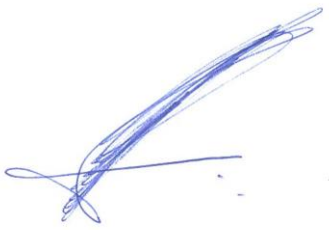
INFRASTRUCTURE COMMITTEE MEETING

AGENDA

5 NOVEMBER 2014

Your attendance is required at a meeting of the Infrastructure Committee to be held in the Council Chambers, 232 Bolsover Street, Rockhampton on 5 November 2014 commencing at 3.00pm for transaction of the enclosed business.



ACTING CHIEF EXECUTIVE OFFICER
29 October 2014

Next Meeting Date: 03.12.14

Please note:

In accordance with the *Local Government Regulation 2012*, please be advised that all discussion held during the meeting is recorded for the purpose of verifying the minutes. This will include any discussion involving a Councillor, staff member or a member of the public.

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1 OPENING

2 PRESENT

Members Present:

Councillor A P Williams (Chairperson)
The Mayor, Councillor M F Strelow
Councillor N K Fisher
Councillor G A Belz
Councillor S J Schwarten

In Attendance:

Mr E Pardon – Chief Executive Officer
Mr R Holmes – General Manager Regional Services

3 APOLOGIES AND LEAVE OF ABSENCE

Councillor Ellen Smith - Leave of Absence from 27 October 2014 to 7 November 2014

4 CONFIRMATION OF MINUTES

Minutes of the Infrastructure Committee held 1 October 2014

5 DECLARATIONS OF INTEREST IN MATTERS ON THE AGENDA

6 BUSINESS OUTSTANDING

6.1 BUSINESS OUTSTANDING TABLE FOR INFRASTRUCTURE COMMITTEE

File No:	**10097**
Attachments:	**1. Business Outstanding Table for Infrastructure Committee**
Responsible Officer:	**Michael Rowe - Acting Chief Executive Officer**
Author:	**Robert Holmes - General Manager Regional Services**

SUMMARY

The Business Outstanding table is used as a tool to monitor outstanding items resolved at previous Council or Committee Meetings. The current Business Outstanding table for the Infrastructure Committee is presented for Councillors' information.

OFFICER'S RECOMMENDATION

THAT the Business Outstanding Table for the Infrastructure Committee be received.

BUSINESS OUTSTANDING TABLE FOR INFRASTRUCTURE COMMITTEE

Business Outstanding Table for Infrastructure Committee

Meeting Date: 5 November 2014

Attachment No: 1

Date	Report Title	Resolution	Responsible Officer	Due Date	Notes
08 May 2013	Vallis Street - Proposed Traffic and Parking changes	THAT the matter of proposed traffic and parking changes in Vallis Street, North Rockhampton lay on the table pending community consultation and return to the Infrastructure Committee Meeting in July 2013.	Martin Crow	01/02/2014	Site inspection carried out with Cr Fisher on 23rd October. U-turn movement at Vallis St appears to be the most immediate problem as well as damage to footpath in Diplock St arising from their deliveries. Solution for U-turns should be considered in the context of the future development of Dean St. Investigation into this will need to be outsourced.
05 February 2014	Denham-West Street Area Stormwater Drainage	That a report be provided to this Committee with respect to a solution and costing for an upgraded stormwater drainage program in the Denham-West Street area to reduce the constant flash flooding and damage to businesses in the Denham-West Street area.	Martin Crow	12/02/2014	CCTV of abandoned watermain has revealed a blockage. This option is on hold at the moment pending overland flow investigations. Intersection survey has confirmed the trapped flow path on the north western corner of the intersection. Work now being done on options to alleviate this.
02 July 2014	Maloney Street Bus Set-Down Proposal	That the matter lay on the table pending a workshop to be held on this matter following which a report be returned to the Infrastructure Committee.	Martin Crow	16/07/2014	Workshop yet to be organised. Officer Level meeting held with representatives of Qld Education, TMR Road safety and Translink to further discuss issues and unlikely feasibility or funding of road project. TMR to provide examples of school operational changes to school for consideration, Council to investigate improvements to set down area in McLaughlin St and possible time of operation restrictions on B-Doubles in Farm St. Translink have reviewed the situation and believe there are no bus issues to be addressed.

Date	Report Title	Resolution	Responsible Officer	Due Date	Notes
02 July 2014	Road Safety Audit of Stewart Street and Middle Road-Macquarie Street Intersection	1. THAT the Road Safety Audit be received by Council. 2. THAT the following be implemented to address the Priority A recommendations of the audit report. a) Reinforce intersection priority at Middle Road and Macquarie Street through the construction of medians on Macquarie Street legs during the reconstruction of Middle Road. b) Leave the major road/minor road priority control at the Middle Road and Macquarie Street intersection under its current configuration. c) Regularly maintain vegetation around the Middle Road and Macquarie Street intersection, specifically on the Middle Road legs to increase driver's sight distance on approach to the intersection. d) Widen the shoulder of the northbound lane on Stewart Street at Middle Road to allow vehicles travelling northbound to pass a vehicle that is turning right into or has turned right out of Middle Road. e) Install an advisory 60km/hr sign (W8-2) underneath the Side Road Intersection (W2-4 R) sign on the Stewart Street approach to Middle Road. f) Review the slope of the batter at the southern end of Stewart Street and if table drain has a slope of 1:4 or greater then remove any vegetation within the clear zone. 3. THAT the Priority B and C recommendations be corrected through Council's regular maintenance and signage program for implementation when funds permit.	Angus Russell	16/07/2014	

Date	Report Title	Resolution	Responsible Officer	Due Date	Notes
02 July 2014	Diplock Street Local Area Traffic Management Trial	THAT preliminary plans and cost estimates for Local Area Traffic Management Devices generally be prepared in accordance with the recommendations of the 2012 MR Cagney report for the intersection of Diplock and Honour Streets and the intersection of Diplock and Wooster Streets.	Martin Crow	16/07/2014	Design Services have provided concept plans and indicative estimates. Report to be written for infrastructure committee.

7 PUBLIC FORUMS/DEPUTATIONS

Nil

8 OFFICERS' REPORTS

8.1 FUTURE USE OF ALTERNATIVE ROAD RESURFACING PRODUCTS - COUNCILLOR SCHWARTEN

File No:	**1234**
Attachments:	**1. Letter from Councillor Schwarten**
Authorising Officer:	**Evan Pardon - Chief Executive Officer**
Author:	**Evan Pardon - Chief Executive Officer**

SUMMARY

Councillor Stephen Schwarten has requested discussion on the future use of "slurry sealant" and other alternative road resurfacing products.

OFFICER'S RECOMMENDATION

THAT the report on the future use of alternative road resurfacing products be received.

BACKGROUND

Councillor Stephen Schwarten has submitted the attached request for discussion on the future use of 'slurry sealant' and other alternative road resurfacing products and for Council to re-visit the use of this material due to concerns about the life span of the product.

FUTURE USE OF ALTERNATIVE ROAD RESURFACING PRODUCTS - COUNCILLOR SCHWARTEN

Letter from Councillor Schwarten

Meeting Date: 5 November 2014

Attachment No: 1

Rockhampton Regional Council

Councillor Stephen Schwarten
Division 7
All Enquiries 1300 22 55 77
PO Box 1860, Rockhampton Q 4700
Phone (07) 4922 2647 | **Mobile** 0408 710 623
Email Stephen.Schwarten@rrc.qld.gov.au

28 October 2014
Mr Evan Pardon
Chief Executive Officer
Rockhampton Regional Council

Dear Sir

Re: Future use of "slurry sealant" and other alternative road resurfacing products and processes recently agreed upon by the elected Council, acting on the advice of senior Council officers.

With the next meeting of Council's Infrastructure Committee set for Wednesday 5 November 2014, I hereby give the pre-requisite one week's notice of my request that this item of correspondence from me be listed as an Agenda Item for the consideration of that particular meeting of that particular committee.

Having been as equally enthusiastic as other elected members were on embracing the use of these alternative road resealing products so as to, in effect, spread the annual road re-sealing Budget allocation further, this past weekend some information has come to light that has caused me concern, which has prompted me to seek to have Council revisit this matter.

Briefly, in a purely private capacity I am Facebook Friends with a number of people who hold elected Local Government Office in other jurisdictions. One such contact posted me a private message at the weekend to suggest that in her experience and that of the Melbourne-based Council of which she has been an elected member for some 15 years that the use of "slurry sealants" does NOT represent value for money". According to this person such products once laid have an effective life span of approximately 10 years, after which time the road or street in question must again be re-sealed.

My source is an intelligent woman, with much experience and based on her advice to me, I for one would like to revisit the use of these materials by this Council and, specifically, to hear further from Council engineering about this matter.

I therefore request you have my letter included as part of the Agenda for next Wednesday's Infrastructure Committee meeting, plus, have in attendance Council engineering staff to further advise me, and by extension other elected members, regarding this mater.

Yours sincerely

Councillor Stephen Schwarten
Member for Division 7

8.2 REVISION OF THE 2014/2015 CAPITAL BUDGET FOR ROADS AND DRAINAGE

File No:	**7028, 8785**
Attachments:	**1. Budget Tracking - 1 October 2014**
Authorising Officer:	**Robert Holmes - General Manager Regional Services**
Author:	**Russell Collins - Manager Civil Operations**

SUMMARY

Immediately preceding the budget adoption and after the draft budget had been prepared, the Councillors inspected a number of intended road projects to give further consideration to the scopes of work required with a view to maximising the available budget. Also, there have been opportunity to review the allocation for another few projects and this report seeks the Committee's endorsement of a number of revisions to the 2014/2015 Capital Budget for Roads and Drainage.

OFFICER'S RECOMMENDATION

THAT the budget amendments outlined in this report be approved.

COMMENTARY

Approval is sought to vary the budget allocations for the following projects in the 2014/2015 Capital Budget for roads and drainage:-

1. **Drainage at the intersection of Dean Street and Rodboro Street.**

   Increase the budget for the drainage improvements at the intersection of Dean Street and Rodboro Street from $380,000 to $750,000.

   The consultants estimate allowed for culverts with minimal cover across the intersection, but this option clashed with Telstra lines including an optic fibre cable. To avoid these cables the culvert needs to be laid deeper which requires two large pits and additional excavation for the channel that runs towards Water Street. Also to improve water capture into the culverts a portion of Rodboro Street needs to be reconstructed to lift the levels along Rodboro Street back towards Ellis Street.

2. **Reconstruction of Alick Street from Haynes Street to Glenmore Road**

   Decrease the budget for the reconstruction of Alick Street from $485,000 to $365,000.

   The proposal for Alick Street is reconstruct two sections of kerb and channel that are unserviceable and extend the stormwater system past the new kerb and channel, profile the centre of the road with asphalt and slurry seal the full road width.

3. **Reconstruction Kent Street between Cambridge Street and Albert Street**

   Decrease the budget for the reconstruction of Kent Street from $828,590 to $680,000. This estimate is based similar projects in recent years.

4. **Reconstruction Campbell Street between Denham Street and William Street and Derby Street**

   Decrease the budget for the construction of Campbell Street from $820,000 to $750,000. This estimate is based on the forecast cost to complete this project.

5. Construct Munro Lane-Marmor instead of Westacott Street

The approved budget includes a project to reconstruct Westacott Street at Marmor for $80,000.

Westacott Street between Rogers Street and the rail line is a sealed road. There are a few rough sections that can be repaired with asphalt and the road resealed out of the reseal program. The funding to reconstruct Westacott Street could then be used to construct Munro Lane-Marmor between Rogers Street and Tynan Street with a sealed surface for $90,000.

Munro Lane is located in the main residential area of Marmor that is used to access several residential properties.

6. Reallocate Fernvale Road Floodway to Nine Mile Road Floodway

There is a $35,000 allocation in the approved budget to reconstruct a floodway on Fernvale Road. This floodway was further damaged in the Oswald Flood Event and NDRRA funding has been approved to repair the floodway.

It is proposed to reallocate the $35,000 to repair a section of the Nine Mile Road Floodway near the Malchi –Nine Mile Road intersection with the Nine Mile Road. This concrete floodway is over 3.2 km long and sections have deteriorated under the heavy vehicles that are using the road.

To replace the floodway with concrete will be very expensive. It is proposed to do a trial section of the floodway by doing minor repairs to areas of the concrete that are moving under traffic and then applying a Geogrid to the concrete overlaid by 50 mm asphalt. Geofabrics Australia has agreed to supply the Geogrid free of charge to Council as part of the trial.

7. Construction of Stormwater at Corner of Highway Street and Renshaw Street

Increase budget from $50,000 to $90,000.

Original budget was based on extending the existing pipe. The final design requires an increase in the pipe size and reconstruction of the corner of Highway Street and Renshaw Street to eliminate a dangerous inlet.

BUDGET IMPLICATIONS

There is no net change to the overall Capital Budget for Roads and Drainage but the following amendments are recommended:-

1. Drainage Dean Street/Rodboro Street Intersection

   Increase from $380,000 to $750,000

2. Reconstruction Alick Street-Haynes Street to Glenmore Road

   Decrease from $485,000 to $365,000.

3. Reconstruction Kent Street-North Street to Albert Street

   Decrease from $828,590 to $680,000

4. Reconstruction Campbell Street-Denham Street to William Street

   Decrease from $820,000 to $750,000.

5. Construct Munro Lane-Marmor instead of Westacott Street

   Transfer $80,000 budget from Westacott Street and allocate $90,000 for construction of Marmor Lane.

6. Reallocate Fernvale Road Floodway to Nine Mile Road Floodway

   Reallocate budget from Fernvale Road and allocate $35,000 for floodway at the Nine Mile Road.

7. Increase budget for drainage works at Renshaw Street and Highway Street

   Increase from $50,000 to $90,000.

CORPORATE/OPERATIONAL PLAN

Provide value for money construction, maintenance and community response services for transport and drainage assets.

CONCLUSION

The proposed reductions/or reallocations in the budgets for the Kent Street, Campbell Street, Alick Street, Westacott Street and Fernvale Road will allow for a better outcome for the Dean Street/Rodboro Street drainage project, construction of a village street at Marmor and develop a cost effective alternative solution to reconstructing the Nine Mile Road Floodway in concrete.

REVISION OF THE 2014/2015 CAPITAL BUDGET FOR ROADS AND DRAINAGE

Budget Tracking - 1 October 2014

Meeting Date: 5 November 2014

Attachment No: 1

Budget Management Report - Capital Projects

				1st Revised Budget+approved carryover	Estimated Final Cost
				$	
CP427 CAPITAL CONTROL CENTRAL URBAN OPERATIONS					
0580697	0580697 - [N] UCC-FP-Main Street-Alexandra St to W	FP	Main	147,000	147,000
0943210	0943210 - [R] UCC-RC-Archer St	RC	Archer	25,000	25,000
0958492	0958492 - [R] UCC-RC-Quay Street-Fitzroy St to Den	RC	Quay	1,400,000	1,400,000
971781	0971781 - [U] UCC-FP-Kerrigan Street	FP	Kerrigan	0	
971784	0971784 - [R] UCC-AS-Annual Reseal Program (include yellow lines below)	AS		4,382,955	3,727,955
0971789	0971789 - [N] UCC-SL-Street Lighting Improvement P	SL		60,000	60,000
0977867	0977867 - [R] UCC-RC-Linett Street-Bernard Street	RC	Linett	370,000	370,000
0984746	0984746 - [U] UCC-PM-RPMs on 60 kmh roads	PM		60,000	60,000
984751	0984751 - [N] UCC-SW-Miles Street-14 Miles Street	SW	Miles	215,000	215,000
0984754	0984754 - [N] UCC-FP-Alma Street-Archer St to Camb	FP	Alma	40,000	40,000
0984760	0984760 - [N] UCC-FP-Upper Dawson Road-King St to	FP	Upper Dawson	100,000	100,000
0984762	0984762 - [U] UCC-BS-Bus set down upgrading progra			0	
0984775	0984775 - [N] UCC-RS-Road Safety Minor Works Progr	RS		60,000	60,000
986663	0986663 - [R] UCC-RF-Pilbeam Drive guard rails	TM	Pilbeam	6,500	6,500
0987767	0987767 - [N] UCC-LA-Land acquisition costs associ	LA		100,000	100,000
0987862	0987862 - [N] UCC-ALL-Preproject planning and desi	ALL		300,000	300,000
0987922	0987922 - [N] UCC-Bus Stop Program	Bus	Bus	100,000	100,000
1006218	1006218 - UCC-NC-Reynolds Street_Synge Street to E		Reynold	0	
1006543	1006543 - [U]-UCC-NC-Dean Street-High Street Inter	NC	Dean / High	445,000	445,000
1012697	1012697 - [R] UCC-RC-Glenmore Road-Rail crossing t	RC	Glenmore	300,000	300,000
1013900	1013900 - [R] UCC-RC-Cavell Street-New Exhibition	RC	Cavell	545,000	545,000
1015805	1015805 - UCC-RC-Campbell Street_Denham Street to	RC	Campbell	820,000	600,000
1015806	1015806 - [N] UCC-SW-Highway Street-Renshaw St to	SW	Highway	50,000	90,000
1015807	1015807 - [N] UCC-FP-Thozet Road-Lilley Ave to Zer	FP	Thozet	20,000	20,000
1015808	1015808 - UCC-TM-Fitzroy Street_Murray Street Inte	TM	Fitzroy / Murra	150,000	160,000
1015809	1015809 - UCC-TL-Dean Street_Kerrigan Street Inter	TL	Dean / Kerriga	25,000	25,000
1017213	1017213 - [R] UCC-RC-Archer Street-Canning Street	RC	Archer	490,000	490,000
1017214	1017214 - [R] UCC-RF-Replace guardrail at various	RF		37,000	37,000
1017216	1017216 - [R] UCC-RC-Archer Street-Murray Street t	RC	Archer	230,000	281,000
1017217	1017217 - [R] UCC-RC-North Street-Campbell Street	RC	North	370,000	428,000
1017218	1017218 - [U] UCC-SW-Oakley Street-Dibden Street t	SW	Oakley	445,000	445,000
1017220	1017220 - [R] UCC-RC-Musgrave Street-Outside centr	RC	Musgrave	50,000	42,000
1017222	1017222 - [R] UCC-RC-Quay Street-Derby to William	RC	Quay	177,000	177,000
1017230	1017230 - [N] UCC-SW-Park Street Stage 2-Glenmore	SW	Park	10,000	4,737
1017231	1017231 - [N] UCC-FP-Berserker St- High St to Leam	FP	Berserker	19,000	18,435
1017236	1017236 - [N] UCC-FP-Moyle Street-Park frontage	FP	Moyle	33,000	33,000
1021283	1021283 - UCC-BDG-High St Bridge Upgrade	BDG	High	30,000	30,000
1023215	1023215 - UCC-RF-Enhanced School Zone Signage - ap	RF		0	816
1026482	1026482 - [N] UCC-NC-Lion Creek Rd/Huish Dr Int	NC	Lion	50,000	50,000
1030576	1030576 - [N] UCC-SW-Dean Street-Rodboro Street	SW	Dean	380,000	750,000
1031091	1031091 - [N] UCC-SW-Rigalsford Park Levy Banks	SW	Rigalsford	50,000	50,000
1031247	1031247 - [R] UCC-RC-Alick Street-Glenmore Road to	RC	Alick	485,000	365,000
1031248	1031248 - [R] UCC-RC-North Street-Canning Street t	RC	North	330,000	330,000
1031249	1031249 - [R] UCC-RC-Kent Street-Albert Street to	RC	Kent	820,000	680,000
1033024	1033024 - [N] UCC-NC- Kent and Denham Street	NC	Kent / Denhan	850,000	850,000
1033025	1033025 - [N] UCC-TM-Thozet Road & Rockonia Road	TM	Thozet / Rock	260,000	260,000
1033076	1033076 - [N] UCC-SW-Denham Street-West Street to	SW	Denham	0	0
1033150	1033150 - [N] UCC-SW-Rockonia Road-Thozet Creek Cu	SW	Rockonia	0	0
1033798	1033798 - [N] UCC-SW-Harrow Street-Number 2/4	SW	Harrow	250,000	250,000
1033799	1033799 - [N] UCC-SW-Harrow Street-Number 60	SW	Harrow	200,000	200,000
1033800	1033800 - [N] UCC-SW-Parris Street-Number 20/24	SW	Parris	40,000	40,000
1033801	1033801 - [N] UCC-SW-Stack Street Stg1 Drainage Sc	SW	Stack	500,000	500,000
1033802	1033802 - [N] UCC-SW-Stamford Street-No 88	SW	Stamford	100,000	100,000
1033825	1033825 - [R] RWC-BR-River Street	BR	River		
1033833	1033833 - [R] UCC-RC- Thompson Street-MacAlister S	RC	Thompson	740,000	740,000
1033834	1033834 - [R] UCC-RC-Bevis St-Wandal Rd to Cavell	RC	Bevis	186,415	186,415
1033835	1033835 - [R] UCC-RC-Dee St-Stenhouse St to Lakes	RC	Dee	240,000	240,000
1033836	1033836 - [R] UCC-RC-Edward St-Painswick St to Arm	RC	Edward	311,580	311,580
1033837	1033837 - [R] UCC-RC-Eldon Street-High St to Clift	RC	Eldon	162,707	162,707
1033838	1033838 - [R] UCC-RC-Lion Creek Rd (service)-New E	RC	Lion Ck servic	178,875	100,000
1033839	1033839 - [R] UCC-RC-Lion Creek Rd-Hamilton Ave to	RC	Lion Ck	49,140	49,140
1033840	1033840 - [R] UCC-RC-Oakley St-Wandal Rd to Dibden	RC	Oakley	350,000	350,000
1033841	1033841 - [R] UCC-RC-Parnell St-Upper Dawson Rd to	RC	Parnell	225,000	225,000
1033853	1033853 - [U]-UCC-NC-Haynes St-Richardson Rd Inter	NC	Haynes	20,000	20,000
1033856	1033856 - [R] UCC-RC-Thozet Road-Dempsay St to Elp	RC	Thozet	315,000	295,000
1033867	1033867 - [R] UCC-AS-Murray lane-Cambridge St to A	AS	Murray	65,000	65,000
1033868	1033868 - [R] UCC-Br-Bridge Rehabilitation (Include blue line below)			150000	115,000
1033869	1033869 - [N] UCC-FP-Geordie St-Pritchard St to Mc	FP	Geordie	48,500	48,500
1033870	1033870 - [N] UCC-FP-Kerrigan St-Frenchmans creek	FP	Kerrigan	85,000	85,000
1033871	1033871 - [N] UCC-FP-Moyle St-Kerrigan Street to P	FP	Moyle	85,000	85,000
1033872	1033872 - [U] UCC-TM-East Street-Fitzroy St to Arc	TM	East	150,000	150,000
1033874	1033874 - [N] UCC-SW-Jardine Park Backflow Prevent	SW	Jardine	25,000	25,000
1033895	1033895 - [U] UCC-FP- Phillips St ftpath – disable	FP	Phillips	25,000	25,000
1033900	1033900 - [U] UCC-SW-Replace Stormwater Inlets	SW		55,000	55,000
1033901	1033901 - [R] UCC-NC-Reynolds Street	NC	Reynold	92,000	92,000
1034465	1034465 - [R] UCC-MISC-Asphalt Repairs	AS			400,000
1034466	1034466 - [R] UCC-MISC-Surface Preparation	AS			50,000

				1st Revised Budget+approved carryover $	Estimated Final Cost
1034468	1034468 - [R] UCC-AS-Gray St-End to Alexandra St	AS			10,000
1034471	1034471 - [R] UCC-AS-Talford St-Denham St to Fitz	AS	Talford		160,000
1034465	1037197 - [U] UCC-BDG-Repair Elphinstone St Footbr	BDG			35,000
1034466	1037459 - [R] UCC-AS-Kerrigan St-French Ave to Fre	AS			35,000
	CENTRAL URBAN OPERATIONS			**19,495,262**	**19,423,785**

CP428 CAPITAL CONTROL WEST URBAN OPERATIONS

0945995	0945995 - [R] UWC-Annual Reseal Program	AS		575,000	575,000
0958495	0958495 - [U] UWC-NC-Middle Road-Capricorn Street	NC	Middle	2,000,000	2,000,000
958872	0958872 - UWC-NC-Cornes Lane Mt Morgan				
958873	0958873 - UWC-NC-Dee Lane Mt Morgan				
0971793	0971793 - [U] UWC-SW-Replace Stormwater Inlets	SW		35,000	35,000
0984734	0984734 - [U] UWC-NC-Cornes Lane	NC	Cornes	105,000	105,000
0984737	0984737 - [U] UWC-NC-Dee Lane	NC	Dee	65,000	65,000
0984750	0984750 - [U] UWC-SW- East Street Mount Morgan-Wor	SW	East	100,000	100,000
0986982	0986982 - [N] UWC-SW-22 River Street-River St to D	SW	River	80,000	60,000
0987907	0987907 - [R] UWC-SL-Street Lighting Improvement P	SL		45,000	45,000
0989170	0989170 - [U] UWC-SW-11 River Street_ Project Numb	SW	River	90,000	110,000
1017238	1017238 - [U] UWC-NC-Foster Street-Macquarie Stree	NC	Foster	2,361,000	2,361,000
1017254	1017254 - [N] Stewart Street - Somerset Road to Bo	FP	Stewart	75,000	75,000
1033803	1033803 - [N] UWC-SW-Byrnes Parade-No. 29 to No. 3	SW	Byrnes	40,000	40,000
1033875	1033875 - [U] UWC-FP-Johnson Rd-Warra Pl to School	FP	Johnson	71,000	71,000
1033876	1033876 - [N] UWC-FP-Lawrie St-Ranger St to Platte	FP	Lawrie	20,000	20,000
1033877	1033877 - [N] UWC-TM-Gracemere Industrial Area	TM		150,000	150,000
	WEST URBAN OPERATIONS			**5,812,000**	**5,812,000**
	CENTRAL & WEST URBAN OPERATIONS			**25,307,262**	**25,235,785**

				1st Revised Budget+approved carryover	Estimated Final Cost
				$	
CP422 CAPITAL CONTROL RURAL OPERATIONS WEST					
0945976	0945976 - [R] REC-RC-Nicholson Road-Ch 4.0 to Ch 4			150,000	150,000
0971573	0971573 - [R] RWC-RF-Signage & GP upgrades			25,000	25,000
0971818	0971818 - [R] RWC-NC-Renewal of Unsealed Road Grav(Includes green line below)			735,000	300,000
0971819	0971819 - [R] RWC-NC-Renewal of Unsealed Road Grav (includes green lines below)			1,175,000	1,175,000
977868	0977868 - RWC-RC-Bruce Street & John Street (Bajoo				
0984720	0984720 - [U] RWC-NC-John Street - Bajool			115,000	115,000
0984722	0984722 - [U] RWC-NC-Bruce Street - Bajool			45,000	45,000
0984729	0984729 - [U] RWC-RS-Riverslea Road Formation Wide			100,000	100,000
0986610	0986610 - [U] RWC-NC-Roopes Crossing floodway upgr			115,000	115,000
0992571	0992571 - [U] RWC-NC-Blackspot-Razorback Road			220,000	232,000
1007064	1007064 - [R] RWC-Annual Reseal Program Includes blue lines below			400,000	400000
1007068	1007068 - [U] REC-SW- Razorback Road-Ch 0.6			50,000	50,000
1016045	1016045 - [R] RWC-BR-Stanwell Waroula Road-Deep Cr			225,000	225,000
1017192	1017192 - [R] RWC-SW-Alton Downs Nine Mile Road-Ch			50,000	50,000
1017193	1017193 - [R] RWC-SW-Glenroy Road-Ch 22.62			40,000	40,000
1017194	1017194 - [R] RWC-SW-Harding Road-Ch 5.92			25,000	25,000
1017196	1017196 - [R] RWC-SW-South Yaamba Road-Ch 5.56			5,000	5,000
1017199	1017199 - [U] RWC-BR-Gavial Creek Bridge Deck Upgr			0	2,890
1031982	1031982 - [N] RWC-GR- Glenroy Road Ch 13.35-13.75			72,000	71,738
1032053	1032053 - [N] RWC-GR- Marble Ridge Road Ch 0.74-1.			8,000	7,620
1032898	1032898 - [N] Heavy Vehicle Detour-Sand Creek Brid			3,000	2,813
1032899	1032899 - [N] Heavy Vehicle Detour-Louisa Creek CH			1,000	1,500
1033145	1033145 - [N] RWC-GR- Sheldrake Road Alton Downs C			6,000	5,721
1033148	1033148 - [N] RWC-GR- Cranston Road Alton Downs Ch			25,200	25,085
1033201	1033201 - [N] RWC-GR-Moglino Road Midgee Ch 0.73-2			5,000	4,243
1033819	1033819 - [R] REC-RC-Chapman Lane-Ch 0.0 to Ch 0.2			25,000	25,000
1033820	1033820 - [R] REC-RC-Glenroy Rd-Ch 19.878 to Ch 21			200,000	200,000
1033821	1033821 - [R] REC-RC-McKenzie Rd-Ch 4.392 to Ch 5.			150,000	150,000
1033822	1033822 - [R] REC-RC-Stanwell/Waroula Rd-Ch 19.8 t			240,000	240,000
1033825	1033825 - [R] RWC-BR-River Street			150,000	150,000
1033826	1033826 - [R] RWC-BDG-Rosewood Road-Neerkol Creek			500,000	500,000
1033827	1033827 - [R] RWC-SW-Fernvale Road-Ch 0.1			35,000	0
	[R] RWC-SW-Nine Mile Road Floodway Trial Section				35,000
1033828	1033828 - [R] RWC-SW-Glenroy Road-Ch 9.84			70,000	70,000
1033829	1033829 - [R] RWC-SW-Kabra Road-Ch 1.94			65,000	65,000
1033845	1033845 - [R] UWC-RC-Westacott St-Toonda St to Ch	RC	Westacott	80,000	
	RWC-RC-Munro Lane-Marmor				90,000
1033851	1033851 - [U] REC-SW- Kabra Road-Ch 3.5 to Ch 3.6			200,000	200,000
1033864	1033864 - [N] RWC-NC-Clem Clark Rd			50,000	50,000
1034476	1034476 - [N] RWC-GR-Rosewood Rd Ch24.2-25 26.5-27			0	65,000
1034479	1034479 - [R] RWC-BDG-Mount Hopeful Road Ch 0.4km			0	0
1036551	1036551 - [R] RWC-RS-High Street Bajool Ch 0.03 to				
1036552	1036552 - [R] RWC-RS-High Street Bajool Ch 0.87 to				
1036556	1036556 - [R] RWC-RS-Ulam Street Bajool Ch 0.00 to				
1036558	1036558 - [R] RWC-RS-Toonda Street Bajool Ch 0.00				
1036560	1036560 - [R] RWC-RS-South Ulam Rd Bajool Ch 0.05				
1036561	1036561 - [R] RWC-RS-South Ulam Rd Bajool Ch 14.57				
1037198	1036562 - [R] RWC-RS-South Ulam Rd Bajool Ch 17.62				
1036563	1036563 - [R] RWC-RS-Upper Ulam Rd Bajool Ch 2.61				
1036564	1036564 - [R] RWC-RS-Upper Ulam Rd Bajool Ch 4.29				
1036565	1036565 - [R] RWC-RS-Mt Hopeful Rd Bajool Ch 0.00				
1036566	1036566 - [R] RWC-RS-Mt Hopeful Rd Bajool Ch 1.90				
1036567	1036567 - [R] RWC-RS-Mt Hopeful Rd Bajool Ch 2.66				
1036569	1036569 - [R] RWC-RS-Rogers St Marmor Ch 0.02 to 0				
1036570	1036570 - [R] RWC-RS-Tynan St Marmor Ch 0.00 to 0.				
1036571	1036571 - [R] RWC-RS-Westacott St Marmor Ch 0.00 t				
1036573	1036573 - [R] RWC-RS-Christiansen Rd Marmor Ch 0.2				
1036574	1036574 - [R] RWC-RS-Leydens Hill Rd Mt Morgan Ch				
1036622	1036622 - [R] RWC-GR-Glenroy Marlborough Road Ch 4				33,000
1036623	1036623 - [U] RWC-NC-Hunt Road Alton Downs-Bitumen			0	55,000
1037142	1037142 - [U] RWC-NC-Laurel Bank Rd Bitumen seal S				33,000
1037154	1037154 - [R] RWC-GR-Morbank Rd Glenroy Ch 8.1-8.5				35,000
1037198	1037198 - [R] RWC-GR-Limestone Rd Limestone Ch 0-0				15,000
1037199	1037199 - [R] RWC-GR-Queen of the Valley Rd Moonga				12,000
1037200	1037200 - [R] RWC-GR-Grant Road Moongan Ch 0.26-0.				7,000
1037201	1037201 - [R] RWC-GR-Callungal Road Baree Ch 0.53				14,000
1037202	1037202 - [R] RWC-GR-Struck Oil Rd Limestone Ch 0.				5,000
1037225	1037225 - [R] RWC-GR-Reid Road Ch 0.0-0.45 1.66-3.				40,000
1037226	1037226 - [R] RWC-GR-Bond Rd Ch0.0-0.55 0.65-0.81				25,000
1037227	1037227 - [R] RWC-GR-Tucker Road Ch 1.31-1.97				15,000
1037281	1037281 - [N] RWC-NC-Bodero Road Clearing and Form				20,000
1037461	1037461 - [R] RWC-GR-Stanwell-Waroula Road Ch 13.8				12,000
1037490	1037490 - [R] RWC-GR-Kangaroo Crescent Baree Ch 0.				9,000
1037491	1037491 - [R] RWC-GR-Cocks Road Stanwell Ch 0.8-1.				5,000
1037492	1037492 - [R] RWC-GR-Smith Road Stanwell Ch 0.04-0				12,000
	RURAL OPERATIONS WEST			**5,360,200**	**5,360,610**
	URBAN & RURAL OPERATIONS			**30,667,462**	**30,596,395**

9 STRATEGIC REPORTS

9.1 CIVIL OPERATIONS MONTHLY OPERATIONS REPORT - NOVEMBER 2014

File No:	**7028**
Attachments:	**1. Civil Operations Monthly Operations Report - September 2014** **2. Works Program October - November 2014**
Authorising Officer:	**Robert Holmes - General Manager Regional Services**
Author:	**Russell Collins - Manager Civil Operations**

SUMMARY

This report outlines Civil Operations Monthly Operations Report (attachment 1), and also the Works Program (attachment 2) of planned projects for the months of October - November 2014.

OFFICER'S RECOMMENDATION

THAT the Civil Operations Monthly Operations Report for November 2014 report be received.

COMMENTARY

The Civil Operations Section submits a monthly report outlining the details of the programmed works for the upcoming month to assist Councillors and Council's Executives when they receive enquiries from their constituents in relation to road and associated road reserve works. This report also outlines the Civil Operations Monthly Operations Report (Attachment 1), and the Works Program (Attachment 2).

BACKGROUND

In September, 354 customer requests were received and of those 179 requests were completed. A total of 293 requests were completed for September and those received in previous months.

In September there were 294 requests for inspections received with 291 inspections completed in the month; 360 works orders were issued for staff to conduct action, with 251 works orders being completed in September.

BUDGET IMPLICATIONS

All works specified in this report are included in Council's current approved budget.

LEGISLATIVE CONTEXT

All works outlined in this report will be conducted in a manner to comply with all legislation.

STAFFING IMPLICATIONS

The works specified in this report have been programmed whilst taking into consideration current staffing levels.

RISK ASSESSMENT

Civil Operations Section's staff conduct a risk assessment of their job site before work commences to ensure they have identified assessed and controlled any possible hazards to ensure the safety of themselves and others.

CONCLUSION

This report outlines the planned works program and the customer requests received for Civil Operations, Urban and Rural Operations Capital Projects Report Financial Year to Date and are for the information of Councillors.

CIVIL OPERATIONS MONTHLY OPERATIONS REPORT – NOVEMBER 2014

Civil Operations Monthly Operations Report - September 2014

Meeting Date: 5 November 2014

Attachment No: 1

MONTHLY OPERATIONS REPORT

CIVIL OPERATIONS SECTION

30 September 2014

VARIATIONS, ISSUES AND INNOVATIONS

Innovations

Improvements / Deterioration in Levels of Services or Cost Drivers

Stabilising Agents for Unsealed Roads

The use of stabilising agents for unsealed roads is currently being investigated with the aim of reducing dust and extending the time before a regrade is required.

Nine Mile Road Floodway

The concrete floodway on the Nine Mile Road is 3.2 km length and is deteriorating under the increasing volumes of heavy vehicles that are using the road. To replace the floodway with concrete slabs would be in excess of $2,000,000. It is proposed to conduct a trial repair using a geogrid placed between the existing concrete and an asphalt surfacing layer. Geofabrics Australia has agreed to supply the geogrid free of charge.

1. COMPLIANCE WITH CUSTOMER SERVICE REQUESTS

The response times for completing the predominant customer requests in the reporting period for *Civil Operations* are as below:

All Monthly Requests (Priority 3)

Civil Operations 'Traffic Light' report - September 2014

	Balance B/F	Completed in Current Month	Current Month NEW Requests		TOTAL INCOMPLETE REQUESTS BALANCE	Work Orders Issued	Under Long Term Investigation	Avg W/O Issue Time (days) 12 Months	Completion Standard (days)	Avg Completion Time Current Month	Avg Completion Time (days) 6 Months	Avg Completion Time (days) 12 Months	Avg Duration (days) 12 Months (complete and incomplete)	Avg Completion Time (Days) Q1
			Received	Completed										
Property Accesses	3	1	6	4	4	0	1	14.49	14	5.50	4.73	8.50	8.27	4.33
Bridge Vandalism (Asset)	0	0	0	0	0	0	0	0.00	14	0.00	0.00	0.00	0.00	0.00
Bridge Maintenance (Asset)	1	0	0	0	1	0	0	7.42	14	0.00	2.40	20.00	26.43	1.67
Burn Off Advice - Reduction Burning	1	1	3	3	0	0	0	0.00	5	0.67	2.67	3.72	1.42	2.38
Bus Stops, Seating, Bus Shelters (Asset)	3	1	2	2	2	0	0	9.92	14	9.00	28.25	25.36	38.17	9.33
Drainage Miscellaneous (Asset)	14	7	16	7	16	3	0	10.72	14	10.43	21.86	32.12	29.15	12.96
Drainage Inundation (Flooding Issues) (Asset)	1	0	7	4	4	2	0	9.58	14	3.50	13.89	34.66	23.88	2.80
Drainage Kerb & Chanel (Asset)	14	6	15	5	18	4	0	9.03	14	7.80	29.74	33.31	33.88	23.47
Drainage Gully Pits (Asset)	2	1	5	3	3	0	0	1.51	14	4.67	40.08	51.77	41.00	12.00
Drainage Pipes and Culverts (Asset)	6	1	5	2	8	1	1	-3.74	14	11.00	32.58	30.58	32.61	24.67
Drainage Vandalism (Asset)	0	0	0	0	0	0	0	0.00	14	0.00	0.00	0.00	0.00	0.00
Grading Unsealed Road Maintenance (Asset)	19	11	11	5	14	5	0	3.53	14	5.00	18.93	32.39	34.43	10.80
Guard Rails (Asset)	1	0	0	0	1	0	0	17.29	14	0.00	49.33	52.00	66.33	22.00
Guide Post (Asset)	0	0	0	0	0	0	0	7.62	14	0.00	22.67	54.25	63.67	24.00
Illegal Dumping (INFRA ONLY)	1	0	6	4	3	2	0	17.39	14	7.00	15.88	25.17	24.79	7.45
Infrastructure - General Enquiry	4	1	3	3	3	0	0	34.84	2	3.43	5.99	9.28	7.47	4.00
Miscellaneous Road Issues (Asset)	34	13	80	49	52	11	0	6.05	14	2.76	14.52	24.16	20.96	6.65
Footpath & Off-Road Cycle Ways (Asset)	16	10	27	13	20	7	0	8.06	14	11.77	19.98	28.95	27.64	18.10
Potholes - Sealed Roads (Asset)	28	13	77	28	64	34	0	1.21	14	6.82	11.85	16.59	15.48	11.57
Railway Crossings (Asset)	0	0	0	0	0	0	0	0.00	14	0.00	0.00	0.00	0.00	0.00
Rural Roadside Vegetation Slashing (Asset)	3	2	0	0	1	0	0	5.63	14	0.00	10.24	9.42	11.63	23.40
Signs & Lines (Already Existing) - (Asset)	39	21	51	25	44	11	0	5.79	14	7.76	25.18	30.57	29.15	12.30
Street Lighting - Other (Asset)	0	0	1	1	0	0	0	24.10	14	1.00	26.07	22.00	18.28	4.50
Street Lighting - Maintenance (Asset)	0	0	1	1	0	0	0	3.21	14	0.00	11.40	12.43	10.00	0.80
Street Sweeping - (Asset)	9	4	16	8	13	1	0	8.80	14	8.75	10.86	19.89	18.07	11.15
Traffic Lights (Asset)	2	1	6	3	4	2	0	7.25	14	0.67	4.65	10.64	8.97	6.60

Comments & Additional Information

The Civil Operations figures are accurate with the exception of the five columns highlight in blue. The figures shown in Completion Standard (days) are incorrect as they do not represent a Service Standard timeframe of when requests are completed. These figures have been captured from the Priority Escalation timeframe, example: Priority 3 – 14 days.

As at 1 October 2014, Civil Operations have adopted Service Levels for their Child Request Codes.

The Priority Escalation timeframes are only used as a notification reminder process.

These Service Levels have been set up in Pathways under Priority Escalation and Estimated Duration Maintenance parameters.

Priority Escalation

This function allows the Actioning Officer and/or Responsible Officer of the Request to receive an e-mail message each time the Priority is escalated. These Priority escalations are notification / reminders to action the request and not necessarily to complete the request.

Estimated Duration Maintenance

The Estimated Duration Maintenance form displays the Estimated Duration Maintenance Timeframe (or Service Level) for Request Types ie. Minutes, Hours, Days, Weeks and Years.

2. COMPLIANCE WITH STATUTORY AND REGULATORY REQUIREMENTS INCLUDING SAFETY, RISK AND OTHER LEGISLATIVE MATTERS

Safety Statistics

The safety statistics for the reporting period are:

	FIRST QUARTER		
	July	**Aug**	**Sept**
Number of Lost Time Injuries	1	0	4
Number of Days Lost Due to Injury	27	0	29
Total Number of Incidents Reported	4	2	7
Number of Incomplete Hazard Inspections	3	3	0

Risk Management Summary

Example from Section Risk Register (excludes risks accepted/ALARP)

Potential Risk	Current Risk Rating	Future Control & Risk Treatment Plans	Due Date	% Completed	Comments
Budget overrun (Capital Projects) resulting in inability to complete project to specification impacting on end user/fit for purpose, seeing corporate/operational plan objectives not being addressed and Council's credibility with the community being impacted.	Very High 2	1. (2) Design Services to design high risk projects prior to drafting budget to provide design estimates. Apply cost indexation to design estimates to update estimate to proposed budget period. 2. (2) Coordinators Urban and Rural Operations to prepare estimates for new projects and the Manager Civil Operations to review estimates. 3. Project management framework	30/06/2015	25%	All high risk projects being scoped, designed and design estimates being checked by Co-Ordinator and Works Engineers.

Potential Risk	Current Risk Rating	Future Control & Risk Treatment Plans	Due Date	% Completed	Comments
		including project plans to be implemented.			
Increased input costs not factored in to budgets thus resulting in inability to fully complete stated work programs.	High 4			25%	Material costs and plant costs regularly updated in estimates.
Failure of operation asset condition (roads, drainage, etc) leading to: injury or death of public/staff; damage to property/equipment - resulting in legal outcomes, financial impacts and negative publicity for Council.	Very High 2	(1) Fine tune and review the ongoing Civil Operation asset condition inspections, which are conducted in conjunction with Council's Asset Management Unit for assets, facilities & major projects. (Note - Civil Operations inspect rural roads but the Asset Management Unit inspect urban roads)	28/02/2015	25%	Rural roads being regularly inspected. Use of RACAS inspection system to commence in September, 2014
"Unacceptable response times on maintenance call outs resulting in low community confidence. "	Moderate 5			25%	Callout escalates until a response from a Council officer is obtained.
Interruption to program of works resulting in non-achievement of corporate targets and reduction in service delivery. (This includes Capital Works program)	Moderate 5	Project management framework/tool to provide a robust and prioritised forward works program.	30/06/2014	80%	Three Forward Works Program completed for years up to 2016/2017
Contamination of land and waterways from inappropriate work practices / procedures.	Moderate 6			25%	All fuel trailers have spill kits. In field maintenance and fuelling kept to the minimum possible to reduce risk of contamination by hydrocarbons.
Landslip and/or rocks on road along Pilbeam Drive at Mt Archer - poses a threat to safety of road users resulting in public liability.	High 5			25%	Regular inspections are done after significant rain events

Legislative Compliance & Standards

3. ACHIEVEMENT OF CAPITAL PROJECTS WITHIN ADOPTED BUDGET AND APPROVED TIMEFRAME

The following abbreviations have been used within the table below:

RWC	*Rural West Control*
UCC	*Urban Central Control*
UWC	*Urban West Control*

BDG	*Bridges*	*RC*	*Reconstruction*	*TM*	*Traffic Management*
BR	*Boat Ramps*	*RF*	*Road Furniture*	*AS*	*Asphalt Seal*
FP	*Footpaths*	*RS*	*Reseal*	*LA*	*Land Acquisition*
GR	*Gravel Re-sheet*	*SW*	*Stormwater*	*SL*	*Street Lighting*
NC	*New Construction*	*TL*	*Traffic Lights*		

Projects which do have a Start Date assigned are yet to commence in the 2014.2015 Financial Year.

Project	Start Date	Expected Completion Date	Status 30 September 2014	Adopted Budget + Carry Over	Total inc Committals	Estimated Final Cost
URBAN OPERATIONS CENTRAL						
RWC-BR-River Street					72	
UCC-ALL-Preproject planning and desi				300,000	0	300,000
UCC-AS-Annual Reseal Program				4,382,955	0	3,727,955
- UCC-AS-Asphalt Repairs	01/07/2014		35% completed		307,509	400,000
- UCC-AS-Gray St-End to Alexandra St					874	10,000
- UCC-AS-Kerrigan St-French Ave to Fre	04/09/2015				27,030	35,000
- UCC-AS-Surface Preparation	01/07/2014		35% completed		2,086	50,000
- UCC-AS-Talford St-Denham St to Fitzr	21/07/2014	15/08/2014	Completed		156,866	160,000
UCC-AS-Murray lane-Cambridge St to A				65,000	0	65,000
UCC-BDG-High St Bridge Upgrade				30,000	0	30,000
UCC-BR-Bridge Rehabilitation (Include blue line below)				150000	0	115,000
- UCC-BDG-Repair Elphinstone St Footbr	16/10/2014	23/10/2014			13,023	35,000
UCC-BS-Bus set down upgrading progra				0	0	
UCC-BS-Bus Stop Program	12/08/2014	21/11/2014	15% completed	100,000	23,901	100,000
UCC-FP- Phillips St ftpath – disable	08/10/2014	24/10/2014		25,000	81	25,000
UCC-FP-Alma Street-Archer St to Camb	12/08/2014	22/08/2014	Completed	40,000	38,365	40,000

UCC-FP-Berserker St- High St to Leam	15/05/2014	11/07/2014	Completed	19,000	18,445	18,435

Project	Start Date	Expected Completion Date	Status 30 September 2014	Adopted Budget + Carry Over	Total inc Committals	Estimated Final Cost
UCC-FP-Geordie St-Pritchard St to Mc				48,500	0	48,500
UCC-FP-Kerrigan St-Frenchmans creek	06/08/2014	01/10/2014	Completed	85,000	85,000	165,000
UCC-FP-Main Street-Alexandra St to W				147,000	0	147,000
UCC-FP-Moyle St-Kerrigan Street to P	27/10/2014			85,000	0	85,000
UCC-FP-Moyle Street-Park frontage				33,000	0	33,000
UCC-FP-Thozet Road-Lilley Ave to Zer				20,000	0	20,000
UCC-FP-Upper Dawson Road-King St to				100,000	0	100,000
UCC-LA-Land acquisition costs associ				100,000	2,306	100,000
UCC-NC- Kent and Denham Street				850,000	9,796	850,000
UCC-NC-Dean Street-High Street Inter	03/03/2014	08/08/2014	98% completed	445,000	437,800	445,000
UCC-NC-Haynes St-Richardson Rd Inter				20,000	707	20,000
UCC-NC-Lion Creek Rd/Huish Dr Int	31/10/2014			50,000	3,100	50,000
UCC-NC-Reynolds Street				92,000	148	92,000
UCC-PM-RPMs on 60 kmh roads				60,000	2,535	60,000
UCC-RC- Thompson Street-MacAlister S	04/11/2014	05/03/2015		740,000	28,520	740,000
UCC-RC-Alick Street-Glenmore Road to				485,000	15,733	365,000
UCC-RC-Archer St				25,000	24,327	25,000
UCC-RC-Archer Street-Canning Street	18/08/2014	31/10/2014	55% complete	490,000	113,411	490,000
UCC-RC-Archer Street-Murray Street t	28/04/2014	15/08/2014	Completed	230,000	293,937	281,000
UCC-RC-Bevis St-Wandal Rd to Cavell				186,415	0	186,415
UCC-RC-Campbell Street_Denham Street to	21/07/2014	11/10/2014	85% completed	820,000	257,489	600,000
UCC-RC-Cavell Street-New Exhibition				545,000	18,339	545,000
UCC-RC-Dee St-Stenhouse St to Lakes				240,000	0	240,000
UCC-RC-Edward St-Painswick St to Arm				311,580	0	311,580
UCC-RC-Eldon Street-High St to Clift				162,707	0	162,707

UCC-RC-Glenmore Road-Rail crossing t				300,000	12,329	300,000
UCC-RC-Kent Street-Albert Street to	08/10/2014	21/01/2015		828,590	20,311	680,000
Project	**Start Date**	**Expected Completion Date**	**Status 30 September 2014**	**Adopted Budget + Carry Over**	**Total inc Committals**	**Estimated Final Cost**
UCC-RC-Linett Street-Bernard Street				370,000	14,312	370,000
UCC-RC-Lion Creek Rd (service)-New E	18/08/2014	11/09/2014	Completed	178,875	84,266	100,000
UCC-RC-Lion Creek Rd-Hamilton Ave to				49,140	0	49,140
UCC-RC-Musgrave Street-Outside centr	19/08/2014	29/08/2014	Completed	50,000	41,789	42,000
UCC-RC-North Street-Campbell Street	28/03/2014	01/08/2014	Completed	370,000	427,206	428,000
UCC-RC-North Street-Canning Street t				330,000	0	330,000
UCC-RC-Oakley St-Wandal Rd to Dibden				350,000	0	350,000
UCC-RC-Parnell St-Upper Dawson Rd to				225,000	0	225,000
UCC-RC-Quay Street-Derby to William				177,000	0	177,000
UCC-RC-Quay Street-Fitzroy St to Den				1,400,000	0	1,400,000
UCC-RC-Thozet Road-Dempsay St to Elp	05/08/2014	15/08/2014	Completed	315,000	294,723	295,000
UCC-RF-Enhanced School Zone Signage - ap				0	816	816
UCC-RF-Pilbeam Drive guard rails				6,500	0	6,500
UCC-RF-Replace guardrail at various			50% completed	37,000	21,036	37,000
UCC-RS-Road Safety Minor Works Progr				60,000	0	60,000
UCC-SL-Street Lighting Improvement P				60,000	26,039	60,000
UCC-SW-Dean Street-Rodboro Street				380,000	22,324	750,000
UCC-SW-Denham Street-West Street to				0	7,174	0
UCC-SW-Harrow Street-Number 2/4				250,000	0	250,000
UCC-SW-Harrow Street-Number 60				200,000	0	200,000
UCC-SW-Highway Street-Renshaw St to	24/10/204	07/11/2014		50,000	2,967	50,000
UCC-SW-Jardine Park Backflow Prevent				25,000	22,897	25,000
UCC-SW-Miles Street-14 Miles Street				215,000	0	215,000
UCC-SW-Oakley Street-Dibden Street t				445,000	0	445,000

UCC-SW-Park Street Stage 2-Glenmore	21/03/2014	04/07/2014	Completed	10,000	4,782	4,737
UCC-SW-Parris Street-Number 20/24				40,000	5,000	40,000
UCC-SW-Replace Stormwater Inlets				55,000	0	55,000
Project	**Start Date**	**Expected Completion Date**	**Status 30 September 2014**	**Adopted Budget + Carry Over**	**Total inc Committals**	**Estimated Final Cost**
UCC-SW-Rigalsford Park Levy Banks				50,000	4,342	50,000
UCC-SW-Rockonia Road-Thozet Creek Cu				0	9,936	0
UCC-SW-Stack Street Stg1 Drainage Sc	13/10/2014	11/12/2014		500,000	12,856	500,000
UCC-SW-Stamford Street-No 88				100,000	7,440	100,000
UCC-TL-Dean Street_Kerrigan Street Inter	20/05/2014	15/06/2014	95% completed	25,000	1,754	25,000
UCC-TM-East Street-Fitzroy St to Arc				150,000	666	150,000
UCC-TM-Fitzroy Street_Murray Street Inte	28/03/2014	15/08/2014	Completed	150,000	159,149	160,000
UCC-TM-Thozet Road & Rockonia Road				260,000	1,387	260,000
				19,495,262	**3,086,904**	**19,463,785**
URBAN WEST OPERATIONS						
UWC-Annual Reseal Program				575,000	0	575,000
UWC-FP-Johnson Rd-Warra Pl to School				71,000	0	71,000
UWC-FP-Lawrie St-Ranger St to Platte				20,000	0	20,000
UWC-FP-Stewart Street - Somerset Road to Bo				75,000	0	75,000
UWC-NC-Cornes Lane				105,000	49	105,000
UWC-NC-Dee Lane				65,000	49	65,000
UWC-NC-Foster Street-Macquarie Stree	12/05/2014	30/10/2014	70% completed	2,361,000	846,277	2,361,000
UWC-NC-Middle Road-Capricorn Street	13/10/2014	01/07/2015		2,000,000	41,539	2,000,000
UWC-RC-Westacott St-Toonda St to Ch				80,000	0	0
UWC-SL-Street Lighting Improvement P				45,000	2,604	45,000
UWC-SW- East Street Mount Morgan-Wor	13/10/2014	07/11/2014		100,000	2,283	100,000
UWC-SW-11 River Street_ Project Numb	28/08/2014	10/10/2014	80% completed	90,000	73,111	110,000
UWC-SW-22 River Street-River St to D	12/08/2014	27/08/2014	Completed	80,000	47,645	60,000

UWC-SW-Byrnes Parade-No. 29 to No. 3				40,000	1,816	40,000
UWC-SW-Replace Stormwater Inlets				35,000	56	35,000
UWC-TM-Gracemere Industrial Area				150,000	0	150,000
				5,892,000	**1,015,429**	**5,812,000**
Project	**Start Date**	**Expected Completion Date**	**Status 30 September 2014**	**Adopted Budget + Carry Over**	**Total inc Committals**	**Estimated Final Cost**
RURAL OPERATIONS WEST						
RWC-Annual Reseal Program				400,000	0	329,361
- RWC-RS-Christiansen Rd Marmor Ch 0.2						10,145
- RWC-RS-High Street Bajool Ch 0.03 to						13
- RWC-RS-High Street Bajool Ch 0.87 to						887
- RWC-RS-Leydens Hill Rd Mt Morgan Ch						13
- RWC-RS-Mt Hopeful Rd Bajool Ch 0.00						6,108
- RWC-RS-Mt Hopeful Rd Bajool Ch 1.90						3,966
- RWC-RS-Mt Hopeful Rd Bajool Ch 2.66						1,252
- RWC-RS-Rogers St Marmor Ch 0.02 to 0						858
- RWC-RS-South Ulam Rd Bajool Ch 0.05						4,236
- RWC-RS-South Ulam Rd Bajool Ch 14.57						2274.53
- RWC-RS-South Ulam Rd Bajool Ch 17.62						2,952
- RWC-RS-Toonda Street Bajool Ch 0.00						1219.77
- RWC-RS-Tynan St Marmor Ch 0.00 to 0.						862
- RWC-RS-Ulam Street Bajool Ch 0.00 to						726.81
- RWC-RS-Upper Ulam Rd Bajool Ch 2.61						3,283
- RWC-RS-Upper Ulam Rd Bajool Ch 4.29						17,108
- RWC-RS-Westacott St Marmor Ch 0.00 t						14,736
RWC-BDG-Mount Hopeful Road Ch 0.4km				0	4,874	0
RWC-BDG-Rosewood Road-Neerkol Creek				500,000	49,087	500,000
RWC-BR-Gavial Creek Bridge Deck Upgr	02/06/2014	18/07/2014	100% complete	0	3,379	2,890

RWC-BR-River Street				150,000		150,000
RWC-BR-Stanwell Waroula Road-Deep Cr	11/03/2014	08/10/2014	95% completed	225,000	175,738	225,000
RWC-GR- Cranston Road Alton Downs Ch	13/06/2014	11/07/2014	100% complete	25,200	25,085	25,085
RWC-GR- Glenroy Road Ch 13.35-13.75	02/06/2014	31/07/2014	100% complete	72,000	71,757	71,738
RWC-GR- Marble Ridge Road Ch 0.74-1.	13/06/2014	18/07/2014	100% complete	8,000	7,620	7,620
Project	**Start Date**	**Expected Completion Date**	**Status 30 September 2014**	**Adopted Budget + Carry Over**	**Total inc Committals**	**Estimated Final Cost**
RWC-GR- Sheldrake Road Alton Downs C	13/06/2014	31/07/2014	100% complete	6,000	5,853	5,721
RWC-GR-Bond Rd Ch0.0-0.55 0.65-0.81	05/09/2014	03/10/2014	100% complete		23,817	25,000
RWC-GR-Calliungal Road Baree Ch 0.53	13/08/2014	05/09/2014	100% complete		12,345	14,000
RWC-GR-Cocks Road Stanwell Ch 0.8-1.	18/08/2014	28/08/2014	100% complete		4,700	5,000
RWC-GR-Glenroy Marlborough Road Ch 4	31/07/2014	22/08/2014	100% complete		32,928	33,000
RWC-GR-Grant Road Moongan Ch 0.26-0.	14/08/2014	27/08/2014	100% complete		5,870	7,000
RWC-GR-Kangaroo Crescent Baree Ch 0.			100% complete		8,670	9,000
RWC-GR-Limestone Rd Limestone Ch 0-0	27/07/2014	31/07/2014	100% complete		13,942	15,000
RWC-GR-Mogilno Road Midgee Ch 0.73-2	13/06/2014	11/07/2014	100% complete	5,000	4,243	4,243
RWC-GR-Morbank Rd Glenroy Ch 8.1-8.5	31/07/2014	03/10/2014	100% complete		27,943	35,000
RWC-GR-Queen of the Valley Rd Moonga	14/08/2014	25/08/2014	100% complete		11,050	12,000
RWC-GR-Reid Road Ch 0.0-0.45 1.66-3.	27/08/2014	09/09/2014	100% complete		37,180	40,000
RWC-GR-Rosewood Rd Ch24.2-25 26.5-27	07/07/2014	31/07/2014	100% complete	0	64,369	65,000
RWC-GR-Smith Road Stanwell Ch 0.04-0	19/08/2014	29/08/2014	100% complete		11,886	12,000
RWC-GR-Stanwell-Waroula Road Ch 13.8	25/08/2014	08/09/2014	100% complete		10,320	12,000
RWC-GR-Struck Oil Rd Limestone Ch 0.	24/07/2014	14/08/2014	100% complete		3,582	5,000
RWC-GR-Tucker Road Ch 1.31-1.97			50% complete		7,227	15,000
RWC-Heavy Vehicle Detour-Louisa Creek CH	13/06/2014	11/07/2014	100% complete	1,000	1,322	1,500
RWC-Heavy Vehicle Detour-Sand Creek Brid	13/06/2014	11/07/2014	100% complete	3,000	2,813	2,813
RWC-NC-Blackspot-Razorback Road	14/02/2014	15/08/2014	100% Complete	220,000	250,227	232,000
RWC-NC-Bodero Road Clearing and Form			5% complete		741	20,000

RWC-NC-Bruce Street - Bajool				45,000	0	45,000
RWC-NC-Clem Clark Rd				50,000	0	50,000
RWC-NC-Hunt Road Alton Downs-Bitumen	14/07/2014	07/08/2014	100% complete	0	54,741	55,000
RWC-NC-John Street - Bajool				115,000	0	115,000
RWC-NC-Laurel Bank Rd Bitumen seal S	14/07/2014	07/08/2014	100% complete		33,189	33,000
RWC-NC-Renewal of Unsealed Road Grav				1,175,000	0	1,175,000

Project	Start Date	Expected Completion Date	Status 30 September 2014	Adopted Budget + Carry Over	Total inc Committals	Estimated Final Cost
RWC-NC-Renewal of Unsealed Road Grav				735,000	0	300,000
RWC-NC-Roopes Crossing floodway upgr				115,000	0	115,000
RWC-RC-Bruce Street & John Street (Bajoo						
RWC-RC-Chapman Lane-Ch 0.0 to Ch 0.2				25,000	0	25,000
RWC-RC-Glenroy Rd-Ch 19.878 to Ch 21				200,000	0	200,000
RWC-RC-McKenzie Rd-Ch 4.392 to Ch 5.				150,000	0	150,000
RWC-RC--Munro Lane-Marmor						90,000
RWC-RC-Nicholson Road-Ch 4.0 to Ch 4				150,000	0	150,000
RWC-RC-Stanwell/Waroula Rd-Ch 19.8 t				240,000	70,798	240,000
RWC-RF-Signage & GP upgrades	01/07/2014	30/06/2015	25% complete	25,000	6,897	25,000
RWC-RS-Riverslea Road Formation Wide				100,000	0	100,000
RWC-SW- Kabra Road-Ch 3.5 to Ch 3.6				200,000	0	200,000
RWC-SW- Razorback Road-Ch 0.6				50,000	0	50,000
RWC-SW-Alton Downs Nine Mile Road-Ch				50,000	0	50,000
RWC-SW-Fernvale Road-Ch 0.1				35,000	0	0
RWC-SW-Glenroy Road-Ch 22.62				40,000	0	40,000
RWC-SW-Glenroy Road-Ch 9.84				70,000	0	70,000
RWC-SW-Harding Road-Ch 5.92				25,000	0	25,000
RWC-SW-Kabra Road-Ch 1.94				65,000	0	65,000
RWC-SW-Nine Mile Road Floodway Trial Section						35,000

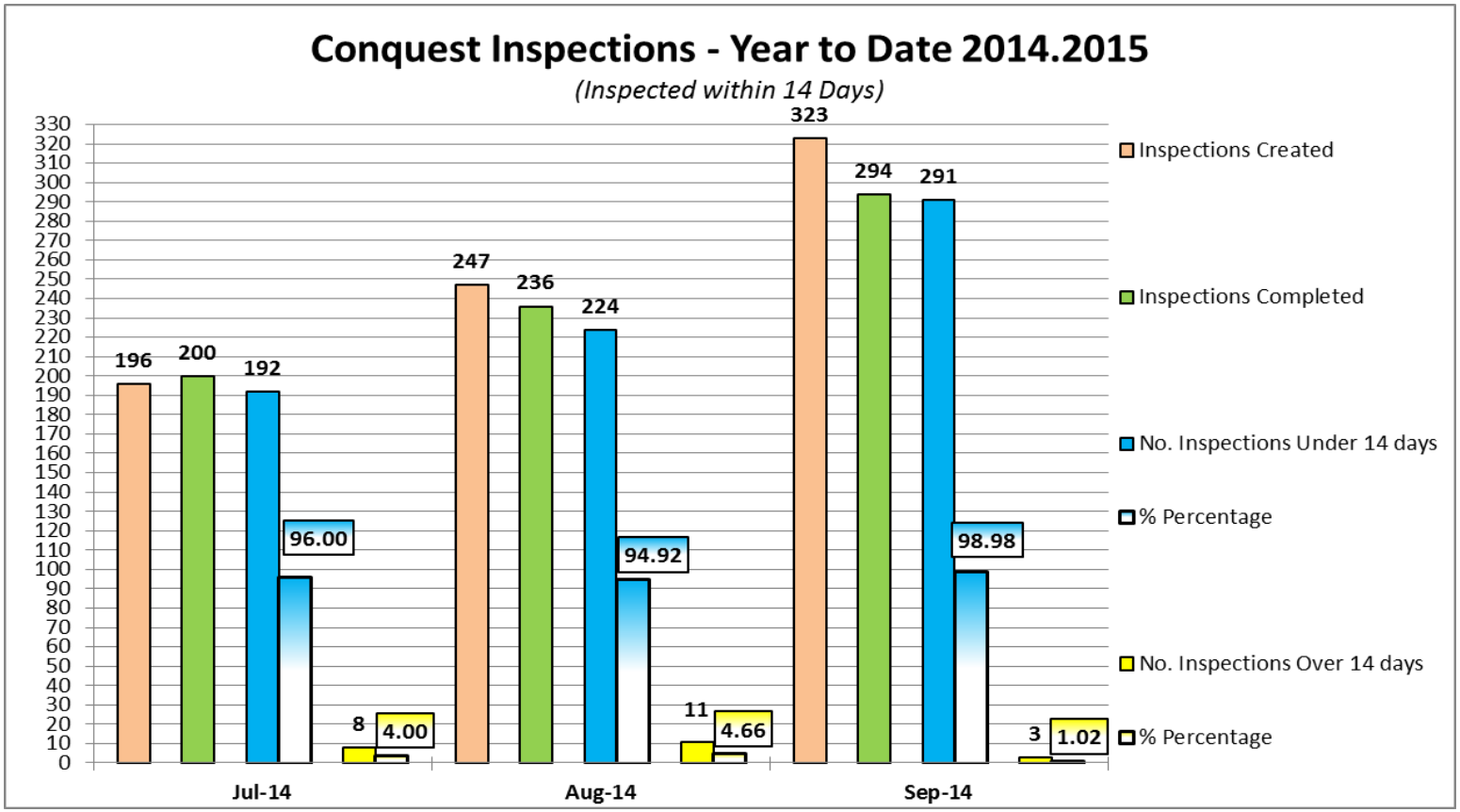
RWC-SW-South Yaamba Road-Ch 5.56	02/06/2014	31/07/2014	100% complete	5,000	4,173	5,000
				5,280,200	**1,131,125**	**5,360,610**
				30,667,462	**5,233,458**	**30,636,395**

4. ACHIEVEMENT OF OPERATIONAL PROJECTS WITHIN ADOPTED BUDGET AND APPROVED TIMEFRAME

As at period ended 30 September 2014 25% of year elapsed.

Project	Revised Budget	Actual (incl. committals)	% budget expended	Explanation
See Item 3				

5. DELIVERY OF SERVICES AND ACTIVITIES IN ACCORDANCE WITH COUNCIL'S ADOPTED SERVICE LEVELS



Service Delivery Standard	Target	Current Performance
Customer Request / Conquest Inspections (finalised within 14 working days) (received 294 inspections, Completed 291 with 3 inspections outside the standard)	100%	98.98%

FINANCIAL MATTERS

Civil Operations Period Ending - 30 September 2014

	Adopted Budget	Revenue	Committal + Actual	% Spent	% of year	Comments
Urban Capital	$ 25,387,262.00		$4,052,318.00	16.00%	25.00%	$4.4m in reseal program. Most of this budget will be spent by contract in the last part of the financial year.
Urban Maintenance	$ 6,345,200.00		$1,385,733.00	21.84%	25.00%	
Rural Capital	$ 5,280,200.00		$1,090,402.00	20.65%	25.00%	Maintenance and concrete crews will complete flood damage by Christmas and commence on capital program.
Rural Maintenance	$ 3,897,600.00		$1,025,790.00	26.32%	25.00%	
TMR-RMPC	$ 414,000.00		$ 138,401.00	33.43%	25.00%	
Private Works	$ 856,000.00		$ 206,099.00	24.00%	25.00%	Main Roads jobs
Works Other Units	$ 6,000,000.00		$1,306,455.00	21.80%	25.00%	Mostly Landfill Construction

CIVIL OPERATIONS MONTHLY OPERATIONS REPORT – NOVEMBER 2014

Works Program October – November 2014

Meeting Date: 5 November 2014

Attachment No: 2

Construction and Works Program - October - November 2014

Council's Civil Operations Section advises the proposed road and associated road reserve network works and other planned projects to be conducted throughout the Region in September - October 2014, subject to weather conditions and other competing priorities. Please note that the information listed in the Potential Interruptions section is general information and does not override the information that is provided to the Emergency Services Personnel and Bus Company's etc.

Urban West Area

Work Location	Work Description	Start	Finish	Potential Interruptions
UWC-NC-Cornes Lane	New Construction	Late October	Late November	Traffic Controllers & Speed Restrictions
UWC-NC-Dee Lane	New Construction	Late October	Late November	Traffic Controllers & Speed Restrictions
UWC-NC-Foster-Macquarie Street to Capricorn Street (S/Water)	New Construction	Mid August	Late October	Traffic Controllers & Speed Restrictions
UWC-NC-Middle Road-Capricorn Street to Macquarie Street Stage 1	New Construction	Early October	Mid May 2015	Traffic Controllers & Speed Restrictions
UWC-SW- East Street Mount Morgan-Works Depot to 36 East St	Stormwater	Mid October	Late October	Traffic Controllers & Speed Restrictions
UWC-SW-Byrnes Parade-No. 29 to No. 31	Stormwater	Early November	Late November	Traffic Controllers & Speed Restrictions

Rural West Area

Work Location	Work Description	Start	Finish	Potential Interruptions
RWC-NC-Roopes Crossing floodway upgrade	New Construction	Early November	Late November	Traffic Controllers & Speed Restrictions

Urban Central Area

Work Location	Work Description	Start	Finish	Potential Interruptions
UCC-AS-Preseal Repairs	Asphalt	Early July	Late February 2015	Traffic Controllers & Speed Restrictions
UCC-Bus Stop Program Stage 2	Bus Stop	Early October	Late February 2015	Traffic Controllers & Speed Restrictions
UCC-FP-Moyle St-Kerrigan Street to Park	Footpath	Late October	Late November	Traffic Controllers & Speed Restrictions
UCC-NC- Kent and Denham Street	New Construction	Late October	Mid March 2015	Traffic Controllers & Speed Restrictions
UCC-NC-Lion Creek Rd/Huish Dr Int	New Construction	Early November	Late November	Traffic Controllers & Speed Restrictions
UCC-RC- Thompson Street-MacAlister Street to Ingram Street	Reconstruction	Early November	Early March 2015	Traffic Controllers & Speed Restrictions
UCC-RC-Archer Street-Canning Street to Quarry	Reconstruction	Mid August	Late October	Traffic Controllers & Speed Restrictions
UCC-RC-Cavell Street-New Exhibition Road to Haig Street	Reconstruction	Mid November	Mid February 2015	Traffic Controllers & Speed Restrictions
UCC-RC-Kent Street-Albert Street to Cambridge Street	Reconstruction	Late October	Late January 2015	Traffic Controllers & Speed Restrictions
UCC-SW-Dean Street-Rodboro Street Stage 1	Stormwater	Mid November	Mid December	Traffic Controllers & Speed Restrictions
UCC-SW-Highway Street-Renshaw St to Sydney Gully	Stormwater	Late October	Early November	Traffic Controllers & Speed Restrictions
UCC-SW-Parris Street-Number 20/24	Stormwater	Mid October	Late October	Traffic Controllers & Speed Restrictions
UCC-SW-Rigalsford Park Levy Banks	Stormwater	Late November	Early December	Traffic Controllers & Speed Restrictions
UCC-SW-Stack Street Stg1 Drainage Scheme	Stormwater	Mid November	Late February 2015	Traffic Controllers & Speed Restrictions
UCC-FP-Division 8 FP 193 Phillips st to Edington st	Footpath	Early October	Late October	Traffic Controllers & Speed Restrictions
UCC-BR-Elphinstone Pedestrian bridge repairs	Bridge Repairs	Mid October	Late October	Traffic Controllers & Speed Restrictions
UCC-George and Albert str (TMR)		Late November	Mid December	Traffic Controllers & Speed Restrictions
UCC-Landfill Capping		Early July	Mid June 2015	
UCC-Landfill Dean st intersection		Mid September	Mid December	
UCC-Landfill Entrance Road stage 1		Early July	Late August	Traffic Controllers & Speed Restrictions

9.2 ENGINEERING SERVICES MONTHLY OPERATIONS REPORT - NOVEMBER 2014

File No:	**7028**
Attachments:	**1. Monthly Operations Report - Engineering Services - 30 September 2014**
Authorising Officer:	**Robert Holmes - General Manager Regional Services**
Author:	**Martin Crow - Manager Engineering Services**

SUMMARY

This report outlines Engineering Services Monthly Operations Report for the period to the end of September 2014.

OFFICER'S RECOMMENDATION

THAT the Engineering Services Monthly Operations Report for November 2014 be received.

COMMENTARY

The Engineering Services Section submits a monthly operations report outlining issues faced by the section and performance against nominated service level criteria. Due to the reporting timeframes and agenda requirements of the Infrastructure Committee, the statistics utilised in the reports will lag the committee meeting dates by approximately 1 month.

ENGINEERING SERVICES MONTHLY OPERATIONS REPORT – NOVEMBER 2014

Monthly Operations Report - Engineering Services – 30 September 2014

Meeting Date: 5 November 2014

Attachment No: 1

MONTHLY OPERATIONS REPORT

ENGINEERING SECTION

Period Ended 30 September 2014

VARIATIONS, ISSUES AND INNOVATIONS

Innovations

Design Services are working closely with the GIS Unit on the implementation of improved as-constructed data capture for Regional Services capital projects.

Infrastructure Operations and Strategic Infrastructure are working on improving information provided to customers through the Flood Search process. A Rockhampton Regional Council Template has been developed and is currently being trialled in-house before full implementation.

Improvements / Deterioration in Levels of Services or Cost Drivers

Current levels of service are in the process of being documented and will be discussed with senior management prior to putting forward to Council for endorsement.

A person has been appointed to replace the Graduate Engineer in the Infrastructure Operations Unit who recently resigned. This person will commence 20th October 2014. Until that person commences, our ability to respond to customer requests, primarily in the traffic and road safety area is impacted and delays in investigation and response to issues is to be expected.

A person has been appointed to the vacant administration officer role in Support Services. This person will commence on 20th October 2014.

Strategic Infrastructure personnel continue to be involved in the South Rockhampton Flood Levee, Local Creek Catchment, North Rockhampton Flood Mitigation and the proposed Planning Scheme projects. The South Rockhampton Flood levee project is drawing to a close however work is commencing on assisting TMR with the upgrade of the Rockhampton Traffic Model.

Design Services personnel are fully allocated to the Regional Services capital program. A number of projects have been referred to consultants to be able to complete the capital works design program.

LINKAGES TO OPERATIONAL PLAN

1. COMPLIANCE WITH CUSTOMER SERVICE REQUESTS

The response times for completing the predominant customer requests in the reporting period for 30 September 2014 are as below:

All Monthly Requests (Priority 3)

Engineering'Traffic Light' report - September 2014

	Balance B/F	Completed in Current Month	Current Month NEW Requests: Received	Current Month NEW Requests: Completed	TOTAL INCOMPLETE REQUESTS BALANCE	Work Orders Issued	Under Long Term Investigation	Avg W/O Issue Time (days) 12 Months	Completion Standard (days)	Avg Completion Time Current Month	Avg Completion Time (days) 6 Months	Avg Completion Time (days) 12 Months	Avg Duration (days) 12 Months (complete and incomplete)	Avg Completion Time (Days) Q1
Abandoned Vehicles	9	0	2	0	11	2	0	21.90	28	0.00	63.83	46.09	39.00	17.00
Rural Property Addressing (Existing)	1	0	1	1	1	0	0	0.00	28	0.00	9.13	9.14	6.95	3.60
Urban Addressing (General)	1	1	3	1	2	0	0	0.00	28	5.00	6.96	9.19	7.02	10.91
Rural Property Addressing (New)	1	0	1	0	2	0	0	0.00	28	0.00	7.44	9.62	7.95	9.00
Development - Dust, Erosion, Noise	0	0	0	0	0	0	0	0.00	5	0.00	13.75	25.92	4.50	27.00
Disaster Management - General Enquiry SES	0	0	0	0	0	0	0	0.00	1	0.00	2.00	68.25	0.00	0.00
Development - Miscellaneous	1	1	4	2	2	0	0	0.20	14	1.50	11.60	21.85	6.00	10.50
Development - Noise (Subdivision/Ops Works)	0	0	0	0	0	0	0	0.00	14	0.00	13.00	14.80	7.75	0.00
Development - Road Drainage	0	0	0	0	0	0	0	0.00	14	0.00	23.67	16.33	2.00	5.00
Engineering - General Enquiry	5	0	3	0	8	0	0	17.04	14	0.00	13.41	10.27	6.70	2.71
Flood Management Creeks/Rivers	3	1	2	2	2	0	0	0.00	10	1.00	3.28	3.28	3.79	3.28
Heavy Vehicles (Not related to MTCE)	0	0	0	0	0	0	0	0.00	28	0.00	0.00	2.33	2.33	0.00
Infra. Operations Unit - General Enq (D/Planner)	4	2	11	7	6	0	0	84.84	14	1.00	8.07	12.49	7.90	6.04
IOU- Water and Sewer (Infra use only to FRW)	0	0	0	0	0	0	0	0.00	14	0.00	0.00	3.50	3.50	0.00
Petition (Infra Use Only)	2	1	0	0	1	0	0	0.41	1	0.00	19.00	19.00	26.00	19.00
Roundabout/Medians (Not related to MTCE)	0	0	2	0	2	0	0	2.14	28	0.00	4.00	4.00	2.00	4.00
Speed Limits/Traffic Volumes (Not related to MTCE)	1	0	7	0	8	0	1	7.44	28	0.00	21.38	13.85	12.10	8.00
Signs & Lines (New Request - not already existing)	14	3	18	1	28	0	1	66.10	28	9.00	27.70	27.29	19.29	11.69
Traffic Signals (Stop Light) (Not related to MTCE)	0	0	0	0	0	0	0	0.00	28	0.00	1.00	8.33	8.33	0.00
Traffic Counts	2	1	0	0	1	0	0	14.88	28	0.00	3.00	10.25	15.75	3.00

Comments & Additional Information

As at 1 September 2014, Engineering Services have adopted Service Levels for their Child Request Codes.

The Priority Escalation timeframes are only used as a notification reminder process.

These Service Levels have been set up in Pathways under Priority Escalation and Estimated Duration Maintenance parameters.

Priority Escalation

This function allows the Actioning Officer and/or Responsible Officer of the Request to receive an e-mail message each time the Priority is escalated. These Priority escalations are notification / reminders to action the request and not necessarily to complete the request.

Estimated Duration Maintenance

The Estimated Duration Maintenance form displays the Estimated Duration Maintenance Timeframe (or Service Level) for Request Types ie. Minutes, Hours, Days, Weeks and Years.

2. COMPLIANCE WITH STATUTORY AND REGULATORY REQUIREMENTS INCLUDING SAFETY, RISK AND OTHER LEGISLATIVE MATTERS

Safety Statistics

The safety statistics for the reporting period are:

	FIRST QUARTER		
	July	**Aug**	**Sept**
Number of Lost Time Injuries	0	0	1
Number of Days Lost Due to Injury	0	0	2
Total Number of Incidents Reported	0	0	1
Number of Incomplete Hazard Inspections	1	0	0

Risk Management Summary

Example from Section Risk Register (excludes risks accepted/ALARP)

Potential Risk	Current Risk Rating	Future Control & Risk Treatment Plans	Due Date	% Completed	Comments
Inability of Engineering Services to provide or maintain adequate levels of service for infrastructure planning, development assessment and infrastructure design resulting in reduced productivity, inadequate infrastructure, risk to the general public and workers and financial loss for Council.	High 4	1. Undertake staffing level review and business planning for Engineering Services. 2. Improve focus on professional development and training (including graduate development program) by management implementing appropriate training and development plans and staff completing them.	31/1/15	10%	T&D plans implemented in Design Services. Other units will look at when time becomes available.

Potential Risk	Current Risk Rating	Future Control & Risk Treatment Plans	Due Date	% Completed	Comments
Breach of the Professional Engineers Act resulting in installation of unsafe infrastructure or infrastructure that does not meet legislative requirements causing the following possible impacts to Council: Service delivery delays; negative financial impacts; possible serious harm to public/workers; and reputation tarnished.	High 4	1. Make RPEQ qualification mandatory for some positions in the future. 2. Request technical staff to obtain their RPEQ if possible.	31/12/16	10%	Has been included as identified training for some in performance appraisals.
Inadequate Developer Contributions for Infrastructure resulting in a cost impost on ratepayers and reduction in funds available for other projects.	High 4	1. Further assessment & refinement of existing adopted charges resolution to ensure adequacy and accuracy. 2. Council adoption of SPA compliant Priority Infrastructure Plan (PIP).	31/12/14	80%	Draft LGIP released with draft planning scheme.
Failure to maintain accuracy and value of the forward works program and adequately provide for the annual capital program resulting in projects nominated for delivery being deferred to accommodate increased costs within annual capital program and the Long Term Financial Strategy (LTFS).	High 4	1. Continued refinement of forward works program. 2. Development of indicative estimating tool. 3. Develop Network specific prioritisation processes.	1/7/16	55%	FWP further developed each year at budget time. Future design and concept budget included in capital budget. Draft prioritization process for pathways has been developed.
Inadvertent non-compliance with design requirements or legislative requirements leading to in installation of inappropriate or unsafe infrastructure, or infrastructure that	High 5	Improved focus on professional development & training by completing and implementing appropriate training and development plans.	1/7/15	70%	T&D plans implemented in Design Services.

Potential Risk	Current Risk Rating	Future Control & Risk Treatment Plans	Due Date	% Completed	Comments
does not meet technical standards resulting in legal action against Council and / or Loss or Damage to natural /cultural assets.					
Identified Disaster Mitigation Strategies not actioned resulting in increased impact/effect of disaster events on the community and potential for increased costs to Council in recovery & restoration costs.	High 5	1. Forward works program to be developed for disaster mitigation strategies to be submitted through Council's project evaluation and management system (PEMS) process, and for Natural Disaster Relief and Recovery Arrangements (NDRRA) funding applications. 2. Annual review and report on implementation of disaster mitigation strategies	1/7/15	50%	Action has stalled due to competing priorities for DMO.
Lack of trained personnel to operate the Disaster Coordination Centre in event of a disaster resulting in inefficient Local Disaster Coordination Centre (LDCC) operations which could lead to inefficient decision making resulting in harm to the community, major financial losses, damage to reputation and a lack of community confidence in the Local Disaster Management Group's (LDMG) ability to respond to and recover from disaster events.	High 5	1. Develop information package on roles and responsibilities and remuneration etc to assist with recruitment drive. 2. Educate managerial staff as to their responsibilities under the Disaster management policy. 3. Consider implications of sourcing volunteer staff from outside of Council.	1/7/15	20%	Additional information provided to encourage volunteers. Other issues have stalled due to competing priorities for DMO.
Reduced SES capability to respond during a disaster event, would require either a greater response from Council (which is unlikely given our resource levels) or a lesser response	High 5	Implement MOU with EMQ regarding shared management responsibilities for the SES, supported with appropriate funding and training.	1/7/15	50%	Action has stalled due to restructure of Emergency Services at a State Level.

Potential Risk	Current Risk Rating	Future Control & Risk Treatment Plans	Due Date	% Completed	Comments
to the event, resulting in: community expectations unable to be met; a negative financial impact and reputational damage to Council.					
Failure to document and implement disaster management policy, framework and arrangements, appropriate to our region resulting in: a lack of leadership and poor decision making in disaster events; major financial losses; damage to reputation; potential increased effects of a disaster event upon the community; and potential loss of funding opportunity (NDRRA).	High 4	1. Identify LDMG members that require training in disaster management arrangements. 2. Review Disaster Management Policy and seek commitment from Council departments.	1/7/15	20%	Key Council members of LDMG have received some training.

Legislative Compliance & Standards

All applicable legislative and compliance standards have been met.

3. ACHIEVEMENT OF CAPITAL PROJECTS WITHIN ADOPTED BUDGET AND APPROVED TIMEFRAME

The following abbreviations have been used within the table below:

GIA	*Gracemere Industrial Area*
SRFL	*South Rockhampton Flood Levee*

Project	Start Date	Expected Completion Date	Status	Budget Estimate	YTD actual (incl committals)
ENGINEERING SERVICES CAPITAL WORKS PROGRAM					
Costs as at 30/9/14.					
Gracemere Industrial Area Planning	1/7/14	30/6/15	In Progress	$50,000	$4,358
Comment: Project Progress will depend on level of activity in GIA.					
Preliminary design and concepts	1/7/14	30/6/15	Not Started	$150,000	$0
Comment: Budget to allow progression of preliminary designs and estimates for future year works. Generally not started until third quarter.					
Flood Valves North Rockhampton	1/7/14	30/6/15	Not Started	$100,000	$0
Comment: Investigation works ongoing. Funding submission submitted. Budget likely to be transferred to Civil Operations for delivery.					

4. ACHIEVEMENT OF OPERATIONAL PROJECTS WITHIN ADOPTED BUDGET AND APPROVED TIMEFRAME

As at period ended 30 September 2014 – 25% of year elapsed.

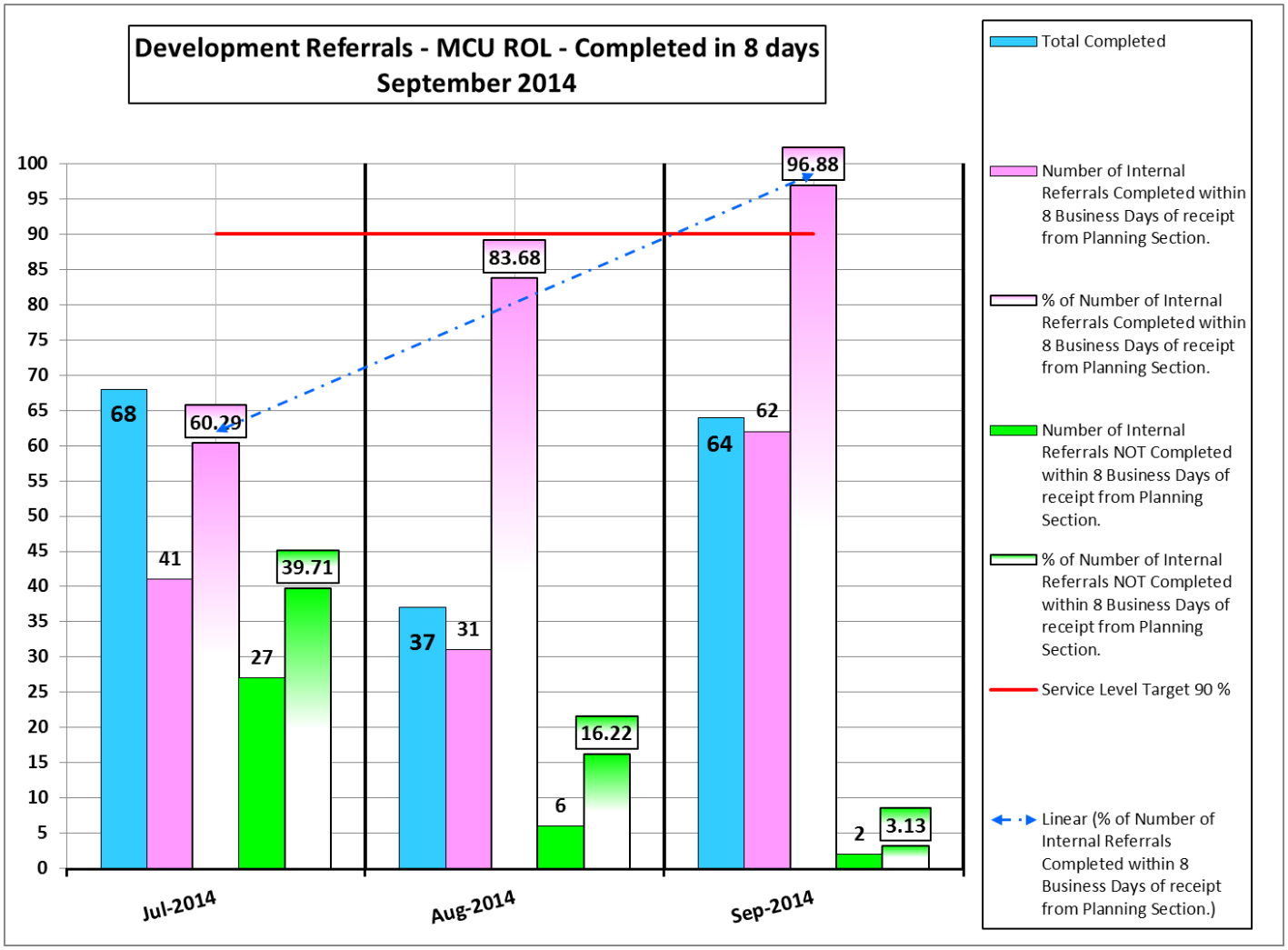
Project	Revised Budget	Actual (incl. committals)	% budget expended	Explanation
Traffic / Transport Planning Consultancy Budget	*$150,000*	*$0*	*0%*	*Will be utilized to update the 2008 Rockhampton traffic study in conjunction with TMR area wide transport study.*
Stormwater Drainage Planning Consultancy Budget	*$200,000*	*$40,470*	*20%*	*Will be utilised for continuation and refinement of Local Creek catchment works and commencement of risk assessment and planning arising out of this project.*
Roads Alliance Consultancy Budget	*$50,000*	*$43,831*	*87%*	*Technical and administrative support for Rockhampton Regional Roads and Transport Group.*
Resumptions of Land / easements	*$200,000*	*$10,301*	*5%*	*Utilised acquisition of land / easements for existing infrastructure or projects in future years.*
Disaster Management Consultancy Budget	*$50,000*	*$0*	*0%*	*Update of Flood Hazard Mapping as a result of 2014 modelling.*

1.

5. DELIVERY OF SERVICES AND ACTIVITIES IN ACCORDANCE WITH COUNCIL'S ADOPTED SERVICE LEVELS

Service Delivery Standard	Target	Current Performance
Development MCU, ROL Completed in 8 days (Graph 1 below)	90%	96.88%
Development Operational Works Completed in 7 days (Graph 2 below)	90%	87.23%

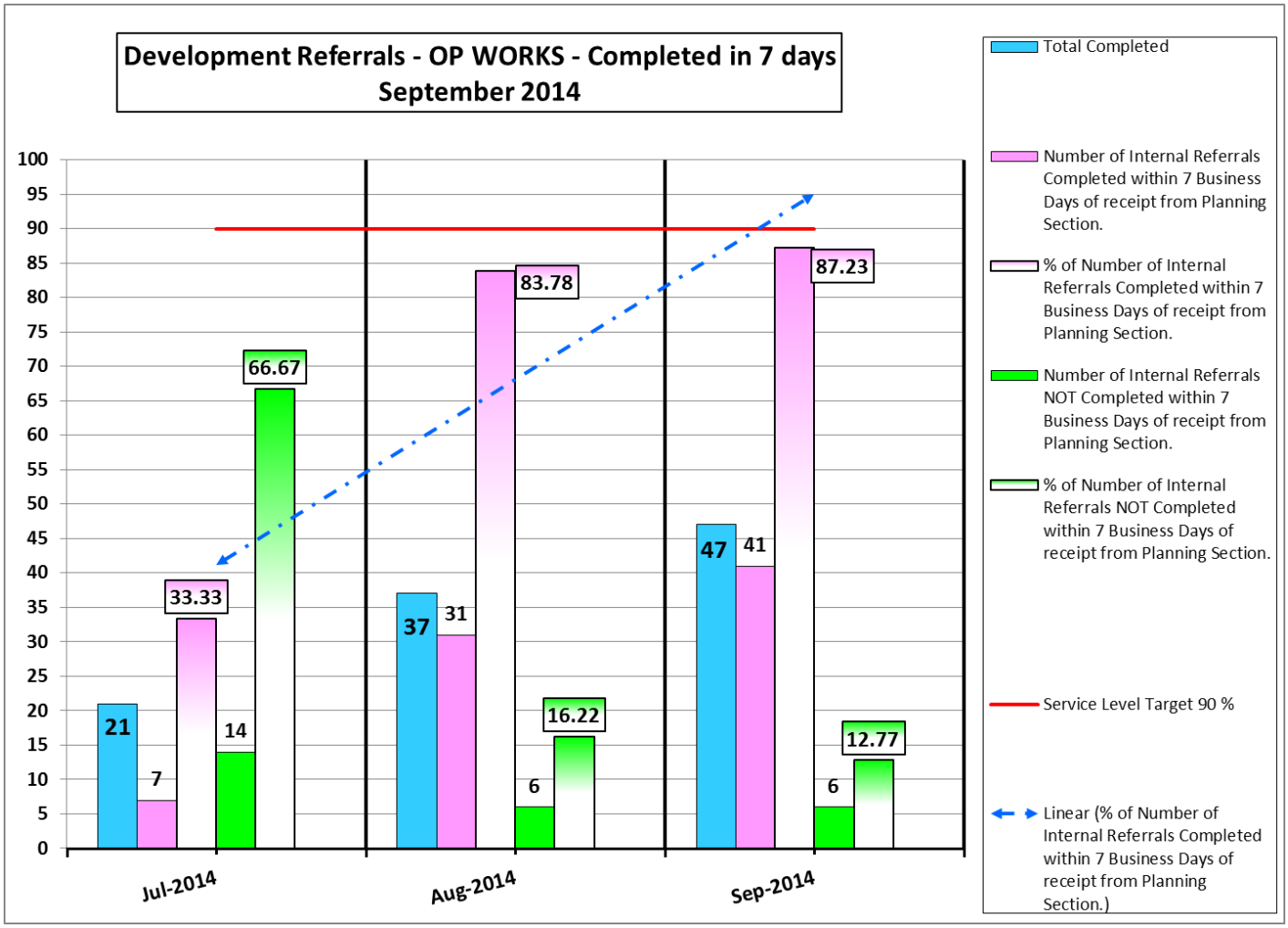
Graph 1 MCU – Material Change of Use / ROL – Reconfiguration of Lot



Of the two (2) MCU, ROL referrals that were not completed in the required timeframe of 8 days:-

1. Two referrals were approved an extension period, due to their applications being tabled at the Planning and Development Committee Meeting on 21 October 2014.

Graph 2 OP WKS – Operational Works



Of the seven (6) Operational Works referrals that were not completed in the required timeframe of 7 days:-

1. Two (2) referrals were two days overdue.
2. Two (2) referrals were three days overdue.
3. Two (2) referrals were six days overdue.

FINANCIAL MATTERS

Engineering Services as at 30 September 2014 Operational Only

	Adopted Budget	Revenue	Committal + Actual	Transfer /Overhead	Total	% Spent	% of year	Comments
Engineering Services	425,750	-2,692	95,209	-108,888	-16,371	-3.85%	25.00%	
Design Services	767,100	0	105,246	25,171	130,417	17.00%	25.00%	
Infrastructure Planning	1,797,750	-30,800	228,895	1,716	199,811	11.11%	25.00%	
Infrastructure Operations	803,000	-1,448	194,652	-38,236	154,968	19.30%	25.00%	
Disaster Management	432,500	-41,445	60,844	60,762	80,161	18.53%	25.00%	

9.3 ROADS ASSET MANAGEMENT PLAN (RAMP) PRESENTED FOR COUNCIL'S REVIEW AND APPROVAL

File No:	**1392**
Attachments:	**1. Transport Drainage AMP**
Authorising Officer:	**Ross Cheesman - General Manager Corporate Services**
Author:	**Alicia Cutler - Manager Finance**

SUMMARY

The Roads Asset Management Plan (RAMP) is presented for Council review and approval. A presentation will be provided at the meeting that walks Councillors through the content of the RAMP.

OFFICER'S RECOMMENDATION

THAT the Roads Asset Management Plan be adopted.

COMMENTARY

The Roads Asset Management Plan (RAMP) has been under development for greater than 12 months and whilst it is recognised it will continue to develop and evolve, it is at a point that it should be adopted in recognition of the changes that have been made in management of the Roads Assets.

The objective of the Roads Asset Management Plan is twofold: justification and optimisation

- Justification - to give visibility of the costs and benefits associated with providing the agreed standard of service.
- Optimisation - to minimize the whole-life cost, including the operation, maintenance and replacement or disposal of each asset in the system.

The RAMP incorporates the sealed and unsealed at a replacement cost of $551 million (21% of Council's assets). The annual expenditure (Capital and Maintenance) is estimated at $28.9 million (13% of Councils expenditure Budget).

There has already been a presentation on the Roads Asset Management Plan throughout the budget process, which resulted in the move to allocate more money towards reseals, at the expense of reconstruction. This approach is planned to continue for the short term, which will improve the surface assets and should also prevent maintenance expenditure escalating.

This plan also proposes to undertake some review of the management of the unsealed road network and how potential efficiencies could be made.

Challenges for the future really centre round the gap in funding between what is required to maintain the assets to existing service standards and the Strategic Financial Plan. This Gap largely relates to new assets from the Local Government Infrastructure Projects but also shows a gap over the immediate 3 year budget. This emphasises further the need for Capital Expenditure scrutiny and in particular the timing of upgrade works.

A full presentation will be provided to the meeting.

ROADS ASSET MANAGEMENT PLAN (RAMP) PRESENTED FOR COUNCIL'S REVIEW AND APPROVAL

Transport Drainage AMP

Meeting Date: 5 November 2014

Attachment No: 1

ROADS

ASSET MANAGEMENT PLAN

October 2014

Document Control	

Document ID: transport drainage amp jaco 23102014 corrected corrected

Rev No	Date	Revision Details	Author	Reviewer	Approver
1 (1a - i)	April 2010	Version 1 – Draft, Adjustments to Section 4, general amendments to graphs, tables and formatting, Revision for adjustments in Capital Budget	BC, HG, PW, DP		
2	March 2014	Revision of Full document	PW		

Endorsed by	Position	Signature	Date
Jaco Maree	Coordinator – Assets and GIS		
Alicia Cutler	Manager – Finance		
Russell Collins	Manager – Civil Operations		

TABLE OF CONTENTS

ABBREVIATIONS

AAAC Average annual asset consumption

AMP Asset management plan

ARI Average recurrence interval

BOD Biochemical (biological) oxygen demand

CRC Current replacement cost

CWMS Community wastewater management systems

DA Depreciable amount

DoH Department of Health

EF Earthworks/formation

GIS Geographical Information System

IRMP Infrastructure risk management plan

ISD Infrastructure Services Department

LCC Life Cycle cost

LCE Life cycle expenditure

LTFP Long Term Financial Plan

MMS Maintenance management system

NRM NAASRA Roughness Meter

PCI Pavement condition index

PMS Pavement Management System

RRC Rockhampton Regional Council

RV Residual value

SS Suspended solids

vph Vehicles per hour

GLOSSARY

Annual service cost (ASC)
An estimate of the cost that would be tendered, per annum, if tenders were called for the supply of a service to a performance specification for a fixed term. The Annual Service Cost includes operating, maintenance, depreciation, finance/ opportunity and disposal costs, less revenue.

Asset class
Grouping of assets of a similar nature and use in an entity's operations (AASB 166.37).

Asset condition assessment
The process of continuous or periodic inspection, assessment, measurement and interpretation of the resultant data to indicate the condition of a specific asset so as to determine the need for some preventative or remedial action.

Asset management
The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner.

Assets
Future economic benefits controlled by the entity as a result of past transactions or other past events (AAS27.12).

Property, plant and equipment including infrastructure and other assets (such as furniture and fittings) with benefits expected to last more than 12 month.

Average annual asset consumption (AAAC)*
The amount of a local government's asset base consumed during a year. This may be calculated by dividing the Depreciable Amount (DA) by the Useful Life and totalled for each and every asset OR by dividing the Fair Value (Depreciated Replacement Cost) by the Remaining Life and totalled for each and every asset in an asset category or class.

Brownfield asset values**
Asset (re)valuation values based on the cost to replace the asset including demolition and restoration costs.

Capital expansion expenditure
Expenditure that extends an existing asset, at the same standard as is currently enjoyed by residents, to a new group of users. It is discretional expenditure, which increases future operating, and maintenance costs, because it increases council's asset base, but may be associated with additional revenue from the new user group, eg. Extending a drainage or road network, the provision of an oval or park in a new suburb for new residents.

Capital expenditure
Relatively large (material) expenditure, which has benefits, expected to last for more than 12 months. Capital expenditure includes renewal, expansion and upgrade. Where capital projects involve a combination of renewal, expansion and/or upgrade expenditures, the total project cost needs to be allocated accordingly.

Capital funding
Funding to pay for capital expenditure.

Capital grants
Monies received generally tied to the specific projects for which they are granted, which are often upgrade and/or expansion or new investment proposals.

Capital investment expenditure
See capital expenditure definition

Capital new expenditure
Expenditure which creates a new asset providing a new service to the community that did not exist beforehand. As it increases service potential it may impact revenue and will increase future operating and maintenance expenditure.

Capital renewal expenditure
Expenditure on an existing asset, which returns the service potential or the life of the asset up to that which it had originally. It is periodically required expenditure, relatively large (material) in value compared with the value of the components or sub-components of the asset being renewed. As it reinstates existing service potential, it has no impact on revenue, but may reduce future operating and maintenance expenditure if completed at the optimum time, eg. resurfacing or resheeting a material part of a road network, replacing a material section of a drainage network with pipes of the same capacity, resurfacing an oval. Where capital projects involve a combination of renewal, expansion and/or upgrade expenditures, the total project cost needs to be allocated accordingly.

Capital upgrade expenditure
Expenditure, which enhances an existing asset to provide a higher level of service or expenditure that will increase the life of the asset beyond that which it had originally. Upgrade expenditure is discretional and often does not result in additional revenue unless direct user charges apply. It will increase operating and maintenance expenditure in the future because of the increase in the council's asset base, eg. widening the sealed area of an existing road, replacing drainage pipes with pipes of a greater capacity, enlarging a grandstand at a sporting facility. Where capital projects involve a combination of renewal, expansion and/or upgrade expenditures, the total project cost needs to be allocated accordingly.

Carrying amount
The amount at which an asset is recognised after deducting any accumulated depreciation / amortisation and accumulated impairment losses thereon.

Class of assets

See asset class definition

Component
An individual part of an asset which contributes to the composition of the whole and can be separated from or attached to an asset or a system.

Cost of an asset
The amount of cash or cash equivalents paid or the fair value of the consideration given to acquire an asset at the time of its acquisition or construction, plus any costs necessary to place the asset into service. This includes one-off design and project management costs.

Current replacement cost (CRC)
The cost the entity would incur to acquire the asset on the reporting date. The cost is measured by reference to the lowest cost at which the gross future economic benefits could be obtained in the normal course of business or the minimum it would cost, to replace the existing asset with a technologically modern equivalent new asset (not a second hand one) with the same economic benefits (gross service potential) allowing for any differences in the quantity and quality of output and in operating costs.

Current replacement cost "As New" (CRC)
The current cost of replacing the original service potential of an existing asset, with a similar modern equivalent asset, i.e. the total cost of replacing an existing asset with an as NEW or similar asset expressed in current dollar values.

Cyclic Maintenance**
Replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting, building roof replacement, cycle, replacement of air conditioning equipment, etc. This work generally falls below the capital/ maintenance threshold and needs to be identified in a specific maintenance budget allocation.

Depreciable amount
The cost of an asset, or other amount substituted for its cost, less its residual value (AASB 116.6)

Depreciated replacement cost (DRC)
The current replacement cost (CRC) of an asset less, where applicable, accumulated depreciation calculated on the basis of such cost to reflect the already consumed or expired future economic benefits of the asset

Depreciation / amortisation
The systematic allocation of the depreciable amount (service potential) of an asset over its useful life.

Economic life
See useful life definition.

Expenditure
The spending of money on goods and services. Expenditure includes recurrent and capital.

Fair value
The amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties, in an arm's length transaction.

Greenfield asset values **
Asset (re)valuation values based on the cost to initially acquire the asset.

Heritage asset
An asset with historic, artistic, scientific, technological, geographical or environmental qualities that is held and maintained principally for its contribution to knowledge and culture and this purpose is central to the objectives of the entity holding it.

Impairment Loss
The amount by which the carrying amount of an asset exceeds its recoverable amount.

Infrastructure assets
Physical assets of the entity or of another entity that contribute to meeting the public's need for access to major economic and social facilities and services, e.g. roads, drainage, footpaths and cycle ways. These are typically large, interconnected networks or portfolios of composite assets The components of these assets may be separately maintained, renewed or replaced individually so that the required level and standard of service from the network of assets is continuously sustained. Generally the components and hence the assets have long lives. They are fixed in place and are often have no market value.

Investment property
Property held to earn rentals or for capital appreciation or both, rather than for:
(a) use in the production or supply of goods or services or for administrative purposes; or
(b) sale in the ordinary course of business (AASB 140.5)

Level of service
The defined service quality for a particular service against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental, acceptability and cost).

Life Cycle Cost **
The life cycle cost (LCC) is average cost to provide the service over the longest asset life cycle. It comprises annual maintenance and asset consumption expense, represented by depreciation expense. The Life Cycle Cost does not indicate the funds required to provide the service in a particular year.

Life Cycle Expenditure **
The Life Cycle Expenditure (LCE) is the actual or planned annual maintenance and capital renewal expenditure incurred in providing the service in a particular year. Life Cycle Expenditure may be compared to Life Cycle Expenditure to give an initial indicator of life cycle sustainability.

Loans / borrowings
Loans result in funds being received which are then repaid over a period of time with interest (an additional cost). Their primary benefit is in 'spreading the burden' of capital expenditure over time. Although loans enable works to be completed sooner, they are only ultimately cost effective where the capital works funded (generally renewals) result in operating and maintenance cost savings, which are greater than the cost of the loan (interest and charges).

Maintenance and renewal gap
Difference between estimated budgets and projected expenditures for maintenance and renewal of assets, totalled over a defined time (e.g. 5, 10 and 15 years).

Maintenance and renewal sustainability index
Ratio of estimated budget to projected expenditure for maintenance and renewal of assets over a defined time (e.g. 5, 10 and 15 years).

Maintenance expenditure
Recurrent expenditure, which is periodically or regularly required as part of the anticipated schedule of works required to ensure that the asset achieves its useful life and provides the required level of service. It is expenditure, which was anticipated in determining the asset's useful life.

Materiality
An item is material is its omission or misstatement could influence the economic decisions of users taken on the basis of the financial report. Materiality depends on the size and nature of the omission or misstatement judged in the surrounding circumstances.

Modern equivalent asset.
A structure similar to an existing structure and having the equivalent productive capacity, which could be built using modern materials, techniques and design. Replacement cost is the basis used to estimate the cost of constructing a modern equivalent asset.

Non-revenue generating investments
Investments for the provision of goods and services to sustain or improve services to the community that are not expected to generate any savings or revenue to the Council, e.g.. parks and playgrounds, footpaths, roads and bridges, libraries, etc.

Operating expenditure
Recurrent expenditure, which is continuously required excluding maintenance and depreciation, e.g. power, fuel, staff, plant equipment, on-costs and overheads.

Pavement management system
A systematic process for measuring and predicting the condition of road pavements and wearing surfaces over time and recommending corrective actions.

Planned Maintenance**
Repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown criteria/experience, prioritising scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

PMS Score
A measure of condition of a road segment determined from a Pavement Management System.

Rate of annual asset consumption*
A measure of average annual consumption of assets (AAAC) expressed as a percentage of the depreciable amount (AAAC/DA). Depreciation may be used for AAAC.

Rate of annual asset renewal*
A measure of the rate at which assets are being renewed per annum expressed as a percentage of depreciable amount (capital renewal expenditure/DA).

Rate of annual asset upgrade*
A measure of the rate at which assets are being upgraded and expanded per annum expressed as a percentage of depreciable amount (capital upgrade/expansion expenditure/DA).

Reactive maintenance
Unplanned repair work that carried out in response to service requests and management/supervisory directions.

Recoverable amount
The higher of an asset's fair value, less costs to sell and its value in use.

Recurrent expenditure
Relatively small (immaterial) expenditure or that which has benefits expected to last less than 12 months. Recurrent expenditure includes operating and maintenance expenditure.

Recurrent funding
Funding to pay for recurrent expenditure.

Rehabilitation
See capital renewal expenditure definition above.

Remaining life
The time remaining until an asset ceases to provide the required service level or economic usefulness. Age plus remaining life is economic life.

Renewal
See capital renewal expenditure definition above.

Residual value
The net amount which an entity expects to obtain for an asset at the end of its useful life after deducting the expected costs of disposal.

Revenue generating investments
Investments for the provision of goods and services to sustain or improve services to the community that are expected to generate some savings or revenue to offset operating costs, e.g. public halls and theatres, childcare centres, sporting and recreation facilities, tourist information centres, etc.

Risk management
The application of a formal process to the range of possible values relating to key factors associated with a risk in order to determine the resultant ranges of outcomes and their probability of occurrence.

Section or segment
A self-contained part or piece of an infrastructure asset.

Service potential
The capacity to provide goods and services in accordance with the entity's objectives, whether those objectives are the generation of net cash inflows or the provision of goods and services of a particular volume and quantity to the beneficiaries thereof.

Service potential remaining*
A measure of the remaining life of assets expressed as a percentage of economic life. It is also a measure of the percentage of the asset's potential to provide services that are still available for use in providing services (DRC/DA).

Strategic Management Plan (SA) **
Documents Council objectives for a specified period (3-5 yrs), the principle activities to achieve the objectives, the means by which that will be carried out, estimated income and expenditure, measures to assess performance and how rating policy relates to the Council's objectives and activities.

Sub-component
Smaller individual parts that make up a component part.

Useful life
Either:
(a) the period over which an asset is expected to be available for use by an entity, or
(b) the number of production or similar units expected to be obtained from the asset by the entity.

It is estimated or expected time between placing the asset into service and removing it from service, or the estimated period of time over which the future economic benefits embodied in a depreciable asset, are expected to be consumed by the council. It is the same as the economic life.

Value in Use
The present value of estimated future cash flows expected to arise from the continuing use of an asset and from its disposal at the end of its useful life. It is deemed to be depreciated replacement cost (DRC) for those assets whose future economic benefits are not primarily dependent on the asset's ability to generate new cash flows, where if deprived of the asset its future economic benefits would be replaced.

Source: DVC 2006, Glossary
Note: Items shown * modified to use DA instead of CRC
Additional glossary items shown **

1. EXECUTIVE SUMMARY

Council exists principally to supply services that meet the needs of its community. What services are provided and how they are provided depends on the level of service required. Council's core function is to provide safe and functional roads throughout the region compliant with engineering standards and planning objectives. In working to achieve this goal Council is guided by the practices set out in the International Infrastructure Maintenance Manual.

The Roads Asset Management Plan (RAMP) documents Council's current practices and performance, and provides the direction for continuous improvement of the asset management practices applied to Council's road network. The RAMP is also a lifecycle management plan for the road network that provides detail of maintenance, renewals, upgrades etc. that has to occur at particular stages during the life of the road.

It also documents the analysis RRC undertakes to predict and monitor future expenditure requirements to effectively manage Council's sealed and unsealed road network.

1.1 Councils Road Network (What do we have?)

The sealed and unsealed road network owned by Rockhampton Regional Council (RRC) comprise of 840km of sealed roads and 1138km of unsealed roads.

Table 1.1: Extent of the sealed and unsealed road network

SEALED ROAD NETWORK								UNSEALED ROAD NETWORK				
NAASRA Class	Number of segments	AADT (number vehicles)	Class definition	Accumulated depresciation ($)	Estimated area (m²)	Length (m)	Replacement cost ($)	Number of segments	Accumulated depreciation ($)	Estimated area (m²)	Length (m)	Replacement cost ($)
3	101	>8,000	Rural arterial road	$701,433	453815	18468	$13,864,265	19	$216,344	101266	16300	$537,072
4A		1,000 - 8,000	A: Major rural arterial connecto									
4B	463	1,000 - 100	B: Minor rural connector	$2,755,627	1779386	88700	$45,999,233	141	$1,268,246	700318	114800	$4,165,933
5A		10 - 100	A: Primary rural access					781	$4,688,433	2933431	538300	$17,968,846
5B		< 10	B: Secondary rural access					395	$1,769,165	1298184	294400	$8,234,124
5C	851		C: Minor rural access	$3,795,930	2552758	119150	$63,407,853	290	888230	742321	174200	4625022
6A		>30,000	A: Major Urban arterial									
6B		10,000 - 30,000	B: Urban arterial									
6C	714	6,000 - 10,000	C:Urban sub arterial	$14,624,522	1053142	69123	$68,604,292					
7	309	3,000 - 6,000	Major urban collector	$5,694,030	892634	26472	$24,896,188					
8	945	750 - 3,0000	Minor urban collector	$12,226,450	2153303	73299	$58,452,219					
9A		400 - 750	A: Urban access street									
9B	6782	<400	B: Urban access place	$60,696,151	11175033	420843	$271,503,166					
10	15		Access roadways		37206	1272	$530,939					
11	1		Private roadways	$24,396	4355	0	$87,627					
Formation								1626		5817182	1110724	$24,894,989
Floodways	693			$312,486	138048	22968	$4,158,101	884	$77,913	126831	24487	$3,574,077
Grand Total	10874			$100,831,025	20239680	840295	$551,503,883		$8,908,331	$11,719,533	$2,273,211	$64,000,063

Sealed Roads

In summary, the key values are:

Current replacement cost (with kerbs): $632,238,925

Accumulated depreciation (with kerbs) (as per 2012 valuation): $148,871,882

With a current population of around 85,000 people (the new de-amalgamated RRC), the asset value of sealed road per person is $7438, and the accumulated depreciation of Council's sealed road assets is 24% of their replacement value.

Unsealed Roads

In summary, the key values are:

Current replacement cost: $64,000,063

Accumulated depreciation (as per 2012 valuation): $8,908,331

With a current population of 85,000 people, the asset value of unsealed road per person in the RRC area is $752.96. The accumulated depreciation of Council's unsealed road assets is 14% of their replacement value. The accuracy of the accumulated depreciation relies heavily on the integrity of the asset data, and is in doubt.

1.2 Service objectives

Levels of service defines the required asset performance targets, in relation to the reliability, quantity, quality, responsiveness, safety, capacity, environmental impacts, comfort, affordability and legislative compliance of the road network.

The provision of adequate financial resources ensures that the road asset network are appropriately managed and preserved. Financial provisions below requirements impacts directly on condition targets, and if prolonged will result in substantial need for future catch up expenditure. Deferred renewal will also result in escalating reactive maintenance due to an increase in asset deterioration. A section of road not being resealed at appropriate intervals, will allow cracks to open up and pavement to become saturated causing huge maintenance demands.

The following service objectives apply:

- Strategic service objectives:
    - A road network provides access across the entire region.
    - The road network that supports the growth across the region.
    - A network that stimulate development across the region.
    - Appropriate funding allocated to the network that meets the annual asset renewal and maintenance demands.
    - An improvement in the overall condition of the network, and a reduction in maintenance demands.
    - The state of the network meets expectations, when benchmarked against similar road networks.
    - Strategic service levels are measurable and quantified.
- Operational service objectives:
    - The services provided meet reliability, functionality and suitability targets.
    - Maintenance and capital renewals are planned and executed in an effective, efficient and sustainable best practice manner.
    - Constantly measure, analyse and improve operations.
    - Be responsive to maintenance requests, and meet demands in a fair, consistent and professional manner.
    - Utilise allocated funding fairly and responsively.
    - Operational service levels are measurable and quantified.

Council utilise a Pavement Management System (PMS) to identify works to be done to not only retain that section of road to an acceptable condition, but also to model its future performance, and future funding demands.

1.3 Measuring the asset performance (What do we measure to know how our road network is performing?)

Sealed Roads

The condition and functionality of the sealed road network, are measured by:

- The amount of defects identified during asset inspections.
- The results of specialist assessments measuring the roughness, rutting, and cracking with the use of Council's PMS.
- Customer feedback, and the number and type of maintenance requests.
- The age and remaining life of the network, and in particular the various classes.
- The assets present, past and anticipated future maintenance and recapitalisation requirements.
- The maintenance history and expenditure across its asset life.
- Future maintenance requirements based on growth and anticipated development.
- Future maintenance requirements based on changes in the traffic characteristics
- Comparison of the life cycle expenditure between similar assets
- The consistency of meeting safety requirements and standards before requiring maintenance.

For sealed roads RRC uses a PMS to collect and store data obtained during the road assessments, to analyse this data, and to then estimate and report on remaining life. Condition scores are calculated by using a range of inspection data in various algorithms and combinations. The Pavement Condition Index (PCI) is an indication of the condition of a particular road segment, all road segments are condition the same way hence a consistent and comparable across the network.

Unsealed Roads

The condition and functionality of the unsealed road network are measured in terms of:

- The amount and nature of the defects identified during asset inspections.
- The change in the road condition between assessments.
- The results of visual inspections to determine the surface condition as per the Unsealed Road Service Delivery Model – RRC 2009.
- Customer feedback and requests for maintenance.
- The age of the road components, traffic numbers, and composition of the traffic using the road.
- The roads present, past and anticipated future maintenance requirements.
- The performance history of the road, and previous maintenance requirements.
- Future maintenance requirements based on surrounding developments resulting in a rise in estimated usage.
- Comparison of the life cycle expenditure between similar assets (benchmarking against similar).

- The long term performance requirements of the asset.
- Consistency of meeting safety requirements and standards before requiring maintenance.

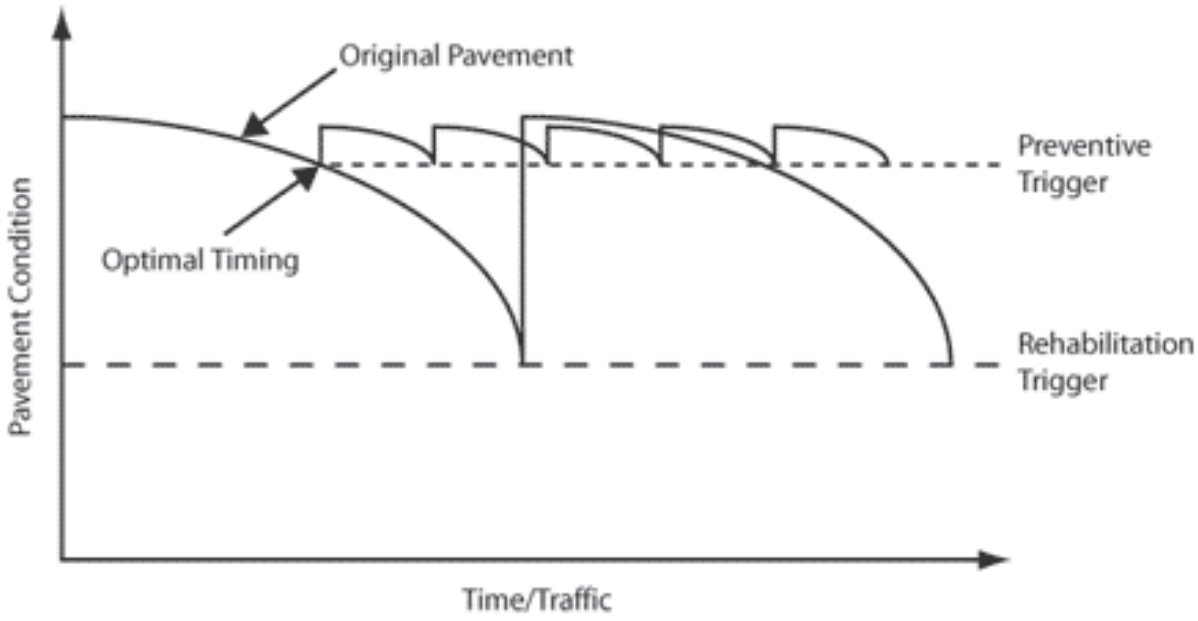
The condition of unsealed roads used to be managed through the use of an unsealed roads management system / application. The unsealed road management system utilise data collected with a calibrated vehicle application that measures the roughness of a particular section of road, to determine maintenance requirements and intervals. This approach has major flaws and the information do not have a high level of accuracy due to the impact of environmental factors, material and construction inconsistencies. The measurement of small amounts of gravel loss across the segment is impossible.

Lately a visual assessment done by an experienced person has proven to be more successful than the previous theoretical approach.

1.4 Lifecycle management plan (How will the asset be managed through its lifecycle?)

The lifecycle management plan for all road assets, is an essential component of the RAMP, and provides detail of maintenance, renewals, upgrades etc. that has to occur at particular stages during the life of the asset. It also documents past expenditure, which is used to model and predict future budgets. This RAMP forms part of Council's financial strategy for the management of all its assets, and shall not be viewed in isolation.

Table 1.4 Lifecycle progression curve



1.5 Council's anticipated financial expenditure for its sealed and unsealed road network

In order to ensure that the sealed road network continue to operate at its current level, and to be able to ensure that the service levels are met, Council need to allocate appropriate funding to maintain and develop (new as well as upgrade) the sealed road network.

Table 1.5: Anticipated road network expenditure

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8 and later
	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022 and later
Capital works								
New works	50,000	100,000	100,000	230,000	100,000	930,000	100,000	26,405,000
Renewal works	15,742,741	13,567,854	13,907,565	19,923,817	18,130,000	18,928,795	18,989,770	41,823,752
Upgrade works	2,431,000	3,874,500	9,069,498	3,100,000	19,031,443	5,670,602	10,625,350	218,368,995
Resheet	1,900,000	1,900,000	1,900,000	1,900,000	1,900,000	1,900,000	1,900,000	1,900,000
Total (Capital works)	**20,123,741**	**19,442,354**	**24,977,063**	**25,153,817**	**39,161,443**	**27,429,397**	**31,615,120**	**288,497,747**
Maintenance								
Planned	7,823,288	7,979,754	8,139,349	8,302,136	8,468,178	8,637,542	8,810,293	8,986,499
Unplanned	914,369	932,656	951,309	970,335	989,742	1,009,537	1,029,728	1,050,322
Unallocated	77,520	79,070	80,652	82,265	83,910	85,588	87,300	89,046
Total (Maintenance)	**8,815,177**	**8,991,480**	**9,171,310**	**9,354,736**	**9,541,831**	**9,732,667**	**9,927,321**	**10,125,867**
Depreciation ($/year)	11,868,475	11,868,475	11,868,475	11,868,475	11,868,475	11,868,475	11,868,475	11,868,475
TOTAL (CAPITAL + MAINTENANCE)	**28,938,918**	**28,433,834**	**34,148,373**	**34,508,553**	**48,703,274**	**37,162,064**	**41,542,441**	**298,623,614**

Scheduled, regulatory inspections and maintenance: Certain the road network bears significant risk, and scheduled inspections to mitigate this risk are required. Examples of these inspections include, but is not limited to edge breaks and shoulder drop offs, guardrails, vegetation in the clear zones etc.

Reactive maintenance includes daily requests and serious defects that require immediate attention, Examples of these defects are open service trenches, potholes, flash flooding etc. It is estimated funding requirement will be increased with CPI over the next 10 years.

1.7 Improvements since the previous RAMP (How does this plan differ from previous versions?).

Rockhampton Regional Council's Civil Operations is responsible for the operational management of the roads network and carries the responsibility for $616 M (the 2012 portfolio replacement value), used to provide access across the region. For many the road network is a lifeline, and needs to be operational at all times.

The following key areas have been improved, but will also be the subject of ongoing improvements:

- Prioritize roads inspections for a combination of functionality and risk
- Determine and update the overall asset condition of each individual road segment in the portfolio.
- Road lifecycle modelling for assets that include strategic, medium and short term projections.
- Capital and maintenance expenditure and dissecting information better.
- Better estimation of future demand and funding requirements.
- Address current GAPS and inconsistencies of information in the Conquest database.
- Broader analysis of accounting indicators, and a better understanding of their impact on Council sustainability.
- Benchmarking to verify how Council performs in relation to similar organisations.

- Identification of areas for future improvement.

- Gaps in information has been identified, these GAPS were either addressed or prioritized to be addresses in future updates of this plan.

1.8 Future improvements

Future improvements to this Roads Asset Management Plan include:

- Refining the prioritisation of planned and preventative maintenance activities to ensure the optimal utilisation of the assets life.
- Improving data quality and improving modelling techniques to increase the level of confidence in maintenance requirements and the associated financial projections.
- The development of service levels the cost for the provision of services at those levels, and how that aligns with community expectations
- Establish scenarios to determine what service levels can be achieved with various levels of funding.
- Refine maintenance and capital work programs.
- Develop and refine performance and service level compliance reporting.
- Constantly reviewing performance results and making the necessary adjustments.
- The forward scheduling of condition assessments and the continuing review of the calibration model to ensure optimal efficiencies.

1.9 How existing deficiencies are identified and addressed in this Asset Management Plan.

Some of the opportunities to optimise expenditure, and improve the condition of Council's sealed and unsealed road network are:

- PARMMS was not calibrated to address current deficiencies, or to focus on the strategic goals and existing risks for the network, a general approach was followed which did not meet specific RRC road networked "needs". A recalibration will be initially done that will not only reduce the extensive network cracking, but will ultimately reduce the reactive maintenance resulting from water penetration into the pavement.

- Resurfacing treatments were limited to asphalt overlays, Council has adopted an approach to consider a wider range of suitable and more economical alternative treatment options. The application of these alternative treatment options requires more investigation, as their application may not always be suitable.

- Recapitalisation and planned maintenance programs (resurfacing and rehabilitation projects) were based on a visual assessments, the pavement management system, data and information obtained from scheduled pavement evaluations using the assessment vehicle will be more relied upon for future programs.

- Costs were not accurately recorded, resulting in poor estimates and an inability to analyse efficiencies, Finance is in the process of developing a new chartered accounts configuration which will assist with the recording of project expenditure.

- Recent successive flood events and associated damage across the network have created a false perception of resources required to meet the agreed service levels. A benchmarking exercise was conducted to assess whether the road network is over or under funded, and areas that could potentially be rationalised.

- Opportunities for savings that do not impacts on the services provided has been identified, one of these opportunities that could be investigated is whether RRC have the obligation to maintain wide road reserves in the same manner they maintain the trafficable road surface, another are the maintenance of sealed roads to which only one owner have access to.

- Council has invested in an unsealed road maintenance management system, the system needs to be calibrated and used to provide real time condition assessments, and the

outcomes of these assessments should drive future maintenance and capitalisation programs.

- The previous assessment model is not only complicated, but inaccurate and open to interpretation due to the inconsistencies associated with the product being assessed. There is staff that has worked on the unsealed network for many years, their experience needs to form the basis for the latest model.

- Modern technology e.g. the use of chemical stabilisers, dust palliatives etc. are in the process of being investigated, and may be used to reduce maintenance cost where applicable.

- Maintenance grading and re sheeting should not be considered in isolation, but should support each other to ensure superior outcomes, both actions will form part of future resurfacing and grading programs to ensure desirable levels of service are maintained.

- Service levels to which unsealed roads are maintained will be reviewed to ensure efficiencies and the advantage are fairly distributed.

2. INTRODUCTION

2.1 Background

The purpose of the Asset management Plan for Roads is to improve Council's short, medium and long term management of its sealed and unsealed roads in order to provide a safe and compliant service at a particular service level in the most economical way. The RAMP achieves this by reviewing current set standards and service levels and how Council achieves them through appropriate maintenance and capital programs. The RAMP also identifies improvements required to improve and develop Councils' asset management practices.

The asset management plan is to be read with the following associated planning documents:

- Rockhampton Region Towards 2050 Strategic Framework
- Rockhampton Regional Council Community Plan
- Rockhampton Regional Council Social Plan
- Rockhampton Regional Council Corporate Plan
- Rockhampton Regional Council Operational Plan
- Rockhampton Regional Council Annual Report
- Rockhampton Regional Council Asset Management Policy
- Rockhampton Regional Council Capital Works Program
- Priority Infrastructure Plans (Draft)

Key stakeholders in the preparation and implementation of this asset management plan are:

Key Stakeholders	Contribution
General Manager Regional Services	Setting direction and facilitating approval of policies on asset management, ensuring integration with corporate planning.
Manager Finance	Overall direction for asset management plans and their development.
Coordinator Assets and GIS	Asset management technical support.
Manager Civil Operations	Asset Custodian for sealed and unsealed road assets and support the development and implementation of maintenance and capital works programs.
Civil Operations	The operational management of the road network, execution of capital and planned maintenance programs, and the day to day reactive maintenance requirements. Inspection of the unsealed road network.
Asset Services	Transport and drainage condition assessments and the implementation of maintenance, rehabilitation, renewal and decommissioning programs.
Civil Engineering	The planning and design of new road infrastructure, and upgrade of existing to meet demand.

Key Stakeholders	Contribution
General Managers (Leadership Team)	Support the development and implementation of maintenance and capital works programs.
Councillors	Representation of the community on issues affecting Facilities.
Council staff and the wider Community	Provision of feedback re levels of service as per Section 3.

2.2 What does the Asset Management Plan for Roads achieve?

The focus of the RAMP is on the short, medium and long term maintenance and capital works planning and how to use this planning to pro-actively manage Council's road network in order to:

- Have a precise and accurate account of what we own, and have a legal responsibility for.
- Record asset information down to an appropriate level, to ensure the asset can be effectively managed.
- Report on annual depreciation and asset consumption at an asset component level to meet accounting requirements.
- Measure and monitor the condition, performance, utilisation and cost of assets down to an appropriate management level and interpret this data to provide information on expenditure and resulting performance at the higher portfolio level.
- Understand and confirm current levels of service.
- Understand future service level expectations/requirements and the associated financial impact.
- Identify any shortfalls in current levels of service, funding and asset management practices and set achievable targets to overcome the shortfalls.
- Project future short, medium and long term funding requirements and how that will correspond with the Council's capital and maintenance projections.
- Measure, monitor and report on the condition, performance and functionality of Council's assets against prescribed service levels and regulatory requirements.
- Have uniform processes across the organisation in place for the evaluation of funding investment in:
    - Renewal, upgrade and expansion of existing assets;
    - Creation of new assets;
    - Maintenance (planned, unplanned/reactive) of existing assets;
    - Operational expenditure to deliver services;
    - Disposal strategy for roads.

2.3 Plan Framework

This RAMP is developed around maintenance and replacement needs of all the attributes (surface, pavement, formation) of the section of road over the life of the individual attributes. This Asset

Management Plan supports a whole of life approach for the management of the road network. The specific elements considered in this RAMP will:

- Demonstrate funding requirements to maintain the asset in a safe and efficient manner.
- Identify economical options to manage road assets to meet agreed levels of service.
- Assess the condition of all the components of the road network.
- Determine the level of service that applies to each element of the network.
- Future funding requirements to maintain the network to an acceptable standard.
- Identify risks associated with the network, and way to appropriately reduce and manage those risks.
- Provide the basis for lifecycle management targets.
- Provide the basis for RRC's financial planning
- Set objectives and report on set targets.

The ultimate purpose of this RAMP is to develop a structured long term financial management plan for all road assets that will ultimately ensure that the condition of the network will gradually improve. The plan has a risk based approach, and will enable RRC to prioritize works.

2.4 Key Assets covered by this RAMP

The following is covered by this Asset management Plan

Sealed Roads

Council's sealed road network consists of the following road categories:

NAASRA Class	Number of segments	AADT (number vehicles)	Class definition	Accumulated depreciation ($)	Estimated area (m²)	Length (m)	Replacement cost ($)
Sealed roads: Rural							
3	101	>8,000	Rural arterial road	$701,433	453815	18468	$13,864,265
4A	463	1,000 - 8,000	A: Major rural arterial connector	$2,755,627	1779386	88700	$45,999,233
4B		1,000 - 100	B: Minor rural connector				
5A	851	10 - 100	A: Primary rural access	$3,795,930	2552758	119150	$63,407,853
5B		< 10	B: Secondary rural access				
5C			C: Minor rural access				
Sealed roads: Urban							
6A	714	>30,000	A: Major Urban arterial	$14,624,522	1053142	69123	$68,604,292
6B		10,000 - 30,000	B: Urban arterial				
6C		6,000 - 10,000	C:Urban sub arterial				
7	309	3,000 - 6,000	Major urban collector	$5,694,030	892634	26472	$24,896,188
8	945	750 - 3,0000	Minor urban collector	$12,226,450	2153303	73299	$58,452,219
9A	6782	400 - 750	A: Urban access street	$60,696,151	11175033	420843	$271,503,166
9B		<400	B: Urban access place				

10	15		Access roadways		37206	1272	$530,939
11	1		Private roadways	$24,396	4355	0	$87,627
Flood ways on sealed roads	693			$312,486	138048	22968	$4,158,101
Grand Total (without kerbs)	10874			$100,831,025	20239680	840295	$551,503,883
Kerbs				$48,040,858		1016	$80,735,042
Grand Total (with kerbs)				$148,871,883			$632,238,925

The following attribute sealed road assets are covered in the RAMP:

Asset Class	Asset Sub Class	Replacement Value
Roads	Surface	$ 151,659,253
	Pavement	$ 283,283,184
	Formation	$ 116,561,450
	Total (without kerbs)	**$ 551,503,888**
	Kerbs	$ 80,735,042
	Total (with kerbs)	**$ 632,238,925**

Unsealed Roads

Council's unsealed road network consists of the following road categories:

UNSEALED ROAD NETWORK							
NAASRA Class	**Number of segments**	**AADT (number vehicles)**	**Class definition**	**Accumulated depreciation ($)**	**Estimated area (m²)**	**Length (m)**	**Replacement cost ($)**
3	19	>8,000	Rural arterial road	$216,344	101266	16300	$537,072
4A		1,000 - 8,000	A: Major rural arterial connector				
4B	141	1,000 - 100	B: Minor rural connector	$1,268,246	700318	114800	$4,165,933
5A	781	10 - 100	A: Primary rural access	$4,688,433	2933431	538300	$17,968,846
5B	395	< 10	B: Secondary rural access	$1,769,165	1298184	294400	$8,234,124
5C	290		C: Minor rural access	888230	742321	174200	$4,625,022
6A		>30,000	A: Major Urban arterial				
6B		10,000 - 30,000	B: Urban arterial				
6C		6,000 - 10,000	C:Urban sub arterial				
7		3,000 - 6,000	Major urban collector				
8		750 - 3,0000	Minor urban collector				
9A		400 - 750	A: Urban access street				
9B		<400	B: Urban access place				
10			Access roadways				
11			Private roadways				
Formation	1626				5817182	1110724	$24,894,989
Flood ways	884			$77,913	126831	24487	$3,574,077
Grand Total				$8,908,331	$11,719,533	$2,273,211	$64,000,063

The following unsealed road attribute assets are covered in the RAMP:

Asset Class	Asset Sub Class	Replacement Value
Roads	Floodway	$ 3,574,076
	Pavement	$ 35,530,996
	Formation	$ 24,894,989
	Total	**$ 64,000,063**

2.5 Council's role and responsibility

Council has to meet many legislative requirements including Australians and State regulations

Legislation	Requirement
Local Government Act 2009 and *Local Government Regulations 2010*	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a LTFP supported by infrastructure and asset management plans for sustainable service delivery.
Transport Planning and Co-ordination Act 1994	Sets agenda for overall transport effectiveness and efficiency through strategic planning and management of transport resources.
Transport Operations (Road Use Management) Act 1995	The overall objective of this Act is to provide for the effective and efficient management of road use in the State.
Transport Operations (Road Use Management – Road Rules) Regulation 1999	Establishes road rules in Queensland that are substantially uniform with road rules elsewhere in Australia.
Transport Infrastructure Act 1994	Provides a structure, which sets and enables effective integrated planning and efficient management of the Council's transport and drainage
Other referenced legislation associated with transport and drainage	
State Legislation - *Land Act 1994* - *Forestry Act 1959* - *Water Act 2000* - *Environmental Protection Act 1994* - *Environmental Protection (Noise) Policy 1997* - *Environmental Protection (Water) Policy 1997* - *Civil Liability Act 2003* - *Building Act 1975* - *Acts Interpretation Act 1954* - *Dividing Fences Act 1953* - *Integrated Planning Act 1997* - *Infrastructure Act 2003* - *Survey and Mapping* - *Aboriginal Cultural Heritage Act 2003* - *Electricity Act 1994* - *Telecommunications Act 1997* - *Native Title Act 1993* - *Workplace Health and Safety Act 1995* - *Health Act 1937* - *Acquisition of Land Act 1967* - *Land Protection (Pest and Stock Route Management) Act 2002* Commonwealth legislation	

- *Commonwealth Disability Discrimination Act 1992* - *Telecommunications Act 1997* - *Native Title Act 1993*	

2.6 Road network responsibility matrix

Sealed Roads

Road type	Asset Custodian	Asset Manager	Programmed Inspection	Condition assessment	Planned maintenance and Capital programs	Execution of programs	Reactive maintenance
Surface	CO	AM	AM /CO	AM	AM/CO/ES	CO	CO
Pavement	CO	AM	AM /CO	AM	AM/CO/ES	CO	CO
Formation	CO	AM	AM /CO	AM	AM/CO/ES	CO	CO

Unsealed Roads

Road type	Asset Custodian	Asset Manager	Programmed Inspection	Condition assessment	Planned maintenance and Capital programs	Execution of programs	Reactive maintenance
Floodway	CO	AM	AM /CO	CO	AM/CO/ ES	CO	CO
Pavement	CO	AM	AM /CO	CO	AM/CO/ES	CO	CO
Formation	CO	AM	AM /CO	CO	AM/CO/ES	CO	CO

Legend

AM	Asset Management	CO	Civil Operations	ES	Engineering

2.7 Management of Road assets

RRC are the owners of a road network with a total value of $ 696M. In order to enable Council to responsibly manage this asset, responsibilities are divided as follows:

- Operational activities – Civil Operations
- Asset management – Assets Management Group
- Engineering and strategic planning – Civil Engineering

These groups work together to achieve the best corporate outcomes and results.

2.7.1 Activities included in the operational management of the asset:

Activities included in Operational management include, but are not limited to:

- Reactive maintenance to attend to daily work requests.
- Programmed planned maintenance

- Programmed capital upgrade, rehabilitation and renewals
- New capital works as per the capital works program
- Works that originated from visual inspections and unexpected incidents and events

2.7.2 Activities included in the strategic planning of new and upgrade of existing assets:

Activities include, but are not limited to:

- Planning and design of new roads to supplement the existing network, and service new developments.
- Upgrade of existing roads to meet service level requirements, and accommodate growth.
- Upgrade of traffic management devices (intersections, roundabouts etc.) to meet growth demand.
- Assess road network assets contributed to Council by private developers.

2.7.3 Activities included in the asset management of the asset:

Activities included in Asset management include, but are not limited to:

- Specialist road asset inspections and condition rating of RRC's road network
- Rate and prioritise segments identified for work during specialist inspections
- Development of planned maintenance programs
- Upgrade, rehabilitation and road asset renewal programs
- Compiling of short, medium and strategic capital works programs
- Asset disposal and associated strategic disposal strategies

2.7.4 The business process required for the management of assets.

In order to be able to manage the road network effectively, all assets are broken up into individual components, which are then "micro managed", this helps to ensure that all the maintenance needs of the road network are considered individually as well as in combination with each other to deliver the best and most economical outcomes. This method also helps to use a consistent approach towards the management of all road network assets and associated services. The consistent use of terminology is encouraged in the establishment of condition standards associated with the assessment, costing, planning, implementation and the reporting of maintenance works.

A section of road is broken up into the following attributes:

- Formation;
- Pavement;
- Surface
- Kerbs; and
- Floodway

These operational and maintenance processes are linked by work order through Councils corporate asset management system, Conquest. Request for maintenance are reported through Councils corporate customer request system, Pathway which interfaces with Conquest. Updates and closing comments are reported on work orders which when completed, complete the Pathway request and advise the creator of the outcomes of the request. Requests (based on the priority thereof) are escalated if not actioned within set timeframes.

Figure 2.7.4.1: The business process flowchart for planned and re-capitalisation: Sealed road network

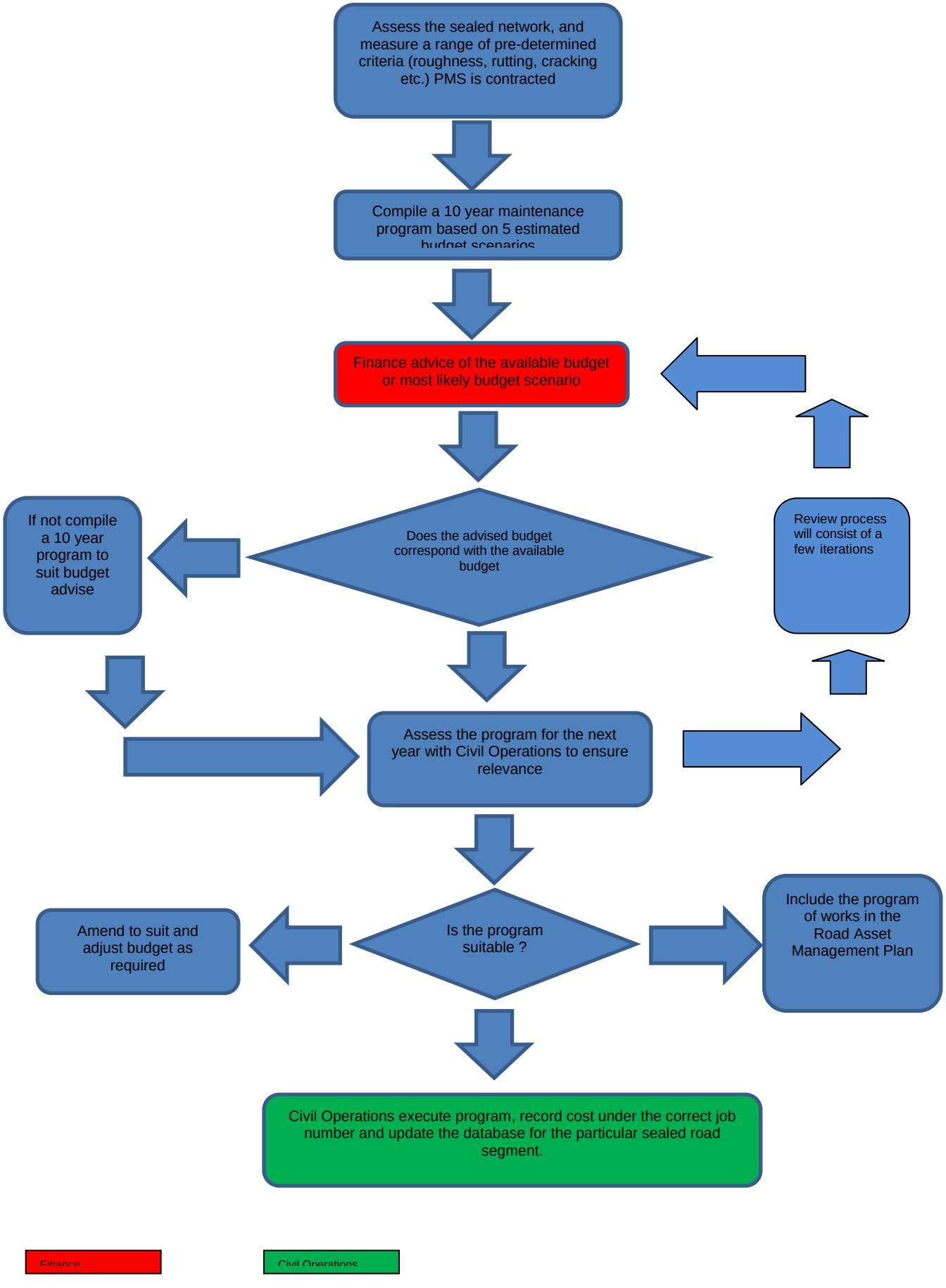
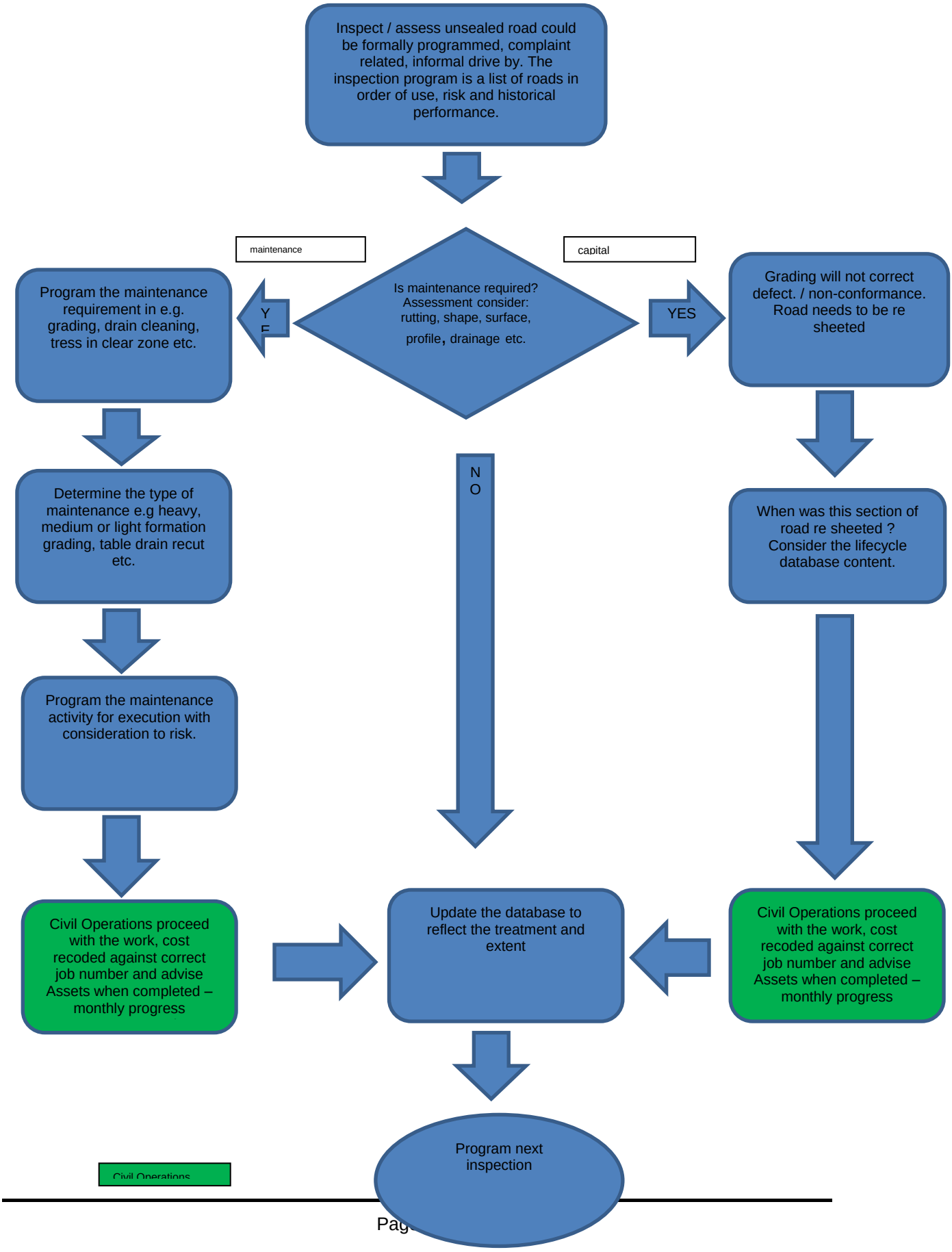


Figure 2.7.4.2: The business process flowchart for planned and re-capitalisation: Unsealed road network



2.8 Core and Advanced Asset Management

This asset management plan is prepared as a 'core' asset management plan in accordance with the International Infrastructure Management Manual. It is prepared to meet legislative and organisational requirements for sustainable service delivery and long term financial planning and reporting. Core asset management is a 'top down' approach where analysis is applied at the 'system' or 'network' level. One of the objectives of this plan is to provide asset custodians with enough information to enable them to manage assets under their control as effectively and efficiently as possible. The development of maintenance and capital delivery programs (with cost estimates) will not only assist in the motivation of funding allocations, but will also identify funding GAPS more clearly and accurately.

Future revisions of this asset management plan will move further towards 'advanced' asset management using a 'bottom up' approach for gathering asset information for individual assets to support the optimisation of the assets lifecycle through the management of the individual components the asset is divided into. Advanced asset management will assist RRC in the development of an overall function and risk based funding plan, and to focus on areas of need and risk instead of not knowing how expenditure effect the services Council provide.

3. LEVELS OF SERVICE

A key objective of the RAMP has been to match the level of service provided by Council, the expectations of the community and the available funding and resources. In order to make the match, a clear understanding of the existing and expected levels of service is required.

To achieve and sustain acceptable and expected service levels requires a well-managed funding commitment, funding requirements are divided in:

- Unplanned and reactive maintenance,
- Planned maintenance,
- Capital works programs further broken up into:
    - Renewal
    - Upgrade and rehabilitation
    - Replacement programs

The provision of adequate financial resources ensures that the road network is appropriately managed and preserved, an inferior funding commitment below “real funding need”, impacts directly on the community development, and if prolonged, results in a substantial need for future “catch up” funding. Deferred renewal and planned maintenance funding will result in an increase and escalation of reactive maintenance as aged assets deteriorate at increasing rates, leading to the inefficient utilisation of funding resources.

Current levels of service are explained further in this section.

3.1 Strategic service objectives and the further development of strategic service levels

Council has undertaken extensive community consultation that builds on departmental reviews and research undertaken to assist in the identification of required and expected levels of service. The outcomes of the community consultation processes were used to develop the Community and Social Plan that identify strategies and challenges.

Council operates a Pavement Management System (PMS). The PMS can, using various conditions and calibrations calculate a Pavement Condition Index (PCI) for each road segment. The PCI calculation is obtained from:

- Roughness (NRM)
- Rut depth (measured along and transverse to the road lane in mm),
- Structural cracking (percentage area cracked),
- Environmental Cracking (percentage area cracked),
- Potholes (number of potholes in a particular section),
- Pothole patching (number of potholes that had been patched),
- Heavy patching; and
- Ravelling.

Council engages a third party to undertake network condition surveys using specialised equipment that will score the above in their current condition. The PMS also model the performance of each segment in the network, and predict how the segment will degrade in the future using a number of factors (estimated growth, environmental conditions, etc.). Reports can then be generated to assign a

PCI score to the segments giving an estimated year of failure (when renewal capital works will need to be undertaken). Ingrained in the PMS are set intervention levels and treatment matrices, which is used to find the optimal renewal points and to stop the segment going into a state of disrepair.

Various models are used to run different "budget scenarios" in order to find the optimal operational budgets and most efficient program of capital works.

Pathways is used to log and track requests for maintenance or defects to be repaired. The system also records when it was done, customer satisfaction and record costs that can be used to estimate future maintenance needs.

3.2 Current Levels of Service

3.2.1 Two distinct levels of service apply:

Service levels are divided into two distinct types:

3.2.1.1 Community levels of service:

The road network provides a functional urban and rural road hierarchy that supports development, settlement patterns, commercial activity and freight movements. Based on the function of the road within the road hierarchy, Council is expected to provide a service compliant with expectations of the road users:

- Acknowledge the strategic importance of the service
- Road users understand road network accessibility constraints (parts of the network are flood prone, regular road users need to understand the restrictions and how to plan for them)
- Strategic affordability being Council can only provide a service to a level that Council can afford.
- Relevance of the service provided in terms of demand, backlog, location of pressure points etc. in comparison with other services, and needs.
- Strategic integration of this service with other services provided by other assets in other asset classes.
- Best practice design standards are followed to ensure a safe network.
- The network is managed in a financial responsible manner, and the investment is managed with respect.
- The evidence that funding allocated to the network are effectively utilised.
- The network supports development.

3.2.1.2 Operational / Technical levels of the service

The point at which the decision is to repair, renew or upgrade a road in order to constantly meet the expectations of the road users.

- The levels at which the road will be managed through its lifecycle to meet Council's strategic service level objectives?
- The maintenance standards that apply in order to ensure safe and efficient utilisation of the network.
- The intervention levels beyond which maintenance are required.
- Council's responsiveness in terms of road user requests for maintenance
- The frequency and content of inspections.
- The priority given to various defects.
- The prioritization of defects.
- Emergency reaction procedure
- Estimating the cost of various types of maintenance in order to budget correctly.
- What service levels can be maintained with what resource allocations?
- How resources can be balanced to provide the most cost effective outcomes.
- Criteria that determine when an intersection, round about etc. will be upgraded
- Traffic usage, type and counts that determine when an intersection will be upgraded.
- Road safety audits to determine the status of the network, and what elements of the network require upgrade or improvement.

Levels of service in the context of this Road Asset Management Plan relate to end use of the road network and how the community receives the service in terms of safety, quality, quantity, reliability, responsiveness, cost/efficiency and legislative compliance.

3.2.2 Current service levels for the sealed road network

3.2.2.1 The functional hierarchy of sealed roads

Council has defined the regional network in accordance with the Austroads Functional Class hierarchy.

Table 3.2.2.1.a: Austroads functional road classes

Description	Road Class	Ownership	Operational responsibility	Road Function
National Highways	1	Federal / State (DOTRS & DTMR)	Federal / state can be contracted to Council.	National traffic route
State Main Roads	2	State (DTMR)	Federal / state can be contracted to Council.	Interstate route.
Rural Arterial	3	Council	Council	• Routes between class 1 & 2 roads • Between significant economical, social, educational etc. centres
Rural Collector	4a, 4b	Council	Council	Collect and distribute traffic from local areas to the wider road network
Rural Access	5a, 5b, 5c	Council	Council	• Connect to Class 1, 2, 3 or 4 roads • Provide access to rural residences and properties • Provide exclusively for one activity or function (e.g. access to national parks, dam access, mining and forestry roads
Urban Arterial	6a, 6b, 6c	Council	Council	• Perform as principal arteries for through traffic and freight movements, and across urban areas. • Provide access to major freight terminals, freight movement and access to major transport terminals. • Could be extensions of Class 2 or 3 roads into urban areas.
Major Urban Collector	7	Council	Council	• Complete the major road network across the metropolitan area • carry intra-urban traffic and/or

				commercial and industrial traffic • Serve as supplementary public transport corridors • Form part of a regulatory spaced road network supplementary to the principle road network.
Minor Urban Collector	8	Council	Council	• Collecting and distributing traffic from local areas to the wider road network • Access to abutting properties.
Urban Access	9a, 9b	Council	Council	• Roads which connect to Class 6, 7 or 8 roads. • Provide access to residences and properties. • Provide exclusively for one activity or function.

3.2.2.2 Service levels for the sealed road network

Council's pavement management system (PARMMS), utilises a range of intervention levels. These intervention levels are set for various deterioration measurements on a selection of physical properties. As soon as a particular intervention level is exceeded the model nominates a particular (or a range of treatments over an extended period) for that section of road to restore it to the particular service level (Appendix B: Intervention levels and treatment matrix).

Table 3.2.2.2 Current Service Levels for Sealed Road Assets

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Customer satisfaction	Provide a smooth ride with minimal rutting/potholes.	Number of customer service requests relating to poor performance	Less than 20 per month	Measure being developed
Function	Ensure road network meets user requirements.	Customer service requests response time	Target being developed	Measure being developed
Safety	Provide safe suitable roads, free from hazards	Number of injury accidents	Less than 20 per annum accidents directly attributed to road conditions	Measure being developed in addition to 3E reports

TECHNICAL LEVELS OF SERVICE				
Quality	Comply with current standards and specifications		Less than 20 per month	
Condition	Carry out responsive maintenance works in a timely manner	Customer service request response time. Response to defects identified and attended to.	Target being developed	Measure being developed
	Maintain and monitor seal condition	Rating and PARMMS criteria used.	Less than 5% exceeding intervention levels	13% (10% environmental, 3% structural cracking intervention levels) based on 2009 PMS Data
	Maintain and monitor pavement condition	Condition ratings: • Roughness • Rutting • PCI Condition Rating • Etc.	Less than 5% exceeding the intervention levels:	2009 PMS Data: 22% (Urban), 7% (Rural) 17% Very Poor Condition (Urban and Rural)
	Maintain and monitor sealed road condition	PARMMS condition assessment	At least every 3rd year	Measure being developed
		Condition rating outcomes	Less than 5% exceeding intervention levels and design standards	Measure being developed
Risk Management	Provide a risk free road network. All road user risks identified, and mitigation plans in place.	Identify risks that have eventuated, but not actioned	Risk reduction programs	Measure being developed
Cost effectiveness	Provide services in cost-effective manner	Manage capital and maintenance budgets, Budgets based on asset management needs and requirements.	All projects delivered within 5% of budget	Measure being developed
Safety	Comply with all legislative road safety requirements: • Design • Physical road • Road furniture	Annual defect & condition survey	Less than 5% of road signs and line-marking with defects. Traffic signals operational 98% of the time	Measure being developed

3.2.3 Current service levels for the unsealed road network.

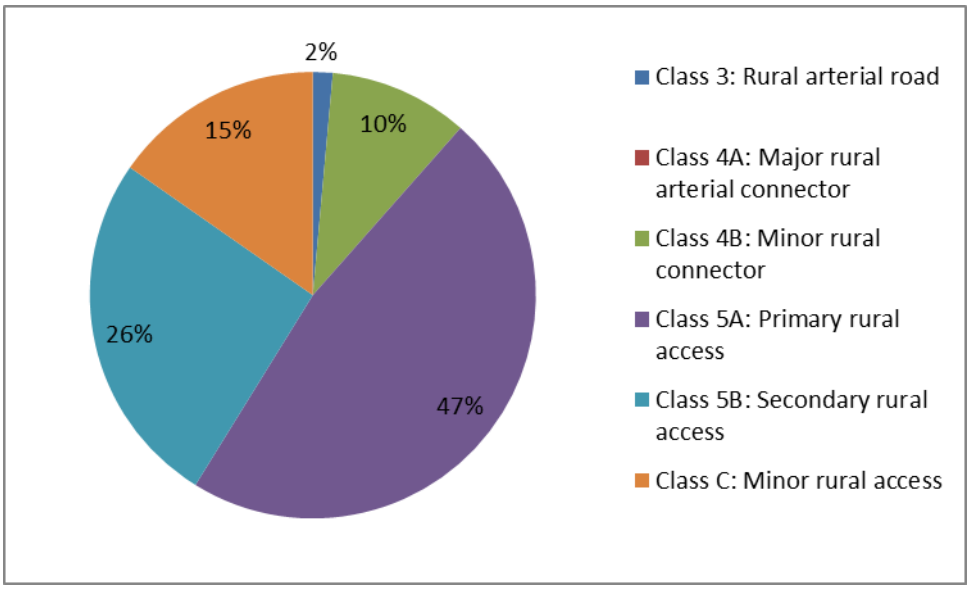
3.2.3.1 Functional hierarchy for unsealed roads

Council's unsealed road network is broken up into the same hierarchy as the sealed road network.

Table 3.2.3.1 Unseal road network hierarchy

UNSEALED ROAD NETWORK							
NAASRA Class	**Number of segments**	**AADT (number vehicles)**	**Class definition**	**Accumulated depreciation ($)**	**Estimated area (m²)**	**Length (m)**	**Replacement cost ($)**
3	19	>8,000	Rural arterial road	$216,344	101266	16300	$537,072
4A		1,000 - 8,000	A: Major rural arterial connector				
4B	141	1,000 - 100	B: Minor rural connector	$1,268,246	700318	114800	$4,165,933
5A	781	10 - 100	A: Primary rural access	$4,688,433	2933431	538300	$17,968,846
5B	395	< 10	B: Secondary rural access	$1,769,165	1298184	294400	$8,234,124
5C	290		C: Minor rural access	888230	742321	174200	$4,625,022
6A		>30,000	A: Major Urban arterial				
6B		10,000 - 30,000	B: Urban arterial				
6C		6,000 - 10,000	C:Urban sub arterial				
7		3,000 - 6,000	Major urban collector				
8		750 - 3,0000	Minor urban collector				
9A		400 - 750	A: Urban access street				
9B		<400	B: Urban access place				
10			Access roadways				
11			Private roadways				
Formation	1626				5817182	1110724	$24,894,989
Flood ways	884			$77,913	126831	24487	$3,574,077
Grand Total				$8,908,331	$11,719,533	$2,273,211	$64,000,063

Figure 3.2.3.1: Classes as a percentage of the total unsealed network



3.2.3.2 Service levels for the unsealed road network.

Council's unsealed road network is maintained through scheduled actions based on an operational array of intervention levels. Traffic volumes are used to model the deterioration, which then forms the basis for scheduled maintenance and recapitalisation actions.

Table 3.2.3.2: Unsealed road network operational intervention levels

Road Class	199	150	125	100	75	30	10
Traffic Count	>150	125-150	100-125	75-100	30-75	10-30	<10
Unformed Length (m)	0.07	0.00	0.00	0.00	3.85	12.93	25.11
Gravel Network Length (m)	41.27	86.94	250.33	462.93	454.57	502.74	108.88
Total Length (m)	41.34	86.94	250.33	462.93	458.42	515.67	133.99
Maintained Width (m)	6.5	6	6	5.5	5	4	3
Grading Interval (months)	5.2	6	9	12	17.2	24	36
Yearly Grading	2.3	2	1.34	1	0.7	0.5	0.33
Percentage Gravel	75%	75%	70%	60%	55%	25%	10%
Gravel Loss (m) / year	0.017	0.016	0.015	0.014	0.013	0.012	0.011

*The gravel percentage is the minimum amount of gravel that should be on that particular class of road.

The operational intervention levels in Table 3.2.3.3 recommend:

- 804 km of the network is graded every 18 months
- 960 km are graded every 12 months
- The remaining 150 km are graded at less than 12 month intervals.

The grading interval that features in the table is indicative only and is dependent on the change of traffic patterns and environmental conditions.

Most of the unsealed network has a current (September 2014) average gravel thickness of approximately 90%, achieved through consistent re-sheeting efforts.

Scheduled maintenance grading and re gravelling (recapitalisation), are currently done on an “as need” basis, determined by regular inspections.

3.3 Desired Levels of Service

A more aware and sophisticated community continues to generate a demand for an increased service from Council’s roads infrastructure and this growing expectation from the region's community is predicted to continue.

Whilst these expectations are very real, it is important that the cost of providing infrastructure at the current and higher service levels be quantified so that informed decisions can be made on prioritising Council’s resources. One of the primary functions of this Road Asset Management Plan is to identify (and quantify) the link between the cost required to provide a service and the growing service level expectations.

In assessing this information it is important to consider service levels achieved in the broader sense of quality, function and safety rather than purely focusing on the condition of the infrastructure as the only measure of performance. It is quite valid to question whether Council is providing the appropriate infrastructure in the right place at the appropriate standards. This commences the challenging task of aligning strategic goals; legislative requirements, road user expectations, risk, technical standards and available resources.

At present, indications of desired levels of service are obtained from various sources including Customer
Satisfaction surveys, residents’ feedback to Councillors and staff, service requests and correspondence. This plan is based on the assumption that current levels of service continue to meet client expectations.

3.3.1 Desired levels of service for the sealed road network

The existing service levels feature in Table 3.2.2.2: Current Service Levels for Sealed Road Assets. It is not expected that any of these levels of service will change or reduce, and that proposed changes will focus on achieving efficiencies, these amendments include:

- A recalibration of the PARMMS pavement management system to ensure optimum efficiencies across the sealed road network.

- The introduction of an additional range of seal treatments to ensure a lower treatment cost where suitable.

- Inclusion of newer technology treatments to the treatment “toolbox”, this technology need to be tested and determined whether they can be applied with confidence.

The introduction of newer and less expensive treatments are associated with risk, which can be mitigated through more extensive inspections prior to compiling the yearly reseal program. The 2014/15 resurfacing and rehabilitation program (which include the use of alternative treatments) has been compiled by Civil Operations, it is expected that PARMMS will play a more significant role in the determination of future programs, and individual surface treatment applications.

3.3.2 Desired levels of service for the unsealed road network

The existing service levels feature in Table 3.2.3.3: Unsealed road network operational intervention levels, and is based on intervention levels. The unsealed road network is in a better than expected condition, and very little complaints with regards to the performance of the network are received from road users, the general observation is that the unsealed network could be over serviced. Proposed changes could directly impact on existing service levels for parts of the network, and may result in a reduced level of service for a very low percentage of unsealed roads:

- Maintenance grading could be reduced, and the need could be identified from a risk based perspective. Very low trafficked roads may receive less reshaping, but more general “patrol grading”, while more trafficked roads could be reshaped and graded more often. Maintenance grading shall be need based, and the outcome of physical assessments. In order to avoid reestablishment some roads could be graded when crews are in the area regardless whether intervention levels are exceeded.

- Re – gravelling may change from a fixed scheduled activity to an activity that only occurs after an intervention level has been breached. Civil Operations have succeeded in providing consistently high re-sheet thickness also achieved through extensive flood repairs.

- Investigations to base the service level on the traffic counts (or road class) will also be done to ensure a particular part of the unsealed road network is not over serviced.

4. Road network maintenance and renewal

Maintenance and renewal works will extend the life of the Council's sealed and unsealed road network. The PARMMS pavement management system is used to develop planned maintenance and capital renewal programs for the sealed road network while experience and regular inspections are used to develop planned maintenance and capital renewal programs for the unsealed road network.

4.1 The Sealed Road Network:

4.1.1 Patching

Potholes are usually holes in the road surface where the surfacing material, and often some of the pavement material, has broken out, and are categorised into small, medium and large depending on their depth and area. Potholes are formed when moisture penetrate the pavement layers through defects in the seal, allowing the pavement particles to dislodge from each other. The mechanism for potholes is the failure of the surface seal which can occur through:

- Age allowing the bitumen adhesion compound to become brittle and to lose its bonding properties.

- Physical damage from traffic due to screw actions, braking etc.

- Poor choice of surface treatment

Current service levels require potholes to be fixed when they exceed 300 mm in diameter and/or 30 mm depth. This arrangement is very theoretical as repair crews will not measure potholes, and only fix the ones that exceed the intervention levels leaving the smaller ones to grow just to come back in a few days to fix them, the current policy are to fix all the potholes when in the area.

The fixing of potholes are reactive, the repairs are therefore not durable and large areas of groups of potholes have to be properly fixed (heavy patching) prior to resurfacing. Large areas subject to extensive potholing may also indicate structural pavement failure which prompts consideration given to capital renewal.

4.1.2 Edge breaks (structural failure of the road edge)

Edge breaks are where the bituminous surfacing has been broken away from the road edge while edge drop offs are where the unsealed shouldering material has abraded or eroded leaving the shoulder significantly lower than the road surface. The intervention level for the repair of edge breaks are 30 mm in depth, but also depend on the traffic volume the frequency of maintenance repairs etc.

Repairs are usually done through:

- Reactive maintenance or temporary repairs: Hot mix asphalt is used to fill the edge break. The time required to temporary repair defects should not exceed 5 minutes per pothole (to meet traffic management requirements).

- Planned maintenance or permanent fixes. This is after a review of temporary repairs has taken place or prior to resurfacing or rehabilitation works (recapitalisation works). Where there are a long length of road where the edge has failed, consideration to rehabilitation and re construction should be given.

4.1.3 Rutting

Rutting is a sunken wheel track, it usually indicates structural pavement failure, and can be caused by:

- The inability of the pavement to be able to perform to its design specifications.
- The pavement has reached the end of its useful life.
- Poor subgrade properties not reflecting in the pavement design
- Poor construction practices
- Traffic exceed design criteria (especially with regards to heavy vehicle traffic)

Cracking associated with rutting increases the ingress of moisture into the pavement (under the compromised seal), which rut formation and ultimately pavement failure. When the surface on high order roads is either 50mm higher or lower than the surrounding surface, the defect has reached its intervention level and reactive maintenance is required to mitigate a potentially dangerous situation, and will also prompt the need for capital renewal.

4.1.4 Roughness

Roughness is the measure for the unevenness of the road surface, and relates directly to the road user experience. A different roughness intervention level are used for each functional road class (as it has a direct relationship to the speed restrictions applicable to that road), the amount of roughness is used to prioritize the capital renewal program as it is considered as an indicator of a combination of other failure modes.

Council has recently followed a more realistic approach, and have decided rather to use structural cracking and environmental cracking as the weighting criteria for the prioritization of the projects on the works program. The PARMMS Pavement Management System has also been calibrated accordingly, and the calibration will be reviewed after each assessment to ensure an efficient and effective road improvement program.

4.1.5 Surface cracking (structural and environmental cracking)

Surface cracking (structural and environmental) provides an indication of the condition of sealed road surfaces. Sealed road surfaces generally provide a waterproofing layer to protect the underlying pavement from moisture which can significantly reduce the strength and durability of the road. Council undertakes an annual reseal program to renew and waterproof the surface, and minimise the effects of surface cracking. Council has recently decided to extend the resurfacing program, and to follow a more preventative (effective) approach to the management of their road assets.

4.2 Unsealed Road network

4.2.1 Surface roughness

The roughness of the road surface seriously affects the ability of the road user to safely travel across the surface at the comfortable or posted speed. Roughness can be divided into specific occurrences such as washes (after rain events), and irregularities along the travelling surface. The current theoretical intervention level for the maintenance grading of unsealed roads is a roughness score exceeding 8 IRI (International Roughness Index) as measured by the roughometer device fitted to a number of Council vehicles, the roughness score for a section of road fluctuate a lot and it is difficult to form an accurate conclusion .

4.2.2 Loose surface material and dust

Loose surface material directly affects the road user's ability to control the vehicle, and should be kept to a minimum within the accepted limits. The measurement is subjective and the experience of the inspector is the best way to assess the situation.

4.2.3 Obstacles in the clearing zones

Obstacles to the likes of trees, signs, rocks etc. in the clearing zone poses a significant risk to road users and should be kept within acceptable levels. Maintenance requirements are quantified when doing inspections, and executed as planned maintenance.

With current resources Council is achieving visual assessments on most roads but have not done technical assessments (as per the unsealed pavement management system) for a while.

The condition of unsealed roads is very dynamic due to their exposed nature, and road condition can change dramatically as a result of inclement weather. During times of significant damage to the network due to inclement weather, restoration works are prioritised and undertaken within the limits of the available budgets.

4.3 Kerb and Channel

The Kerb and Channel is predominantly of a concrete construction. Like footpaths, the life of kerb and channelling is likely to be influenced by poor sub-grade, inadequate sub-surface drainage and tree root problems. Rockhampton Regional Council provides a level of service for kerb and channel that compliments the road network and provides effective stormwater runoff. Service levels are defined in terms of:

- Providing a practical and satisfactory kerb and channel network
- Maintaining the structural integrity of the footpath
- Effective stormwater runoff; and
- Condition, smoothness and functionality

Inspection and maintenance regimes are to be developed for further versions of this plan.

5. FUTURE DEMAND

5.1 Demand Forecast

Factors affecting demand include population change, changes in demographics, seasonal factors, vehicle ownership, consumer preferences and expectations, economic factors, agricultural practices, environmental awareness, etc.

Key factors influencing the demand for new transport and drainage and changes to existing road networks within the Rockhampton Region include:

- Growth in industrial areas, commercial precincts and in residential areas
- Changes in land use
- Population growth
- Travel patterns
- Car usage levels
- Public transport use
- Environmental awareness
- Governmental policy; and
- Other economic activities.

Demand factor trends and impacts on service delivery are summarised in Table 5.1.

Table 5.1. Demand Factors, Projections and Impact on the road network

Demand factor	Present position	Projection	Impact on the road network
Population	82551	Population projection based on the higher range being 2%. 2016 – approx. 87000 people 2021 – approx. 95000 people 2026 – approx. 104000 people	Increase in road used, and an increased maintenance demand which will require an increased budget.
Demographics	Increasing shift towards average age increasing	Aging population and multicultural community expected to continue	An aged population change the design of roads which cost more.
Construction cost	Current costs	Costs anticipated to increase	The shortage of skilled labour, high labour costs and increasing construction cost will impact on the future cost associated with the supply and management of road infrastructure. State and Federal reconstruction programs on their roads will commit local smaller contractors and increase costs.
Regulation	Current regulations	Regulations relating to road elements increase costs e.g. clear zones, guard rails, safety in design etc.	Will add further to the cost of providing, operating, maintaining the sealed and unsealed road network.
Community Expectations	High – The road network need to provide 24 hr access across the region.	Increase demands	Upgrade existing roads that are compromised by flooding, to roads are flood free and can provide access across the region during floods.
Environmental	Implementation of environmentally friendly equipment when renewal is due	Reduce and measure our carbon footprint	Energy efficient construction practices to reduce Councils carbon footprint.

These identified factors affect the current levels at which service is provided to the community. At present Council's adopted Infrastructure Charges Resolution (no.4) 2014 forms the basis for the identification of new or the upgrade of existing infrastructure.

5.2 Changes in Technology

Technology changes are forecast to have a significant impact on the delivery of services covered by this plan.

The main areas where technology changes may affect the delivery of the services covered by this plan, and are summarized in Table 5.2.

Table 5.2. Changes in Technology and the anticipated effects

Technology Change	Effect on Service Delivery
Change in construction methods and the materials used	Could potentially increase the life of assets, reduce renewal costs, reduce environmental footprint
Incorporating the use of recycled materials.	
Applying new techniques to strengthen and increase the life of pavement materials e.g. cement stabilisation.	
Management Technology	The further improvement of Council's asset management systems will ensure a more integrated approach with respect to optimisation of renewal works and predicted financial forecasts. Subsequently, the implementation of integrated asset management systems will ensure the flow of information between departments within Council and improved records of Council's assets
Management Systems	The implementation of the pavement management system PARMMS and the asset management system (CONQUEST) are in early stages of advancement and are not optimally utilised yet. A systematic and corporate approach to managing asset information has seen the development of a Whole of Council asset register, integration with global information systems (GIS & ESRI), improved works order management, a recognised financial reporting process and programmed maintenance tasks for delivery.

5.3 Future demand management plan

Demand for new and improved services will be managed through a combination of upgrading existing assets, and providing new assets in order to meet the demands of a changing market. Demand management practices also include non-asset solutions such as risk and failure management.

Some challenges include:

- Population growth – ensure that the road network can service the growing population, and that user delays are being managed to expectations.
- Economic growth and investment – ensure the road network support and contribute to economic growth.
- Good governance – ensure that the platform for the delivery of essential and regulatory local government services are strong, and are continuously strengthen.
- Social – ensuring that a reliable road network is provided to all members of the community.
- Environmental – ensure that the impact of roads on the environment is minimized.

- Cultural – Ensuring that the road network contribute to an environment that reinforces the distinctive and diverse character of Council.

Regional resource development may influence and stimulate population growth, the extent is not known and more data is required to review the impacts and pressures of population growth on the road network.

Demand drivers for capital and maintenance works include:

- Increase in user volumes and changing characteristics of road use (e.g. growth from a low percentage heavy vehicle traffic).
- Increased age of the network.
- Past road management practices.
- Increased community expectations with regards to the condition of the sealed and unsealed road network.
- Remaining useful life of existing roads and the accumulation of maintenance requirements to retain the asset in a good condition.
- Increasing maintenance demand due to a lack of funding for planned maintenance programs, and past maintenance deficiencies.
- Increased maintenance demand due to a lack of capital renewal, rehabilitation and replacement

5.4 Proposed new and upgrade road infrastructure identified by growth requirements.

Growth areas have been identified, these areas will require the upgrade of existing and the construction of new roads and other infrastructure to enable the area to connect with the rest of the network. Connecting infrastructure will not only require funding to construct or upgrade it, but will also require an ongoing maintenance investment that will impact on future short, medium and long term budgets. This new and upgrade of existing infrastructure will be provided compliant with current standards and specifications, and will meet current service level requirements.

The following documents are used to assess the need for new, or for the upgrade of existing road infrastructure:

- The Rockhampton Traffic Study (2008), and other ad-hoc planning assessments. DTMR have commenced a comprehensive upgrade which will form the basis for an updated list for the next RAMP.
- The RRC Planning Assumptions Report: version 2 (2014), and the associated planning assumptions model (PAM V2)
- The Rockhampton Regional Council: Adopted Infrastructure Charges Resolution (No.4) 2014.

Table 5.4.1: New growth related road infrastructure

Item ID	Type Renewal	Project Name	Future Infrastructure Asset Description	Infrastructure Value	Estimated Year of Completion	Estimated Year of Budgeted Construction	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Later years
T-62	New	Douglas Street/Somerset Road link	Construct new road link between Somerset Road and Douglas Street opposite Kabra–Scrubby Creek Road	$5,018,000	2031+												$5,018,000
T-58	New	Somerset Road West (Stage 1)	Construct extension of Somerset Road (from Gracemere Overpass to Douglas Street/Somerset Road link). Build as Industrial Collector.	$4,501,980	2026	2019/2020						$4,501,980					
T-82	New	McMillan Avenue	Construct extension of McMillan Avenue (from T-81 to existing McMillan Avenue construction). Build as Major Urban Collector, with a 30m wide corridor.	$560,000	2031+												$560,000
T-94	New	Washpool Road Connector	Connect Washpool Road to Temora Street as Major Urban Collector	$2,000,000	2021	2020/2021									$2,000,000		
			Total new sealed and unsealed roads	**$12,079,890**								**$4,501,980**			**$2,000,000**		**$5,578,000**

Table 5.4.2: Growth related road infrastructure to be upgraded

Item ID	Type Renewal	Project Name	Future Infrastructure Asset Description	Infrastructure Value	Estimated Year of Completion	Estimated Year of Budgeted Construction	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Later years
T-4	Upgrade	Alexandra Street upgrade (Stage 2)	Upgrade Alexandra Street between Maloney Street and Werribee Street to four lane Urban Arterial	$4,889,000	2021	2016/2017			$4,889,000								
T-8	Upgrade	Alexandra Street upgrade (Stage 5)	Upgrade Alexandra Street between Wade Street and Birkbeck Drive to two lane Urban Sub-Arterial	$3,694,000	2031+	2029/2030											$3,694,000
T-15	Upgrade	Breakspear Street	Upgrade to Major Urban Collector (from Johnson Road to Rosewood Avenue)	$2,586,000	2021	2015/2016		$2,586,000									
T-19	Upgrade	Allen Road	Upgrade to Major Urban Collector (from Gavial - Gracemere Road to Lucas Street)	$2,315,000	2021	2019/2020						$2,315,000					
T-24	Upgrade	Lion Creek Road/Exhibition Road intersection	Upgrade intersection with installation of traffic signals and associated works	$610,365	2021								$610,365				
T-46	Upgrade	James Street	Upgrade to Major Urban Collector (from Platen Street to Viney Street)	$2,113,640	2021	2017/2018				$2,113,640							
T-51	Upgrade	Macquarie Street (Somerset Road to Middle Road)	Upgrade to Industrial Collector	$5,076,000	2021	2020/2021							$5,076,000				
T-68	Upgrade	Johnson Road/Lucas Street intersection	Construct intersection improvements to increase capacity and operation	$2,552,000	2021	2019/2020						$2,552,000					
T-76	Upgrade	Breakspear Street/Rosewood Avenue intersection	Construct intersection improvements to increase capacity and operation	$929,000	2026	2023/2024										$929,000	
T-86	Upgrade	Middle Road	Upgrade to Industrial Collector (from Capricorn Street to Macquarie Street)	$4,121,714	2021										$4,121,714		
T-98	Upgrade	William Palfrey Road	Upgrade to Major Urban Collector	$6,082,000	2021										$6,082,000		
T-102	Upgrade	William Palfrey Road	Upgrade to Major Urban Collector, with a 30m wide corridor	$5,829,000	2031										$5,829,000		
			Total new and upgrade sealed and unsealed network	**$52,877,699**				**$2,586,000**	**$4,889,000**	**$2,113,640**		**$9,368,980**	**$5,686,365**		**$18,032,714**	**$929,000**	**$9,272,000**

Table 5.4.3: New and to be upgraded road infrastructure

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8 and later
		2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022 and later
Capital works									
New works	**27,683,398**	50,000	0	0	198,398	0	930,000	100,000	26,405,000
Upgrade works	**272,171,388**	2,431,000	3,874,500	9,069,498	3,100,000	19,031,443	5,670,602	10,625,350	218,368,995
Total (New and Upgrade capital works)	**299,854,786**	**2,481,000**	**3,874,500**	**9,069,498**	**3,298,398**	**19,031,443**	**6,600,602**	**10,725,350**	**244,773,995**

Note: Due to the delivery schedule the anticipated investment is only an estimate, and will be influenced by various other factors (it includes growth and non growth related projects hence the difference between the table 5.4.2 and table 5.4.3

5.5 Disposal of assets not economically utilised

Some section of the sealed and unsealed road network are only utilised by the adjacent private land owner / s, they are however maintained at great cost to Council. Some of these roads may only service a single owner or provide access to a single property (that may not even be inhabited on a permanent basis).

RRC need to investigate these cases and approach landowners with road closure proposals where feasible.

6. LIFECYCLE MANAGEMENT PLAN

The aim of this section of the asset management plan is to provide enough information to enable the Operational Manager to manage Councils sealed and unsealed road network to an expected standard throughout its life cycle, and also provide enough information to monitor and predict future maintenance and the associated expenditure.

Assets require maintenance to keep them operational and performing in a safe manner, as the asset is used and it grows older the maintenance demands increases, and depending on the type of asset these demands can become very extensive as some elements of the asset may require component replacement. It is important to project this expenditure through the project lifecycle in order to ensure that appropriate funding is allocated.

6.1 Background Data

6.1.1 Councils road portfolio and extent of service

In order to group assets, a few categories has been decided on, these categories are groups of assets with broadly the same purpose, maintenance demands and functionality.

Table 6.1.1 Council's sealed and unsealed road network portfolio

Road Class (NAASRA classification)	Description	Sealed length (km)	Unsealed length (km)
3	Rural arterial	22	
4	Rural collector	111	199
5	Rural access		939
6	Urban arterial	65	
7	Major urban collector	57	

8	Minor urban collector	76	
9	Urban access	509	
Total (km)		840	1138

6.1.2 Age of RRC's road portfolio

The condition of Councils road network portfolio is used to measure:

- Existing maintenance needs
- Strategic maintenance needs
- The budget growth needed to support the escalating maintenance of the portfolio (the worse the condition of the portfolio, the less inexpensive treatments can be used to improve its condition e.g. if a road has not been resealed at regular intervals it may need a reconstruction).
- A projected escalating budget for capital renewal, upgrade and rehabilitation.
- The escalating life cycle cost for a section of road and increasing budget allocation required to maintain the road to an expected level of service.
- Increased maintenance expenditure and how a similar pattern develops for other benchmark Council's.

6.2 Asset Information

Each section of the sealed and unsealed road network are recorded in the pavement management system, the following data are recorded:

- Road length and width
- Date of construction and remaining useful life
- Road class based on traffic usage
- Characteristics of the road (seal, pavement, sub grade, formation etc.)
- Percentage heavy vehicles that utilise the section of road
- Inspection dates and data collected
- Pavement condition index at the date of the last inspection including rutting, cracking, roughness etc. measurements.
- Road class based on traffic usage
- A range of financial information that includes depreciation, replacement cost, fair value etc.

PARMMS modelling data include forecasted treatments for each road, and aim to ultimately optimise the maintenance of the road network and extent its useful life as much as possible in order to get the lowest maintenance cost across the life cycle of the road.

6.2.1 Asset Record

All sealed road assets have the following attributes recorded against them:

- Seal
- Pavement
- Formation
- Kerb and channel

All the unsealed road assets have the following attributes recorded against them:

- Pavement
- Formation

6.2.2 Attribute Data

Each asset shall have all necessary attribute data fields populated with current information. Attribute information include:

- The characteristics of the attributes e.g. for pavement its geotechnical properties, for surface seals its properties etc.
- The dimensions of the attributes e.g. for seal its area etc.
- Compliance specifications or type e.g. for pavement the type 2.1, 2.5 etc.
- Design drawings and compliance specifications are attached to the segment in GIS, and provides a quick way to get access to design and/or construction information

6.3 Road Asset Inspections

Sealed Roads

The sealed road network has been fully inspected in June 2013, the network will be inspected in three year intervals unless sections are identified that may require additional inspections at shorter intervals. Inspections are done through a physical drive through using the ARAN vehicle with a laser beam fitted for the collection of data. Sections of road may also be identified for further investigation either geotechnical or with a Falling Weight Deflecto meter that assess the performance of a section of road when subjected to a calibrated load.

Unsealed Roads

The unsealed road network used to be frequently inspected, a vehicle fitted with a roughometer that measures the smoothness of the travelling surface were at some stage used to determine maintenance grading and gravelling intervals for that particular section of road.

The use of the roughometer is prone to inconsistencies the results were inaccurate and difficult to interpretate. The device also requires calibration against a measured section which dictates feature outcomes. The roughometer has not been used for the last two/ three years, and has largely been replaced with frequent visual inspections. Pavement Management Services is in the process of developing an unsealed pavement management system that could be considered as a suitable replacement for the roughometer. Most of maintenance decisions are experienced based, and most technical analysis is resource hungry and the condition of unsealed roads can change overnight, the preference is to stick to the evaluation by suitably experiences staff.

6.4 Road Condition Assessments

Sealed Road Network

Council utilises a Pavement Management System (PARMMS) to interpret condition indicators for sealed roads and to prepare ratings based on collected data. The ratings are incorporated into predictive decay models that ascertain effective remaining life and predict the timing of future expenditure based on recommended maintenance options.

Condition Indicators are defined in Table 6.4.1

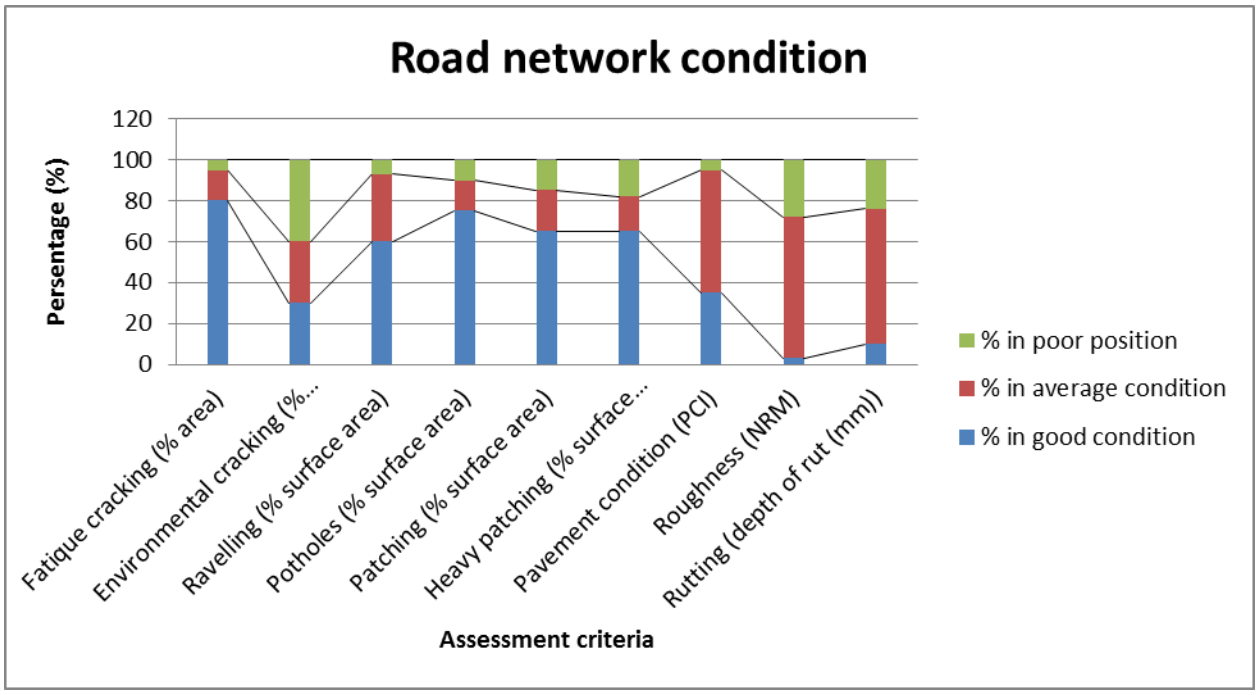
Table 6.4.1 Condition Indicators

Evaluation element	Intervention level	Good	Average	Poor	Network average
Roughness (NRM)	125	50	100	150	127
Rutting (mm)	10	3	8	15	10.8
Fatigue cracking (% area)	15	5	15	25	6.7
Environmental cracking (% area)	22	3	12.5	25	25.6
Ravelling (% surface)	25	3	12.5	25	7.3
Potholes (% surface)	1	0.2	0.6	1.2	0.4
Patches (% surface)	5	1	3	5	2.9
Heavy patches (% surface)	5	1	3	5	3.3
Pavement condition index (PCI)	1	9	4.5	1	8

This condition assessment process applied by PARMMS use the results measured for the indicators in different combinations to calculate a condition rating and predict remaining life and/or maintenance requirements. Maintenance cost estimates for associated treatment options are used to determine the cost of short medium and long term maintenance requirements.

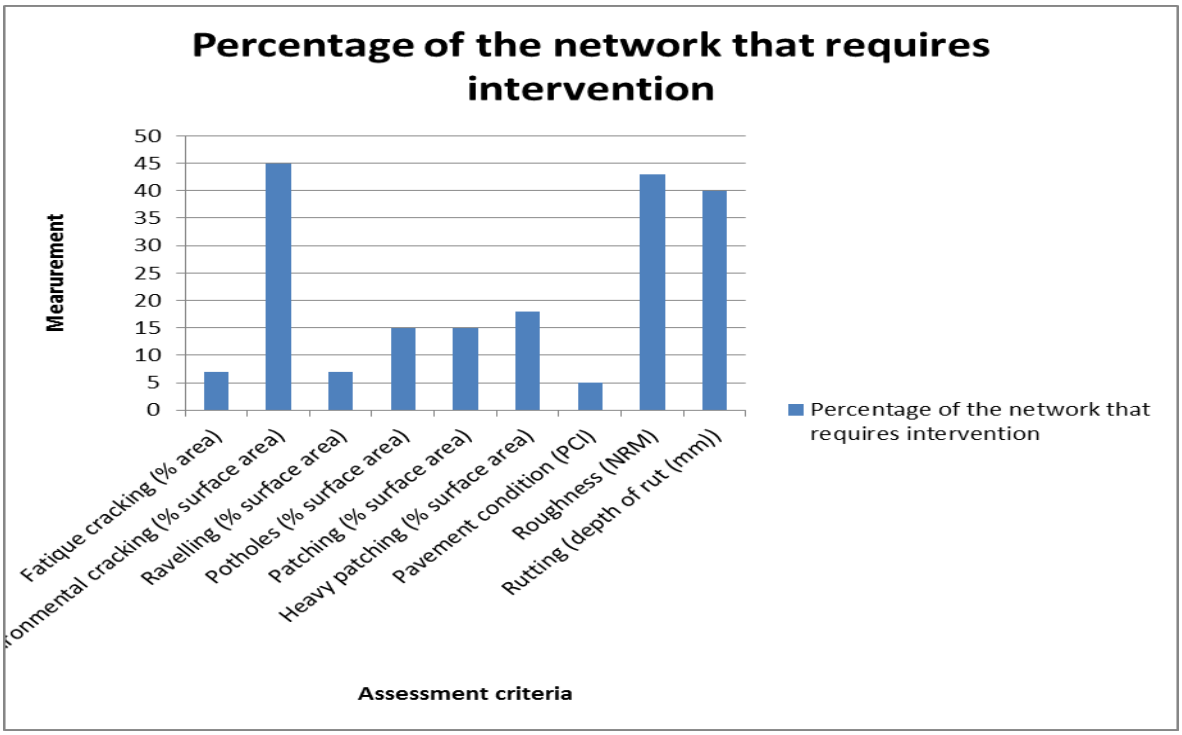
Outcomes of the 2013/14 sealed road network condition assessment, is summarized in Graph 6.4.2: 2013/14 condition assessment.

Graph 6.4.2: 2013/14 Sealed road network condition assessment



A significant part of the 840km sealed road network exceed the intervention levels for the evaluation criteria, and therefore require mitigation action, theoretically none of the network should exceed the intervention level.

Graph 6.4.3: Extent of intervention mitigation



Unsealed Road Network

An unsealed roads management system has been used (not for the past 3 – 5 years), the unsealed road network is divided into classes according to the amount of traffic that uses the road, and defines the level of service Council has agreed to maintain that road at.

The following defects are then quantified for each section of road:

- Corrugations
- Loose gravel
- Roughness
- Rutting
- Subgrade failure or deformations
- Scours

A model is run, and the measured defects compared in various combinations, the result is a prioritised list of maintenance grading and gravelling actions.

The use of the model to determine the maintenance needs of the unsealed road network has the following restrictions:

- There are many variables (e.g. a minimum bearing capacity for the subgrade / formation does not apply).
- The quality of materials differs a lot and the consistency of the pavement depends on the consistency of the material sourced in the pit.
- There are little QA and pavement thickness vary (there don't have to be QA, as we deal with gravel roads).

- Different gravel pits are used, therefore the pavement material usually have different properties which causes it to react differently.

- Measurements on gravel roads e.g. roughness, corrugations depends on wheel paths that varies from table drain inter to table drain invert.

- Etc.

6.5 Asset Valuation

The value of assets (and / or its attributes) for RRC covered by this plan is:

- Current replacement cost of the entire sealed and unsealed road network (including kerbs) = $696,238,988

- Accumulated depreciation = $109,739,356

The comparison of the rate of annual asset consumption with the rate of asset renewal is an indication of Council's ability to provide a service and the organisations long term sustainability.

Renewal works are triggered when:

- The condition of the asset falls below average.

- The asset renewal rate is substantially lower than the asset consumption rate.

- When the age of the asset is close to its expected life, and most of the asset has depreciated.

- The maintenance requirements of the component are excessive.

- Excessive maintenance compromises the functionality of the asset.

It is important to not only consider the entire asset class, but to also look at each individual road in that class as road use will greatly impact on the remaining life of that section of road.

6.6 Risk Management Plan

6.6.1 Risk Register

There are many risks associated with the management of Councils sealed and unsealed network, in order to be able to keep these risks to road users to a minimum, Council need to have a plan for the management of these risks in place, and be able to execute the plan whenever required.

Risks divided in the following categories:

a) Risks associated with achieving council's corporate objectives, these risks include, but are not limited to:

    - Not doing what we say we do, and therefore confusing all stakeholders.

    - Not being able to provide access across the Council area

    - Not being able to meet service level requirements

    - Not being able to maintain the network on the budget (short, medium and long term)

    - Lack of maintenance resulting in a breach of compulsory maintenance requirements

    - Uneconomical management of the network by not optimally utilising the asset

    - Not complying with best practice maintenance standards and requirements

b) Risks associated with specific capital projects. Currently, capital project risks are required to be documented on council's risk register when the project will last more than three (3) months or has an overall budget of $200,000. In which case, require a risk assessment prior to the application for funding, which will consider any issues that may affect the expected outcome and success of a particular project. These risks include, but are not limited to:

- Project not constructed to the planning and design project scope
- Council not providing he road infrastructure to service new developments within the agreed / proposed timeframe
- Council not providing the infrastructure to the agreed standards
- Council providing the support infrastructure too quickly and it gets damaged by construction activities
- Infrastructure demands on developers too excessive or not enough
- Infrastructure contributions do not support and stimulate new development
- Project not meeting the road user expectations or expected outcomes
- Project not constructed within the time, cost and quality constraints

The risk assessment shall;

(a) Consider all the known risks identified for similar events/projects
(b) Identify unique risks associated with a particular event/project
(c) Identify risk mitigation options to address the identified risks or parts thereof.
(d) Investigate the risk mitigation options, and consider the associated implementation and management strategies for each of them
(e) Quantify the remaining risk (if any), and if acceptable how it will be treated.

6.6.2 Risks associated with the asset management of the asset

A risk management plan has been compiled that identify the risks associated with the asset management of the sealed and unsealed road network, these risks include but are not limited to:

- Asset register not updated regularly, and not containing all the required information and data.
- Asset condition assessment deficiencies and oversights
- Asset condition evaluation and treatment options not properly assessed or considered
- The assets are not managed in a way that ensures consistent performance that meets the agreed service levels.

The inspection regime is risk based, and assesses the impact of the inspection elements on the overall risk associated with the asset or service.

6.6.3 Risks associated with the operational management of the asset

The risk matrix consist of risks associated with the operational management of the assets is under development, and will be included in Council's risk register.

6.7 The Maintenance Plan

6.7.1 Background

Maintenance is the regular on-going work that is necessary to keep assets operating, including instances where portions of an asset fail and require immediate mitigation. In order to effectively manage the asset the following types of maintenance are considered:

- Unplanned or Reactive Maintenance occurs when an asset or any of its components fails, and work is required to make it functional again. It is maintenance that cannot be planned for, and it is reactive to the performance of the asset.

- Planned or Preventative Maintenance occurs when maintenance are done to avoid failure and the associated downtime. It is maintenance done to prevent failures.
- Cyclic or Scheduled Maintenance occurs at regular intervals to ensure the optimal performance of the asset, this type of maintenance is usually limited to the plant and equipment where schedule oil changes etc. ensure the optimal performance of that piece of equipment. Scheduled maintenance at regular intervals may also extent the life of plant and equipment, and reduces the amount of reactive maintenance necessary to keep the asset operating in a safe and acceptable manner.
- Planned maintenance are applicable to sealed and unsealed roads
- Unplanned maintenance are only applicable to the sealed network (unplanned grading, pothole repairs etc. is considered as reactive activities that replaces the planned activity)

6.7.2 Unplanned or reactive maintenance

6.7.2.1 What is unplanned / reactive maintenance?

Included in reactive maintenance is:

- Maintenance required restoring an asset to an operational condition, this includes day to day repairs to components of an asset that has failed.
- This in also known as unplanned maintenance, and occur unexpectedly.
- Actions required restoring an asset to a safe operational condition, this includes work required to address damage due to an incident or failure, and ensure the asset is safe and secure. Work in this category does not include major reconstruction, and only consider work to get the asset operational again.

Request for reactive maintenance work originated form:

- The asset inspector when he does his road inspections after identifying defects that requires immediate mitigation.
- It can also be identified during the execution of cyclic, statutory or regulatory maintenance works.
- Road users that have noticed the need for urgent maintenance while using the asset.

6.7.2.2 Historical unplanned / reactive maintenance (sealed and unsealed network)

Table 6.7.2.2 is a breakup of unplanned maintenance activities

Table 6.7.2.2: Reactive / Unplanned maintenance expenditure

Unplanned maintenance activity	Adopted budget 2013/14	Actual expenditure 2012/13	Actual expenditure 2011/12	Actual expenditure 2010/11	Actual expenditure 2009/10
000 - Unallocated	-	3,451	44,829	5,496	173,223
100 - Revenue	-	282	-	603	973
101 - Edge Repair (Manual)	-	646	3,581	711	237
103 - Clearing Grubbing Chipping	-	-	3,469	3,314	3,492
104 - Earthworks	-	-	-	3,917	291
135 - Surface Debris Removal	-	46,273	38,601	31,473	49,592
143 - Pavement Repairs (Mechanical) M	-	153,583	98,236	92	-
303 - Operational Requirements	-	82	-	242	8,258
311 - mtce of erosion and sediment con	-	57,552	25,731	9,943	-
325 - Service Locations (eg Ergon, FRW,	-	3,247	966	1,694	3,533
379 - Spillage	-	5,992	6,492	267	182
421 - Clean-up Illegal Dumping	68,000	126,090	63,965	35,139	2,891
449 - Removal Dead Animals	1,000	220	1,747	749	1,483
450 - Standby/Callouts	55,000	84,798	62,823	72,742	134,296
451 - Removal Abandoned Vehicles	1,600	3,216	3,697	4,710	11,882
453 - Emergency Services Call Out	29,000	28,656	51,045	31,079	44,436
502 - Repair Sign	-	1,818	228	2,160	328
504 - Supply & Erect Steel Beam Guard R	-	-	-	190	488
507 - Supply & Erect Fencing	-	-	256	-	333
522 - Repair or Replace GuardrailBarrier	-	-	-	-	77
605 - Maintenance Rate 3 Lights	30,000	38,098	16,332	8,429	12,071
630 - Accident Damage	11,000	6,659	6,240	2,037	634
805 - Reinstate/Repaint handrails & Gua	-	12,771	12,055	40,567	5,853
911 - Vandalism Repair	93,000	98,139	81,726	111,391	130,723
991 - Overhead Distribution	607,840	639,602	613,439	488,249	285,139
999 - Works Other Units Transfer	-	-	-	-	147
Total unplanned maintenance	**896,440**	**1,311,174**	**1,135,460**	**855,194**	**870,562**

Note: 2012/13, 12/11,11/10,10/09 include Livingstone

6.7.2.3 Forecasted unplanned / reactive maintenance (sealed and unsealed network)

Table 6.7.2.3 is a projection of unplanned maintenance expenditure based on a 2% growth over the next 5 years. The predicted growth is dependent on the condition of the network and the level of planned maintenance.

Table 6.7.2.3 Unplanned maintenance projection with a 1% growth prediction

Unplanned maintenance forecast	Adopted budget 2013/14	Forecasted budget 2014/15	Forecasted budget 2015/16	Forecasted budget 2016/17	Forecasted budget 2017/18	Forecasted budget 2018/19	Forecasted budget 2019/20	Forecasted budget 2020/21	Forecasted budget 2021/22
Unplanned maintenance activities	896,440	905,404	914,458	923,603	932,839	942,167	951,589	961,105	970,716
% Growth		1%	1%	1%	1%	1%	1%	1%	

6.7.2.4 Who is responsible for reactive maintenance?

Maintenance repairs are an operational function, Civil Operations have to ensure that requests for maintenance are promptly dealt with, and all the reactive maintenance works are completed in a safe and efficient manner, to the acceptable standards and specifications.

Some repair works may be contracted out to private contractors, while others may be completed through the use of internal resources.

6.7.3 Planned maintenance (sealed and unsealed roads)

6.7.3.1 What is planned maintenance?

Included in planned maintenance is:

- Preventative maintenance is targeted to prevent asset deterioration and failure. Cracks in a section of road have to be filled regularly to prevent water from entering the pavement layers and cause potholes.
- Maintenance that extend the useful life of an asset
- It is generally maintenance we know of, and have planned for
- Planned maintenance programs are developed from scheduled inspections.

Planned maintenance includes patching, crack sealing, maintenance grading, desiltation of pipes under entrances etc., but does not include re-capitalisation, upgrade or re-construction works.

6.7.3.2 Historical planned maintenance expenditure

Table 6.7.3.2 provides planned maintenance expenditure for the past 5 years.

Table 6.7.3.2: Historical planned maintenance expenditure

Planned maintenance activity	Adopted budget 2013/14	Actual expenditure 2012/13	Actual expenditure 2011/12	Actual expenditure 2010/11	Actual expenditure 2009/10
102 - Edge Repair	41,500	60,450	72,328	23,073	5,966
105 - Bitumen Patching/Potholes/Profilin	813,660	869,548	662,764	662,661	424,851
111 - Surface Correction with Premix/Asp	-	-	19	-	151
120 - Fill Cracks	9,000	789	6,365	12,662	21,091
130 - Street Sweeping	635,630	778,756	656,292	455,913	358,843
144 - Pavement Repairs (remove and repl	569,000	657,394	402,704	433,373	237,721
150 - Insitu stabilization of gravel floodwa	-	9,278	47	3,071	330
151 - Insitu Stabilisation Pavement (inclu	-	10,581	137	-	-
155 - Asphalt Resurfacing	37,000	7,997	39,765	6,427	48,035
201 - Light Formation Grading	22,600	60,280	16,513	18,631	27,594
202 - Medium Formation Grading	395,500	225,336	210,374	230,903	243,387
203 - Heavy Formation Grading	1,188,500	1,193,395	1,200,586	910,843	1,286,991
204 - Gravel Supply - Heavy Formation Gra	109,000	66,291	154,522	109,411	49,658
205 - Formation Resheeting	-	97	729	-	11,519
212 - Gravel Resheeting	-	305,265	305,037	226,688	239,437
215 - Shoulder Grading	-	-	18,926	-	97
216 - Shoulder Grading Bitumen Roads	90,000	19,114	42,296	13,272	32,710
221 - Shoulder Resheeting	42,500	38,064	76,230	2,555	8,429
301 - Preventative Service Maintenance	-	137	349	10,027	8,585
305 - Kerb and Channel Cleaning	88,000	100,717	116,236	63,395	81,369
306 - Kerb and Channel Repairs	180,500	111,037	140,850	69,294	62,583
339 - Sub Soil Drainage	-	35,379	-	471	942
341 - Median Repairs	29,000	10,306	6,261	1,547	991
401 - Tractor Slashing	184,000	160,713	235,529	185,354	64,126
402 - Tractor Slashing - Urban	-	-	-	2,023	3,347
405 - Clearing	51,500	8,481	26,297	2,248	1,943
423 - Roadside Sweeping	-	- 69,482	- 54,058	- 54,058	- 48,859
576 - QR Level Crossings	23,000	21,369	31,451	-	-
610 - Routine Signal Servicing	8,000	20,938	19,540	83	1,859
619 - Traffic Signal Work-General	92,000	84,564	53,561	41,391	77,482
759 - Line Marking General	200,500	184,664	161,581	99,432	121,863
920 - Traffic Signals	40,000	31,566	35,623	31,734	27,288
TOTAL (Planned maintenance)	**4,850,390**	**5,003,028**	**4,638,855**	**3,562,422**	**3,400,329**
Planned maintenance sealed roads	**3,134,790**	**3,152,362**	**2,732,168**	**2,065,947**	**1,541,646**
Planned maintenance unsealed roads	**1,715,600**	**1,850,665**	**1,906,687**	**1,496,476**	**1,858,683**

6.7.3.2.1 Planned maintenance for sealed roads

Planned maintenance for sealed roads include the range of activities that is not highlighted (Table 6.7.3.2.1: Planned maintenance expenditure).

Table 6.7.3.2.1 Historical planned maintenance expenditure sealed roads

Planned maintenance activity	Adopted budget 2013/14	Actual expenditure 2012/13	Actual expenditure 2011/12	Actual expenditure 2010/11	Actual expenditure 2009/10
Planned maintenance sealed roads	**3,134,790**	**3,152,362**	**2,732,168**	**2,065,947**	**1,541,646**

6.7.3.2.2 Planned maintenance for unsealed roads

Planned maintenance for unsealed roads is usually limited to light, medium and heavy formation grading (the highlighted activities in Table 6.7.3.2.1: Planned maintenance expenditure).

Table 6.7.3.2.2: Historical planned maintenance expenditure: unsealed roads

Planned maintenance activity	Adopted budget 2013/14	Actual expenditure 2012/13	Actual expenditure 2011/12	Actual expenditure 2010/11	Actual expenditure 2009/10
Planned maintenance unsealed roads	1,715,600	1,850,665	1,906,687	1,496,476	1,858,683

6.7.3.3 Forecasted planned maintenance expenditure for the sealed and unsealed road network.

Planned and unplanned maintenance are forecasted to grow at approximately 1% per year (CPI indexed), growth depends on whether or not capital renewal expenditure is reviewed and more roads are resurfaced to reduce maintenance.

Table 6.7.3.3 Forecasted planned maintenance expenditure

	Adopted budget 2013/14	Forecasted budget 2014/15	Forecasted budget 2015/16	Forecasted budget 2016/17	Forecasted budget 2017/18	Forecasted budget 2018/19	Forecasted budget 2019/20	Forecasted budget 2020/21	Forecasted budget 2021/22
Planned maintenance activity	4,850,390	4,898,894	4,947,882	4,997,362	5,047,335	5,097,809	5,148,787	5,200,275	5,252,277
% Growth	1%	1%	1%	1%	1%	1%	1%	1%	

6.7.3.4 Who is responsible for planned maintenance?

The compilation of a planned maintenance program is the responsibility of Assets. Ensuring that all the tasks and actions in the program are completed is an operational function, and the responsibility of Civil Operations, these functions includes:

- Allocate the tasks to in-house resources
- Procure the services of contractors and other applicable service providers as required
- Project manages the tasks until the completion and certification of the works.

6.7.4 Maintenance expenditure benchmarking

Maintenance expenditure has been benchmarked against other similar Councils, the objective is to provide Civil Operations with an indication as to how they perform, and how much other similar Councils budget for similar maintenance activities. Benchmark figures were obtained mainly from a “Benchmark investigation” commissioned by the NSW branch of the IPWEA. The maintenance benchmarking figures apply to planned and unplanned maintenance combined. The Local Government Association of Queensland has recently embarked on a benchmarking exercise, the next version of this RAMP should be able to provide “local Queensland” figures.

6.7.4.1 Benchmarking for unsealed roads

The objective is to determine how RRC’s maintenance expenditure for unsealed roads compares with that of similar councils, whether we spend funding in similar areas, and how much we spend in those areas. Detailed results feature in Appendix I: Sealed and unsealed road network benchmarking.

A summary of the unsealed road network benchmarking exercise:

- The replacement cost of the unsealed network is around $54,000 per km, which is significantly lower than the benchmarked $91,000 per km

- Council spend $1,553 per km on maintaining the unsealed network, which is 15% higher than the benchmarked $1,350 per km, and 34% higher than the $1,160 required maintaining the network.

The outcomes of the benchmarking exercise:

- The maintenance cost for unsealed roads can be reduced with approximately $240 per km per year without having a noticeable effect on service levels.

- Council's unsealed network is in a generally pristine and well above standard condition.

6.7.4.2 Benchmarking of Sealed roads

The objective of the benchmarking exercise is to compare RRC's maintenance practices of sealed roads with those followed by other Councils. The information used is obtained from the IPWEA (NSW branch) investigation on the state wide maintenance practices followed for sealed roads.

A summary of the sealed roads benchmarking exercise:

- The replacement cost of the sealed network is around $650,000 per km, which is significantly higher, the benchmarked average of $450,000 per km for the construction of sealed roads in NSW.

- Council spend $5,200 per km on maintaining the sealed network, which is 68% higher than the benchmarked $3,100 per km, and 24% higher than the $4,200 per km required to maintain the sealed network

The outcomes of the exercise:

- The condition of the sealed road network does not reflect the maintenance expenditure. Various historical decisions could be to blame.

- Maintenance expenditure for sealed roads are closely related to capital renewal (reconstruction, rehabilitation, resurfacing) expenditure and the two cannot be considered in isolation.

6.8 Capital works programs

The capital works program is divided into the following sub-programs:

- Renewal works: Consist of work which does not increase the asset's design capability, but restores the asset to its original service potential.

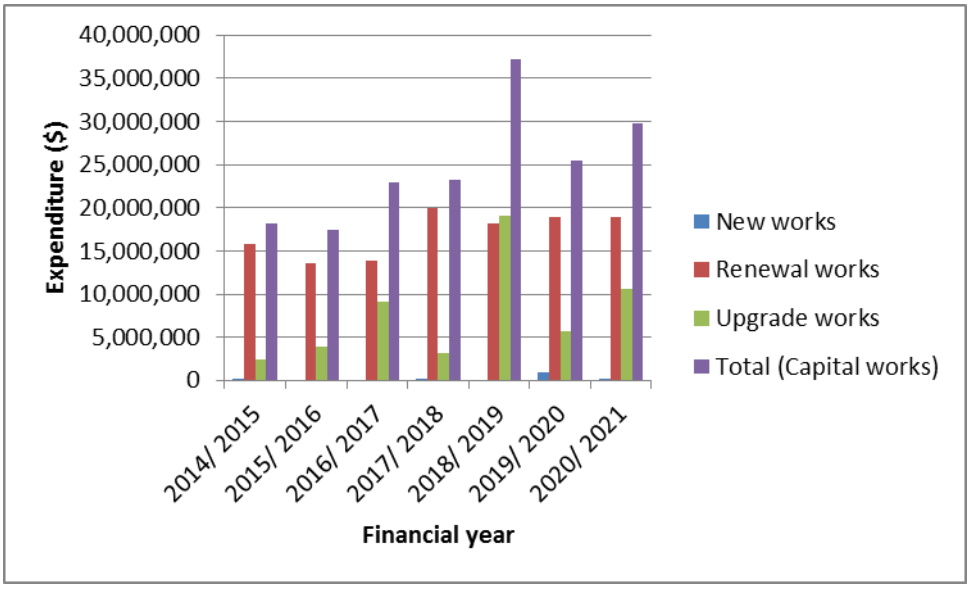
- Upgrade works: Works that are over and above the restoring of the asset to its original service potential.

- New works: The construction of new assets is considered as new capital work.

Table 6.8: Projected 8 year capital works program (Sealed and unsealed road network)

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
		2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021
Capital works								
New works	28,015,000	50,000	100,000	100,000	230,000	100,000	930,000	100,000
Renewal works	**161,014,294**	15,742,741	13,567,854	13,907,565	19,923,817	18,130,000	18,928,795	18,989,770
Upgrade works	**272,171,388**	2,431,000	3,874,500	9,069,498	3,100,000	19,031,443	5,670,602	10,625,350
Total (Capital works)	**461,200,682**	**18,223,741**	**17,542,354**	**23,077,063**	**23,253,817**	**37,261,443**	**25,529,397**	**29,715,120**

Figure 6.8: Projected 8 year capital works program



6.8.1 Capital renewal of the road network

6.8.1.1 What is asset renewal?

The community expects all roads to remain safe and functional throughout their life. Timely investment in the renewal of assets and / or the associated components is required to enable the road to continue to function as expected.

Renewal does not increase the service potential of the road or a section thereof, but ensure that the road retains its functionality throughout its entire lifecycle. Replacement of a seal ensures that the travelling surface stays in a good condition, and protects the pavement from deteriorating when water enters through an inferior surface. Re gravelling of existing unsealed roads is a renewal activity, and are capitalised against the particular road.

6.8.1.2 How is a renewal program compiled?

The drivers for capital renewal programs include:

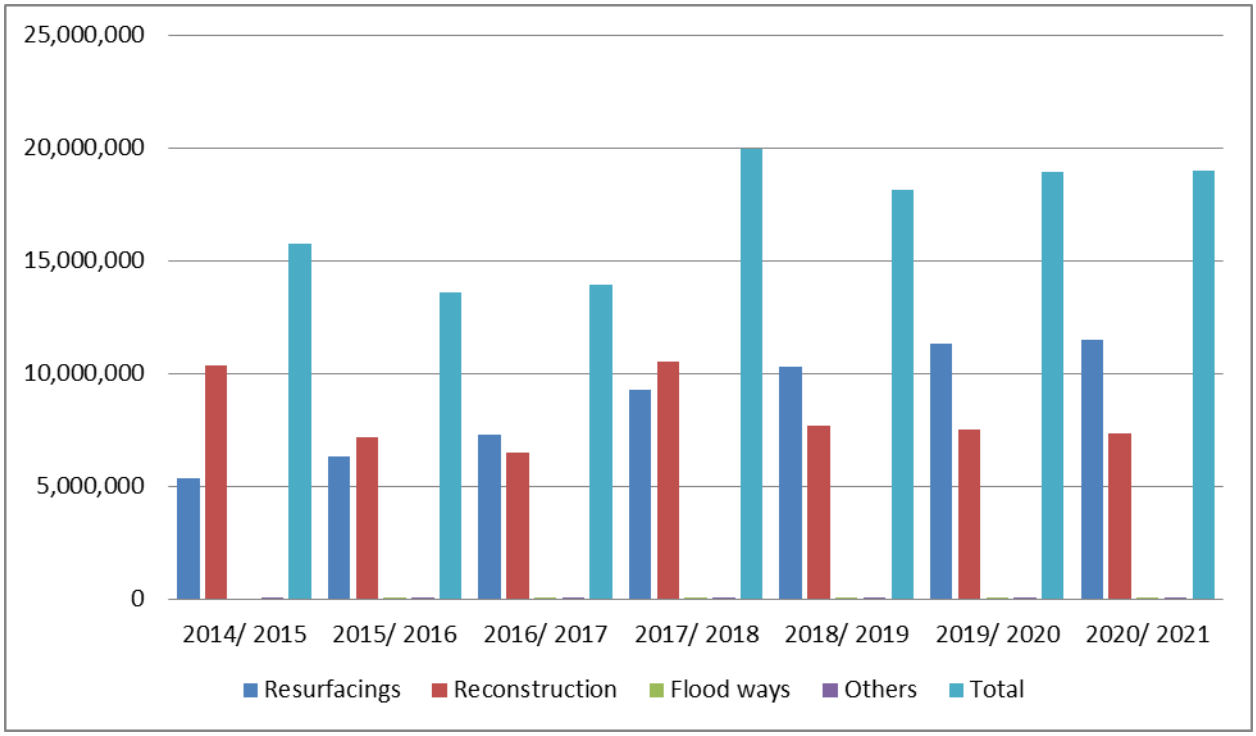
- Expired assets or asset components identified through Conquest (Councils Asset management System)
- Inspection and assessment of expired assets for suitability.
- Functionality of the expired assets, and their associated criticality.
- Risk associated with the continuous use of an expired asset or component.
- Other defects identified during condition assessments which could warrant more economical replacement strategies.
- Prioritise maintenance activities to ensure optimum gain in maximum influence through the asset life of the asset.
- Asset renewals also originated from economic considerations when evaluating or determining the cost of fixing individual defects, it may be more feasible to renew the entire asset opposed to renew individual elements thereof. If for example the seal of a section of road has not been renewed, cracks may result in water penetrating the pavement which will allow potholes to form.

Assets that require renewal are identified from estimates of remaining life obtained Conquest, the lives of assets are generalised, and will be amended to take historical performance and experience into account.

Table 6.8.1.2: 8 year renewal program per renewal types

Type of renewal	Est. Amount	Year 1	Year2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8 and beyond
		2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022 and beyond
Resurfacings	74,257,955	5,357,955	6,300,000	7,300,000	9,300,000	10,300,000	11,300,000	11,500,000	12,900,000
Reconstruction	85,881,339	10,359,786	7,167,854	6,482,565	10,498,817	7,705,000	7,503,795	7,364,770	28,798,752
Flood ways	675,000	0	75,000	100,000	100,000	100,000	100,000	100,000	100,000
Others	200,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Total	**161,014,294**	**15,742,741**	**13,567,854**	**13,907,565**	**19,923,817**	**18,130,000**	**18,928,795**	**18,989,770**	**41,823,752**
gravel re sheets for unsealed roads		1,900,000	1,900,000	1,900,000	1,900,000	1,900,000	1,900,000	1,900,000	1,900,000

Table 6.8.1.3: Capital budget projection: renewals



6.8.2 Capital upgrade and expansion program

6.8.2.1 What is capital upgrade and expansion?

That is when an existing asset is modified, and work is done to it in order to increase the function of the asset beyond its original expected life. The work may be due to the need for the asset to provide a higher level of service or a different service. The associated expenditure may not always result in additional revenue or benefits, but will usually decrease operating and maintenance expenditure. An example is when a two lane road can no longer meet escalating traffic demands, resulting in increasing congestion, the only solution is to upgrade it to a four lane road. The need for the upgrade of specific road infrastructure is also identified by development requirements and strategic growth modelling or expectations.

6.8.2.2 How is the capital upgrade and expansion program compiled?

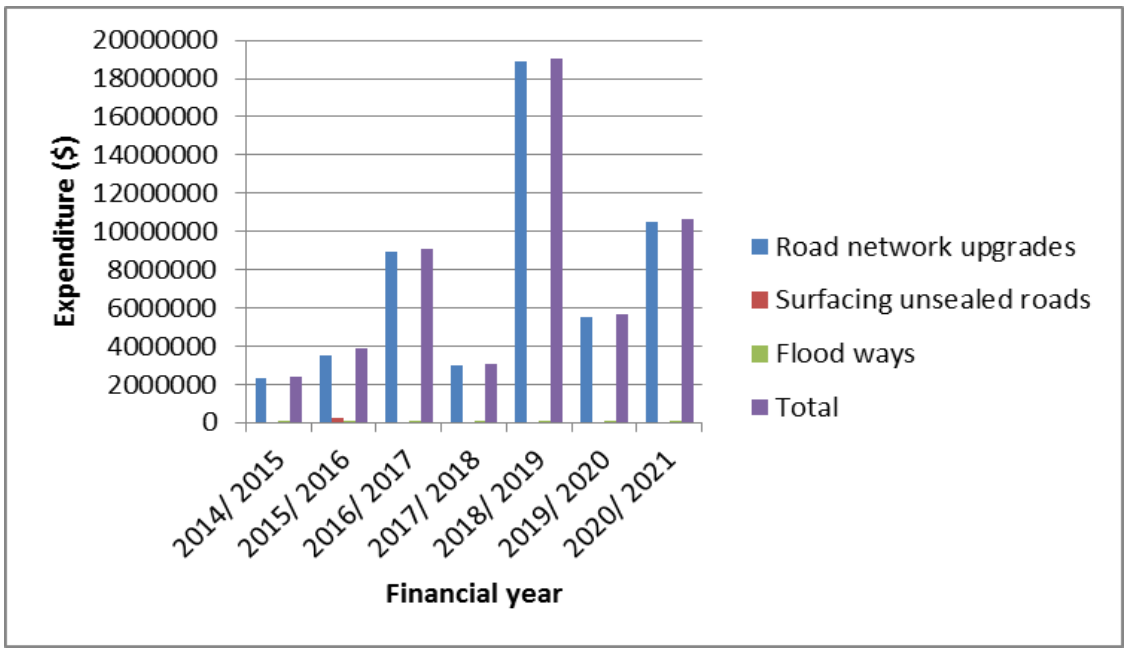
The content of the program is dependant of:

- Growth demands for a section of road to be upgraded (future development and traffic demand requirements).
- Functionality requirements change e.g. introduction of sealed shoulders to make provision for cycle lanes.
- Strategic requirements for the asset to be in operation for a longer time before it can be replaced e.g. a bridge may have to be used longer before it can be replaced due to the replacement cost and budget restrictions.
- Engineering and other technical deficiencies that may flag the need for future upgrade.

Table 6.8.2.2: 8 year capital upgrade program

Type of upgrade	Est. Amount	Year 1	Year2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8 and beyond
		2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022 and beyond
Road network upgrades	271,031,388	2316000	3,539,500	8,954,498	2,985,000	18,916,443	5,555,602	10,510,350	218,253,995
Surfacing unsealed roads	220,000	0	220,000	0	0	0	0	0	0
Flood ways	920,000	115,000	115,000	115,000	115,000	115,000	115,000	115,000	115,000
Total	**272,171,388**	**2,431,000**	**3,874,500**	**9,069,498**	**3,100,000**	**19,031,443**	**5,670,602**	**10,625,350**	**218,368,995**

Figure 6.8.2.2: Capital upgrade budget projection



6.8.3 New capital works program

6.8.3.1 What is new capital works?

New capital works are those works that create new assets that did not previously exist, and may result from development growth, social or environmental needs, some of these new assets are also acquired at no cost to Council from private commercial developers. New capital works can also originate from Council's decision to provide a new service and increase and / or change an existing service level. All new capital works will impact on Councils maintenance responsibilities, these extended maintenance needs shall be included in future maintenance programs.

6.8.3.2 How is the program for new capital works compiled?

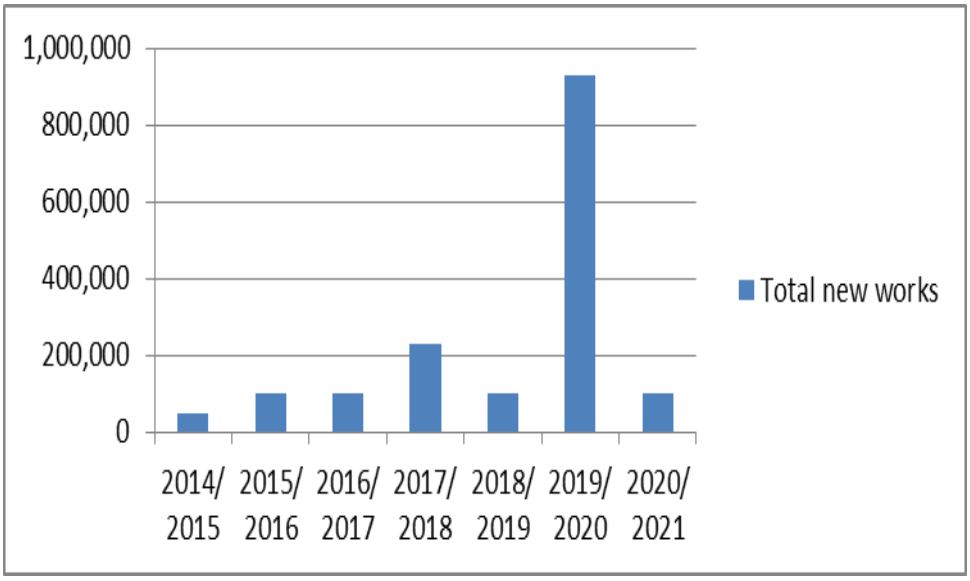
The program for new works is usually compiled from strategic development plans for various services. All these strategic development plans are then combined into a council wide strategic capital works program.

These capital projects varies greatly in size, a proper business case needs to be completed before the inclusion of any project in the capital works program.

Table 6.8.3.2: 8 year capital program for new works

Additions to the network	Est. Amount	Year 1	Year2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8 and beyond
		2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022 and beyond
Sealed and unsealed network	26,275,000						800000		25475000
Planning and design	1,225,000	5,000	50,000	50,000	150,000	50,000	50,000	20,000	850,000
Road furniture	515,000	45,000	50,000	50,000	80,000	50,000	80,000	80,000	80,000
Total	28,015,000	**50,000**	**100,000**	**100,000**	**230,000**	**100,000**	**930,000**	**100,000**	**26,405,000**

Table 6.8.3.2 Capital budget projections: new works



6.8.4 Capital works benchmarked against other Councils

The purpose of the benchmarking of RRC's capital works program against those of other Council's is to identify areas of difference that can be analysed further.

6.8.4.1 Benchmarking of the sealed road network

The objective is to determine how the projected capital works program for sealed roads compare with that of other Council's, and how balanced the program is.

A summary of the outcomes of the sealed road benchmarking exercise:

- RRC spends little on resurfacing, and much more on reconstruction (currently a 1:3 ratio), benchmarked Councils spend more on resurfacing and less on reconstruction (more like a 3:1 ratio).
- RRC's recapitalisation expenditure is almost double that of NSW.
- Lifecycle cost is too high and life cycle expenditure is not optimized.

6.8.4.1 Benchmarking of the unsealed road network

The objective is to determine whether the capital investment into the unsealed network is similar to that of other Councils, and if it's different to investigate those differences.

A summary of the outcomes of the unsealed roads benchmarking exercise:

- RRC spend around twice as much on the re sheeting of its unsealed road network than Council's in NSW does.

7. ISSUES AND OPPORTUNITIES TO IMPROVE EFFICIENCIES

7.1 The sealed network

7.1.1 Issues

7.1.1.1 Previous re capitalization funding allocations for the sealed road network were as follow:

- 75% of the funding allocated to rehabilitation, replacement and stabilization projects.
- 25% of the funding allocated to resurfacing projects.

Current industry allocations do not support this ratio which has been historically used. RRC has already moved towards allocating additional funding to resurfacing, an increase of approximately $1.5m per year over the next 5 years is suggested in this plan.

7.1.1.2 The PARMMS model is not specifically calibrated to ensure optimal efficiencies, but rather to be risk aversive in the selection of treatments, and for example only consider asphalt resurfacing treatments. The regime is dated, Graph 6.4.2 indicates that the criteria that poses the highest risk is environmental cracking, roughness and rutting.

7.1.1.3 The road network is not optimally utilised through resurfacing programs that extend the useful life of the road, and extend tits expiry date. The longer the road can be utilized prior to renewal the lower the “ownership” cost per km.

7.1.1.4 The scope of rehabilitation and renewal works was liberal, resulting in Council spending significantly funds to the benefit of a small section of the community, and improving only small parts of the network which in some cases are not used by many.

7.1.1.5 The benefit / cost ration of alternative treatments area not actively explored. RCC has adopted a “low cost” resurfacing program.

7.1.1.6 Projects and maintenance actions are not prioritized to reduce risk, risk does not form part of the project selection criteria. One of the objectives of this plan is to reduce risk to acceptable levels.

7.1.1.7 Maintenance and capital expenditure are not accurately recorded, resulting in inaccurate rates and estimates.

7.1.1.8 Recent floods (Yasi and Oswaldt) have had a significant impact on the sealed road network and resulted in a large number of roads being reconstructed or rehabilitated before their useful lives actually expired. It also helped created an “illusion” with regards to the state of the network and future funding requirements.

7.1.1.9 The presence of environmental cracking is alarming, and 45% of the sealed road network exceeds the intervention level. The risk of water penetration into the pavement and further down into the subgrade is real and unacceptable. This result is supported by the high occurrence of potholes after rain events. These potholes then have to be fixed under reactive maintenance guidelines that are only an expensive temporary solution. Refer to par. 6.4 and Graph 6.4.2 and Graph 6.4.3.

7.1.1.10 RRC does not follow a lifecycle approach, the past programs was based on a visual assessment due to various reasons, one being that the pavement management system was not maintained. The 2014/15 program had some input from PARMMS,

due to remedies, calibration etc. the data only provided a rough basis, and the selection of alternative resurfacing treatments (slurries, spray seals etc.) was experienced based, and done by Civil Operations.

7.1.1.11 Pothole repair crews roam around the sealed road network (especially after wet weather) and fix the potholes they come across. This practice is inefficient and uneconomical.

7.1.1.12 Reactive maintenance for sealed roads (Table 6.7.2.2: Reactive / unplanned maintenance expenditure) does not appear to reflect the real cost incurred, the 2013/14 budget expenditure for reactive maintenance of sealed roads was $896,440. The way in which costs are recorded is suspect; the new chartered accounts would assist in better and more accurate cost recording.

7.1.2 Opportunities

7.1.2.1 To reduce the length of sealed roads that are rehabilitated and reconstructed, and apply alternative resurfacing solutions (where applicable) to suit. This will not only increase the useful lives, but also reduce the lifecycle cost.

7.1.2.2 Implement more cost efficient resurfacing solutions (when appropriate). Alternative resurfacing solutions to the likes of slurries, chip seals etc. may be more appropriate for low volume suburban roads. Resurfacing treatments require careful consideration and expertise to ensure best practice selections and applications are being followed.

7.1.2.3 Ensure the PARMMS model is current and all the road segments are frequently assessed as planned. Segments identified in the PARMMS program for treatment (rehabilitation, patching, resurfacing etc.) shall be verified through physical inspections. Upon program completion PARMMS needs to be updated to reflect the treatments done.

7.1.2.3 Recalibrate the existing PARMMS model to incorporate alternative resurfacing treatments, and monitor their performance closely to ensure suitability and best value for money outcomes.

7.1.2.4 Conquest shall annually be updated with PARMMS information to ensure relevant and updated useful lives and other information which can be utilised for recapitalisation programs and estimations.

7.1.2.5 Maintenance and capital expenditure need to be booked more accurately and easier to enable better and more consistent estimations and projections. Accurate accounting will also enable better lifecycle estimations, and assist in future planning.

7.1.2.7 Planned maintenance for sealed roads include the cost of roaming crews who do temporary repairs to potholes, the 2013/14 budget allocation was $621,111. It is expected that the expansion of the resurfacing program will reduce the need for constant roaming pothole crews significantly. The roaming crews can be used to permanently repair failed surfaces prior to resurfacing which is a better value for money option.

7.1.2.8 Investigate road closures for roads servicing limited landowners or providing limited access.

7.1.2.9 Pothole repair crews can focus on areas identified in PARMMS that have high areas of environmental and structural cracking.

7.1.3 Improvement actions

7.1.3.1 Action 1: Amend recapitalisation ratio

- Capital renewal is currently (2013/14 budget) divided between:

- Rehabilitation, reconstruction, etc. : 75%
- Resurfacing: 25%

- Increase the budget for resurfacing from $2,5m per year to $10,5m in 2017/18 over 4 years. The additional "water proofed" area will protect the pavement from the results of water ingress, and reduce reactive maintenance requirements (potholes, failed sections etc.).

- This is only possible with the continuation of the pavement management system and regular network assessments to verify the changed approach. A risk may be that past practices do not support the quick turnaround. In some cases road pavements may have deteriorated past resurfacing due to the unprecedented wet weather in recent past, increased traffic volumes on particular routes etc.

- There are risks with the changed approach, they can be addressed with a more regular assessment regime.

7.1.3.2 Action 2: Recalibrate PARMMS

- The PARMMS model is not currently calibrated to reduce risk and increase strategic efficiencies, but follow general guidelines used for other Councils where pavement have been managed in a very different way.

- An option is to balance calibration to address the aspects of the network with the highest need, and then when fixed, recalibrate to a more general approach.

- Proposed calibration is:

Distress	Current weighting	New proposed weighting
Fatigue cracking (% area)	3	4
Environmental cracking (% surface area)	2	5
Ravelling (% surface area)	2	2
Potholes (% surface area)	3	1
Patching (% surface area)	0	1
Heavy patching (% surface area)	0	2
Roughness (NRM)	5	3
Rutting (depth of rut (mm))	2	2

- An important consideration is illustrated in Graph 6.4.2: Extend of intervention mitigation, which does not consider risk. Various criteria was considered, fatigue cracking for example trigger reconstruction or rehabilitation not really resurfacing, but is from a risk perspective a very high weighing indicator.

7.1.3.3 Action 3: Consider other (than only asphalt) resurfacing proposals.

- Council has in June 2014 decided to support the use of alternative resurfacing solution to the likes of "rubber chip seals", and "slurry seals", and has supported a list of roads these treatments will be used on (Appendix H: Rubber spray seals and Slurry applications for 2014/15)

- Important to bear in mind is that the success of these applications, is dependent on:
  - The traffic environment (number, type etc.) where considered.
  - Previous surface treatment.

- Seal design and warm weather suitability (volatiles, bitumen content) etc.
- THIS APPLICATIONS ARE NOT A "ONE SIZE FITS ALL" SOLUTION, and well informed selection decisions are essential.

7.1.3.4 Action 4: Amend the ratio between rehabilitation, reconstruction and stabilisation in combination with Action 1 in order to gain optimum efficiency

- Certain roads have been identified for re construction, more investigation should be conducted prior to the selection of an appropriate treatment and prior to future budget estimations.
- Council's pavement management system identifies roads for further FWD testing to determine the structural integrity of the under laying pavement and sub-grade (the ones identified for reconstruction or rehabilitation), lately (since the 2007 amalgamations) Council has only relied on visual assessments to determine reconstruction priorities.
- North Street for example should follow a more technical approach in the determination of future remedies and their timing.

7.1.3.5 Action 5: Consideration to a more phased lifecycle approach in the management of roads

- Conduct full network assessments for the next 3 years to enable the optimisation of treatments.

7.1.3.6 Action 6: Identification of risk areas

- Areas with a high percentage of environmental cracking, structural cracking and patching are usually the areas where potholes will form during and after wet weather, these areas will be identified for repair crews to focus on.
- PARMMS inspections will be used and a GIS "map" will be supplied to Civil Ops. to identify risk areas for more targeted operational action.

7.2 The Unsealed network

7.2.1 Issues

7.2.1.1 Maintenance grading (low, medium and heavy formation grading): Par. 6.7.4.1 and figure 6.7.4.1.2 (Maintenance benchmarks for the unsealed road network) indicates RRC may over service the unsealed road network. After the 2007 amalgamation funding was allocated to unsealed roads in the former Fitzroy area to improve the unsealed network, and to ensure that an acceptable gravel cover is maintained. The funding has never been reduced resulting in around 90% gravel thicknesses on most of the unsealed network.

7.2.1.2 Service levels: Par. 3.2.3.1 and Table 3.2.3.1 (Service levels for unsealed roads) indicate that RRC maintenance grades some or all unsealed roads well in access of the existing theoretical intervention service levels nominated in the Shepherds model.

7.2.1.3 Since 2010 RRC had to deal with two significant flood events (Yasi and Oswald) that effected maintenance programs (grading) and recapitalisation works (re sheeting) significantly, Service levels became redundant as they were overridden by the effects of the floods.

7.2.1.4 RRC appears to re sheet unsealed roads at closer intervals than any of the other identities compared to in the benchmark assessment.

7.2.1.5 Flood mitigation works did not have a significant effect on maintenance expenditure even though a significant part of the network was flood affected, and remedial work

was done under the NDRAA funding arrangements. The NDRAA funding only remedied sections where grading of adjoining sections were still done.

7.2.1.6 Re sheet material may not perform well and may not be of a good quality or fit for re sheet purposes, requiring more frequent re sheet intervals. All sourced re sheet material appears to be of a good quality and comply with the ARRB specification for re sheet material.

7.2.1.7 Work practices may not be the same as those followed by the benchmarked identities, others may not deep rip existing unsealed roads, and may only use tyning teeth to achieve similar results (pending the material used). The practice of achieving optimum moisture for dry gravel on the worksite may not be economical.

7.2.1.8 The programming of maintenance grading including reshaping may be for the wrong time of the year, and may not consider wet periods when maintenance is much more cost effective.

7.2.1.9 The use of trailed and tested chemical pavement performance enhancers may increase maintenance grading and re sheet intervals.

7.2.1.10 The squeaky wheel syndrome divert grading from important areas to minor local roads

7.2.1.11 The 2014/15 budget allocations for maintenance grading are divided into heavy, medium and light formation grading:

- Heavy formation grading - $ 1,173,000
- Medium formation grading - $ 320,000
- Light formation grading - $ 22,000

The utilisation of the funding is clouded and the true meaning not known.

7.2.1.12 A few roads provide only limited access, investigate the closure of these roads and conversion to private roads.

7.2.1.13 Unsealed road usage is limited, Fig. 3.2.3.1 and Table 3.2.3.1 indicate:

- 10% of the unsealed network has less than 10 v.p.d
- 25% has less than 30 v.p.d
- 55% has less than 75 v.p.d

A significant part of the funding for the unsealed road network benefits only a small part of the community

7.2.2 Opportunities

7.2.2.1 RRC spends a total of $4,568,000.00 (2014/15 budget) on re gravelling (capital activity), and grading (maintenance activity):

- Grading (light, medium and heavy formation grading): $2,658,000.00
- Re sheeting: $1,910,000.00

7.2.2.2 Maintenance unit costs (compared with others)

Institution or research	Dry maintenance grading (3	Dry maintenance grading (4	Wet maintenance	Re sheet at a nominal thickness

	grades per year)	grades per year)	grading	100mm
ARRB (Research for NT on maintenance gravel roads around Alice Springs)	$390/km production 5-10 km/day	$505/km production 5-10 km/day	$2,940/km production 2 km/day	$28,000/km production 1 km/day
ARRB (Research for SA region Todd et. Al)		$500/km	$2000/km	$60,000/km
Tasmanian Grants Commission (Jeff Roorda)	$480/km		$1,750/km	$21,600/km
Inverell cost study for unsealed road maintenance	$633/km			$12,000/km
RRC (based on service levels table 3.2.3.1)	$500/km		$2,795/km	$19,100/km

Assumptions:

- RRC run 4 graders (recently reduced from 6) supported by a smooth drum roller and water truck, all the crews share a tyre roller and water cart on demand (water carts are hired when required), hence 90% of grading is done by ripping, reclaiming, mixing moisture in and compacting, remaining 10% is dry grading (patrol grading). One grader of the original six were disposed of, while another was reallocated to urban operations.

- Wet grading of the network is done yearly, which indicates 284km per year for a grader if 4 graders are committed to grading. The production correlate with around 1.5km per day wet grading, and 5km per day dry grading. The crew allocated to any particular road will attend to the re sheet and grading requirements of that section

- The 10% of the network (114 km) which is dry graded cost around $57,000/year at an estimated $500/km.

- The remaining 90% of the network (1024km) which is wet graded cost around $2,862,080 which accounts to $2,795/km for wet grading (in the mix of the benchmark figures)

- The re sheet allocation is $1,910,000/yr (14/15 budget), it cost $20,000/km which accounts to 96 km re sheeting per year, thus a 10 year re sheet cycle. The two graders allocated to re sheets can at a production of 0.5km per day per grader do around 200km per year thus 2 times more. If only 4 graders are operational at any time a production of 100km per year is realistic, the real cost per km would then be $19,100/km (close to the $20,000 benchmark).

7.2.2.3 The average gravel loss over the unsealed network (Table 3.2.3.1: Current service level for unsealed roads) is an average of 12mm per year, which means a loss of

120mm over a 10 year period, not accounting for reclaiming of gravel from windrows and table drains, a 10 year re sheet cycle with a nominal gravel thickness of 150mm is therefore realistic.

7.2.2.4 The quality of material used for re sheeting requires further investigation, the gravel loss could be higher than usual, which may point to higher clay content in the materials used. Material selection is a balance between sourcing cost and maintenance required, and current practices followed could be the best practice.

7.2.2.5 The use of anionic and cationic chemical stabilisers required further investigation as they can be incorporated in a wet grade (at around $4,000/km), but reduce future maintenance grading significantly. These chemical stabilisers have been used elsewhere with great success. A report done by ARRB on the best value management practices for unsealed roads indicate grading requirements are significantly reduced after the application of the product.

7.2.2.6 Programming of maintenance grading and re sheeting need to be more targeted, and need to utilise wet periods more efficiently. RRC has a substantial grader fleet of 4 which can be deployed to grading in wetter seasonal periods, and to re sheeting during dryer periods. This approach relies heavily on local experience and this theoretical approach may not suffice. It may not always be practical to plan grading for wet weather periods due to unpredictability.

7.2.2.7 RRC has followed an unsealed road management plan based on a theoretical bump car assessment, the gathering of roughness information is complex and difficult to interpretate mainly due to the nature of the unsealed road.

7.2.2.8 Convert roads that only service one land parcel to private roads

7.2.3 Actions to improve efficiencies

7.2.3.1 Action 1: Current approach

- Re sheeting: Re sheeting of the unsealed network is on a need basis, when the grader start cutting into the subgrade, the road should be re sheeted (in some case it may be too late), and heavily used roads are therefore re sheeted more often. A definite re sheet cycle is not being followed, funding allocations allows for a 10 year re sheet cycle (approximately 100km per year). There may be an opportunity to reduce the cycle and to develop a usage based re sheet cycle for the network. Grading: Current funding allows for 10% (114 km) of the network to be dry graded and 90% (1024 km) wet, 4 graders are deployed.

7.2.3.2 Action 2.1: Increase “dry” grading and reduce “wet” grading

- Dry grade half the unsealed network 3 times per year, 569km @ $500/km = $284,500 /year
- Wet grade half the network 1 time per year, 569km @ $2,000/km = $1,138,000/yr
- Re sheet the network on a 10 year cycle, 113.8km @ $25,000/km = $2,845,000/year
- Total expenditure $4,267,500.00 per year
- Direct saving of $300,500 per year **OR**

Action 2.2: Increase dry grading and reduce wet grading even further

- Dry grade the entire network 3 times per year, 1138km @ $500/km = $569,000 /year

- Wet grade the network on a 3 year cycle, 379km @ $2000/km = $757,908/year
- Re sheet a 10th of the network every year, 113,8km @ $25,000/km = $2,845,000/year
- The direct saving is $396,092 per year.

Strong Council consent is required for the approval and adoption of this approach.

7.2.3.3 Action 3: Establish a reserve fund to be utilised for wet grading in dry periods

- Dry grade the entire network 3 times per year, 1138km @ $500/km = $569,000 /year
- Wet grade the network on a 3 year cycle, 379km @ $2000/km = $757,908/year
- Re sheet on a 12 year cycle, 95km/year @ $25,000/km = $2,375,000/year
- The direct saving is $866,092 per year
- Establish a fund and contribute $400,000/year to enable additional wet grading during dry periods.

7.2.3.4 Action 4: Incorporate the use of chemical stabilisers to reduce grading and re sheeting.

- Council have tested a few commercial products, but have not been able to ascertain any significant benefits

8. FINANCIAL INFORMATION

8.1 Budget projections for Asset Class: Roads

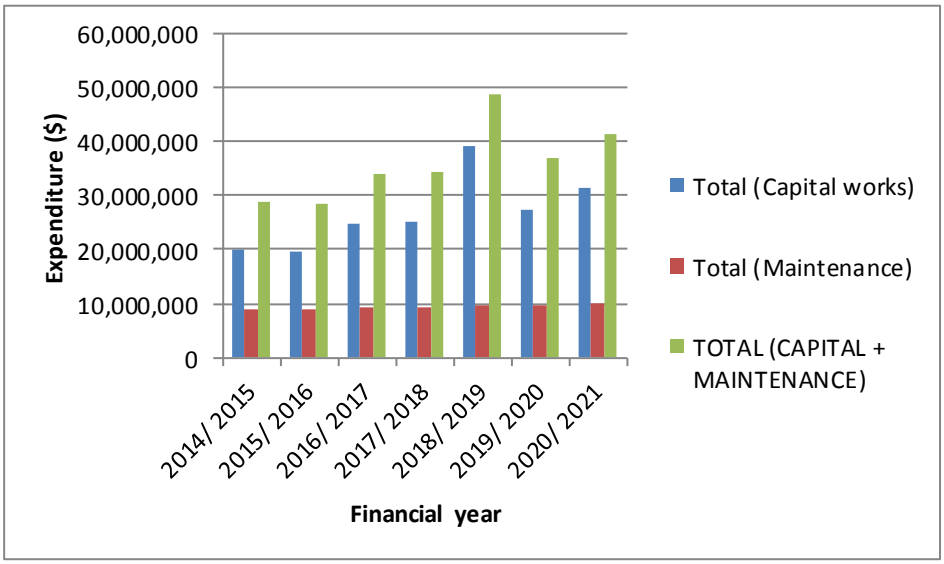
The financial projections are shown in Fig 10 for maintenance (reactive and planned) and capital (renewal, upgrade, expansion and new works) expenditure.

Table 8.1: Budget projection (maintenance and capital expenditure)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8 and later
	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022 and later
Capital works								
New works	50,000	100,000	100,000	230,000	100,000	930,000	100,000	26,405,000
Renewal works	15,742,741	13,567,854	13,907,565	19,923,817	18,130,000	18,928,795	18,989,770	41,823,752
Upgrade works	2,431,000	3,874,500	9,069,498	3,100,000	19,031,443	5,670,602	10,625,350	218,368,995
Re sheet	1,900,000	1,900,000	1,900,000	1,900,000	1,900,000	1,900,000	1,900,000	1,900,000
Total (Capital works)	**20,123,741**	**19,442,354**	**24,977,063**	**25,153,817**	**39,161,443**	**27,429,397**	**31,615,120**	**288,497,747**
Maintenance								
Planned	7,823,288	7,979,754	8,139,349	8,302,136	8,468,178	8,637,542	8,810,293	8,986,499
Unplanned	914,369	932,656	951,309	970,335	989,742	1,009,537	1,029,728	1,050,322
Unallocated	77,520	79,070	80,652	82,265	83,910	85,588	87,300	89,046
Total (Maintenance)	**8,815,177**	**8,991,480**	**9,171,310**	**9,354,736**	**9,541,831**	**9,732,667**	**9,927,321**	**10,125,867**
Depreciation ($/year)	11,868,475	11,868,475	11,868,475	11,868,475	11,868,475	11,868,475	11,868,475	11,868,475
TOTAL (CAPITAL + MAINTENANCE)	**28,938,918**	**28,433,834**	**34,148,373**	**34,508,553**	**48,703,274**	**37,162,064**	**41,542,441**	**298,623,614**
Budget forecasted (26/05/2014)	28,151,262	23,622,696	23,831,954					

TOTAL (Maintenance + Capital (excl upgrade and new)	**26,457,918**	**24,459,334**	**24,978,875**	**31,178,553**	**29,571,831**	**30,561,462**	**30,817,091**	**53,849,619**
GAP (CAPITAL RENEWAL - DEPRECIATION))	**3,874,266**	**1,699,379**	**2,039,090**	**8,055,342**	**6,261,525**	**7,060,320**	**7,121,295**	**29,955,277**

Figure 8.1: Budget projection (maintenance and capital expenditure only)



Note that all costs are shown in current 2014 dollar values, and maintenance projections are based on an estimated growth of an average of 1%. The growth also takes a slight expected rise in service levels into account

8.2 Sustainability of service delivery

The key indicator wether Council can continue to provide a service at a particular service level is the gap between the funding available to provide the service and the funding required to provide and maintain the service over the life of the asset. Life cycle costs (or whole of life costs) are the average costs that are required to provide a sustained service over the maximum asset life inclusive of maintenance, capital (excluding new and upgrade cost) and depreciation expense. The annual average capital and maintenance expenditure (budgeted cost) for the services covered in this asset management plan is calculated to be $ 32,941,026 the following assumptions has been made:

- Yearly depreciation remains the same for the sealed and unsealed network
- All projections in 2014 dollar values
- Capital works projects to be confirmed
- Total average life cycle cost has been calculated using projected values from 2014/15 to 2016/17

Life cycle costs can be compared to life cycle expenditure to give an indicator of sustainability in service provision. Life cycle expenditure will vary depending on the timing and need for the renewal of an asset.

A gap between life cycle costs and life cycle expenditure gives an indication as to whether present consumers are paying their share of the assets they are consuming each year. The purpose of this transport and drainage asset management plan is to identify levels of service that the community needs and can afford and develop the necessary Lifecycle Asset Management Plans to ensure the expected service is provided in a sustainable manner.

The life cycle gap for services covered by this asset management plan is currently estimated to be $3.4m per annum (based on the 2014/15 budget figure) above the required recapitalisation expenditure (and growing). The life cycle sustainability index is TBA.

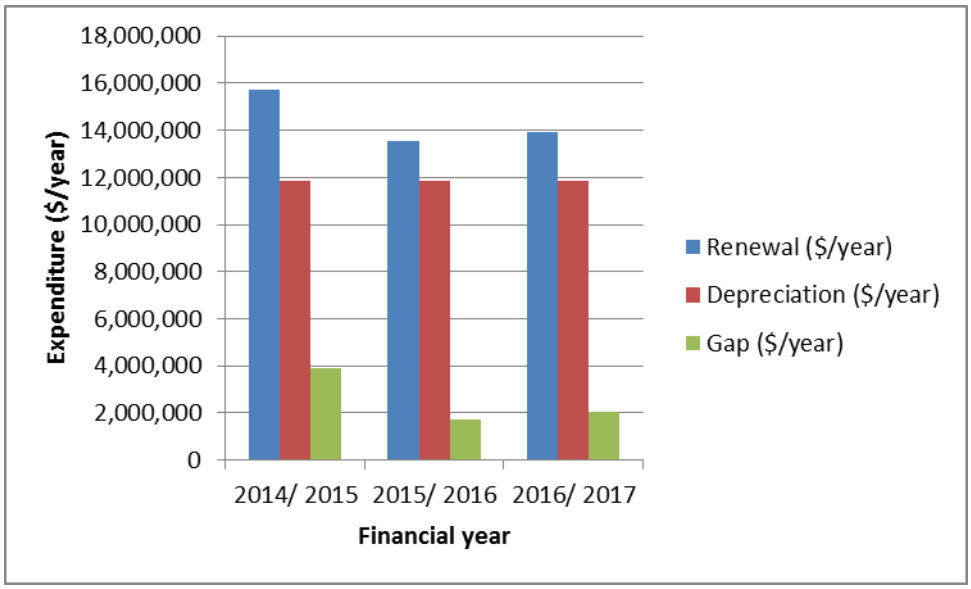
8.3 Strategic funding allocation (next 3 years)

This asset management plan identifies the estimated maintenance and capital expenditures required to provide an agreed level of service to the community over the next three years.

Table 8.3: Funding requirement and GAPS for the next three years

	Year 1	Year 2	Year 3
	2014/ 2015	2015/ 2016	2016/ 2017
Capital works			
New works	50,000	100,000	100,000
Renewal works	15,742,741	13,567,854	13,907,565
Upgrade works	2,431,000	3,874,500	9,069,498
Resheet	1,900,000	1,900,000	1,900,000
Total (Capital works)	**20,123,741**	**19,442,354**	**24,977,063**
Maintenance			
Planned	7,823,288	7,979,754	8,139,349
Unplanned	914,369	932,656	951,309
Unallocated	77,520	79,070	80,652
Total (Maintenance)	**8,815,177**	**8,991,480**	**9,171,310**
Depreciation ($/year)	11,868,475	11,868,475	11,868,475
TOTAL (CAPITAL + MAINTENANCE)	**28,938,918**	**28,433,834**	**34,148,373**
Budget forecasted (26/05/2014)	28,151,262	23,622,696	23,831,954
TOTAL (Maintenance + Capital (excl upgrade and new)	**26,457,918**	**24,459,334**	**24,978,875**
GAP (CAPITAL RENEWAL - DEPRECIATION))	**3,874,266**	**1,699,379**	**2,039,090**

Figure 8.3 Funding requirement and GAPS for the next three years



Providing services in a sustainable manner will require matching of projected maintenance and capital costs to meet agreed service levels with the projected programs.

A gap between projected costs and available funding indicates that further work is required to manage the ratio of depreciation and recapitalisation. To remedy (decrease) the GAP, the following can be done:

- Increase future funding, benchmarking indicates we already spend too much.

- Increase maintenance and decrease capital renewal expenditure, which will lower depreciation.

- Depreciation could be too high, due to standard lives that may be too short (use assets longer).

- Resurfacing can be considered as a cyclic maintenance activity (which it really is), and should therefore not be capitalised. Resurfacing is part of the lifecycle cost, and would be done on average 3 to 4 times over the 80 year lifecycle of a section of road.

- The GAP is financial and the funding need is not condition based, primarily because of the catch-up backlog associated with the sealing vs. reconstruction decision, which will gradually reduce future demand (to be updated in the next AMP should the approach be approved).

8.4 Key Assumptions made in Financial Forecasts

This section details the key assumptions made in presenting the information contained in this asset management plan and for preparing expenditure forecasts.

Key assumptions made in this asset management plan are:

- Use of existing asset inventory data
- Use of existing valuations and useful lives
- Use of asset expiry dates from Conquest
- The asset management plan has been based on Councils adopted 10 year plan (which has been amended). Priorities for the program are from Civil Operations and not PARMMS.
- Assets are working on the consolidation of the program in order to ensure a common acceptable program.
- Maintenance expense has been projected with a 1% growth

Accuracy of future financial forecasts may be improved in future revisions of this asset management plan by:

- Updating the Asset Register with capital expenditure where applicable.
- Maintaining the Asset Register.
- Reviewing useful lives for assets as appropriate.
- Collection of and improvement of condition data for transport and drainage assets.
- Improve the accuracy of operating, maintenance, and capital expenditure
- Improve the ability of the data in the asset register to match with those in other programs or systems.

Additional assumptions made in this asset management plan are as follows:

Depreciation Rates

- Road Pavement
    - Sealed Road 1.33% (75 years)
    - Unsealed Road 2.50% (40 years)
- Seal
    - Slurry Seal 6.67% (15 years)
    - Chip Seal 5.88% (17 years)
    - Asphalt Seal 2.13% (47 years)
    - Pavers/Concrete 2.00% (50 years)

This plan identifies two categories of pavement depreciation, 40 years for unsealed roads and 75 years
for sealed road pavements. The life of sealed road pavements has been extended in this plan by 13

years from previous estimates. It is anticipated with further condition assessment additional categories of
pavement life will be identified in line with the road hierarchy.

9. ASSET MANAGEMENT PRACTICES

This section outlines the practices currently used by Council to determine:

- Short and long term planned and reactive maintenance needs
- Short and long term capital renewal, upgrade and replacements needs
- New capital projects.

The ultimate objective of this RAMP is to ensure that Councils road network are managed in a cost effective and sustainable manner.

9.1 Asset management system

In order to manage Councils Road assets the following “systems” are used:

- Conquest is Council’s asset register and holds: Asset inventory, valuation and other data related to the road segment. The following is managed within the Conquest portal:
    - **Maintenance information:**
        - List the road segments and all its properties
        - Set up repeatable and/or cyclic actions to plan reactive maintenance in to the future
        - Create and issue Work Orders
        - Complete routine inspections / assessments, and keep a history of inspections and their details
        - Record defects that requires immediate mitigation
        - Manage asset related customer requests from pathways
        - Create an internal request for work to be done
    - **Management of the capital works program**
        - Create new projects and submit them for approval
        - Create a project in Finance One and have it update regularly from Conquest
        - Track a projects funding over multiple years and get funding approval
        - Balance multiple projects to allocated budgets
        - Produce detailed reports on projects with their cost break down
- Gecko (Councils GIS system): A GIS system is currently in place and is linked to Conquest. GIS users can identify the asset on the GIS screen without needing to know the asset ID or description and is then able to extract all information about that asset, either spatially or by text fields.
- Pathways: Council records all incoming customer requests using its Pathways customer request system. Conquest, through the Maintenance Asset Register receives this information and allows Work Orders to be issued against assets in Conquest.
- Various spread sheets and informal documentation for planned maintenance and capital works.
- **PARMMS:** Council records all its road segments in the PARMMS Road Manager database, this database allows council to record condition data against the road segments, and use deterioration modeling to predict maintenance and/or capital work required to ensure ongoing performance at the adopted service level.

9.2 Accounting / Financial systems

The Finance One is Councils financial management and accounting system, which has a number of general purpose or specific purpose general ledgers with their own unique user defined account structure. These include:

- General ledgers;
- Accounts receivable ledgers;
- Accounts payable ledgers;
- Budgets ledgers;
- Forecast ledgers;
- Commitments ledgers;
- Project cost ledgers; and
- Statistical ledgers.

Also incorporated into Finance One are facilities to manage deployment of fixed assets across the organisation with extensive functionality and reporting for the full life cycle of assets that provides full transparency, from acquisition to disposal. The system also provides a total and comprehensive purchasing solution, encompassing controlling, maintaining and streamlining of purchasing activities across the organisation.

9.3 Information Flow Requirements and Processes

The key information contained in this RAMP:

- The asset register data on size, age, value, and remaining life of the assets;
- The unit rates for categories of work/material;
- The adopted service levels;
- Projections of various factors affecting future demand for services;
- Correlations between maintenance and renewal, including decay models;
- Data on new assets acquired by council.

Conquest holds the entire asset register for all assets, included in the data held is unit rates, valuations, remaining useful lives, economic life, replacement value, depreciation etc.

Integration between Finance One, Conquest and Gecko is very important as all the systems need to provide linked information of the same asset. Financially linked information is used in the determination of future budgets for asset lifecycle maintenance costs, capital renewal and rehabilitation and new capital projects.

Expenditure also requires to be correctly booked in order to reflect the true expense of maintenance actions which will assist in more accurate estimations and budget forecasts. The tracking of planned and reactive maintenance works orders will also indicate areas for future improvement and will provide the basis for future budgets.

New assets are realised in the following ways:

- Contributions to Council from developers.
- Constructed as part of a project by council staff.
- Installed by council staff

The project manager responsible for the project has to ensure that detail information on the new assets is provided to council in adherence with the standards and in a timely manner.

9.4 Standards and guidelines

The key documents that support this Asset Management plan are:

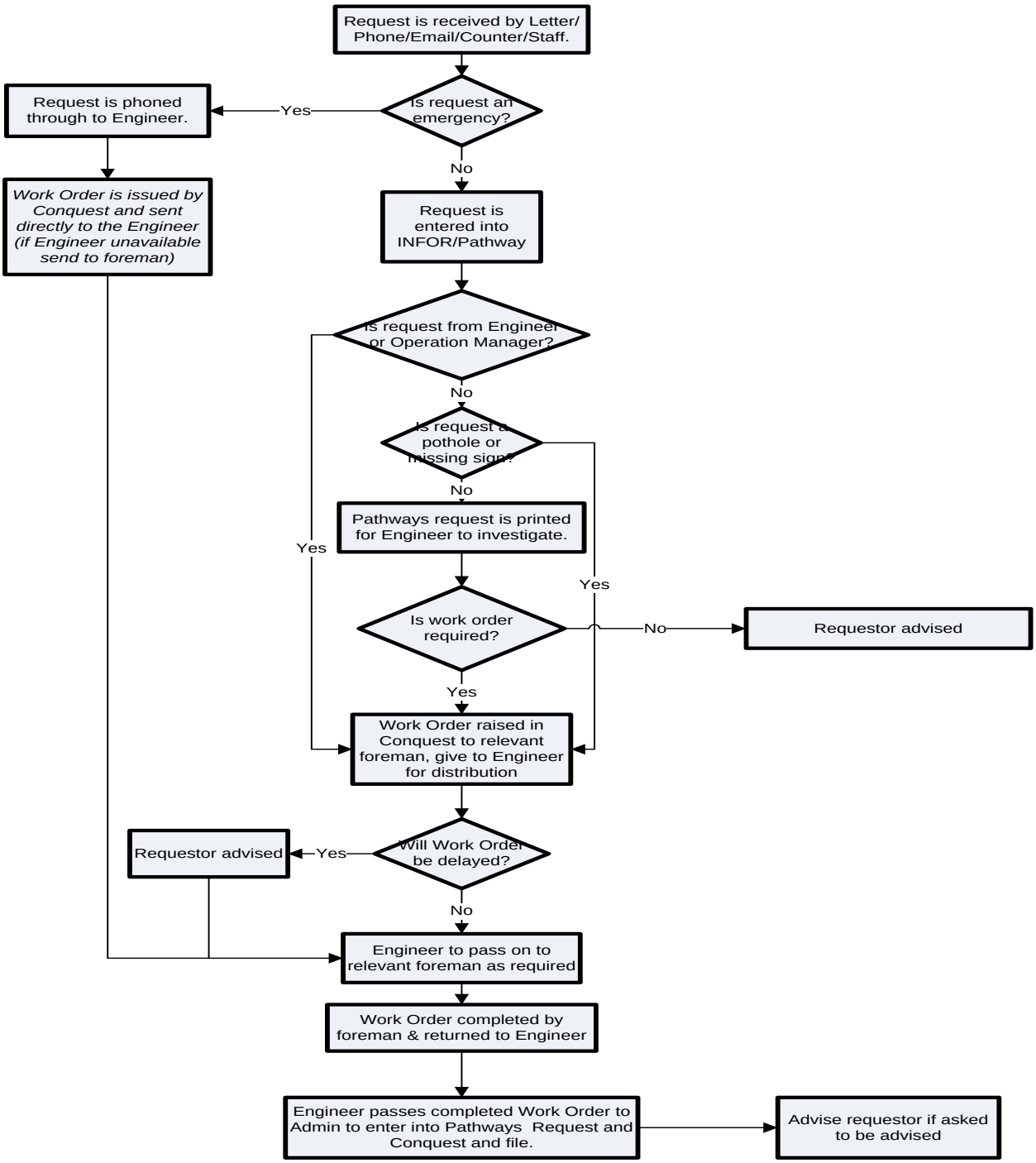
RRC Asset Capitalisation Policy POL.F1.10

RRC Asset Disposal Policy POL.F4.6

RRC Asset Management Policy - Whole of Council Infrastructure POL.14.1

Councils Strategy Documents including Goal Plans

Figure 15. Process for Requests/Work Orders



10. PLAN IMPROVEMENT AND MONITORING

10.1 Performance Measures

The effectiveness of the asset management plan can be measured in the following ways:

- The degree to which the required budget needs identified in this asset management plan are incorporated into council's LTFP and Strategic Management Plan;
- The degree to which 1-5 year detailed works programs, budgets, business plans and organisational structures take into account the 'global' works program trends provided by the asset management plan;

10.2 Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 8.2.

Table 10.2 Improvement Plan

Task No	Task	Responsibility	Resources Required	Timeline
1	Have a program for road inspection and evaluation regime in place.	Assets	Current	09/2014
2	Assessment data for every road is current (three year PARRMS cycle)	Assets	Current	02/2015
3	Prioritized planned maintenance list for execution	Assets	Current	12/2014
4	Accurate reactive maintenance forecasts	Operational / Technical	Current	05/2015
5	Re capitalisation and capital upgrade program in place	Assets / Custodian	Current	02/2015
6	Approved new capital works program	Custodian / Assets	Current	07/2014
7	Individual element expenditure recorded for works orders, knowing what exactly is spending on what.	Finance / Operations / Custodian	Current	11/2014
8	Service level extent confirmed and adopted	Custodian	Current	10/2014
9	Long term and strategic financial plans in place	Assets	Current	07/2014
10	Standardise expenditure reporting to be consistent with infrastructure categories and report in terms of expenditure type (Operations, Maintenance, Renewal, Upgrade or Expansion). A high confidence level on the expenditure breakdown will be essential for improving the next asset management plans.	Finance / Assets / Operations	Current	10/2014
11	Business plans for all newly proposed capital programs	Custodian	Current	04/2015
12	Undertake strategic review community needs which require road services. Compare need against current roads. Identify options including non-asset solutions, joint ventures, and community group's joint ventures. Dispose of surplus assets	Custodian / Facility user	Current	04/2015
13	Carry out customer satisfaction surveys and report as per below table	Custodian / Assets	Current	10/2014

10.3 Monitoring and Review Procedures

This asset management plan will be reviewed during annual budget preparation and amended to recognise any changes in service levels and/or resources available to provide those services as a result of the budget decision process.

The Plan has a life of 4 years and is due for revision and updating within 2 years of each Council election.

REFERENCES

Austroads 2008, *Guide to traffic management Part 5, Road Management*, Austroads Inc. URL: https://www.onlinepublications.austroads.com.au/

CMDG 2012, *Capricorn Municipal Development Guidelines*, accessed online 20/3/2012 , URL: http://www.cmdg.com.au/

DLGP 2011, *Asset Management Advancement Program 2011-2012 Guideline*. Queensland Government; accessed online 2/2/2012 URL: http://dlgp.qld.gov.au/resources/guideline/sustainability/asset-management-advancement-program-2011-12.pdf

DVC 2006, *Asset Investment Guidelines, Glossary,* Department for Victorian Communities, Local Government Victoria, Melbourne, http://www.dvc.vic.gov.au/web20/dvclgv.nsf/allDocs/RWP1C79EC4A7225CD2FCA257170003259F6?

IPWEA, 2006, *International Infrastructure Management Manual*, Institute of Public Works Engineering Australia, Sydney, URL: www.ipwea.org.au

LGM Queensland 2003a, *Road Maintenance Manual,*

LGM Queensland 2003b, *Footpath Manual,*

NAMS Plus AMP template

RRC Annual Plan and Budget

RRC Community Plan 2012-2022

RRC Social Plan 2010-2015

RRC Corporate Plan

RRC Operational Plan

APPENDICES

Appendix A Sustainability Ratios

Section	Ratio	Result		
5.6.4	Asset Consumption	2.62%		
5.6.4	Rate of renewal	3.01%		
5.6.4	Annual Upgrade/expansion	0.53%		
6.1.1	annual long term life cycle costs	$28,290,000		
	long term life expenditure	$251,874,683		
	The life cycle gap	$66,066,494		
	The life cycle sustainability index is	**9**		= Long term life expenditure / Annual Long term lifecycle cost
	8 Yr. Capital Renewal	$119,190,542		= The capital renewal expenditure required over the 10 years
	This is an average annual expenditure of	$17,027,220		
	Budgeted capital renewal and maintenance	$198,025,064		= Planned LTFP capital renewal for next 10yrs
	The 10 year sustainability index is	**1.7**		= LTFP Funding Allocation / 10 Yr Required Expenditure

Budget Expenditure		
8 Year Renewal Required	$ 119,190,542	
8 Year Maintenance Expenditure	$ 65,534,522	
Total 8 Year Required Cost	**$ 184,725,064**	

Appendix B PARMMS Intervention Levels

Rockhampton Regional Council

Resolution Matrix

Modified on 5th November 2009

NAASRA Class	Treatment Classification	Surface Type	AC Overlay Thickness	Granular Overlay	Roughness	Rut Depth	ACRW	Geographic Class	Seal Age	Treatment Number	Treatment	Associated Treatment
4	Do Nothing	Seal							< Min	2	Do Nothing	
									> Min	8	Reseal	
		Asphalt							< Min	2	Do Nothing	
									> Min	11	30mm AC Overlay	
		Concrete								2	Do Nothing	
		Slurry								2	Do Nothing	3
	Crack Sealing									5	Crack Sealing	
	Pothole Patching									6	Pothole Patching	2
	Heavy Patching									7	Heavy Patching	2
	Resurface	Seal								8	Spray Seal	
		Asphalt								11	30mm AC Overlay	3
		Concrete								2	Do Nothing	3
		Slurry								10	Slurry Seal	3
	Redesign	Seal		< 75	< 100	< 10			> Min	8	Reseal	2
									< Min	2	Do Nothing	
						> 10				9	Corrector & Seal	
					100 - 120					9	Corrector & Seal	
					120 - 200					17	Granular Overlay	
					> 200					16	Reconstruct	
				> 75	< 100	< 10			> Min	8	Reseal	2

									< Min	2	Do Nothing	
						> 10				9	Corrector & Seal	
					100 - 120					9	Corrector & Seal	
					120 - 200					15	Stabilisation	
					> 200					16	Reconstruct	
									> Min	8	Reseal	2
					< 100	< 10			< Min	2	Do Nothing	
			< 50			> 10				9	Corrector & Seal	
					100 - 120					9	Corrector & Seal	
					120 - 200					17	Granular Overlay	
		Asphalt			> 200					16	Reconstruct	
									> Min	8	Reseal	2
					< 100	< 10			< Min	2	Do Nothing	
			> 50			> 10				9	Corrector & Seal	
					100 - 120					9	Corrector & Seal	
					120 - 200					15	Stabilisation	
					> 200					16	Reconstruct	
					< 150		< 50			2	Do Nothing	
		Concrete					> 50			13	PMB AC Overlay	
					> 150					17	Granular Overlay	
									> Min	8	Reseal	2
					< 100	< 10			< Min	2	Do Nothing	
			< 50			> 10				9	Corrector & Seal	
					100 - 120					9	Corrector & Seal	
					120 - 200					17	Granular Overlay	
					> 200					16	Reconstruct	
		Slurry							> Min	8	Reseal	2
					< 100	< 10			< Min	2	Do Nothing	
			> 50			> 10				9	Corrector & Seal	
					100 - 120					9	Corrector & Seal	
					120 - 200					15	Stabilisation	
					> 200					16	Reconstruct	
	Reconstruction	Seal & Asphalt						Non-Reactive		16	Reconstruct	6

								Reactive		18	Reconstruct	7
		Concrete								19	Reconstruct Concrete	
		Slurry						Non-Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7

Associated Treatment Notes

1. Cracking may be associated with treatment
2. Cracking and patching may be associated with treatment
3. 30mm Minimum overlay thickness 12
4. 35mm Minimum overlay thickness 20
6. 300mm Minimum Unbound Granular Thickness
7. 500mm Minimum Unbound Granular Thickness
8. 200mm Thickness of Stabilised Material

NAASRA Class	Treatment Classification	Surface Type	AC Overlay Thickness	Granular Overlay	Roughness	Rut Depth	ACRW	Geographic Class	Seal Age	Treatment Number	Treatment	Associated Treatment
5	Do Nothing	Seal							< Min	2	Do Nothing	
									> Min	8	Reseal	
		Asphalt							< Min	2	Do Nothing	
									> Min	11	30mm AC Overlay	
		Concrete								2	Do Nothing	
		Slurry								2	Do Nothing	3
	Crack Sealing									5	Crack Sealing	
	Pothole Patching									6	Pothole Patching	2
	Heavy Patching									7	Heavy Patching	2
	Resurface	Seal								8	Spray Seal	
		Asphalt								11	30mm AC Overlay	3
		Concrete								2	Do Nothing	3
		Slurry								10	Slurry Seal	3
	Redesign	Seal		< 75	< 100	< 10			> Min	8	Reseal	2
									< Min	2	Do Nothing	

					> 10				9	Corrector & Seal		
				100 - 120					9	Corrector & Seal		
				120 - 200					17	Granular Overlay		
				> 200					16	Reconstruct		
			> 75	< 100	< 10			> Min	8	Reseal	2	
								< Min	2	Do Nothing		
					> 10				9	Corrector & Seal		
				100 - 120					9	Corrector & Seal		
				120 - 200					15	Stabilisation		
				> 200					16	Reconstruct		
		Asphalt	< 50	< 100	< 10			> Min	8	Reseal	2	
								< Min	2	Do Nothing		
					> 10				9	Corrector & Seal		
				100 - 120					9	Corrector & Seal		
				120 - 200					17	Granular Overlay		
				> 200					16	Reconstruct		
			> 50	< 100	< 10			> Min	8	Reseal	2	
								< Min	2	Do Nothing		
					> 10				9	Corrector & Seal		
				100 - 120					9	Corrector & Seal		
				120 - 200					15	Stabilisation		
				> 200					16	Reconstruct		
		Concrete		< 150		< 50			2	Do Nothing		
						> 50			13	PMB AC Overlay		
				> 150					17	Granular Overlay		
		Slurry	< 50	< 100	< 10			> Min	8	Reseal	2	
								< Min	2	Do Nothing		
					> 10				9	Corrector & Seal		
				100 - 120					9	Corrector & Seal		
				120 - 200					17	Granular Overlay		
				> 200					16	Reconstruct		
			> 50	< 100	< 10			> Min	8	Reseal	2	
								< Min	2	Do Nothing		
					> 10				9	Corrector & Seal		

					100 - 120					9	Corrector & Seal	
					120 - 200					15	Stabilisation	
					> 200					16	Reconstruct	
	Reconstruction	Seal & Asphalt						Non-Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
		Concrete								19	Reconstruct Concrete	
		Slurry						Non-Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7

Associated Treatment Notes

1. Cracking may be associated with treatment
2. Cracking and patching may be associated with treatment
3. 30mm Minimum overlay thickness 10
4. 35mm Minimum overlay thickness 20
6. 300mm Minimum Unbound Granular Thickness
7. 500mm Minimum Unbound Granular Thickness
8. 200mm Thickness of Stabilised Material

NAASRA Class	Treatment Classification	Surface Type	AC Overlay Thickness	Granular Overlay	Roughness	Rut Depth	ACRW	Geographic Class	Seal Age	Treatment Number	Treatment	Associated Treatment
6	Do Nothing	Seal							< Min	2	Do Nothing	
									> Min	8	Reseal	
		AC							< Min	2	Do Nothing	
									> Min	13	PMB AC Overlay	
		Concrete								2	Do Nothing	
		Slurry								2	Do Nothing	
	Crack Sealing									5	Crack Sealing	1
	Pothole Patching									6	Pothole Patching	2
	Heavy Patching									7	Heavy Patching	2

	Resurface	Seal								8	Spray Seal	
		Asphalt								13	PMB AC Overlay	3
		Concrete								2	Do Nothing	3
		Slurry								13	PMB AC Overlay	3
	Redesign	Seal		< 75	< 100	< 10			> Min	8	Reseal	2
									< Min	2	Do Nothing	
						> 10				9	Corrector & Seal	
					100 - 120					9	Corrector & Seal	
					120 - 200					13	40mm PMB AC Overlay	
					> 200			Non-Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
				> 75	< 100	< 10			> Min	8	Reseal	2
									< Min	2	Do Nothing	
						> 10				9	Corrector & Seal	
					100 - 120					9	Corrector & Seal	
					120 - 200					15	Stabilisation	8
					> 200			Non-Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
		Asphalt	< 50		< 100	< 10			> Min	13	PMB AC Overlay	2
									< Min	2	Do Nothing	
						> 10				14	40mm Corrector & AC Overlay	
					100 - 200					20	Mill & Resheet	
					> 200			Non-Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
			> 50		< 100	< 10			> Min	13	PMB AC Overlay	2
									< Min	2	Do Nothing	
						> 10				14	40mm Corrector & AC Overlay	
					100 - 150					20	Mill & Resheet	
					150 - 200					15	Stabilisation	8

					> 200			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
		Concrete			< 150		< 50			2	Do Nothing	
							> 50			13	40mm PMB AC Overlay	
					> 150					17	Granular Overlay	
		Slurry	< 50		< 100	< 10			> Min	13	PMB AC Overlay	2
									< Min	2	Do Nothing	
						> 10				14	40mm Corrector & AC Overlay	
					100 - 200					20	Mill & Resheet	
					> 200			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
			> 50		< 100	< 10			> Min	13	PMB AC Overlay	2
									< Min	2	Do Nothing	
						> 10				14	40mm Corrector & AC Overlay	
					100 - 150					20	Mill & Resheet	
					150 - 200					15	Stabilisation	8
					> 200			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
	Reconstruction	Seal & Asphalt						Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
		Concrete								19	Reconstruct Concrete	
		Slurry						Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7

Associated Treatment Notes

1. Cracking may be associated with treatment
2. Cracking and patching may be associated with treatment
3. 30mm Minimum overlay

thickness
4. 35mm Minimum overlay
thickness
6. 300mm Minimum Unbound Granular Thickness
7. 500mm Minimum Unbound Granular Thickness
8. 200mm Thickness of Stabilised Material

NAASRA Class	Treatment Classification	Surface Type	AC Overlay Thickness	Granular Overlay	Roughness	Rut Depth	ACRW	Geographic Class	Seal Age	Treatment Number	Treatment	Associated Treatment
7	Do Nothing	Seal							< Min	2	Do Nothing	
									> Min	8	Reseal	
		AC							< Min	2	Do Nothing	
									> Min	13	PMB AC Overlay	
		Concrete								2	Do Nothing	
		Slurry								2	Do Nothing	
	Crack Sealing									5	Crack Sealing	1
	Pothole Patching									6	Pothole Patching	2
	Heavy Patching									7	Heavy Patching	2
	Resurface	Seal								8	Spray Seal	
		Asphalt								13	PMB AC Overlay	3
		Concrete								2	Do Nothing	3
		Slurry								13	PMB AC Overlay	3
	Redesign	Seal		< 75	< 100	< 20			> Min	8	Reseal	2
									< Min	2	Do Nothing	
						> 20				9	Corrector & Seal	
					100 - 120					9	Corrector & Seal	
					120 - 200					13	40mm PMB AC Overlay	
					> 200			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
				> 75	< 100	< 20			> Min	8	Reseal	2

								< Min	2	Do Nothing	
					> 20				9	Corrector & Seal	
				100 - 120					9	Corrector & Seal	
				120 - 200					15	Stabilisation	8
				> 200			Non Reactive		16	Reconstruct	6
							Reactive		18	Reconstruct	7
		Asphalt	< 50	< 100	< 20			> Min	13	PMB AC Overlay	2
								< Min	2	Do Nothing	
					> 20				14	40mm Corrector & AC Overlay	
				100 - 200					20	Mill & Resheet	
				> 200			Non Reactive		16	Reconstruct	6
							Reactive		18	Reconstruct	7
			> 50	< 100	< 20			> Min	13	PMB AC Overlay	2
								< Min	2	Do Nothing	
					> 20				14	40mm Corrector & AC Overlay	
				100 - 150					20	Mill & Resheet	
				150 - 200					15	Stabilisation	8
				> 200			Non Reactive		16	Reconstruct	6
							Reactive		18	Reconstruct	7
		Concrete		< 150		< 50			2	Do Nothing	
						> 50			13	40mm PMB AC Overlay	
				> 150					17	Granular Overlay	
		Slurry	< 50	< 100	< 20			> Min	13	PMB AC Overlay	2
								< Min	2	Do Nothing	
					> 20				14	40mm Corrector & AC Overlay	
				100 - 200					20	Mill & Resheet	
				> 200			Non Reactive		16	Reconstruct	6
							Reactive		18	Reconstruct	7

					< 100	< 20			> Min	13	PMB AC Overlay	2
									< Min	2	Do Nothing	
						> 20				14	40mm Corrector & AC Overlay	
			> 50		100 - 150					20	Mill & Resheet	
					150 - 200					15	Stabilisation	8
					> 200			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
	Reconstruction	Seal & Asphalt						Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
		Concrete								19	Reconstruct Concrete	
		Slurry						Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7

Associated Treatment Notes

1. Cracking may be associated with treatment
2. Cracking and patching may be associated with treatment
3. 30mm Minimum overlay thickness 10
4. 35mm Minimum overlay thickness 20
6. 300mm Minimum Unbound Granular Thickness
7. 500mm Minimum Unbound Granular Thickness
8. 200mm Thickness of Stabilised Material

NAASRA Class	Treatment Classification	Surface Type	AC Overlay Thickness	Granular Overlay	Roughness	Rut Depth	ACRW	Geographic Class	Seal Age	Treatment Number	Treatment	Associated Treatment
8	Do Nothing	Seal							< Min	2	Do Nothing	
									> Min	8	Reseal	
		AC							< Min	2	Do Nothing	
									> Min	11	30mm AC Overlay	
		Concrete								2	Do Nothing	
		Slurry								2	Do Nothing	

	Crack Sealing									5	Crack Sealing	1
	Pothole Patching									6	Pothole Patching	2
	Heavy Patching									7	Heavy Patching	2
	Resurface	Seal								8	Spray Seal	
		Asphalt								12	AC Overlay	3
		Concrete								2	Do Nothing	3
		Slurry								12	AC Overlay	3
	Redesign	Seal		< 75	< 150	< 20			> Min	8	Reseal	2
									< Min	2	Do Nothing	
						> 20				9	Corrector & Seal	
					150 - 170					9	Corrector & Seal	
					170 - 250					13	40mm PMB AC Overlay	
					> 250			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
				> 75	< 150	< 20			> Min	8	Reseal	2
									< Min	2	Do Nothing	
						> 20				9	Corrector & Seal	
					150 - 170					9	Corrector & Seal	
					170 - 250					15	Stabilisation	8
					> 250			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
		Asphalt	< 50		< 150	< 20			> Min	12	AC Overlay	2
									< Min	2	Do Nothing	
						> 20				14	40mm Corrector & AC Overlay	
					150 - 250					20	Mill & Resheet	
					> 250			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
			> 50		< 150	< 20			> Min	12	AC Overlay	2
									< Min	2	Do Nothing	

						> 20				14	40mm Corrector & AC Overlay	
					150 - 170					20	Mill & Resheet	
					170 - 250					15	Stabilisation	8
					> 250			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
		Concrete			< 200		< 50	< 50		2	Do Nothing	
							> 50	> 50		13	40mm PMB AC Overlay	
					> 200					17	Granular Overlay	
		Slurry	< 50		< 150	< 20			> Min	8	AC Overlay	2
									< Min	2	Do Nothing	
						> 20				14	40mm Corrector & AC Overlay	
					150 - 250					20	Mill & Resheet	
					> 250			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
			> 50		< 150	< 20			> Min	12	AC Overlay	2
									< Min	2	Do Nothing	
						> 20				14	40mm Corrector & AC Overlay	
					150 - 170					20	Mill & Resheet	
					170 - 250					15	Stabilisation	8
					> 250			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
	Reconstruction	Seal & Asphalt						Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
		Concrete								19	Reconstruct Concrete	
		Slurry						Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7

Associated Treatment Notes

1. Cracking may be associated with treatment
2. Cracking and patching may be associated with treatment
3. 30mm Minimum overlay thickness
10
4. 35mm Minimum overlay thickness
20
6. 300mm Minimum Unbound Granular Thickness
7. 500mm Minimum Unbound Granular Thickness
8. 200mm Thickness of Stabilised Material

NAASRA Class	Treatment Classification	Surface Type	AC Overlay Thickness	Granular Overlay	Roughness	Rut Depth	ACRW	Geographic Class	Seal Age	Treatment Number	Treatment	Associated Treatment
9	Do Nothing	Seal							< Min	2	Do Nothing	
									> Min	8	Reseal	
		AC							< Min	2	Do Nothing	
									> Min	10	Slurry Seal	
		Concrete								2	Do Nothing	
		Slurry								2	Do Nothing	
	Crack Sealing									5	Crack Sealing	1
	Pothole Patching									6	Pothole Patching	2
	Heavy Patching									7	Heavy Patching	2
	Resurface	Seal								8	Spray Seal	
		Asphalt								12	AC Overlay	3
		Concrete								2	Do Nothing	3
		Slurry								10	Slurry Seal	3
	Redesign	Seal		< 75	< 200	< 20			> Min	8	Reseal	2
									< Min	2	Do Nothing	
						> 20				9	Corrector & Seal	
					200 - 220					9	Corrector & Seal	
					220 - 300					13	40mm PMB AC Overlay	
					> 300			Non Reactive		16	Reconstruct	6

								Reactive		18	Reconstruct	7
				> 75	< 200	< 20			> Min	8	Reseal	2
									< Min	2	Do Nothing	
						> 20				9	Corrector & Seal	
					200 - 220					9	Corrector & Seal	
					220 - 300					15	Stabilisation	8
					> 300			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
		Asphalt	< 50		< 200	< 20			> Min	10	Slurry Seal	2
									< Min	2	Do Nothing	
						> 20				14	40mm Corrector & AC Overlay	
					200 - 300					20	Mill & Resheet	
					> 300			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
			> 50		< 200	< 20			> Min	10	Slurry Seal	2
									< Min	2	Do Nothing	
						> 20				14	40mm Corrector & AC Overlay	
					200 - 220					20	Mill & Resheet	
					220 - 300					15	Stabilisation	8
					> 300			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
		Concrete			< 300		< 50	< 50		2	Do Nothing	
							> 50	> 50		13	40mm PMB AC Overlay	
					> 300					17	Granular Overlay	
		Slurry	< 50		< 200	< 20			> Min	10	Slurry Seal	2
									< Min	2	Do Nothing	
						> 20				14	40mm Corrector & AC Overlay	
					200 - 300					20	Mill & Resheet	
					> 300			Non		16	Reconstruct	6

								Reactive				
								Reactive		18	Reconstruct	7
			> 50		< 200	< 20			> Min	10	Slurry Seal	2
									< Min	2	Do Nothing	
						> 20				14	40mm Corrector & AC Overlay	
					200 - 220					20	Mill & Resheet	
					220 - 300					15	Stabilisation	8
					> 300			Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
	Reconstruction	Seal & Asphalt						Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7
		Concrete								19	Reconstruct Concrete	
		Slurry						Non Reactive		16	Reconstruct	6
								Reactive		18	Reconstruct	7

Associated Treatment Notes

1. Cracking may be associated with treatment
2. Cracking and patching may be associated with treatment
3. 30mm Minimum overlay thickness 10
4. 35mm Minimum overlay thickness 20
6. 300mm Minimum Unbound Granular Thickness
7. 500mm Minimum Unbound Granular Thickness
8. 200mm Thickness of Stabilised Material

Appendix C: Maintenance intervention levels for Road Infrastructure

Activity	Description	Intervention Targets	Quality Standard
Pot Holes	Surface patching of pot holes in the sealed pavement using bituminous and other materials to restore the riding surface to a smooth condition.	• Repair before pot hole exceeds 50mm in depth or 300mm in diameter, or likely to deteriorate rapidly to the time frames below ❖ Local Roads-Repair within 72 hours. Pot holes which exceed 300mm in diameter or 50mm in depth will be repaired immediately on detection.	• Finished surface to be even and well compacted. • Patch edges to be regular and well jointed to surrounding pavement (significant cost to achieve). • Patch limit to extend into sound pavement (significant cost to achieve) • No pot holes prior to the resealing program.
Failed Pavements	The treatment of small failed areas of pavement by replacement with new approved material or by improvement of existing material. Includes reinstatement with new bituminous surface.	• Repair when failed area is greater than 0.3m^2 and other treatments that have failed to solve the problem or other treatments are inappropriate. • Failure of a particular area is determined when the surface has broken up and has deformed by at least 50mm. Deformations are also dependant on the function and profile of the road.	• Finished surface to be even and well compacted. • Patch areas to be regular and well jointed to surrounding pavement. • Patch limits to extend to sound pavement. • Pavement shape and cross fall to be maintained.
Sealed Edge Breaks	Repair of broken edges of seal, to line and level, to maintain correct overall seal width.	• Repair when edge break exceeds 150mm laterally over one metre length.	• Original pavement width restored. • Pavement shape and cross fall maintained to new edge. • Patch limits to extend into sound pavement. • Edge repair backed up with shoulder material.
Major Surface Irregularities	Application of a levelling course using bituminous materials to badly distorted areas of pavement.	• Main Roads-Regulate if rutting or depression holds water or exceeds 25mm in depth under a 1.2 metres straight edge transverse or a 3 metre straight edge longitudinal. The measurement depends on the road and its function.	• Finished surface to be even and well compacted. Pavement shape and cross fall to be maintained.
		• Local Roads-Regulate if rutting or depression holds water or exceeds 40mm in depth under a 1.2 metre straight edge transverse or a 3 metre straight	

Local Surface Defects	**Stripped Seals** ❖ Loss of aggregate from seal.	• Resurface when area exceeds $1m^2$ with cutback bitumen and appropriate sized aggregate.	• Apply correct application of cutback to ensure adhesion of aggregate. • Ensure aggregate matches existing size of aggregate.
	Bleeding Surface ❖ Bitumen surfaces which become sticky in hot weather and pick up on vehicle wheels.	• Cover with grit or 7mm aggregate As soon as possible to areas which are sticky.	• Application of aggregate stops pickup. • Aggregate is spread evenly and to correct thickness. • Aggregate is dust free and clean to ensure good adhesion.
	Slick Surfaces ❖ Slick or fatty patches resulting from loss or aggregate or upward movement of bitumen.	• Treat when area exceeds $1m^2$ with pegasol and spread 7mm aggregate, when temperature exceeds $25^{0.}$	• Correct application of pegasol. • Aggregate is dust free and clean to ensure good adhesion.
	Surface Waving, Shoving, Deformation or Heaving. ❖ Surface waving, shoving deformation or heaving of unstable pavement.	• Repair when failed area is greater than $0.3m^2$ dependent on the associated risk.	• Finished surface even and well compacted. • Patch areas regular and well jointed to surrounding pavement. • Patch limits to extend to sound pavement. • Pavement shape and cross fall to be maintained.
	Cracks and Crazing ❖ The routing, cleaning and filling of cracks and joints using liquid bituminous sealants.	• Program and seal cracks 3mm or wider, dependent on the associated risk.	• Ensure that cracks are cleaned and routed properly to ensure good adhesion of bituminous products. • Bituminous product fully seals the crack. Bituminous product is dusted off.

Activity	Description	Intervention Targets	Quality Standard
Local Surface Defects	Reinstatement of road opening created by Contractors and Service Authorities.	• All reinstatement's to be completed within 4 weeks of notification.	• Ensure that temporary backfilling and patches are kept at the level of the surrounding pavement. • Maintain surface level integrity. • Finished surface even and well compacted. • Patch areas regular and well jointed to surrounding pavement. • Patch limits to extend into sound pavement. • Pavement shape and cross fall to be maintained.
Emulsion Crack Sealing	The sealing of isolated sections of cracks in both urban and rural areas.	• Cracks greater than 2mm wide. • Small areas of crazed cracking, dependent on a risk assessment.	• Minor sections of cracks sealed. • Isolated cracks sealed.
Preparation for Sealing	Sealed pavement maintenance to ensure that all defects are corrected prior to sealing.	• Program as determined by Assets (through the PMS and in negotiation with Civil Ops.)	• As per pot holes, failed pavements, sealed edge breaks, major surface irregularities and local surface defects.
Unsealed Pavement Grading	The grading of unsealed pavements to maintain safety for the travelling public. Grading needs are identified through regular road inspections.	• Grade unsealed pavements when rutting, pot holing, scouring and corrugations exceeds 50mm in depth over 10% per kilometre of the pavement area. • Drainage from road must be free flowing. • No build-up of loose material exceeding 50mm in depth or over more than 100 square metres per kilometre. • Grade and level off car parks when water pooling exceeds 50mm in depth. • Pavement width less than 80% normal width due to grass growth. • Any hazards or surface irregularities which may cause traffic mishaps or damage to vehicles shall be eliminated immediately.	• Grading carried out in order to provide traffic with a safe road pavement free from corrugation, scours and other irregularities. • Surface is well shaped with approximately 1:25 cross fall on straights with elevated crown. • Appropriate cross fall to be provided on curves. • All corrugations and pot holes are removed to their full depth. • Side drains are clear of pavement or other material.

Activity	Description	Intervention Targets	Quality Standard
Unsealed Shoulder Grading (Gravel)	Grading and reshaping of gravel shoulders to correct pavement drop-off, rutting, pot holing, scouring and build up of material. Grading demand will be identified through regular road inspections.	• Grade shoulders when the drop from the traffic lane to shoulder exceeds 50mm in depth over 20m length of road or when shoulder becomes rough or scoured • Trim lower edge of shoulder when build up holds water. • Shoulder pot holed, rutter or corrugated. • Grass area not to exceed 10% of shoulder of 1 kilometre in length. • Any hazards or surface irregularities which may cause traffic mishap or damage to vehicles shall be eliminated immediately.	• Shoulders kept safe at all times. • All grading shall be carried out in direction of traffic. • Windrow materials removed from seal. • Shoulder is restored to correct shape and cross fall. • Pavement edge fully supported. • All surface drainage functioning properly. • Windrow eliminator used where possible.
Unsealed Shoulder Grading (Grassed)	The trimming and grading and spot filling of grassed gravel or dirt shoulders to correct shoulder build-up, pot holes and other irregularities. The demand for maintenance will be identified through regular inspections.	• Trim shoulders when build up exceeds 50mm over 10% per kilometre length. • Spot fill isolated pot holes or other irregularities when they exceed 50mm in depth. • Trim shoulder when build up holds water on sealed surface. • Any hazards or surface irregularities which may cause traffic mishaps or damage to vehicles shall be eliminated immediately.	• All trimming shall be carried out in direction of traffic. • Shoulder is trimmed to correct shape and cross fall. • All surface drainage to function properly.
Unsealed Pavement Re-sheeting	Re-sheeting of gravel pavements to restore a safe and trafficable condition.	• As identified during inspections	• Depth of re-sheet material uniform (min. 100 - 150mm), depending on the road class. • Finished surface shape uniform minimum cross fall 25:1. • Final surface well compacted and free from material larger than 30mm.
Unsealed Shoulder Re-sheeting	Re-sheeting of gravel shoulders to restore safe and trafficable condition. To correct excess shoulder cross fall and or reduced shoulder width.	• As identified during inspections.	• Depth of re-sheet material uniform (min. 100 -150mm), depending on the road class. • Finished surface shape uniform minimum cross fall 25:1. • Final surface well compacted and free from material larger than 20mm.

Activity	Description	Intervention Targets	Quality Standard
Dust Suppression	The application of a suitable dust suppressant or palliative to control excessive dust particles becoming airborne.	• As directed by Council, when a particular need is identified.	• Finished surface well shaped with correct cross fall and well compacted. • Application of suppressant uniform and correct to achieve maximum benefit.
Sign Maintenance	The maintenance of damaged signs or deteriorated sign faces and supports. Includes the replacement of damaged or deteriorated facilities with new signs and/or supports at the original location.	• No sign post to be more than 10^0 from vertical. • No sign to have less than 50% of reflectivity remaining. • All signs to be visible at 150 metres at night on low beam. • All signs to be legible in daytime. • Damaged or missing signs to be replaced immediately upon supply. • Damaged or missing warning signs and regulatory signs are to be replaced or repaired as soon as possible • Signs to be clean.	• Support structure firm and vertical. • Sign appropriately located. • Sign clearly legible. • Sign and post fixed to prevent rotation. • Sign reflective where required. • Sign correct height.
New Sign Installation	The supply and installation of new signs where none previously existed.	• As directed by Council when the need is identified.	• Support structure firm and vertical. • Sign appropriately located. • Sign correct height. • No tree branches to impede sign sight distance. • Only new brackets and posts to be used.
Relocation of Existing Signs	The relocation of existing signs to another location nearby.	• As directed by Council when the need is identified.	• Support structure firm and vertical. • Sign correct height. • Sign clearly visible from 150 metres. • No tree branches or structures to impede sign sight distance. • Previous location left clean and tidy.

Cleaning of Signs	The cleaning of sign faces to remove direct and other contaminants to restore the reflectivity and appearance.	• Loss of 50% of reflectivity. • Loss of legibility of sign.	• Sign clearly legible. • Sign have good reflectivity. • Signs clear.
Installation of Seasonal Signs	The installation, removal and storage of Seasonal Signs.	• When required during quarantine movements etc.	• Time frames met. • Safe storage of removed signs (both seasonal and standard)

Posts

Activity	Description	Intervention Targets	Quality Standard
Posts Maintenance	The maintenance of existing posts and replacement of damaged or missing posts, including: • Marker posts; • Guide posts; • Bollards (excluding special bollards); • Floodway pots; • School crossing posts.	• Replace all posts missing or damaged. • Paint all surfaces of all posts when 50% of existing surface is noticeable degraded. • School crossing posts missing or damaged shall be replaced immediately as urgent works. • Floodway posts to be legible from 40 metres. Replace or repaint when text is more than 25% degraded.	• Posts correctly aligned and painted, firmly installed with surface and reflectors clean. • Old 125x125 posts replaced with standard 100x50 when due for replacement.
Delineators	The repair and replacement of delineators to restore delineation of the road pavement.	• Replace delineators damaged for missing. • Replace rectangular sheet delineators with corner cube delineators as replacement is required.	• Oncoming vehicles can view red delineators on the left and white delineators on the right. • Delineators are placed at correct height.

Line Marking and Road Marking

Activity	Description	Intervention Targets	Quality Standard
Line marking	All work associated with the renovation of road line marking. Includes sweeping, spotting, symbolising and repainting.	• As required, identified during inspections.	• Transverse location within 10mm of planned. • Longitudinal location within 100mm of planned. • Visibility true to line. • Paint application as specified. • Beads uniformly distributed.
Road marking	All work associated with the renovation of road marking including transverse lines, chevrons, arrows, legends, painted medians and traffic meter numbers.	• As directed during inspections • School crossings to be remarked when necessary	• Set out to conform with signs or approved plans or existing markings as required. • Application rate as specified. • Sharply defined edges with no significant over spray. • Beads uniformly distributed.
Thermoplastic **Cold Applied Plastic Line marking and Road marking**	All works associated with the use of thermoplastic and cold applied plastic material to make new lines or marking or upgrade existing lines and markings.	• As directed during inspections, and after identification by the Contractor.	• All marking must be reinstated or original lines or as marked for new lines. • Correct application. • Beads uniformly distributed.
Raised Reflective Pavement Markers (RRPM's)	The installation of new or replacement of missing raised pavement markers. Includes the supply of markers.	• No more than 20% RRPM's inoperative on any curve, barrier line or stretch of road up to 300m in length. • Reflectivity less than 50% of original.	• Spacing shall be kept at original distance. • RRPM's to be kept clean and free of accumulated dirt.

Roadside Furniture

Activity	Description	Intervention Targets	Quality Standard
Guard Rail	The repair or replacement of damaged guard rails / barrier furniture. Includes the cleaning and repainting of guard rail where applicable.	• Damaged guard rail to be repaired • Replace damaged guard rail beyond repair as soon as possible. If guard rail is damaged in a highly vulnerable area, it shall be made safe and replaced as soon as possible. • Guard rail to be free of weeds and grass within 400mm.	• Rails, ends, posts, cables, anchorages, post blocks, nuts and bolts and delineators functional and to safety standard. • Guard rail clean including attached delineators. • Guard rail free of weed growth.
Bicycle Racks	The repair and maintenance of bicycle racks.	• Bicycle racks to be structurally sound at all times. • No broken or bent sections. Repaint when bicycle racks are 50% noticeably degraded.	• Bicycle racks in a safe and structurally sound condition. • Broken sections endangering the public repaired immediately.
Fencing	Minor repair to fences of various types listed but not limited to: • Posts and rails; • Steel pipe fences; • Wire and post; • Chain mesh; • Gates; • Decorative fencing; • Pipe bollards	• Repair / straighten to maintain integrity and appearance of fence. • Repair broken fences as soon as possible.	• All replacements to match current type. • All fencing in good repair.
Activity	**Description**	**Intervention Targets**	**Quality Standard**
Specialised Street Lights Structures	The maintenance of specialised street lights, poles other than standard electricity lighting maintained by Ergon Energy.	• Supporting structures are unsound condition and that fittings are secure. • Poles not vertical. • Paint all surfaces when 50% of existing surface is noticeably degraded. • Repair or replace all damaged poles or fittings.	• Specialised lighting poles structurally sound, vertical at all times.

Traffic Control Devices and Other Structures

Activity	Description	Intervention Targets	Quality Standard
Traffic Control Devices	The maintenance of all traffic control devices including: • Median strips. • Kerb outstands; • Traffic islands; • Splitter islands; • Roundabouts; • Outer separation; • Road Closures	• All damaged signs shall be repaired or replaced as soon as possible. • No visible litter. • All components of traffic control devices shall be repaired under the applicable intervention levels for each component. ❖ Paved areas; ❖ Signs; ❖ Kerb and channel; ❖ Drainage; ❖ Fencing.	• Traffic control devices are in a safe condition. • Signage is structurally sound. • Traffic control devices aesthetically pleasing.
Speed Humps and Traffic Calming Devices	The maintenance of speed ramps and associated components.	• Loose bricks or bluestones shall be repaired immediately on detection. • All damaged signs shall be repaired as soon as possible. • Line marking to be renewed once per year or as directed by the Client.	• Speed humps are in a safe condition. • Signage structurally sound. • Speed humps aesthetically pleasing.
Retaining Walls	The maintenance of retaining walls along embankments and other locations.	• Item is unsafe. • Retaining walls to be structurally sound.	• Item is structurally sound, functional and safe.
Gabion Structures	The maintenance of all gabion structures associated with retaining walls.	• Item is unsafe. • Gabions to be structurally sound. • Cages broken or damaged.	• Item is structurally sound, functional and safe. • Wires cages intact with no loss of stone.

Kerb and Channel, Footpaths and Bicycle Paths Maintenance

Activity	Description	Intervention Targets	Quality Standard
Kerb & Channel Maintenance	The repair of damaged sections of kerb and channel as a result from tree root heaving settlement or loose components. Kerb and channel is made up of various types: ❖ Stone; ❖ Concrete and	• Heaving or subsidence greater than 75mm. • Pooling of water. • Kerb and Channel not in free flowing condition. • Loose or dislodged components. • 10% of 100m length displaying weed growth.	• Kerb and Channel is free flowing. • Structurally sound. • Replacement section true to line and grade. • No cracked or spalled areas.
Footpath and Bicycle Path Maintenance	The maintenance of footpaths and cycle tracks to ensure safe passage by users. Footpaths and cycle tracks can be made of any of the following: ❖ Concrete; ❖ Asphalt; ❖ Crushed Rock; ❖ Gravel; ❖ Paving.	• Tripping hazard to public-greater than 10mm vertical displacement. • Tree root heaving greater than 75mm. • Loose or dislodged components. • Subsidence greater than 75mm. • Cracking greater than 10mm wide. • 10% of 100m length displaying weed growth. • Loose material causing hazards to users. • Bituminous surfaces to be maintained to intervention levels as per unsealed pavement Maintenance for Roadways Clause. • Scouring greater than 50mm in depth. • Weed growth infiltrates into pavement. • Weed growth exceeds 200mm overhang on edges.	• Replacement of sections true to line and grade. • No cracked or spalled areas outside intervention levels. • Safe for users. • Drainage from surface effective. • No pooling of water. • Nature strip level matching footpath. • Repairs and replacement to be of like materials unless otherwise directed by the Client.
Footpath Grinding	Grinding of footpaths to remove tripping hazards.	• Tripping hazard to public greater than 20mm vertical displacement, and dependant on the amount of traffic and user category.	• Safe for users. • Footpath thoroughly clean after grinding.

Appendix D: Strategic growth program: New and Upgrade Road Construction (Obtained from Rockhampton Regional Council Infrastructure charges resolution No.4 – 2014)

Item ID	Project Name	Future Infrastructure Asset Description	Infrastructure Value	Estimated Year of Completion	Estimated Year of Budgeted Construction
T-1	High Street bridge duplication over Moores Creek	Construct duplicate bridge on High Street over Moores Creek, includes approach and exit works from eastern side of bridge into existing High Street four lane alignment	$7,625,000	2021	
T-2	Farm Street/Alexandra Street intersection upgrade	Major intersection upgrade and associated works - widening and pavement reconstruction, traffic signal upgrades, lighting and stormwater.	$1,577,000	2021	2015/2016
T-3	Alexandra Street upgrade (Stage 1)	Upgrade Alexandra Street between Farm Street and Maloney Street to four lane Urban Arterial	$3,122,000	2021	
T-4	Alexandra Street upgrade (Stage 2)	Upgrade Alexandra Street between Maloney Street and Werribee Street to four lane Urban Arterial	$4,889,000	2021	2016/2017
T-5	Alexandra Street upgrade (Stage 3)	Upgrade Alexandra Street between Werribee Street and Limestone Creek to four lane Urban Arterial	$3,401,000	2026	2023/2024
T-6	Alexandra Street (Limestone Creek Bridge duplication)	Construct duplicate bridge on Alexandra Street over Limestone Creek	$12,700,000	2031	2025/2026
T-7	Alexandra Street upgrade (Stage 4)	Upgrade Alexandra Street between Limestone Creek and Wade Street to four lane Urban Arterial	$1,793,000	2031	2025/2026
T-10	Norman Road (Boundary Road to Olive Street) upgrade	Upgrade to Major Urban Collector	$5,086,000	2021	2016/2017
T-14	Johnson Road	Upgrade to Urban Sub-Arterial (from Cherryfield Road to Stewart Street); the first stage being Cherryfield Road to Gracemere Creek between Oxley Street and Macquarie Street.	$3,015,000	2021	2017/2018
T-16	Conaghan Street	Upgrade to Major Urban Collector (from Gavial - Gracemere Road to Breakspear Street)	$3,145,000	2026	2022/2023
T-18	Cherryfield Road (Johnson Road to Washpool Road)	Upgrade to Major Urban Collector (from Johnson Road to Washpool Road)	$701,000	2021	2014/2015
T-19	Allen Road	Upgrade to Major Urban Collector (from Gavial - Gracemere Road to Lucas Street)	$2,315,000	2021	2019/2020
T-21	High Street/Aquatic Place intersection	Construct intersection improvements to increase capacity and operation	$1,648,000	2021	
T-22	Alexandra Street/Main Street intersection	Reconfigure intersection to provide additional capacity and improved operation	$1,083,000	2021	
T-23	Farm Street/Hinchliff Street intersection	Upgrade intersection with installation of traffic signals and associated works	$1,356,000	2021	2013/2014
T-24	Lion Creek Road/Exhibition Road intersection	Upgrade intersection with installation of traffic signals and associated works	$702,000	2021	

T-34	Norman Road four-laning (Stage 1)	Construct additional lanes and associated works, between Nagle Drive and Foulkes Street intersections, to upgrade the link to Urban Arterial standard	$4,453,000	2021	2016/2017
T-35	Norman Road four-laning (Stage 2)	Construct additional lanes and associated works, between Foulkes Street and Rockhampton–Yeppoon Road intersections, to upgrade the link to Urban Arterial standard	$1,191,000	2026	2023/2024
T-36	Olive Street upgrade	Upgrade Olive Street between Norman Road and Bruce Highway to Major Urban Collector, with a 40m wide corridor (first stage of upgrade to Urban Arterial)	$2,738,000	2021	
T-46	James Street	Upgrade to Major Urban Collector (from Platen Street to Viney Street)	$1,954,000	2021	2017/2018
T-47	Middle Road	Upgrade to Major Urban Collector (from Johnson Road to Capricorn Street)	$3,402,000	2026	
T-49	Somerset Road East	Upgrade to Industrial Collector (from 117 Somerset Road to Stewart Street)	$585,000	2021	
T-50	Macquarie Street (Middle Road to Johnson Road)	Upgrade to Rural Collector	$1,590,000	2026	2024/2025
T-51	Macquarie Street (Somerset Road to Middle Road)	Upgrade to Industrial Collector	$5,593,000	2021	2020/2021
T-53	Capricorn Street	Upgrade to Industrial Collector (from Somerset Road to Middle Road)	$4,830,000	2021	2020/2021
T-56	Douglas Street extension (Stage 2)	Construct extension of Douglas Street (from Gracemere Overpass to Douglas Street/Somerset Road link). Build as Industrial Collector.	$6,549,000	2026	2023/2024
T-57	Douglas Street extension (Stage 3)	Construct extension of Douglas Street (from Douglas Street/Somerset Road link to Morgan Street). Build as Industrial Collector.	$5,996,000	2031+	2029/2030
T-58	Somerset Road West (Stage 1)	Construct extension of Somerset Road (from Gracemere Overpass to Douglas Street/Somerset Road link). Build as Industrial Collector.	$5,945,000	2026	2019/2020
T-59	Somerset Road West (Stage 2)	Construct extension of Somerset Road (from Douglas Street/Somerset Road link to Wiseman Street). Build as Industrial Collector.	$5,532,000	2031+	2029/2030
T-60	Boongary Road Upgrade (Stage 1)	Designate as Rural Arterial (from Stewart Street to Halfpenny Road)	$2,544,000	2026	2030/2031
T-61	Boongary Road Upgrade (Stage 2)	Designate as Rural Arterial (from Halfpenny Road to Kabra Road)	$3,180,000	2031	2028/2029
T-62	Douglas Street/Somerset Road link	Construct new road link between Somerset Road and Douglas Street opposite Kabra–Scrubby Creek Road	$5,018,000	2031+	
T-63	Alexandra Street/North Coast Rail Line grade-separation	Construct Alexandra Street grade-separated over the North Coast Rail Line	$17,969,000	2031+	
T-66	Johnson Road/Middle Road intersection	Intersection upgrade and associated works	$1,446,000	2021	2017/2018
T-67	Johnson Road/Breakspear Street intersection	Intersection upgrade and associated works	$1,446,000	2021	2020/2021

T-68	Johnson Road/Lucas Street intersection	Construct intersection improvements to increase capacity and operation	$2,552,000	2021	2019/2020
T-69	Norman Road extension (Norman Road onto McMillan Avenue)	Construct one lane in each direction to establish a new link between the Norman Road/Rockhampton–Yeppoon Road intersection and McMillan Avenue including a bridge across Limestone Creek	$24,908,000	2031+	
T-73	Webster Street	Upgrade to Major Urban Collector (from Riley Drive to Victoria Street)	$335,000	2026	2024/2025
T-74	Webster Street extension	Extend Webster Street eastward as Major Urban Collector	$5,103,000	2031	2025/2026
T-76	Breakspear Street/Rosewood Avenue intersection	Construct intersection improvements to increase capacity and operation	$929,000	2026	2023/2024
T-77	Bland Street/Conaghan Street intersection	Construct intersection improvements to increase capacity and operation	$2,091,000	2026	2022/2023
T-80	Olive Street Extended	Construct extension of Olive Street (from Norman Road to McMillan Avenue). Build as Major Urban Collector, with a 40m wide corridor (to cater for future Urban Arterial).	$2,415,000	2031+	
T-81	McMillan Avenue	Construct extension of McMillan Avenue south from Olive Street extended for 100m (approx.). Build as Major Urban Collector, with a 30m wide corridor.	$488,000	2031+	
T-82	McMillan Avenue	Construct extension of McMillan Avenue (from T-81 to existing McMillan Avenue construction). Build as Major Urban Collector, with a 30m wide corridor.	$840,000	2031+	
T-83	Cherryfield Road (Washpool Road to Reigel Drive)	Upgrade to Major Urban Collector (from Washpool Road to Reigel Drive)	$3,657,000	2031	2025/2026
T-84	Allen Road	New Major Urban Collector (from Lucas Street to Deaves Avenue, and second entry into future development on Lot 1 on LN1538)	$2,828,000	2031	2030/2031
T-85	Olive Street upgrade	Upgrade Olive Street between Norman Road and Bruce Highway to Urban Arterial	$3,402,000	2031+	
T-86	Middle Road	Upgrade to Industrial Collector (from Capricorn Street to Macquarie Street)	$4,861,000	2021	
T-90	Somerset Road East	Upgrade to Industrial Collector (from 117 Somerset Road to 31 Somerset Road (Pacific National))	$3,700,000	2021	
T-92	McMillan Avenue	Upgrade to Major Urban Collector (from T-82 to T-69), with a 30m wide corridor	$2,970,000	2031+	
T-93	Washpool Road	Upgrade to Major Urban Collector from Cherryfield Road to future intersection for Lot 4 on SP119672	$1,980,000	2021	2017/2018
T-94	Washpool Road Connector	Connect Washpool Road to Temora Street as Major Urban Collector	$2,000,000	2021	2020/2021
T-95	Temora Street Connector	Connect Temora Street to Allen Road as Major Urban Collector	$2,500,000	2031	2020/2021
T-96	Alexandra Street/Birkbeck Drive/Belmont Road intersection	Major upgrade to roundabout configuration and associated works	$1,884,000	2021	

T-97	Alexandra Street Extended (via McLaughlin Street)	Construct extension of Alexandra Street (from Birkbeck Drive/Belmont Road intersection to William Palfrey Road). Build as Major Urban Collector.	$9,393,000	2021	
T-98	William Palfrey Road	Upgrade to Major Urban Collector	$6,082,000	2021	
T-99	William Palfrey Road	Deviation of William Palfrey Road to join at Olive Street. Build as Major Urban Collector, with a 40m wide corridor (to cater for future Urban Arterial).	$3,358,000	2026	
T-100	William Palfrey Road/Olive Street Intersection	Construct three-leg signalised intersection at new William Palfrey Road/Olive Street intersection	$2,101,000	2026	
T-101	William Palfrey Road	Deviation of William Palfrey Road to join at Olive Street. Build as Major Urban Collector, with a 30m wide corridor.	$4,274,000	2026	
T-102	William Palfrey Road	Upgrade to Major Urban Collector, with a 30m wide corridor	$5,829,000	2031	
T-103	McLaughlin Street Extended	Acquire road corridor for post-2031 link	$749,000	2031+	
T-104	Allen Road	Upgrade to Sub-Arterial for the first 550 metres (approx.) from Gavial - Gracemere Road to possible new intersection for Lot 1 on LN1538	$3,603,000	2031	2030/2031
T-105	Washpool Road	Upgrade to Major Urban Collector from T-93 to 136 Washpool Road	$2,060,000	2021	2017/2018
T-106	Alexandra Street Extended/William Palfrey Road Intersection	Construct intersection (roundabout configuration) and associated works	$1,884,000	2021	
T-107	McMillan Avenue	Upgrade to Major Urban Collector (from T-10 to T-92), with a 30m wide corridor	$3,546,000	2031	
			$248,441,000		

Appendix E: 8 year renewal program: Sealed and Unsealed Road Network

CAPITAL RENEWAL

		Project Description (Project name)	Project Details	2014-15 Cost	2015-16 Cost	2016-17 Cost	2017-18 Cost	2018-19 Cost	2019-20 Cost	2020-21 Cost	2021-22 Cost
SEALED AND UNSEALED ROAD NETWORK											
R	RC	RWC-RC-Old Gracemere Road-Ch 0.0 to Ch 0.8	Narrow road pavement that requires continual shoulder maintenance			100,000					
R	SR	*[R] REC-RC-Malchi-Nine Mile Road-Ch 7.5 to Ch 9.5	Sealed rural road in deteriorated condition	0	325,000	0	0	0	0	0	0
R	SR	*[R] REC-RC-Nicholson Road-Ch 4.0 to Ch 4.9	Sealed rural road in deteriorated condition	150,000	0	0	0	0	0	0	0
R	SR	*[R] REC-RC-Stanwell/Waroula Road-Ch 19.8 to Ch 20.71	Sealed rural road in deteriorated condition	240,000	0	0	0	0	0	0	0
R	SR	*[R] REC-RC-Stanwell Waroula Road-Ch 7.85 to Ch 10.25	Sealed rural road in deteriorated condition	0	400,000	0	0	0	0	0	0
R	SR	*[R] REC-RC-Chapman Lane-Ch 0.0 to Ch 0.2	Sealed rural road in deteriorated condition	25,000	0	0	0	0	0	0	0
R	SR	*[R] REC-RC-Glenroy Road-Ch 19.878 to Ch 21.089	Sealed rural road in deteriorated condition	200,000	0	0	0	0	0	0	0
R	SR	*[R] REC-RC-Kalapa Black Mountain Road-Capricorn Highway to Ch 1.052	Sealed rural road in deteriorated condition	0	150,000	0	0	0	0	0	0
R	SR	*[R] REC-RC-McKenzie Road-Ch 4.392 to Ch 5.3 (end)	Sealed rural road in deteriorated condition	150,000	0	0	0	0	0	0	0
R	SR	*[R] REC-RC-Hempseed Road-Burnett Highway to Ch 0.356	Sealed rural road in deteriorated condition	0	70,000	0	0	0	0	0	0
R	SR	*[R] REC-RC-Struck Oil Road-Ch 2.614 to Ch 3.040	Sealed rural road in deteriorated condition	0	70,000	0	0	0	0	0	0
R	SR	UCC-AS-Murray lane-Cambridge St to Archer St	Road deteriorated below service level	65,000	0	0	0	0	0	0	0
R	SR	UCC-RC-Pilkington Street-Rhodes St to #100 Pilkington St	Road deteriorated below service level	0	0	0	0	0	0	0	0
R	SR	UCC-NC-Price Ave-Carlton St	Vehicles parking on median have destroyed kerbing			150,000					
R	SR	*[R] UCC-RC- Thompson Street-MacAlister Street to Ingram Street	Street deteriorated below service standard	740,000	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Church Street-Costello Street to Upper Dawson Road	Street deteriorated below service standard	0	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Leamington Street-Pine Street to Ford Street	Street deteriorated below service standard	0	0	0	362,000	0	0	0	0
R	SR	*[R] UCC-RC-Oakley Street-Wandal Road to Dibden Street	Street deteriorated below service standard	350,000	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Allck Street-Glenmore Road to Haynes Street	Street deteriorated below service standard	485,000	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Dee Street-Stenhouse Street to Lakes Creek Road	Street deteriorated below service standard	240,000	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Bawden Street-Edington Street to Elphinstone Street	Street deteriorated below service standard	0	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Bevis Street-Wandal Road to Cavell Street	Street deteriorated below service standard	186,415	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Burnett Street-Berserker Street to Nobbs Street	Street deteriorated below service standard	0	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Campbell Lane-Denham Street to William Street	Street deteriorated below service standard	0	0	347,000	0	0	0	0	0
R	SR	*[R] UCC-RC-Kent Street-Albert Street to Cambridge Street	Street deteriorated below service standard	828,590	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-North Street-Canning Street to Robert Street	Street deteriorated below service standard	330,000	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Rodboro Street-Dean Street to Ellis Street	Street deteriorated below service standard	0	133,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Stamford Street-Skardon Street to Berserker Street	Street deteriorated below service standard	0	0	825,741	0	0	0	0	0
R	SR	*[R] UCC-RC-Birdwood Street-Dibden Street to Wandal Road	Street deteriorated below service standard	0		408,000	0	0	0	0	0
R	SR	*[R] UCC-RC-Skardon Street-Edington Street to Marie Street	Street deteriorated below service standard	0	206,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Edward Street-Painswick Street to Armstrong Street	Street deteriorated below service standard	311,580	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Eldon Street-High Street to Clifton Street	Street deteriorated below service standard	162,707	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Francis Street-Quay Street to East Street	Street deteriorated below service standard	0	95,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-George Lane-Cambridge Street to Archer Street	Street deteriorated below service standard	0	0	0	322,690	0	0	0	0
R	SR	*[R] UCC-RC-Unnamed Laneway-Off Canning Street	Street deteriorated below service standard	0	0	40,000	0	0	0	0	0
R	SR	*[R] UCC-RC-Lion Creek Road-Hamilton Ave to 186 Lion Creek Road	Street deteriorated below service standard	49,140	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Lion Creek Road (service road)-New Exhibition Road to Curtis Street	Street deteriorated below service standard	178,875	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Musgrave Street-Queen Elizabeth Drive to Lakes Creek Road	Street deteriorated below service standard	0	0	571,320	0	0	0	0	0
R	SR	*[R] UCC-RC-Oakley Street-Rundle Street to Lanigan Street	Street deteriorated below service standard	0	0	202,700	0	0	0	0	0
R	SR	*[R] UCC-RC-Park Street-Glenmore Road to Haynes Street	Street deteriorated below service standard	0	600,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Rodger Street-Medcraf Street to Buzacott Street	Street deteriorated below service standard	0	0	386,000	0	0	0	0	0
R	SR	*[R] UCC-RC-Schultz Street-Denham Street Ext to Verney Street	Street deteriorated below service standard	0	0	335,556	0	0	0	0	0
R	SR	*[R] UCC-RC-South Street-Murray Street to West Street	Street deteriorated below service standard	0	200,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Wood Street-Quay Street to Bolsover Street	Street deteriorated below service standard	0	0	591,000	0	0	0	0	0
R	SR	*[R] UCC-RC-Wooster Street-Hutton Street to Noel Street	Street deteriorated below service standard	0	263,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Gregory Street-Johnson Street to Sturt Street	Street deteriorated below service standard	0	272,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Bertram Street-Main Street to Thomasson Street Stage 1	Street deteriorated below service standard	0	400,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Campbell Street-Archer Street to Cambridge Street	Street deteriorated below service standard	0	766,125	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Armstrong Street-Musgrave Street to End	Street deteriorated below service standard	0	0	0	605,156	0	0	0	0
R	SR	*[R] UCC-RC-Robison Street-Dooley Street to 260m south	Street deteriorated below service standard	0	570,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Dibden Street-Oakley Street to Birdwood Street	Street deteriorated below service standard	0	486,891	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Stamford Street-Dean Street to Bawden Street	Street deteriorated below service standard	0	452,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Denison Lane-Cambridge Street to Archer Street	Street deteriorated below service standard	0	319,680	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Upper Dawson Road-Service Road Number 243	Street deteriorated below service standard	0	0	235,221	0	0	0	0	0
R	SR	*[R] UCC-RC-Maloney Street-Quinn Street to Alexandra Street	Street deteriorated below service standard	0	203,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Hindley Street-Elphinstone Street to Livingstone Street	Street deteriorated below service standard	0	187,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Marie Street-Skardon Street to end	Street deteriorated below service standard	0	177,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Pershing Street-Morgan Street to Dibden Street	Street deteriorated below service standard	0	154,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Bremner Street-Mason Street to Rodboro Street	Street deteriorated below service standard	0	0	150,000	0	0	0	0	0
R	SR	*[R] UCC-RC-Brighton Street-Deacon Street to south end	Street deteriorated below service standard	0	0	80,000	0	0	0	0	0
R	SR	*UCC-RC-Thozet Road-Dempsay St to Elphinstone St	Road deteriorated below service level	315,000	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Bertram Street-Main Street to Thomasson Street Stage 2	Street deteriorated below service standard	0		260,000	200,000	0	0	0	0
R	SR	*UCC-RC-Victoria Parade -Cambridge St to Archer St	Road deteriorated below service level	0	1,533,000	0	0	0	0	0	0
R	SR	*UCC-RC-Campbell Street-Albert St to North St	Street deteriorated below service standard			720,000					
R	SR	*UCC-RC--Oakley st-Rundle St to Lanigan Street	Deteriorated asset			203,000					
R	SR	* Target to reduce reconstruction efforts to boost Reseal efforts	As per Council Discussions on 12 May (with associated bus tour) - For Officers to look at alternative/reduced treatments to allow a greater reseal program to be undertaken	0	-5,350,000	-5,000,000					
R	SR	UCC-NC-Reynolds Street	Street deteriorated below service standard	92,000	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Linett Street-Bernard Street to QE Drive	Street deteriorated below service standard	370,000	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Sharples Street-Berserker St to Shardon St	Street deteriorated below service standard	0	750,000	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Cavell Street-New Exhibition Road to Haig Street	Street deteriorated below service standard	545,000	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Bean Street-Haynes Street to Church Park	Street deteriorated below service standard	0	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Quay Street-Derby to William Street	Street deteriorated below service standard	177,000	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Glenmore Road-Rail crossing to Neville Hewitt Bridge	Street deteriorated below service standard	300,000	0	0	0	0	0	0	0
R	SR	*[R] UCC-RC-Quay Street-Denham Street to William Street	Street deteriorated below service standard	0	0	1,400,000	0	0	0	0	0
R	SR	*[R] UCC-RC-Quay Street-Fitzroy St to Denham St	Reconstruct deteriorated asset	1,400,000	0		0	0	0	0	0
R	SR	*[R]UCC-RC-Bawden Street-High Street to Edington Street	Reconstruct deteriorated asset	0	0	0	0	0	0	0	0
R	SR	[R]-UWC-SS-Gordon Street-Black Street to end		0	0	8,000	0	0	0	0	0
R	SR	*[R]-UWC-RC-Westacott Street-Toonda Street to Ch 0.35km	Road deteriorated below service level	80,000	0	0	0	0	0	0	0
R	SR	*[R]-UWC-RC-East Street-Morgan Street to Gordon Street	Road asset deteriorated below useable condition	0	0	0	73,500	0	0	0	0
R	GR	[R] RWC-GR-Gravel Resheet Program A		0	700,000	735,000	0	0	0	0	0
R	GR	[R] RWC-GR-Gravel Resheet Program B		0	1,235,000	0	0	0	0	0	0
R	GR	RWC-NC-Renewal of Unsealed Road Gravel Program A	Road deteriorated below service level	735,000	0	0	0	0	0	0	0
R	GR	RWC-NC-Renewal of Unsealed Road Gravel Program B	Road deteriorated below service level	1,175,000	0	0	0	0	0	0	0
R	GR	RWC-GR-Gravel Resheet Program B	Road deteriorated below service level			1,235,000					
		Expected unallocated projects (to be confirmed at a later date)			3,800,000	5,300,000	5,800,000	6,800,000	7,600,000	7,800,000	9,600,000
Total sealed and unsealed road network				**9,881,307**	**9,167,696**	**9,283,538**	**7,363,346**	**6,800,000**	**7,600,000**	**7,800,000**	**9,600,000**
RESEALS		(blank)									
	RS	[R] RWC-SS-Reseal Program - Spray Seal Rural West		0	1,000,000	0	0	0	0	0	0
R	RS	RWC-Annual Reseal Program	Road deteriorated below service level	400,000	0	1,100,000	0	0	0	0	0
R	RS	[R] UCC-AS-Oswald Street-Upper Dawson Road to Lower Dawson Road		0	702,000	0	0	0	0	0	0
R	RS	UCC-AS-Annual Reseal Program	Road deteriorated below service level	4,382,955	0	0	0	0	0	0	0
R	RS	UCC-Annual Reseal Program	Road deteriorated below service level		5,000,000						
R	RS	UCC -Annual Reseal Program	Road deteriorated below service level			5,100,000					
R	RS	UWC-Annual Reseal Program	Road deteriorated below service level	575,000	1,475,000	0	0	0	0	0	0
R	RS	UWC Annual Reseal Program	Road deteriorated below service level			1,400,000					
R		Expected unallocated projects (to be confirmed at a later date)			-1,877,000	-300,000	9,300,000	10,300,000	11,300,000	11,500,000	12,900,000
Total reseals sealed road network				**5,357,955**	**6,300,000**	**7,300,000**	**9,300,000**	**10,300,000**	**11,300,000**	**11,500,000**	**12,900,000**
FLOODW		(blank)									
	FW	UWC-RC-Rosewood Road Ch 13.45	Floodway deteriorated below service standard			50,000					
R	FW	RWC-RC-Stanwell Waroula Road Ch 9.45	Floodway deteriorated below service standard			50,000					
R		Expected unallocated projects (to be confirmed at a later date)			75,000	0	100,000	100,000	100,000	100,000	100,000
Total floodways				**0**	**75,000**	**100,000**	**100,000**	**100,000**	**100,000**	**100,000**	**100,000**
				15,239,262	15,542,696	16,683,538	16,763,346	17,200,000	19,000,000	19,400,000	22,600,000

Appendix F: Recapitalisation program (alternative resurfacing treatment 2014/15)

Road Name	Location	From	To	Length (m)	Width (m)	Area (m^2)	All inclusive cost ($)
Church Street	Allenstown	Costello	Upper Dawson	210	9.8	2,058	28,194.60
Murray	Allenstown	Denham	Fitzroy	210	10.0	2,100	28,770.00
Separation Street	Allenstown	Lower Dawson	Upper Dawson	373	9.5	3,544	70,870.00
Bawden	Berserker	High	Edington	290	9.5	2755	37,743.50
Burnett	Berserker	Berseker	Nobbs	150	11.7	1755	24,043.50
Charles Street	Berserker	Gardens	Musgrave	410	9.5	3895	56,088.00
Charles Street	Berserker	Spike	65/67	190	9.1	1729	28,528.50
Aldridge Avenue	Frenchville	Shields	End	100	7.6	880	7,392.00
Belfield Avenue	Frenchville	Shields	End	60	7.8	590	4,956.00
Berseker	Frenchville	Kerrigan	End	475	11.0	5225	75,240.00
Brake Avenue	Frenchville	Philp	End	70	7.6	635	10,477.50
Coome Street	Frenchville	Kerrigan	End	190	9.0	1670	24,048.00
Davey Avenue	Frenchville	Frenchville Rd	Old Rollo	230	7.6	1748	14,683.20
Davey Avenue	Frenchville	Davey Avenue	End	32		430	-
Diplock Street	Frenchville	309/311	331/333	205	7.8	1599	31,980.00
Felhaber Avenue	Frenchville	Gowdie	End	120	7.6	1040	14,976.00
Gowdie Avenue	Frenchville	Shields	5/7	100	7.6	760	6,384.00
Gowdie Avenue	Frenchville	9/13	Everingham	215	7.6	1634	13,725.60
Inkerman Street	Frenchville	Balaclava	End	50	7.5	375	2,625.00
Limpus Street	Frenchville	Diplock	Vallis	220	7.1	1562	13,120.80
Old Rollo Drive	Frenchville	End	End	300	7.6	2520	21,168.00
Robinson Street	Frenchville	Balaclava	End	90	9.5	855	7,182.00
Sheedy Avenue	Frenchville	Shields	End	215	7.5	1740	14,616.00
Vallis Street	Frenchville	Dean	Diplock	90	9.5	855	-
Vallis Street	Frenchville	Diplock	End	185	9.5	1840	15,456.00
Vize	Frenchville	Bloxam	End	25	11.0	275	1,925.00
Connemara drive	Kawana	Leeds	+20m	30	7.8	234	3,042.00
Hodda	Kawana	Hutchonson	End	200	6.2	1340	10,318.00
Landsberg	Kawana	Carlton	Shillam	70	7.7	539	7,761.60
Leeds Avenue	Kawana	Carlton	Connemara dr	310	7.5	2325	33,480.00
Maloney Street	Kawana	Alexandra	End	520	7.6	3952	65,208.00
Codd Street	Koongal	Rockonia	Mason	215	7.5	1612.5	32,250.00

Connor Street	Koongal	Rhodes	Rockonia	235	7.6	1786	35,720.00
Cooper Street	Koongal	Lakes Creek	15	130	10.0	1300	26,000.00
Cooper Street	Koongal	Rockonia	Horner	255	7.4	1887	37,740.00
Goldston Street	Koongal	Bloxam	Sunner	160	7.8	1400	23,100.00
Horner Street	Koongal	Cooper	Beak	250	7.6	1900	38,000.00
Kenny Street	Koongal	Sunner	Roselt	80	7.6	670	11,055.00
Pilkington Street	Koongal	100	Rhodes	65	7.2	468	9,360.00
Saunders Street	Koongal	Goldston	End	75	7.6	700	490.00
Ben Hall Street	Norman Gardens	Bramble	Kingfisher	75	7.6	570	9,405.00
Bodero Street	Norman Gardens	Danker	End	85	7.8	780	6,006.00
Boronia Close	Norman Gardens	Cassia	End	30	5.3	159	2,178.30
Bramble Street	Norman Gardens	Farm	Richardson	480	10.6	5088	83,952.00
Capricorn Crescent	Norman Gardens	Barrett	9/11	120	7.6	912	13,132.80
Cedar Drive	Norman Gardens	Norman	Rosewood	440	7.0	3080	42,196.00
Chalmers Street	Norman Gardens	Kelman	Bramble	420	7.7	3234	24,901.80
Danker Street	Norman Gardens	4	63	680	7.6	5290	55,545.00
Frisch Street	Norman Gardens	Danker	End	45	8.0	550	4,235.00
Goddard Street	Norman Gardens	Danker	Danker	290	7.6	2204	31,737.60
Hick Street	Norman Gardens	Goddard	End	85	7.6	780	10,686.00
Kingfisher Parade	Norman Gardens	Currawong	61/63	640	7.5	4800	79,200.00
Kurrajong Place	Norman Gardens	Cedar	End	150	5.5	825	6,352.50
Lorrikeet Court	Norman Gardens	Kingfisher	End	160	7.5	1,280.0	18,432.00
MacKinlay Street	Norman Gardens	Barett	Chalmers	235	7.5	1,762.5	29,081.25
McColl Street	Norman Gardens	22/24	McGrath	255	7.6	1,938.0	27,907.20
McGrath Street	Norman Gardens	McColl	Scneider	400	7.8	3,120.0	44,928.00
Nolan Street	Norman Gardens	McColl	End	55	7.6	500	6,850.00
Pummell	Norman Gardens	Cheney	End	275	7.5	2150	29,455.00
Thomas Street	Norman Gardens	Moores Ck	End	240	9.2	2260	30,962.00
Wallis	Norman Gardens	Yewdale	Hatte	130	7.6	988	14,227.20
Wodehouse Street	Norman Gardens	Kelman	End	55	8.0	515	7,055.50
Bean	Park Avenue	Haynes	End	85	9.7	824.5	11,295.65
Boland	Park Avenue	Rodger	Twigg	200	7.6	1520	20,824.00
Bourke Street	Park Avenue	Kluver	Haynes	150	9.5	1425	23,512.50
Buckle	Park Avenue	Taylor	Rail line	90	9.5	855	12,312.00
Buzacott Street	Park Avenue	Calder	Stumm	650	7.6	4940	71,136.00

Henderson	Park Avenue	Taylor	Alexandra	400	9.6	3840	63,360.00
High Street	Park Avenue	Moores Ck	Aquatic Place	110	19.0	2090	14,003.00
McKeague Place	Park Avenue	Richardson	End	60	7.5	530	4,081.00
Medcraf Street	Park Avenue	Taylor	Alexandra	410	9.5	3895	64,267.50
Menzies Street	Park Avenue	Rice	59/61	550	7.6	4180	60,192.00
Menzies Street	Park Avenue	59/61	Alexandra	200	7.6	1520	20,824.00
Taylor Street	Park Avenue	Face	Thomasson	560	9.3	5208	85,932.00
Twigg Street	Park Avenue	Main	Buzacot	270	7.6	2052	33,858.00
Twigg Street	Park Avenue	Buzacot	Gray	350	7.7	2695	38,808.00
Underwood Street	Park Avenue	Edgar	Haynes	320	9.5	3040	60,800.00
Mason Avenue	Parkhurst	Norman	+ 125m	125	5.0	625	4,187.50
McMillan Avenue	Parkhurst	Norman	Vermont	1500	5.8	8700	52,200.00
Olive Street	Parkhurst	Yaamba	Norman	450	5.0	2250	16,650.00
Agnes Street	The Range	Spencer	Ward	132	10.0	1,320	26,400.00
Jeffries Street	The Range	Considine	End	435	7.2	3,132	51,678.00
Kidston Street	The Range	Quarry	Reservoir	162	7.2	1,166	15,979.68
Martha Street	The Range	Spencer	End	60	7.2	432	5,918.40
Penlington	The Range	Agnes	Rudd	290	7.0	2,030	27,811.00
Rudd Street	The Range	Penlington	End	184	7.6	1,398	23,073.60
Spencer Street	The Range	Agnes	Botanic Gardens	205	9.5	1,948	26,680.75
Herbert Street	Wandal	Mansfield	Livermore	110	11.8	1,298	17,782.60
Herbert Street	Wandal	Knutsford	Rundle	416	9.2	3,827	52,432.64
Jones Street	Wandal	Naughton	Jardine	210	9.2	1,932	26,468.40
Meade Street	Wandal	Naughton	Jardine	210	9.2	1,932	26,468.40
Pattison Street	Wandal	Luck	River	500	9.5	4,750	65,075.00
Turner Road	Wandal	Murray	Boisy	246	6.2	1,525	20,895.24
Bencke Street	West Rockhampton	Parker	Bradford	129	9.5	1,226	16,789.35
Bradford Street	West Rockhampton	Bencke	Stickley	183	9.3	1,702	23,316.03
Canoona Road	West Rockhampton	Hunter	Tower Cr	580	6.2	3,596	49,265.20
Canoona Road	West Rockhampton	Tower Cr	Lion Ck	1100	6.2	6,820	45,694.00
Considine Street	West Rockhampton	Eton	Agnes	355	8.0	2,840	38,908.00
Harrow Street	West Rockhampton	North	Caxton	532	7.5	3,990	54,663.00
Jackson	West Rockhampton	Milroy	Livermore	80	9.5	760	10,412.00
Littler Street	West Rockhampton	Eton	Pennycuick	148	7.0	1,036	14,193.20
Pearson Street	West Rockhampton	Western	Jardine	425	9.5	4,038	66,618.75

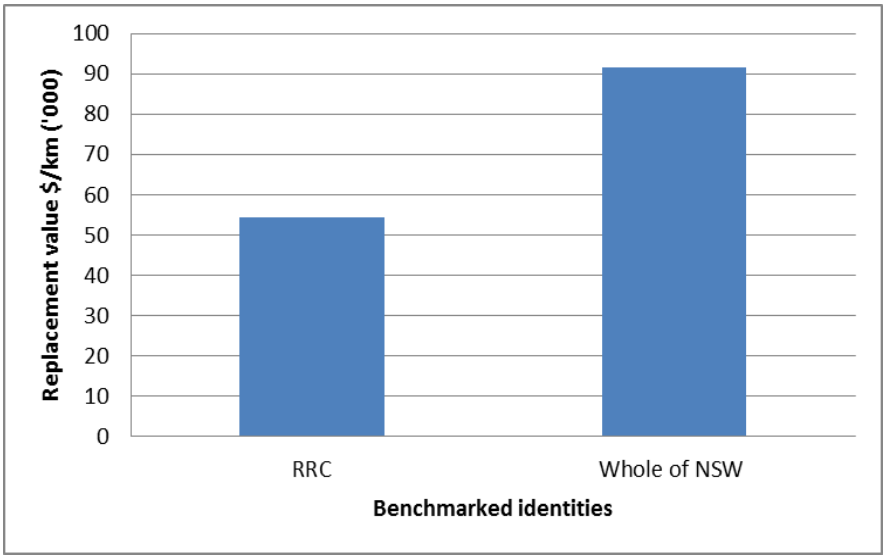
Peterson Street	West Rockhampton	Western	Jardine	432	9.0	3,888	53,265.60
Stickley Street	West Rockhampton	33	Flynn	362	7.4	2,679	36,699.56
Wambool	West Rockhampton	Parker	Bradford	123	9.3	1,144	15,671.43
Bolsover	Depot Hill	Francis	Arthur	222	5.0	1,110.0	15,207.00
Bolsover	Depot Hill	Arthur	Wood	222	5.0	1,110.0	15,207.00
East	Depot Hill	South	Arthur	458	21.7	9,938.6	136,158.82
East	Depot Hill	Arthur	Wood	222	21.7	4,817.4	65,998.38
Quay st	Depot Hill	Wood	O'Connell	214	10.0	2,140.0	35,310.00
Quay st	Depot Hill	420	Arthur	55	12.2	671.0	9,192.70
Wood	Depot Hill	Bolsover	Quay	230	21.0	4,830.0	66,171.00
Total		**1**		**28,457**		**242,182**	**3,279,791.83**
							702,942.00

Appendix G: Sealed and unsealed road benchmarking

Appendix G.1: Benchmarking of the maintenance of unsealed roads

- **Comparison of replacement cost of the unsealed road network**

Figure G.1.1: Replacement cost '000 $ per km unsealed road

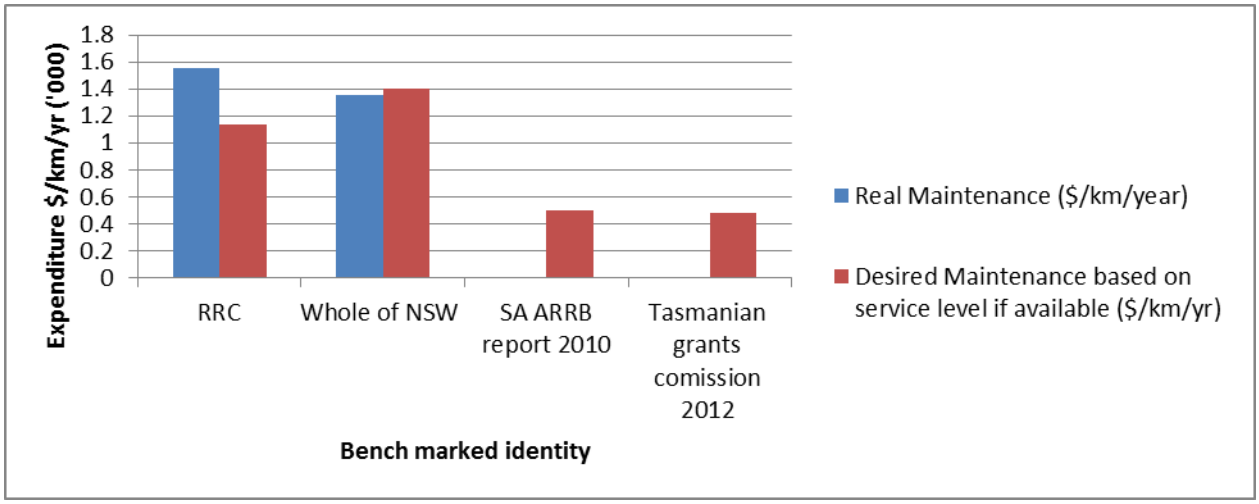


Interpretation Figure G.1.1:

- Replacement cost of the network (1138 km) is much lower than the whole of NSW (74113 km), but is highly dependent on the in situ geology of the area, subgrade properties and prevailing construction standards for unsealed roads.
- Many of the unsealed roads in NSW is constructed on black soil subgrades resulting in very high construction costs, the unsealed roads in RRC is mostly constructed on a much better material.
- Poor materials may also be used resulting in low construction costs but high maintenance cost.
- The unit rates used for the valuation of the unsealed network may be up to 50% lower than what should be the case.

- **Comparison of maintenance GAPS.**

Figure G.1.2: Real and desired maintenance GAPS for maintenance expenditure '000 /km unsealed road per year



Interpretation of Figure G.1.2:

- RRC spend $1553 /km/year (the average over 5 years (2009/10 – 2013/14)) on the maintenance of the 1138km unsealed network.

- The rural network service levels indicate 804 km of the network require a formation grade in intervals greater than 18 months, 334 km require a formation grade in intervals less than 12 months, it is therefore estimated that on average the network will require a formation maintenance grade every 19 months. The grading interval is unrealistic and therefore one grade every 14 months is used, at the moment we grade every road approximately every 12 months. We can then spend around 2 months or 16 % less by stretching the grading intervals. The "saving" is approximately $240/km/year or $273,120 per year. The proposal only applies to low trafficked unsealed roads and "normal" weather conditions, wet weather may require more grading which would have a lower cost as moisture levels would be higher than in drier periods.

- Maintenance practices could be reviewed for prolonged drought periods, and be "patrol graded" more often in favour of the more expensive heavy formation grading with the water cart and roller.

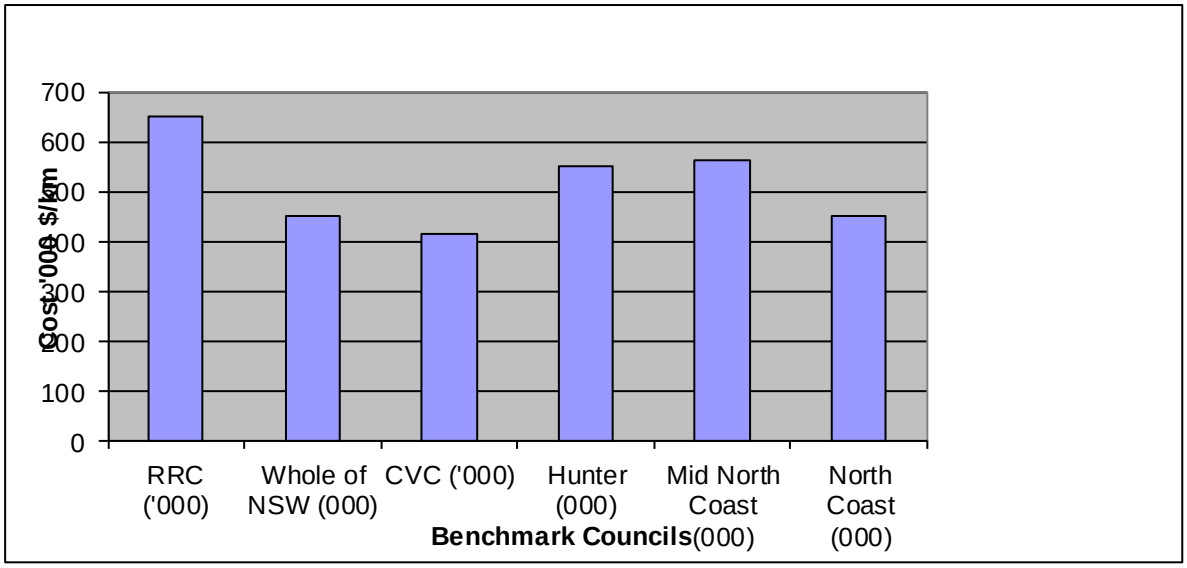
- RRC have a considerably higher service level than most Councils in NSW, where roads only get graded when moisture levels are high enough.

- The norm for the maintenance of unsealed roads at acceptable service levels has also been tested against a study done for SA by ARRB (Australian Roads Research Board) which indicate an acceptable expenditure to be around $500/km/yr, a report done for the Tasmanian Grants Commission also indicate an acceptable funding level to be around $500/km/yr. The real expenditure was not available.

Appendix G.2 Benchmarking of the sealed road network.

- **Comparison of the replacement cost of the sealed road network**

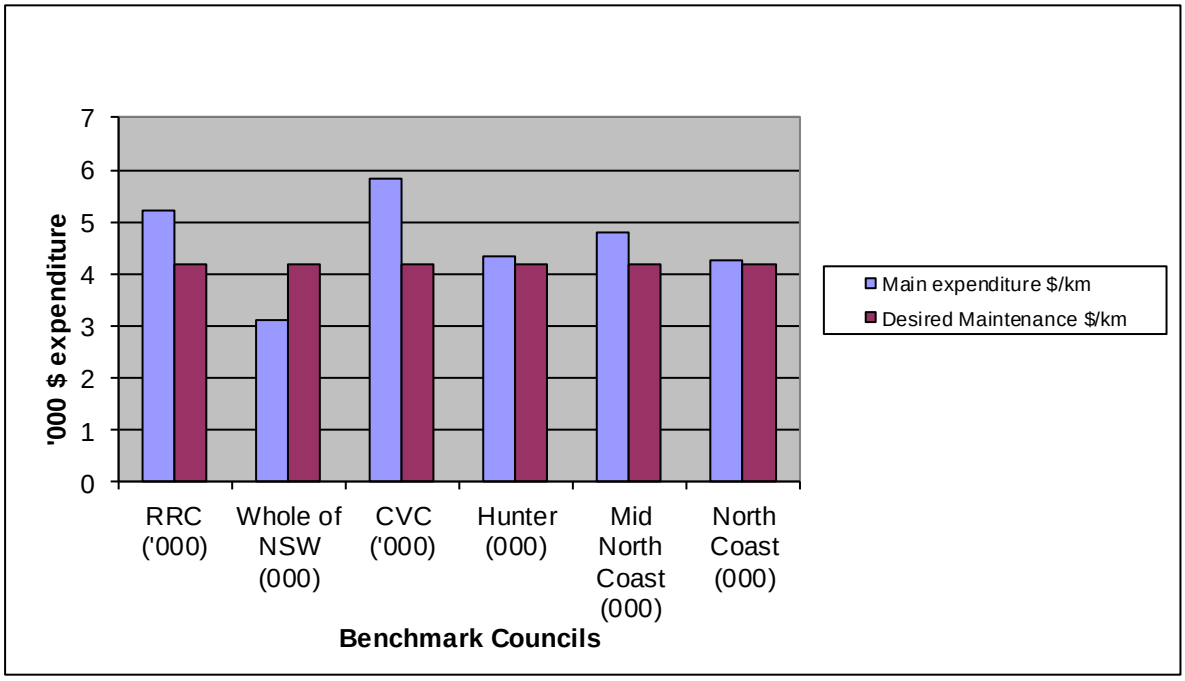
Figure G.2.1: Replacement cost of sealed roads per km



- Replacement rates for sealed roads are higher than the replacement rates in NSW, reasons may be that construction expenses (plant, material and labour) are higher.
- The construction specifications for sealed roads are higher and they cost therefor more to construct.
- RRC use a different overheads accounting system resulting in elevated unit rates.

- **Comparison of the maintenance expenditure of sealed roads**

Figure G.2.2: Real maintenance expenditure compared with desired maintenance expenditure



- The desired maintenance allocation have not accurately been determined, the requirement for "whole of NSW" is $4200 / km/yr which include a lot of low use local and regional roads.
- The other benchmark Councils all seems to "over" maintain the sealed roads.
- There are factors that needs to be considered and that will compromise the data, these factors are:

- The Hunter is directly affected by mining which impacts on their road network
- The population profiles and geographical nature is very similar
- The real maintenance and desired maintenance $'s is also skewed for the NSW data by the various environment the western side is much lower populated than the eastern side etc.
- I have used the 75% percentile to come up with a more corrected figure.

- The funding GAP for RRC indicates that we could probably spend $1000/km/yr. less on sealed road maintenance, measured against the desired NSW maintenance expenditure of $4200/km/yr.
- Floods or damage to the network occur at closer intervals requiring more maintenance.

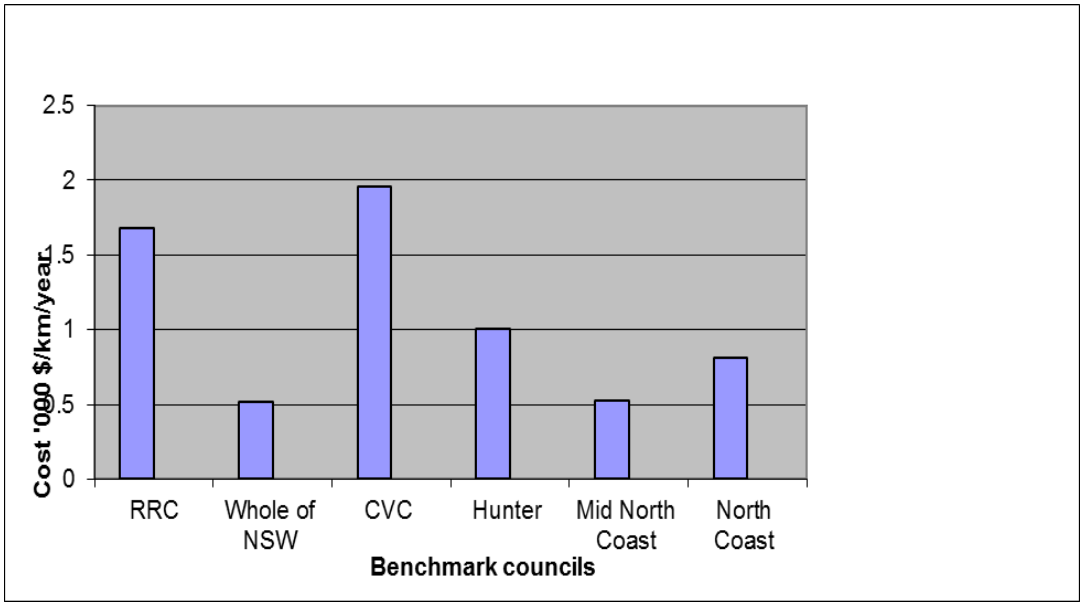
Appendix G.3: Benchmarking of the capital expenditure for sealed roads

RRC's capital expenditure combine is considerably higher than that for the benchmark Councils:

- RRC's resurfacing expenditure has been increased from $2.2m to $5.3m which compares more favourable to other Council's (the resurfacing allowance will be increased every year for the next 5 years to address the environmental and structural cracking issues)
- RRC's recapitalisation expenditure is almost 2 times that of the rest of NSW.
- PARMMS simulations indicates that without the increase in resurfacing expenditure the network will deteriorate considerably over the next 10 years, mainly due to the fact that funds were not applied to where really needed for so long, the challenge is in the catch-up and an optimum approach.
- RRC is comparable with mid north coast of NSW, and has similar populations, the rainfall in NSW is much higher resulting in better grading outcomes.

Appendix G.4 Benchmarking of the capital expenditure for unsealed roads

Figure G.4: Re sheeting benchmarking with others



Interpretation:

- RRC spend $1,675 /km/year on re sheeting its unsealed road network, approximately $675/km/year more than what the Hunter region spend.

10 NOTICES OF MOTION

Nil

11 URGENT BUSINESS/QUESTIONS

Urgent Business is a provision in the Agenda for members to raise questions or matters of a genuinely urgent or emergent nature, that are not a change to Council Policy and can not be delayed until the next scheduled Council or Committee Meeting.

12 CLOSURE OF MEETING