1160	
	CORRUGATIONS AND ROUGH SURFACE					
	<u>Corrugations</u>					
203_A	15mm to 25mm deep and length affected < 10m.	km	2	Based on Risk Rating and resource availability	1160	
203_B	15mm to 25mm deep and length affected > 10m.	km	3	Based on Risk Rating and resource availability	1160	
203_C	> 25mm deep and length affected < 10m.	km	3	Based on Risk Rating and resource availability	1160	
203_D	>25mm deep and length affected > 10m.	km	4	Based on Risk Rating and resource availability	1160	
	<u>Rough Surface</u>					

203_E	Road Pavement Fines non existant. Rocks 25mm to 50mm with length affected less than 50m	km	2	Based on Risk Rating and resource availability	1160	
203_F	Road Pavement Fines non existant. Rocks 25mm to 50mm with length affected greater than 50m	km	3	Based on Risk Rating and resource availability	1160	
203_G	Road Pavement Fines non existant. Rocks greater than 50mm with length affected less than 50m	km	3	Based on Risk Rating and resource availability	1160	
203_H	Road Pavement Fines non existant. Rocks greater than 50mm with length affected greater than 50m	km	4	Based on Risk Rating and resource availability	1160	
OBSTRUCTIONS AND SUBSTANCES ON ROAD						
<u>Obstructions</u>						
204_A	Large object or debris with a maximum dimension of greater than > 200mm	Lane km	3	Based on Risk Rating and resource availability	1410	
204_B	Medium sized object or debris with a maximum dimension between 100 and 200mm	Lane km	2	Based on Risk Rating and resource availability	1410	
204_C	Small sized object or debris with a maximum dimension of < 100mm	Lane km	1	Based on Risk Rating and resource availability	1410	
SIGNAGE						
<u>Regulatory and Warning Signs</u>						
301_A	In poor condition	Number of Signs	2	Based on Risk Rating and resource availability	1610	
301_B	Missing or illegible	Number of Signs	5	Based on Risk Rating and resource availability	1610	
301_F	Graffiti or Vandalism	Number Of Signs	4	Based on Council allocation of capital funds and Risk Rating	1610	
<u>All Other Signs (not Regulatory or Warning)</u>						
301_C	In poor condition	Number of Signs	1	Based on Risk Rating and resource availability	1610	
301_D	Missing or illegible	Number of Signs	2	Based on Risk Rating and resource availability	1610	

301_G	Graffiti or Vandalism	Number Of Signs	2	Based on Council allocation of capital funds and Risk Rating	1610	
	<u>All Other Signs (not Regulatory or Warning)</u>					
301_E	Any unauthorised sign erected or displayed and visible to the general public from roadway, cycleway, or adjacent footpath	Number of signs	1	Sign owner to be advised unless urgent work is required, then by Private Works.	1450	
301_H	Graffiti or Vandalism	Number Of Signs	1	Based on Council allocation of capital funds and Risk Rating	1610	
	ROADSIDE FURNITURE					
	<u>Guideposts</u>					
302_A	In poor condition	Number of Posts	1	Based on Risk Rating and resource availability	1710	
302_B	Missing	Number of Posts	2	Based on Risk Rating and resource availability	1710	
302_C	In a dangerous condition or location	Number of Posts	5	Based on Risk Rating and resource availability	1710	
	<u>Delineation</u>					
302_D	In poor condition	Number of Posts	2	Based on Risk Rating and resource availability	1710	
302_E	Missing or in a critical location	Number of Posts	5	Based on Risk Rating and resource availability	1710	
	<u>Guardrail and safety fencing</u>					
302_F	In poor condition	Length (m)	1	Based on Risk Rating and resource availability	1720	
302_G	Missing or in a dangerous condition or location	Length (m)	2	Based on Risk Rating and resource availability	1720	
	ROAD MARKINGS					
	<u>Road Line and Symbol Markings</u>					
303_A	Missing or illegible in a non-critical location	Length (m)	1	Based on Risk Rating and resource availability	1880	
303_B	Missing or illegible in a critical location	Length (m)	5	Based on Risk Rating and resource availability	1880	

	VEGETATION CONTROL					
	<u>Vegetation Reducing Visibility</u>					
401_A	Visibility of signs and/or guide posts affected by vegetation.	Area (ha)	4	Based on Risk Rating and resource availability	1320	
401_B	Sight distance on curves affected by vegetation.	Area (ha)	3	Based on Risk Rating and resource availability	1320	
	<u>Vegetation Affecting Pavement</u>					
401_C	Vegetation within granular unsealed pavement or shoulders.	Area (ha)	1	Based on Risk Rating and resource availability	1320	
	<u>Vegetation Control</u>					
401_F	Infestation of Noxious or Environmental Weed	Number of trees	1	Based on Risk Rating and resource availability	1310	
401_G	Excessive growth of roadside vegetation	Area (ha)	1	Based on Risk Rating and resource availability	1320	
401_H	Excessive growth of Council land vegetation. Including Parks, Median Areas and Council owned land	Area (ha)	1	Based on Council allocation of capital funds and Risk Rating	1320	
	<u>Control of Trees and Large Shrubs</u>					
401_D	Dead or diseased trees/overhanging branches in danger of falling	Number of trees	2	Based on Risk Rating and resource availability	1310	
401_E	Trees or large shrubs growing on steep cuttings (slope > 1:2)	Number of trees	1	Based on Risk Rating and resource availability	1310	
401_I	Storm damaged and other trees affecting traffic	Number of trees	3	Based on Council allocation of capital funds and Risk Rating	1310	
401_J	Storm damaged and other trees affecting pedestrians	Number of trees	2	Based on Council allocation of capital funds and Risk Rating	1310	
401_K	Storm damaged and other trees in danger of falling	Number of trees	2	Based on Council allocation of capital funds and Risk Rating	1310	
	BRIDGES, CULVERTS, CAUSEWAYS AND OTHER STRUCTURES					
	<u>Waterflow or Access Restricted</u>					

501_A	Culvert or underground drainage system completely blocked resulting in noticeable ponding or water redirected from Waterway	Number of Structures	1	Based on Risk Rating and resource availability	1510	
501_B	Underground drainage system or culvert silted, filled with rubbish or debris restricting flow	Number of Structures	1	Based on Risk Rating and resource availability	1510	
501_G	Debris caught on pier cross heads or abutment sills	Number of Structures	1	Based on Risk Rating and resource availability	1510	
501_M	Pipes separated or misaligned, resulting in damage to road or impeding waterflow	Number of Structures	1	Based on Council allocation of capital funds and Risk Rating	1510	
<u>Structural Damage</u>						
501_C	Spalling or damage to culverts, pipes or headwall that exposes reinforcement or permits fill material into the watercourse caus	Number of Structures	1	Based on Risk Rating and resource availability	1510	
501_H	Integrity of structure or adjacent stream control facility threatened by debris or scour	Number of Structures	3	Based on Risk Rating and resource availability	1211	
501_I	Strength or serviceability of member is affected compromising safety	Number of Structures	5	Based on Risk Rating and resource availability	1211	
<u>Causeways</u>						
501_D	Causeway Pipes blocked with rocks or other debris causing flow restriction	Number of Causeways	2	Based on Risk Rating and resource availability	1510	
501_E	Causeway surface broken with less than 15mm displacement	Number of Causeways	2	Based on Risk Rating and resource availability	1510	
501_F	Causeway surface broken with more than 15mm displacement	Number of Causeways	3	Based on Risk Rating and resource availability	1510	
<u>Flood Related Damage</u>						
501_J	Approach to structure damaged or washed out but still trafficable	Number of Structures	3	Based on Risk Rating and resource availability		253
501_K	Approach to structure damaged or washed out and not trafficable	Number of Structures	4	Based on Risk Rating and resource availability		253

501_L	There is a build-up of material that is capable of causing inconvenience or danger to road users	Number of Structures	3	Based on Risk Rating and resource availability		253
CONTROL OF WATER FLOW						
<u>Table Drains</u>						
502_A	Water diverted onto roadway causing potential hazard	Length (m)	2	Based on Risk Rating and resource availability	1520	
502_B	Water diverted out of drain	Length (m)	1	Based on Risk Rating and resource availability	1520	
502_C	Obstructions (eg. siltation, loose rocks) impeding flow of water	Length (m)	1	Based on Risk Rating and resource availability	1520	
502_F	Table drains scoured or washed out	Length (m)	2	Based on Risk Rating and resource availability	1520	
<u>Table Drains</u>						
502_D	Shoulder or verge material higher than pavement edge impeding drainage or causing ponding of water	Shoulder kms	1	Based on Risk Rating and resource availability	1540	
502_E	Causing redirection of water across road	Shoulder kms	2	Based on Risk Rating and resource availability	1540	
<u>Kerb and Gutter</u>						
502_G	Grass Overhanging Kerb impeding flow of water	Length (m)	1	Based on Council allocation of capital funds and Risk Rating	1820	
502_H	Silt or Litter build up impeding flow of water	Length (m)	1	Based on Council allocation of capital funds and Risk Rating	1850	
502_I	Silt or Litter build up resulting in water being redirected onto roadway	Length (m)	2	Based on Council allocation of capital funds and Risk Rating	1850	
502_J	Kerb and Gutter broken or misaligned creating potential hazard	Length (m)	3	Based on Council allocation of capital funds and Risk Rating	1840	
BULK EARTHWORKS						
<u>Unstable/ batter profile and/or surface</u>						
504_A	Earthworks slipped but not encroaching on roadway	Volume (m2)	2	Based on Risk Rating and resource availability		300
504_B	Earthworks slipped and encroaching on roadway, or undermined pavement	Volume (m2)	3	Based on Risk Rating and resource availability		300

504_C	Loose or unstable earthworks or rocks	Volume (m2)	1	Based on Risk Rating and resource availability		300
504_D	Water flowing over batter due to blocked surface drain	Volume (m2)	1	Based on Risk Rating and resource availability	1520	
	<u>Batter or Embankment Scour</u>					
504_E	Batter or Embankment scoured or damaged	Volume (m2)	2	Based on Risk Rating and resource availability		300
504_F	Any break in scour prevention material	Volume (m2)	1	Based on Risk Rating and resource availability	1520	
	VEHICULAR ACCESS					
	<u>Access Impeding Drainage</u>					
503_A	Vehicular Access culvert blocked or impeded resulting in ponding or water redirected from waterway.	Each	2	VA owner to be advised unless urgent work is required, then by Private Works.	1000	
503_B	Vehicular Access culvert blocked or impeded resulting in water being redirected onto roadway.	Each	3	VA owner to be advised unless urgent work is required, then by Private Works.	1000	
503_G	Vehicular Access culvert at incorrect height impeding flow of water	Each	1	Based on Council allocation of capital funds and Risk Rating	1000	
	<u>Access Construction Below Standard</u>					
503_C	Vehicular Access culvert not installed or too small to take regular flow of water. (Note min dia allowable is 300mm).	Each	1	VA owner to be advised unless urgent work is required, then by Private Works.	1000	
503_D	Vehicular Access culvert constructed without headwalls.	Number of Headwalls	1	VA owner to be advised unless urgent work is required, then by Private Works.	1000	
503_E	Vehicular Access on a sealed road not sealed to property boundary.	Area (m2)	1	VA owner to be advised unless urgent work is required, then by Private Works.	1000	
	<u>Access Identification</u>					
503_F	No Rural Road Number shown on Access.	Each	1	Refer to Design Engineer for Verification of approval	1450	
	GRID AND GATE MAINTENANCE					
	<u>Cleaning and Minor Repairs</u>					

601_A	Excessive silt, dirt or debris under stock grid	Each	1	Grid owner to be advised unless urgent work is required, then by Private Works.	1000	
601_B	Grid warning signs missing or not erected	Number of signs	5	Grid owner to be advised unless urgent work is required, then by Private Works.	1000	
601_C	Bypass not trafficable, or gate not functioning.	Each	1	Grid owner to be advised unless urgent work is required, then by Private Works.	1000	
<u>Grid Structure Repairs</u>						
601_D	Grid rails loose, not present, or below standard.	Each	2	Grid owner to be advised unless urgent work is required, then by Private Works.	1000	
601_E	Grid surface uneven and/or not level with roadway	Each	3	Grid owner to be advised unless urgent work is required, then by Private Works.	1000	
601_F	Grid load bearing structure damaged	Each	4	Grid owner to be advised unless urgent work is required, then by Private Works.	1000	
601_G	Grid approaches rutted or potholed (1m either side)	Area (m2)	2	Grid owner to be advised unless urgent work is required, then by Private Works.	1000	
<u>Public Gate Maintenance</u>						
601_H	Gate warning signs missing or not erected	Number of signs	5	Gate owner to be advised unless urgent work is required, then by Private Works.	1000	
601_I	Gate in poor condition, or not to minimum specifications	Each	2	Gate owner to be advised unless urgent work is required, then by Private Works.	1000	
601_J	Gate illegally placed across roadway	Each	3	Gate owner to be advised unless urgent work is required, then by Private Works.	1000	
FOOTPATH MAINTENANCE						
<u>Footpaths</u>						
505_A	Grass area overgrown, impeding pedestrian area	Area (m2)	2	Based on Council allocation of capital funds and Risk Rating	1810	

505_B	Concrete or other sealed surface slippery	Area (m2)	3	Based on Council allocation of capital funds and Risk Rating	1820	
505_C	Concrete misaligned > 5mm and < 20mm	Length (m)	4	Based on Council allocation of capital funds and Risk Rating	1840	
505_D	Concrete misaligned > 20mm	Length (m)	5	Based on Council allocation of capital funds and Risk Rating	1840	
505_E	Excessive plant growth growing within sealed footpath	Area (m2)	1	Based on Council allocation of capital funds and Risk Rating	1820	
505_F	Vegetation overhanging footpath restricting pedestrians	Each	2	Based on Council allocation of capital funds and Risk Rating	1830	
	GARBAGE COLLECTION					
	<u>Garbage</u>					
506_A	Removal of garbage and litter from main street	Each	3	Based on Council allocation of capital funds and Risk Rating	1870	
506_B	Removal of garbage and litter from rest areas and parks	Each	2	Based on Council allocation of capital funds and Risk Rating	1870	
506_C	Removal of litter from smoke bins	Each	2	Based on Council allocation of capital funds and Risk Rating	1870	
	URBAN DRAINAGE MAINTENANCE					
	<u>Urban Drainage</u>					
507_A	Stormwater inlet obstructed	Number of Structures	2	Based on Council allocation of capital funds and Risk Rating	1860	
507_B	Build up of debris in pits	Number of Structures	1	Based on Council allocation of capital funds and Risk Rating	1860	
507_C	Pipes blocked / impeded	Number of Structures	3	Based on Council allocation of capital funds and Risk Rating	1860	
507_D	Outlet of pipes scoured or blocked	Number of Structures	3	Based on Council allocation of capital funds and Risk Rating	1860	
507_E	Damaged pit lids, covers, lintles or grates	Number of Structures	4	Based on Council allocation of capital funds and Risk Rating	1860	
	MISCELLANEOUS WORKS					
	<u>Graffiti Removal</u>					

509_A	Removal of Graffiti excluding signs	Area (m ²)	5	Based on Council allocation of capital funds and Risk Rating	1440	
	URBAN VEGETATION CONTROL					
	<u>Vegetation Reducing Visibility</u>					
508_A	Visibility of signs and/or guide posts affected by vegetation	Area (m ²)	4	Based on Risk Rating and resource availability	1810	
508_B	Sight distance on curves affected by vegetation	Area (m ²)	3	Based on Risk Rating and resource availability	1810	
	<u>Vegetation Affecting Pavement</u>					
508_C	Vegetation growth affecting pavement or shoulders	Area (m ²)	1	Based on Risk Rating and resource availability	1810	
	<u>Vegetation Control</u>					
508_F	Infestation of Noxious or Environmental Weed	Number of Trees	1	Based on Risk Rating and resource availability	1830	
508_G	Excessive growth of roadside vegetation	Area (m ²)	1	Based on Risk Rating and resource availability	1810	
508_H	Excessive growth of Council land vegetation. Including Parks, Median Areas and Council owned land	Area (m ²)	1	Based on Risk Rating and resource availability	1810	
	<u>Control Of Trees & Large Shrubs</u>					
508_D	Dead or diseased trees/overhanging branches in danger of faalling	Number of Trees	2	Based on Risk Rating and resource availability	1830	
508_E	Trees or large shrubs growing on steep cuttings (slope > 1:2)	Number of Trees	1	Based on Risk Rating and resource availability	1830	
508_I	Storm damaged and other trees affecting traffic	Number of Trees	3	Based on Risk Rating and resource availability	1830	
508_J	Storm damaged and other trees affecting pedestrians	Number of Trees	2	Based on Risk Rating and resource availability	1830	

508_K	Storm damaged and other trees in danger of falling	Number of Trees	2	Based on Risk Rating and resource availability	1830	
WEARING SURFACE						
<u>Resealing Program</u>						
701_A	Existing seal showing signs of wear	Area (m2)	1	Based on Council allocation of capital funds and Risk Rating		251
701_B	Existing seal in poor condition	Area (m2)	3	Based on Council allocation of capital funds and Risk Rating		251
<u>Heavy Patching</u>						
701_C	Isolated seal failure	Volume (m3)	1	Based on Council allocation of capital funds and Risk Rating		356
701_D	Major seal failure	Volume (m3)	3	Based on Council allocation of capital funds and Risk Rating		356
<u>Crack Sealing</u>						
701_E	Small sections of isolated cracking	Length (m)	1	Based on Council allocation of capital funds and Risk Rating		210
701_F	Major area of cracking	Length (m)	2	Based on Council allocation of capital funds and Risk Rating		210
<u>Seal Widening</u>						
701_G	Widening to obtain minimum 6m seal width	Area (m2)	3	Based on Council allocation of capital funds and Risk Rating		251
701_H	Resealing shoulder in poor condition	Area (m2)	2	Based on Council allocation of capital funds and Risk Rating		251
PAVEMENT						
<u>Reconstruction</u>						
702_A	Major failure of seal and pavement	Volume (m3)	3	Based on Council allocation of capital funds and Risk Rating		253
<u>Rehabilitation</u>						
702_B	Minor failure of seal and pavement	Volume (m3)	2	Based on Council allocation of capital funds and Risk Rating		253
<u>Stabilisation</u>						
702_C	Isolated failure of seal and pavement	Volume (m3)	2	Based on Council allocation of capital funds and Risk Rating		257

	LINEMARKING					
	<u>Longitudinal Linemarking</u>					
703_A	Centerline required	Length (m)	3	Based on Council allocation of capital funds and Risk Rating		641.04
703_B	Foglines required	Length (m)	1	Based on Council allocation of capital funds and Risk Rating		641.13
	<u>Longitudinal Linemarking</u>					
703_C	Transverse linemarking or other markings required	Area (m2)	1	Based on Council allocation of capital funds and Risk Rating		642
	PAVEMENT					
	<u>Gravel Resheeting</u>					
801_A	Pavement material less than 100mm deep	Tonnes (t)	1	Based on Council allocation of capital funds and Risk Rating		253
801_B	Pavement material less than 50mm deep	Tonnes (t)	2	Based on Council allocation of capital funds and Risk Rating		253
	<u>Widening Unsealed Pavement</u>					
801_C	Pavement width below minimum standard	Tonnes (t)	3	Based on Council allocation of capital funds and Risk Rating		253
	<u>Reconstruction</u>					
801_D	Major failure of pavement	Volume (m3)	2	Based on Council allocation of capital funds and Risk Rating		253
	<u>Stabilisation</u>					
801_E	Minor isolated failure of pavement	Volume (m3)	2	Based on Council allocation of capital funds and Risk Rating		257
	INITIAL SEALING					
	<u>Initial Sealing</u>					
802_A	Proposal to extend sealed areas	Area (m2)	1	Based on Council allocation of capital funds and Risk Rating		250
802_B	Seal isolated area due to steep grade	Area (m2)	3	Based on Council allocation of capital funds and Risk Rating		250
802_C	Seal isolated area for dust suppression or erosion protection	Area (m2)	1	Based on Council allocation of capital funds and Risk Rating		250

	SAFETY BARRIERS					
	<u>Replace Existing Safety Barrier</u>					
901_A	Section of guardrail in poor condition	Length (m)	2	Based on Council allocation of capital funds and Risk Rating		625
901_B	Section of briffen fence in poor condition	No. Posts	2	Based on Council allocation of capital funds and Risk Rating		625
	<u>Install New Safety Barrier</u>					
901_C	Safety barrier required due to potential hazard	Length (m)	3	Based on Council allocation of capital funds and Risk Rating		625.02
	BULK EARTHWORKS					
	<u>Stabilise Existing Batters</u>					
902_A	Batter badly eroded or slipping	Volume (m3)	3	Based on Council allocation of capital funds and Risk Rating		300
902_B	Rocks or other material falling from existing batter onto roadway	Volume (m3)	4	Based on Council allocation of capital funds and Risk Rating		300
902_C	Batter too steep and requires benching	Volume (m3)	2	Based on Council allocation of capital funds and Risk Rating		300
	<u>Widening Existing Earthworks</u>					
902_D	Visibility impeded by existing earthworks	Volume (m3)	2	Based on Council allocation of capital funds and Risk Rating		300
902_E	Earthworks needed to allow for future re-alignment	Volume (m3)	1	Based on Council allocation of capital funds and Risk Rating		300
	KERB AND GUTTERING					
	<u>Replace Existing Kerb and Guttering</u>					
903_A	Existing kerb and gutter badly stepped or flow of water impeded	Length (m)	3	Based on Council allocation of capital funds and Risk Rating		551
	<u>Install New Kerb and Guttering</u>					
903_B	Existing drainage structure insufficient to handle flows	Length (m)	2	Based on Council allocation of capital funds and Risk Rating		551
	FOOTPATHS					
	<u>Replace Existing Footpath</u>					

904_A	Existing footpath in very poor condition	Area (m2)	4	Based on Council allocation of capital funds and Risk Rating		473
	<u>Install New Footpath</u>					
904_B	Existing pedestrian area heavily worn from excessive traffic	Area (m2)	2	Based on Council allocation of capital funds and Risk Rating		473
	CULVERTS AND CAUSEWAYS					
	<u>Culverts And Causeways</u>					
905_A	Causeway Required	Each	3	Based on Council allocation of capital funds and Risk Rating		510
905_B	Culvert Required	Area (m2)	1	Based on Council allocation of capital funds and Risk Rating		510
905_C	Culvert Extension Required	Area (m2)	2	Based on Council allocation of capital funds and Risk Rating		509
905_D	Replace Existing Culvert	Each	3	Based on Council allocation of capital funds and Risk Rating		510
905_E	Replace Existing Causeway	Each	3	Based on Council allocation of capital funds and Risk Rating		510
	URBAN DRAINAGE					
	<u>Urban Drainage</u>					
906_A	Install additional pipework or drainage extension	Length (m)	1	Based on Council allocation of capital funds and Risk Rating		509
906_B	Install additional pipework to remove open drain in dangerous area	Length (m)	4	Based on Council allocation of capital funds and Risk Rating		509
906_C	Install additional pipework to remove constraint on flow	Length (m)	2	Based on Council allocation of capital funds and Risk Rating		509
906_D	Install gross pollutant trap	Length (m)	3	Based on Council allocation of capital funds and Risk Rating		506

APPENDIX C – Local and Regional Road Maintenance Activities

ACTIVITY CODE	URBAN USE	RTA CODE	ACTIVITY DESCRIPTION General Maintenance Items	WORK UNIT	WORK UNIT ABBREVIATION
Bitumen Roads					
1110	YES	120	Temporary Pavement Repair - (Pothole Repair)	No. Of Potholes	Potholes
1150	NO	121	Edge Break or Scour, Depressions, Bumps, Ruts or Shoves	Area Repaired	m ²
Gravel Roads					
1160	YES		Grading Unsealed Roads Only	Road Kilometres	Kms
2100	NO		Re-sheeting Unsealed Roads	Cubic Metres	m ³
Routine Bridge Maintenance					
1210	NO		Bridge Maintenance Servicing	Square Metres	m ²
Vegetation Maintenance					
1310	NO	131	Tree or Bush Control	No.of Trees	Tree
1320	NO	132	Ground Vegetation Control (includes Mowing & Slashing)	No. Of Hectares	Ha
1330	NO		Landscape Maintenance - (Spraying, General Garden Beds & Planted Area Maintenance)	No. Of Hectares	Ha
Roadside Maintenance					
1410	YES		Pavement Sweeping - (either with machinery or hand brooms, not reseals)	Lane Kilometres	L / Kms
1420	NO	141	Roadside Litter Collection - (includes dead animal removal, fallen trees & branches)	Metres Cubed	m ³
1430	NO	142	Maintain Roadside Stopping Areas - (keeping rest areas & truck stops tidy & litter free)	No. Sites Visited	Each
1440	YES	144	Graffiti & Poster Removal	Square Metres	m ²
1450	YES		Minor & Miscellaneous Roadside Maint. - (removal of abandoned vehicles & stray stock)	No.Segments Completed	Segments
Drainage Maintenance					
1510	NO	150	Clear Culverts & Pits	Volume Removed	m ³
1520	NO	150	Clear Surface Drains & Floodways	Volume Removed	m ³
1540	NO		Maintain Unsealed Shoulders	Shoulder Kms	S / Kms
Sign Maintenance					
1610	YES	161	Service Signs - (maintaining of signs)	No. of signs	Signs
1620	YES	162	Replace Warning, Regulatory & Minor Guide Signs	No. of signs	Signs

Delineation Maintenance

1710	YES	163	Guide Post & Reflector Maintenance	No. Of Guide Posts	G / Psts
1720	YES		Guard Rail, Service Safety Fence, Traffic Devices & Pedestrian Fence		each

Emergency Callouts

2530	YES		Emergency Callouts - (Accidents etc.)	No. Callouts	each
2531	YES		Emergency Callouts - (Fallen Trees, Storm Damage etc.)	No. Callouts	each

Urban Maintenance

1810	YES		Mowing of urban grass areas (footpaths, nature strips, vacant land)	Square Metres	m ²
1820	YES		Vegetation Control & other footpath maintenance (spraying of footpaths & K. & G.)	Square Metres	m ²
1830	YES		Vegetation Control (removal of trees & shrubs, includes minor lopping and trimming)	No. Of Trees	Tree
1840	YES		Footpath, Kerb & Gutter repairs or minor replacements	Length Metres Repaired	m
1850	YES		Drainage Maintenance (clearing & cleaning of Kerb & Gutter, Tabledrains etc.)	Drain Metres	m
1860	YES		Cleaning or minor repairs, Culvert, Pits, Lintles & Grate maintenance	Each Culvert, Pit	Each
1870	YES		Garbage and litter removal	Each Location	Each
1880	YES		Maintain Pavement Markings and Traffic Islands	Length Metres	m

APPENDIX D – Road Register (as at August 10, 2004)

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
2	Afterlee Road	Arterial Road	Anzac Drive	Afterlee & Upper Duck
283	Alcorn Road	Residential Access Road	Quain Road	Homeleigh
233	Alcorns Road	Residential Access Road	Ettrick Road	Ettrick
1002	Anderson Street	Kyogle Street	Kyogle Road	Kyogle Village
1003	Andrew Street	Kyogle Street	Summerland Way	Kyogle Village
1026	Anzac Drive	Kyogle Street	Summerland Way	Kyogle Village
148	Apple Gum Road	Feeder Road	Wiangaree Back Road	Afterlee
296	Appletree Flat Road	Residential Access Road	Old Lawrence Road	Pagans Flat
5	Armstrongs Road	Residential Access Road	Tunglebung Creek Road	Lower Bottle
227	Askews Dip Road	Residential Access Road	Hootens Road	Lower Duck
4	Aspreys Road	Residential Access Road	Ettrick Road	Ettrick
201	Atkins Road	Residential Access Road	Kyogle Road	Cawongla
11	Babyl Creek Road	Feeder Road	Sextonville Road	Doubtful Creek
15	Back Creek Road	Collector Road	Lismore Township	Back Creek
6	Baileys Bridge Road	Feeder Road	Summerland Way	Afterlee
232	Bairds Road	Residential Access Road	Hootens Road	Lower Duck
7	Baraimal Lane	Feeder Road	Summerland Way	Back Creek
197	Barnes Road	Residential Access Road	Williams Road	Cawongla
6006	Barnes Street	Tabulam Street	Court Street	Tabulam Village
13	Bean Creek Road	Residential Access Road	Clarence Way	Upper Duck
61	Beech Tree Road	Feeder Road	Sextonville Road	Doubtful Creek
210	Bells Bay Road	Residential Access Road	Dam Access Road	Afterlee
24	Bendalls Road	Residential Access Road	Findon Creek Road	Findon
1098	Benjamin Street	Kyogle Street	Pratt Street	Kyogle Village
175	Bennetts Road	Residential Access Road	Sextonville Road	Doubtful Creek
8	Benns Road	Collector Road	Iron Pot Creek Road	Afterlee
544	Bentley Road	Regional Road-Rural	Lismore Township	Regional Roads
19	Bingeebeebra Road	Collector Road	Bruxner Highway	Theresa Creek
217	Blackhorse Road	Feeder Road	Afterlee Road	Afterlee

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
1101	Blacksmith Street	Kyogle Street	Irwin Street	Kyogle Village
21	Blackwood Lane	Residential Access Road	Clarence Way	Woodenbong
1004	Bloore Street	Kyogle Street	Wyangarie Street	Kyogle Village
81	Bolan Road	Feeder Road	Sextonville Road	Doubtful Creek
235	Bolziccos Road	Residential Access Road	Kyogle Road	Homeleigh
3008	Bonalbo Lane	Woodenbong Street	Richmond Street	Woodenbong Village
4013	Bonalbo Street	Bonalbo Street	Sandilands Street	Bonalbo Village
7001	Bonalbo Street	Mallanganee Street	Sandilands Street	Mallanganee Village
3001	Bonalbo Street	Woodenbong Street	Mount Lindesay Highway	Woodenbong Village
10	Bonners Lane	Residential Access Road	Sextonville Road	Doubtful Creek
17	Boomi Creek Road	Collector Road	Clarence Way	Woodenbong
22	Boorabee Creek Road	Feeder Road	Hillyards Road	Back Creek
1005	Boorabee Street	Kyogle Street	Summerland Way	Kyogle Village
2001	Boorabee Street	Wiangaree Street	Summerland Way	Wiangaree Village
9	Booths Road	Residential Access Road	Knights Road	Ettrick
8001	Bora Street	Old Grevillia Street	Summerland Way	Findon
248	Bottle Creek Road	Residential Access Road	Clarence Way	Lower Bottle
271	Bottrell Road	Residential Access Road	Theresa Creek Road	Theresa Creek
180	Brays Road	Collector Road	Ghinni Ghi Road	Ettrick
245	Brindle Creek Road	Feeder Road	Gradys Creek Road	Gradys Creek
80	Brown Knob Road	Feeder Road	Afterlee Road	Afterlee
7008	Brown Lane	Mallanganee Street	Pine Street	Mallanganee Village
18	Brumby Plains Road	Residential Access Road	Boomi Creek Road	Woodenbong
16	Bruxner Highway	State Highway	Lismore Township	Main Roads
238	Buchanans Road	Residential Access Road	Kyogle Road	Cawongla
278	Buchlands Road	Residential Access Road	Mc Clelland Road	Cawongla
4001	Buller Street	Bonalbo Street	Woodenbong Road	Bonalbo Village
71	Bulmers Road	Feeder Road	Bruxner Highway	Theresa Creek
1007	Bundock Lane	Kyogle Street	Bundock Street	Kyogle Village
1008	Bundock Street	Kyogle Street	Kyogle Road	Kyogle Village

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
301	Bunya Road	Residential Access Road	Ryans Creek Road	Theresa Creek
23	Butlers Road	Residential Access Road	Deep Creek Road	Pagans Flat
1072	Caddie Avenue	Kyogle Street	Collins Creek Road	Kyogle Village
257	Calamia Road	Residential Access Road	Summerland Way	Grevillia
267	Caldera Lane	Residential Access Road	Kyogle Road	Cawongla
1073	Campbell Road	Kyogle Street	Kyogle Road	Kyogle Village
185	Campbell Road	Residential Access Road	Stony Chute Road	Cawongla
29	Capeen Creek Road	Residential Access Road	Duck Creek Road	Upper Duck
4002	Capeen Street	Bonalbo Street	Gill Street	Bonalbo Village
142	Captains Road	Feeder Road	Bruxner Highway	Pagans Flat
4016	Carey Street	Bonalbo Street	Johnson Street	Bonalbo Village
1074	Carrabean Court	Kyogle Street	Kamala Avenue	Kyogle Village
30	Carruthers Road	Residential Access Road	Sextonville Road	Doubtful Creek
273	Castille Road	Residential Access Road	Boomi Creek Road	Woodenbong
276	Cattle Camp Road	Residential Access Road	Babyl Creek Road	Doubtful Creek
187	Cawongla Road	Arterial Road	Bentley Road	Cawongla
25	Cedargetters Road	Residential Access Road	Gradys Creek Road	Gradys Creek
1103	Chauvel Street	Kyogle Street	Willis Street	Kyogle Village
31	Chestnut Road	Residential Access Road	Afterlee Road	Afterlee
4008	Clarence Street	Bonalbo Street	Yabbra Street	Bonalbo Village
6001	Clarence Street	Tabulam Street	Bruxner Highway	Tabulam Village
150	Clarence Way	Regional Road-Rural	Grafton Township	Regional Roads
26	Clarkes Lane	Residential Access Road	Summerland Way	Afterlee
242	Colbran Road	Residential Access Road	Clarence Way	Pagans Flat
1013	Colin Street	Kyogle Street	Kyogle Road	Kyogle Village
27	Collins Creek Road	Collector Road	Summerland Way	Collins Creek
35	Collins Valley Road	Feeder Road	Lynches Creek Road	Collins Creek & Lynches Creek
32	Connells Road	Feeder Road	Clarence Way	Woodenbong
4003	Cope Street	Bonalbo Street	Clarence Way	Bonalbo Village
6002	Court Street	Tabulam Street	Lawrence Street	Tabulam Village

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
34	Coxs Road	Residential Access Road	Summerland Way	Grevillia
1080	Craig Street	Kyogle Street	Summerland Way	Kyogle Village
204	Creegans Road	Collector Road	Williams Road	Cawongla
6003	Creek Street	Tabulam Street	Racecourse Road	Tabulam Village
1015	Crockfords Lane	Kyogle Street	Geneva Street	Kyogle Village
28	Crossleys Road	Residential Access Road	Afterlee Road	Afterlee
1092	Crotty Lane	Kyogle Street	Anzac Drive	Kyogle Village
37	Culmaran Creek Road	Collector Road	Clarence Way	Lower Bottle
1016	Curtois Street	Kyogle Street	Junction Street	Kyogle Village
1035	Cyrilgay Lane	Kyogle Street	Moore Street	Kyogle Village
260	Daleys Lane	Residential Access Road	Saville Street	Kyogle Village
3002	Dalmorton Street	Woodenbong Street	Bonalbo Lane	Woodenbong Village
181	Dam Access Road	Collector Road	Afterlee Road	Afterlee
41	Davis Road	Residential Access Road	Green Pigeon Road	Green Pigeon
44	Deep Creek Road	Collector Road	Bruxner Highway	Pagans Flat
258	Dingo Gully Road	Residential Access Road	Summerland Way	Grevillia
1017	Donald Street	Kyogle Street	Anderson Street	Kyogle Village
222	Doohans Road	Residential Access Road	Hillyards Road	Back Creek
138	Duck Creek Road	Arterial Road	Clarence Way	Upper Duck
251	Dugan Road	Residential Access Road	Theresa Creek Road	Theresa Creek
162	Dump Road	Residential Access Road	Bruxner Highway	Lower Bottle
39	Dunns Road	Residential Access Road	Knights Road	Doubtful Creek
275	Durhams Road	Residential Access Road	Bentley Road	Back Creek
43	Dyraaba Road	Collector Road	Bruxner Highway	Doubtful Creek
4012	Dyraaba Street	Bonalbo Street	Unnamed Lane	Bonalbo Village
1018	Eagle Court	Kyogle Street	Golfview Drive	Kyogle Village
1019	Earl Street	Kyogle Street	Rous Street	Kyogle Village
137	Eden Creek Road	Collector Road	Afterlee Road	Afterlee
47	Edenville Road	Collector Road	Mc Donalds Bridge Road	Edenville
1094	Edward Lane	Kyogle Street	Geneva Street	Kyogle Village

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
262	Eggins Road	Residential Access Road	Trentys Lane	Doubtful Creek
48	Ellems Road	Residential Access Road	Edenville Road	Edenville
234	Elliotts Road	Residential Access Road	Green Pigeon Road	Green Pigeon
45	Ettrick Road	Arterial Road	Afterlee Road	Ettrick
1021	Ettrick Street	Kyogle Street	George Street	Kyogle Village
1022	Fairy Street	Kyogle Street	Mount Street	Kyogle Village
216	Falls Road	Residential Access Road	Mills Road	Upper Duck
237	Faraway Road	Residential Access Road	Kyogle Road	Cawongla
82	Farm Road	Feeder Road	Koreelah Street	Lower Duck
172	Faulkners Road	Residential Access Road	Bruxner Highway	Theresa Creek
1023	Fawcett Street	Kyogle Street	Kyogle Road	Kyogle Village
53	Fawcetts Plain Road	Arterial Road	Kyogle Road	Green Pigeon
52	Ferndale Road	Residential Access Road	Summerland Way	Lynches Creek
300	Fernhill Drive	Residential Access Road	Gradys Creek Road	Gradys Creek
54	Findon Creek Road	Collector Road	Summerland Way	Findon
8003	Findon Street	Old Grevillia Street	Findon Creek Road	Findon
1024	Fisher Street	Kyogle Street	Fawcett Street	Kyogle Village
1093	Ford Lane	Kyogle Street	George Street	Kyogle Village
226	Forest Road	Residential Access Road	Lynches Creek Road	Lynches Creek
55	Fuhrmans Road	Residential Access Road	Clarence Way	Lower Bottle
202	Gabal Road	Residential Access Road	Lillian Rock Road	Cawongla
66	Gambleys Road	Feeder Road	Yabbra Road	Upper Duck
1012	Gardner Lane	Kyogle Street	Colin Street	Kyogle Village
1095	Gastons Lane	Kyogle Street	Summerland Way	Kyogle Village
1027	Geneva Street	Kyogle Street	Ettrick Street	Kyogle Village
1028	George Street	Kyogle Street	Summerland Way	Kyogle Village
57	Ghinni Ghi Road	Feeder Road	Iron Pot Creek Road	Ettrick
4004	Gill Street	Bonalbo Street	Clarence Way	Bonalbo Village
36	Glen Arvin Road	Residential Access Road	Gradys Creek Road	Gradys Creek
62	Glen Road	Feeder Road	Summerland Way	Woodenbong

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
3003	Glennie Street	Woodenbong Street	Bonalbo Lane	Woodenbong Village
3011	Golf Links Road	Woodenbong Street	Clarence Way	Woodenbong
1029	Golfview Drive	Kyogle Street	Caddie Avenue	Kyogle Village
277	Gonpa Road	Residential Access Road	Collins Creek Road	Collins Creek
56	Gooleys Road	Residential Access Road	Pines Road	Edenville
224	Gordons Road	Residential Access Road	Gorge Creek Road	Grevillia
60	Gorge Creek Road	Feeder Road	Summerland Way	Grevillia
59	Gradys Creek Road	Arterial Road	Summerland Way	Gradys Creek
6007	Grafton Street	Tabulam Street	Lawrence Street	Tabulam Village
297	Grass Tree Road	Residential Access Road	Hillyards Road	Back Creek
58	Green Pigeon Road	Collector Road	Fawcetts Plain Road	Green Pigeon
1044	Greer Street	Kyogle Street	May Street	Kyogle Village
176	Grimstons Road	Residential Access Road	Theresa Creek Road	Theresa Creek
1030	Groom Street	Kyogle Street	Rous Street	Kyogle Village
1081	Hale Street	Kyogle Street	Highfield Road	Kyogle Village
265	Hansen Road	Residential Access Road	Tunglebung Creek Road	Lower Bottle
270	Harding Road	Residential Access Road	Theresa Creek Road	Theresa Creek
190	Harris Road	Residential Access Road	Creegans Road	Cawongla
1032	Harrison Street	Kyogle Street	Anzac Drive	Kyogle Village
6005	Harry Mundine Place	Tabulam Street	Court Street	Tabulam Village
209	Hartleys Road	Residential Access Road	Boundary Creek Road	Back Creek
163	Hayes Road	Residential Access Road	Horseshoe Creek Road	Green Pigeon
67	Haystack Road	Feeder Road	Gambleys Road	Upper Duck
293	Hereford Road	Residential Access Road	Glen Road	Woodenbong
64	Hernes Flat Road	Residential Access Road	Brown Knob Road	Afterlee
188	Hetherington Road	Residential Access Road	Old Tweed Road	Cawongla
236	Hidden Valley Road	Residential Access Road	Creegans Road	Cawongla
4015	High Street	Bonalbo Street	Yabbra Street	Bonalbo Village
1033	Highfield Road	Kyogle Street	Summerland Way	Kyogle Village
98	Hilderbrands Road	Residential Access Road	Summerland Way	Grevillia

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
1034	Hill Street	Kyogle Street	Geneva Street	Kyogle Village
289	Hills Road	Residential Access Road	Lindsay Creek Road	Woodenbong
14	Hillyards Road	Collector Road	Bentley Road	Back Creek
72	Hiscockes Road	Residential Access Road	Theresa Creek Road	Theresa Creek
1102	Hogan Lane	Kyogle Street	Kyogle Road	Kyogle Village
70	Homeleigh Road	Collector Road	Kyogle Road	Homeleigh
149	Homestead Road	Residential Access Road	Summerland Way	Afterlee
247	Hootens Road	Collector Road	Clarence Way	Lower Duck
68	Horseshoe Creek Road	Collector Road	Fawcetts Plain Road	Green Pigeon
1097	Hurley Lane	Kyogle Street	Merrigan Street	Kyogle Village
254	Imbreys Road	Residential Access Road	Summerland Way	Grevillia
74	Imesons Road	Residential Access Road	Knights Road	Ettrick
73	Iron Pot Creek Road	Arterial Road	Ettrick Road	Ettrick
1037	Irwin Street	Kyogle Street	Kyogle Road	Kyogle Village
76	Jacksons Flat Road	Residential Access Road	Tabulam Road	Lower Bottle
170	James Road	Residential Access Road	Pines Road	Edenville
1038	James Street	Kyogle Street	Marwick Street	Kyogle Village
75	Jasper Iverson Road	Residential Access Road	Needhams Road	Woodenbong
221	Joes Box Road	Residential Access Road	Yabbra Road	Upper Duck
292	Johns Road	Residential Access Road	Haystack Road	Upper Duck
4005	Johnson Street	Bonalbo Street	Clarence Way	Bonalbo Village
239	Johnstones Road	Residential Access Road	Williams Road	Cawongla
160	Joyces Road	Residential Access Road	Green Pigeon Road	Green Pigeon
1039	Junction Street	Kyogle Street	Anderson Street	Kyogle Village
1040	Kamala Avenue	Kyogle Street	Highfield Road	Kyogle Village
241	Karina Place	Residential Access Road	Fawcetts Plain Road	Green Pigeon
78	Killaloe Road	Feeder Road	Collins Creek Road	Collins Creek & Green Pigeon
1087	Kindergarten Lane	Kyogle Street	Fawcett Street	Kyogle Village
49	Knights Road	Arterial Road	Ettrick Road	Doubtful Creek & Edenville
4011	Koreelah Street	Bonalbo Street	Clarence Way	Bonalbo Village

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
2003	Kunghur Street	Wiangaree Street	Summerland Way	Wiangaree Village
141	Kyogle Road	Regional Road-Rural	Murwillumbah Township	Regional Roads
1141	Kyogle Road	Regional Road-Urban	Murwillumbah Township	Regional Roads
5001	Lachlan Street	Old Bonalbo Street	Sinclair Street	Old Bonalbo Village
1070	Lakeview Drive	Kyogle Street	James Street	Kyogle Village
65	Lamberton Lane	Residential Access Road	Knights Road	Edenville
1042	Larkin Street	Kyogle Street	Willis Street	Kyogle Village
140	Larsson Road	Feeder Road	Tunglebung Creek Road	Lower Bottle
174	Lauries Road	Residential Access Road	Old Dyraaba Road	Doubtful Creek
211	Lavelles Road	Residential Access Road	Calamia Road	Grevillia
6004	Lawrence Street	Tabulam Street	Bruxner Highway	Tabulam Village
302	Leadbeatters Road	Residential Access Road	Roseberry Creek Road	Grevillia
84	Leeses Road	Residential Access Road	Sextonville Road	Doubtful Creek
269	Levers Road	Residential Access Road	Terrace Road	Findon
1099	Lillian Place	Kyogle Street	Benjamin Street	Kyogle Village
208	Lillian Rock Road	Arterial Road	Blue Knob Road	Cawongla
86	Lindsay Creek Road	Collector Road	Roseberry Street	Woodenbong
3004	Lindsay Street	Woodenbong Street	Roseberry Lane	Woodenbong Village
195	Link Road	Collector Road	Williams Road	Cawongla
179	Lions Road	Arterial Road	Gradys Creek Road	Gradys Creek
1086	Little Lane	Kyogle Street	Fawcett Street	Kyogle Village
182	Logans Bridge Road	Collector Road	Iron Pot Creek Road	Ettrick
85	Long Creek Road	Residential Access Road	Findon Creek Road	Findon
79	Lynches Creek Road	Collector Road	Summerland Way	Lynches Creek
3361	Macpherson Street	Regional Road-Urban	Clarence Way	Regional Roads
223	Macqueens Road	Residential Access Road	Sextonville Road	Doubtful Creek
93	Mahoneys Lane	Residential Access Road	Edenville Road	Edenville
255	Main Creek Road	Residential Access Road	Gradys Creek Road	Gradys Creek
89	Mallums Road	Residential Access Road	Iron Pot Creek Road	Ettrick
1045	Marwick Street	Kyogle Street	Anzac Drive	Kyogle Village

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
99	Masons Road	Residential Access Road	Summerland Way	Collins Creek
285	Masterson Lane	Residential Access Road	Edenville Road	Edenville
1075	May Lane	Kyogle Street	May Street	Kyogle Village
1046	May Street	Kyogle Street	Campbell Road	Kyogle Village
198	Mc Clelland Road	Feeder Road	Williams Road	Cawongla
51	Mc Donalds Bridge Road	Collector Road	Summerland Way	Doubtful Creek
268	Mc Innes Road	Residential Access Road	Terrace Road	Findon
261	Mc Millans Road	Residential Access Road	Mount Lindesay Highway	Woodenbong
1047	Mcdougall Street	Kyogle Street	Anzac Drive	Kyogle Village
1048	Merrigan Street	Kyogle Street	Boorabee Street	Kyogle Village
1078	Mihell Lane	Kyogle Street	Summerland Way	Kyogle Village
178	Mills Road	Residential Access Road	Clarence Way	Upper Duck
69	Mockharra Lane	Residential Access Road	Omagh Road	Edenville
91	Montgomerys Road	Residential Access Road	Summerland Way	Grevillia
1050	Moore Street	Kyogle Street	Kyogle Road	Kyogle Village
126	Moores Road	Residential Access Road	Gradys Creek Road	Gradys Creek
1085	Morgans Road	Kyogle Street	Anzac Drive	Kyogle Village
1051	Morphett Street	Kyogle Street	Campbell Road	Kyogle Village
94	Morrows Road	Residential Access Road	Simpkins Creek Road	Theresa Creek
622	Mount Lindesay Highway	Regional Road-Rural	Tenterfield Township	Regional Roads
1052	Mount Street	Kyogle Street	Fairy Street	Kyogle Village
1071	Mountain View Place	Kyogle Street	Lakeview Drive	Kyogle Village
96	Mummulgum Creek Road	Residential Access Road	Bruxner Highway	Theresa Creek
231	Mundalong Road	Residential Access Road	Runnymede Road	Back Creek
155	Murphys Road	Residential Access Road	Clarence Way	Upper Duck
284	Murray Scrub Road	Feeder Road	Afterlee Road	Afterlee
50	Needhams Road	Collector Road	Legume Road	Tooloom
166	Newtons Road	Feeder Road	Brown Knob Road	Afterlee
100	Nicholls Road	Residential Access Road	Bruxner Highway	Theresa Creek
101	Nolans Road	Residential Access Road	Bingebeebebra Road	Theresa Creek

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
1053	Norledge Street	Kyogle Street	Saville Street	Kyogle Village
1054	Norton Street	Kyogle Street	Willis Street	Kyogle Village
4006	Oak Street	Bonalbo Street	Gill Street	Bonalbo Village
102	Odonnel Creek Road	Residential Access Road	Eden Creek Road	Afterlee
105	Old Bruxner Road	Residential Access Road	Mount Lindesay Highway	Woodenbong
103	Old Cob-O-Corn Road	Feeder Road	Ettrick Road	Afterlee
87	Old Dyraaba Road	Feeder Road	Sextonville Road	Doubtful Creek
106	Old Lawrence Road	Collector Road	Busbys Flat Road	Pagans Flat
264	Old Mill Road	Residential Access Road	Summerland Way	Grevillia
191	Old Tweed Road	Feeder Road	Kyogle Road	Cawongla
280	Olympian Road	Residential Access Road	Eden Creek Road	Afterlee
104	Omagh Road	Collector Road	Anzac Drive	Edenville
281	O'Neill Road	Residential Access Road	Smiths Creek Road	Afterlee
203	Oxbow Road	Feeder Road	Kyogle Road	Cawongla
134	Paddys Flat Road	Arterial Road	Bruxner Highway	Tooloom
108	Pagans Flat Road	Residential Access Road	Clarence Way	Pagans Flat
109	Paynters Road	Residential Access Road	Pines Road	Edenville
107	Peacock Creek Road	Arterial Road	Clarence Way	Lower Duck
4007	Peacock Street	Bonalbo Street	Clarence Way	Bonalbo Village
291	Phelps Road	Residential Access Road	Killaloe Road	Collins Creek
139	Pigman Road	Residential Access Road	Dyraaba Road	Doubtful Creek
7002	Pine Street	Mallanganee Street	Sandilands Street	Mallanganee Village
46	Pines Road	Feeder Road	Ettrick Road	Edenville
200	Pinnacle Road	Residential Access Road	Kyogle Road	Cawongla
5005	Pioneer Lane	Old Bonalbo Street	Clarence Way	Old Bonalbo Village
177	Pirlos Road	Residential Access Road	Bingeebeebra Road	Theresa Creek
110	Pitches Road	Residential Access Road	Trentys Lane	Doubtful Creek
1091	Plant Street	Kyogle Street	Ettrick Street	Kyogle Village
303	Plantation Road	Residential Access Road	Roseberry Creek Road	Grevillia
156	Pollards Road	Residential Access Road	Bruxner Highway	Theresa Creek

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
1079	Power Lane	Kyogle Street	Summerland Way	Kyogle Village
1056	Pratt Street	Kyogle Street	Anzac Drive	Kyogle Village
5002	Prince Street	Old Bonalbo Street	Clarence Way	Old Bonalbo Village
243	Proctors Road	Residential Access Road	Green Pigeon Road	Green Pigeon
230	Provians Road	Residential Access Road	Sextonville Road	Doubtful Creek
282	Quain Road	Residential Access Road	Greer Street	Kyogle Village
111	Quarry Road	Feeder Road	Kyogle Road	Homeleigh
2002	Queebun Street	Wiangaree Street	Summerland Way	Wiangaree Village
6011	Racecourse Rd	Tabulam Street	Court Street	Tabulam Village
133	Racecourse Road	Residential Access Road	Creek Street	Pagans Flat
288	Razorback Road	Residential Access Road	Theresa Creek Road	Theresa Creek
159	Remembrance Drive	Residential Access Road	Clarence Way	Upper Duck
173	Rices Road	Residential Access Road	Collins Valley Road	Lynches Creek
169	Riches Road	Residential Access Road	Imesons Road	Ettrick
114	Richmond Range Road	Residential Access Road	Bruxner Highway	Lower Bottle & Theresa Creek
3005	Richmond Street	Woodenbong Street	Mount Lindesay Highway	Woodenbong Village
129	Risk Road	Residential Access Road	Summerland Way	Gradys Creek
1082	River Bend Close	Kyogle Street	Summerland Way	Kyogle Village
295	River Street	Wiangaree Street	Summerland Way	Afterlee
186	Robb Road	Residential Access Road	Lillian Rock Road	Cawongla
5003	Robertson Street	Old Bonalbo Street	Duck Creek Road	Old Bonalbo Village
115	Rodgers Road	Residential Access Road	Bruxner Highway	Lower Bottle
112	Roseberry Creek Road	Collector Road	Summerland Way	Grevillia
3007	Roseberry Lane	Woodenbong Street	Mount Lindesay Highway	Woodenbong Village
1076	Roseberry Street	Kyogle Street	Groom Street	Kyogle Village
3006	Roseberry Street	Woodenbong Street	Lindsay Creek Road	Woodenbong Village
1106	Rosewood Place	Kyogle Street	Highfield Road	Kyogle Village
1057	Rous Street	Kyogle Street	Summerland Way	Kyogle Village
2005	Rous Street	Wiangaree Street	Summerland Way	Wiangaree Village
1058	Roxy Lane	Kyogle Street	Anzac Drive	Kyogle Village

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
1	Runnymede Road	Collector Road	Summerland Way	Back Creek
113	Ryans Creek Road	Residential Access Road	Bingeebeebra Road	Theresa Creek
4010	Sandilands Street	Bonalbo Street	Tooloom Street	Bonalbo Village
7003	Sandilands Street	Mallanganee Street	Clarence Way	Mallanganee Village
122	Sandy Creek Road	Residential Access Road	Clarence Way	Lower Duck
196	Sargents Road	Feeder Road	Kyogle Road	Homeleigh
118	Saunders Road	Residential Access Road	Sextonville Road	Doubtful Creek
1059	Saville Street	Kyogle Street	Anzac Drive	Kyogle Village
120	Sawpit Creek Road	Feeder Road	Findon Creek Road	Findon Creek
38	Sextonville Road	Arterial Road	Bruxner Highway	Doubtful Creek
229	Sheddens Road	Residential Access Road	Beech Tree Road	Doubtful Creek
8002	Sherwood Street	Old Grevillia Street	Findon Creek Road	Findon
161	Sherwoods Road	Residential Access Road	Killaloe Road	Collins Creek
1060	Short Street	Kyogle Street	Roseberry Street	Kyogle Village
119	Shorts Road	Residential Access Road	Clarence Way	Upper Duck
164	Simes Road	Feeder Road	Gradys Creek Road	Gradys Creek
121	Simpkins Creek Road	Residential Access Road	Bingeebeebra Road	Theresa Creek
5004	Sinclair Street	Old Bonalbo Street	Clarence Way	Old Bonalbo Village
253	Slaters Road	Residential Access Road	Afterlee Road	Afterlee
228	Slaughter Gully Road	Residential Access Road	Clarence Way	Upper Duck
1061	Smith Street	Kyogle Street	Norledge Street	Kyogle Village
117	Smiths Creek Road	Feeder Road	Afterlee Road	Afterlee
168	Stapletons Road	Residential Access Road	Iron Pot Creek Road	Ettrick
256	Station Road	Feeder Road	Peacock Creek Road	Lower Duck
252	Stony Chute Road	Arterial Road	Nimbin Road	Cawongla
123	Strains Road	Residential Access Road	Sandilands Street	Pagans Flat
1062	Stratheden Street	Kyogle Street	Roxy Lane	Kyogle Village
286	Stringybark Lane	Residential Access Road	Murray Scrub Road	Afterlee
116	Studders Lane	Feeder Road	Summerland Way	Back Creek
287	Sugar Glider Road	Residential Access Road	Horseshoe Creek Road	Green Pigeon

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
1183	Summerland Way	Kyogle Street	Summerland Way	Kyogle Village
83	Summerland Way	Rta Main Road	Grafton & Kyogle Towns	Main Roads
1088	Summit Street	Kyogle Street	Highfield Road	Kyogle Village
20	Tabulam Road	Arterial Road	Clarence Way	Lower Bottle
6012	Tabulam Road	Tabulam Street	Bruxner Highway	Tabulam Village
240	Tallowood Road	Residential Access Road	Lillian Rock Road	Cawongla
128	Taveners Road	Residential Access Road	Kyogle Road	Homeleigh
218	Taylors Road	Residential Access Road	Old Lawrence Road	Pagans Flat
124	Terrace Road	Feeder Road	Findon Creek Road	Findon
130	Theresa Creek Road	Collector Road	Bruxner Highway	Theresa Creek
244	Thompsons Road	Residential Access Road	Cawongla Road	Cawongla
92	Tims Lane	Feeder Road	Fawcetts Plain Road	Collins Creek
4014	Tooloom Street	Bonalbo Street	Sandilands Street	Bonalbo Village
7004	Tooloom Street	Mallanganee Street	Clarence Way	Mallanganee Village
40	Toonumbar Road	Residential Access Road	Afterlee Road	Afterlee
246	Tree Fern Road	Residential Access Road	Brindle Creek Road	Gradys Creek
125	Trentys Lane	Feeder Road	Sextonville Road	Doubtful Creek
263	Tryney Road	Residential Access Road	Tunglebung Creek Road	Lower Bottle
154	Tulks Road	Residential Access Road	Collins Creek Road	Collins Creek
131	Tunglebung Creek Road	Collector Road	Clarence Way	Lower Bottle
132	Turners Road	Residential Access Road	Summerland Way	Grevillia
279	Turpentine Road	Residential Access Road	Warrazambil Creek Road	Lynches Creek
189	Twin Pines Road	Residential Access Road	Williams Road	Cawongla
3622	Unumgar Street	Regional Road-Urban	Mount Lindesay Highway	Regional Roads
136	Valley Road	Residential Access Road	Bruxner Highway	Theresa Creek
143	Vidlers Road	Residential Access Road	Afterlee Road	Afterlee
144	Voltz Road	Residential Access Road	Gradys Creek Road	Gradys Creek
192	Wainwrights Road	Residential Access Road	Horseshoe Creek Road	Green Pigeon
272	Wallaby Road	Residential Access Road	Clarence Way	Pagans Flat
77	Walsh Road	Residential Access Road	Pigman Road	Doubtful Creek

Road No.	Road Name	Road Class	Road Start Datum	Section 94 Catchment/s
158	Walters Road	Residential Access Road	Green Pigeon Road	Green Pigeon
1064	Walters Street	Kyogle Street	Anzac Drive	Kyogle Village
250	Warra Warra Lane	Residential Access Road	Warrazambil Creek Road	Lynches Creek
151	Warrazambil Creek Road	Feeder Road	Lynches Creek Road	Lynches Creek
1065	Warrazambil Street	Kyogle Street	Groom Street	Kyogle Village
274	Watsons Road	Residential Access Road	Glen Road	Woodenbong
1049	Webbs Lane	Kyogle Street	Fawcett Street	Kyogle Village
146	Webbs Road	Feeder Road	Summerland Way	Back Creek
127	Wender Road	Residential Access Road	Collins Creek Road	Collins Creek
167	Whites Road	Residential Access Road	Homeleigh Road	Homeleigh
145	Wiangaree Back Road	Collector Road	Saville Street	Afterlee
1066	William Street	Kyogle Street	Saville Street	Kyogle Village
199	Williams Road	Collector Road	Kyogle Road	Cawongla
1067	Willis Street	Kyogle Street	Larkin Street	Kyogle Village
7005	Willock Street	Mallanganee Street	Sandilands Street	Mallanganee Village
1096	Willow Lane	Kyogle Street	Boorabee Street	Kyogle Village
294	Windfield Road	Residential Access Road	Tunglebung Creek Road	Lower Bottle
4361	Woodenbong Road	Regional Road-Urban	Grafton Township	Regional Roads
157	Woods Road	Residential Access Road	Sextonville Road	Doubtful Creek
12	Woodworths Road	Residential Access Road	Clarence Way	Lower Duck
2004	Worendo Street	Wiangaree Street	Boorabee Street	Wiangaree Village
1068	Wyangarie Street	Kyogle Street	Ettrick Street	Kyogle Village
147	Wyndham Road	Feeder Road	Eden Creek Road	Afterlee
1069	Wyndham Street	Kyogle Street	Groom Street	Kyogle Village
266	Wynlea Road	Residential Access Road	Afterlee Road	Afterlee
152	Yabbra Road	Collector Road	Clarence Way	Upper Duck
4009	Yabbra Street	Bonalbo Street	Clarence Way	Bonalbo Village
7006	Yabbra Street	Mallanganee Street	Sandilands Street	Mallanganee Village
153	Yates Road	Residential Access Road	Deep Creek Road	Pagans Flat
95	Yongurra Road	Feeder Road	Andrew Street	Back Creek

APPENDIX E – Work Activity Job Numbering System

ROUTINE MAINTENANCE JOB NUMBERING SYSTEM

This is the job numbering system for maintenance activities on all roads within the Kyogle Council area which also includes the cost of plant and equipment.. The job number consists of one of the activity numbers listed in APPENDIX D, with one of the road numbers listed below, creating the job number. Examples are listed below for each type of road.

JOB NUMBER EXTENSION FOR ALL ROADS

STATE ROADS

016	BRUXNER HIGHWAY
083	SUMMERLAND WAY

Example: 1110-083 is activity number and road number combined to create the job number for Temporary Pavement Repair, on the Summerland Way

REGIONAL ROADS

141	KYOGLE ROAD
150	CLARENCE WAY
361	CLARENCE WAY
544	BENTLEY ROAD
622	MOUNT LINDESAY HIGHWAY

Example: 1320-544 is activity number and road number combined to create the job number for Slashing, on the Bentley Road

LOCAL ROADS

100	SEALED ROADS EAST OF THE RANGE
101	UNSEALED ROADS EAST OF THE RANGE
200	SEALED ROADS WEST OF THE RANGE
201	UNSEALED ROADS WEST OF THE RANGE
300	ALL BRIDGES

Example: 1620-101 is activity number and road number combined to create the job number for replacing a sign on the unsealed sections for Local Roads

URBAN STREETS

1000	KYOGLE STREETS
2000	WIANGAREE STREETS
3000	WOODENBONG STREETS
4000	BONALBO STREETS
5000	OLD BONALBO STREETS
6000	TABULAM STREETS
7000	MALLANGANEE STREETS
8000	OLD GREVILLIA STREETS

Example: 1870-4000 is activity number and road number combined to create a job number for Garbage and Litter Removal in Bonalbo Streets

KYOGLÉ COUNCIL - LOCAL ROADS INSPECTION FORM

INSPECTED BY:

DATE: _____

INSPECTION START POINT (ch):

INSPECTION END POINT (ch): _____

[illegible]

I certify that I have inspected this road/section in accordance with the Procedure for Asset Inspection & found no unacceptable distress levels other than those recorded above.

Signed.....

Date.....

INSPECTED BY:

DATE: _____

INSPECTION START POINT (ch): _____

INSPECTION END POINT (ch):

[illegible]

I certify that I have inspected this road/section in accordance with the Procedure for Asset Inspection & found no unacceptable distress levels other than those recorded above.

Signed.....

Date _____

[illegible]

APPENDIX G – Daily Running Sheet

[illegible]