TEMORA SHIRE COUNCIL



REPORT ON COUNCILS ROAD NETWORK

2011

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AMENDMENTS

| Amendment No | Sections Changed | Description |
|-----------------|------------------|--------------------------------|
| 1 | All | Adoption March 2007 |
| 2 | All | Adopted April 2008 |
| 3 | 5.8, | Unsealed Urban Roads 2009 |
| 4 | All | Updated by Council – June 2011 |
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1. BACKGROUND ON COUNCIL'S ROAD NETWORK

Council's Road Hierarchy Plan was developed in the late 1980's and early 1990's. It has proven an extremely valuable tool for Councillors and Staff developing and maintaining the road network within the Shire. The last update to the plan was in 2009 when the know traffic volumes for some roads were added to the plan.

Since the installation of the CIVICA system and the requirements for asset managements, this plan has been updated to:

- 1. Align the road numbers with the CIVICA work order numbers. Where a road had a sealed and an unsealed section, each section has been given a unique number.
- 2. Include the asset value and depreciation of roads.
- 3. Update any further road counts.
- 4 Prioritise the upgrade (sealing) of unsealed urban roads.

2. OBJECTIVES OF THE PLAN

The objective of this plan is to revise the functional classifications of the original Road Hierarchy Plan to represent the current trends in traffic for all of Council roads and streets in the Shire.

The Plan needs to define the required criteria of each classification so that request to upgrade a road must meet the criteria determined by Council and until those criteria are met the road remains in its existing category. This then gives staff a clear direction for planning current and future works.

The plan needs to be revisited on a least a five year basis to determine if the criteria have changed or upon any substantial development in an area that changes the usage of neighbouring roads

The Plan must also relate to the financial management of roads so that Councillors and Staff are aware of the short term implications of leaving roads as maintained or the long term implications of upgrading roads by either widening the seal or increasing the sealed network.

This plan should be read in conjunction with Councils "Infrastructure and Asset Management Plan" Part 2 – ROADS.

3. CLASSIFICATION OF ROAD NETWORK

Assigning a road to either a maintained or upgrade category needs to be primarily a function of its traffic volume, which includes allowances for heavy vehicle. Other factors such as the existing pavement type and pavement width would also be considered..

4. METHODOLOGY

The following policies and definitions proposed for the Road Hierarchy Plan 2011, are based solely on traffic volume

The traffic volume has initially been collected with 12 vehicle classifications as shown in Table 1 below,

| Level 1 | Lev | el 2 | Level 3 | ARX | | | | |
|---|------------------|-------------------------|---|------------------|---------|--|----------------|-------|
| Length | Axles and Groups | | Vehicle Type | Classification | | | | Class |
| Туре | Axles | xles Groups Description | | Class Parameters | | Dominant Vehicle | Class | |
| | | | | Light V | ehicles | | | |
| Short up to 5.5m | 2 | 1 or 2 | Very Shori Bicycle or Motorcycle | MC | 1 | $d(1) \leq 1.7m$ and axles = 2 | A | с |
| | 2 | 1 or 2 | Short Sedan, Wagon, 4WD, Utility, Light Van, Hicycle, Mosorcycle, etc. | sv | 2 | d(1) >= 1.7m, d(1) <= 3.2m and axies = 2 | ¢ | |
| | 3, 4 or 5 | 3 | Short - Towing Trailer, Catavan, Boat, etc. | SVT | 3 | groups = 3, d(1) >= 2.1m, d(1) >= 3.2m, d(2) >= 2.1m and axies = 3.4,5 | a | |
| | Heavy Vehicles | | | | | | | |
| Medium 5.5m to | 2 | 2 | Two Axle Truck or Bus | TB2 | 4 | d(1) > 7.2m and axles = 2 | æ | LR |
| 14.5m | 3 | 2 | Three Axle Truck or Bus | TB3 | 5 | axies = 3 and groups = 2 | | |
| | >3 | 2 | Four Axle Truck | T4 | 6 | asles > 5 and groups = 2 | | |
| | 3 | 3 | Three Axle Articulated Three axle amoulated vehicle or Rigid vehicle and trailer | ART3 | 7 | d(1) > 3.2m, axles = 3 and groups = 3 | 61 | MR |
| Long 11.5m to 19.0m | 4 | >2 | Four Axle Articulated Four axle articulated vehicle or Rigid vehicle and trailer | ART4 | 8 | d(2) < 2.1m or d(1) < 2.1m or d(1) > 3.2m axles = 4 and groups > 2 | | |
| | 5 | > 2 | Five Axle Articulated Five axle articulated vehicle or Rigid vehicle and trailer | ART5 | 9 | d(2) < 2.1m or d(1) < 2.1m or d(1) > 3.2m axies ~ 5 and groups > 2 | | - |
| | >= 6 | >2 | Six Axle Articulated Six (or more) axle aniculated vehicle or Rigid vehicle and trailer | ART6 | 10 | axles = 6 and groups > 2 or axles > 6 and groups = 3 | Ø | HC |
| Medium and Long Combination Over 17.5m | > 6 | 4 | B Double B Double or Heavy track and trailer | BD | 11 | groups = 4 and axies > 6 | d es es | |
| | > 6 | >=5 | Double or Triple Road Train Double road train or Heavy muck and two millers | DRT | 12 | groups = 5 or 6 and axies > 6 | 6 | N/A |

 Table 1 – Vehicle Classification Types

The data from the 12 ARX classifications have remained as the four categories previously adopted. These are:

- 1. Cars (C) incorporates classes 1, 2, and 3
- 2. Light Rigid (LR) incorporates classes 4 and 5,
- 3. Medium Rigid (MR) incorporating classes 6, 7, and 8
- 4. Heavy Combination (HC) incorporating classes 9, 10, and 11

ARX Classification 12 has not been included as road trains are not permitted within Temora Shire at present.

From the traffic count data, the total traffic volume is divided by the number of days that the counts are measured to give an Average Daily Traffic (ADT) volume. The ADT is then distributed into the four vehicle categories on a percentage basis from the traffic classifier.

To rank the roads, a scoring system was adopted to give each vehicle category a Rating Value as shown in the Table 2 below.

| Category | Туре | Rating Value (RV) |
|----------|-------------------|----------------------|
| 1 | Car | 1 |
| 2 | Light Rigid | 2 |
| 3 | Medium Rigid | 4 |
| 4 | Heavy Combination | 8 |

Table 2 Rating Value for each Vehicle Category

The number of vehicles in each category is then multiplied by the Rating Value (RV) and then the result from the four categories added together to give the total score for the road.

From this total score, the roads are divided into the following Classes:

| Class 0 | State Roads |
|---------|---|
| Class 1 | Regional Roads |
| Class 2 | Rural Local Roads – Sealed – Upgrade |
| Class 3 | Rural Local Roads – Sealed – Maintained |
| Class 4 | Rural Local Roads - Unsealed – Upgrade |
| Class 5 | Rural Local Roads – Unsealed Maintained |
| Class 6 | Urban Local Roads - Maintained |
| Class 7 | Urban Local Roads – Upgrade |

The definitions for the above road classes are given in Section 5.

5 ROAD CLSSIFICATION DEFINITIONS

5.1 CLASS 0 – STATE ROADS

Council has two State Roads within the Shire: MR57 - Goldfields Way – Junee to West Wylong MR84 – Burley Griffin Way – Griffith to Yass

Work on State Roads is carried out for the Roads and Traffic Authority (RTA) under the Road Maintenance Council Contracts (RMCC). Council is the only Contractor requested to submit a price to the RTA for the maintenance and rehabilitation of these roads. To be able to do this Council has had to implement Management Systems for Quality, OH&S, and Environmental controls, which need to be documented and approved by the RTA to a State Standard.

The implementation of these systems has been an additional task but in today's litigious climate has been a benefit to Council as the same documentation is used throughout the shire road network even though the standard of road may be different, i.e. unsealed.

The current RMCC contract extends to 30 June 2014, with the RTA setting the work priority on the two state roads, Council has an advisory role in the contract where work orders are submitted to the RTA if sections are considered deficient or exceed the contract requirements but the final acceptance rests with the RTA.

In September 2009 Council also became the maintenance contractor for the Burley Griffin Way in the Coolamon Shire.

DEFINITION CLASS 0 – STATE ROAD

Road that may be maintained by Council, however the priorities are set by the RTA, who may engage other contractors without reference to Council

POSSIBLE UPGRADE WORK

Although the RTA controls the funding of the state roads the following upgrades are considered essential for the safety and maintenance of the road network.

MR57 – GOLDFIELDS WAY

- Segment 5 and 5A Truck Parking Bays Western side upgrade to bitumen sealed surface and possibly install lighting.
- Segment 7 Coolamon Road Intersection Install passing lane for vehicles traveling south on MR57. A Road Safety Audit has been carried out and plans are currently with the RTA for approval.
- Segment 14 and 15 Intersection of Hoskins Street and Loftus Street installation of a roundabout.

The State Road network through Temora Shire is given in Appendix 1

5.2 CLASS 1 - REGIONAL ROADS

The remaining Main Roads within the Shire are designated as Regional Roads. Roads in this category are:-

MR241 – Temora - Young Road also incorporating Waratah Street. Loftus Street has reverted to a local road as part of the Regional Road Review. MR398 (South) – Coolamon Boundary to Ariah Park MR398 (North) – Ariah Park to Bland Boundary MR398 (East) –Bland Boundary (west) to Morangarell (Bland Boundary east)

Although classed as main roads these roads are the full responsibility of Council for maintenance and rehabilitation. Council determines what work is required and its timing from untied grant known as "Block Grant." Since 1994 these roads have been handed to Council and appear on Council's balance sheets as an "assets", requiring Council to also fund the depreciation of these roads.

DEFINITION

CLASS 1 REGIONAL ROADS

The following criteria be applied to roads for the category of Class 1

- > The roads connect regional centers to other Shires
- The roads are existing sealed roads
- The sealed width be increased to 8.0 metres
- > Funding of maintenance principally from RTA sources
- The roads will be resealed preferably every 10 years but at maximum every 12 years

FUNDING SOURCES

The main sources of funding are:-

- Block Grants, which are untied each financial year and currently has three components
 - A roads component for either maintenance or rehabilitation of the pavement, shoulders and drains,
 - A traffic component for the upgrade, maintenance of signs and line marking,
 - The extended 3X3 Council Determined Component for upgrade of the road and can be spent at any location on the regional road system.
- REPAIR PROGRAM, this program is required to be matched on a dollar for dollar basis by Council. The objective of the REPAIR PROGRAM is the provision of "additional" funds to Council to assist them to undertake larger improvement works that will eventually minimise the maintenance costs of the regional roads.

- Roads to Recovery funding is a grant direct from the Federal Government, this grant is mainly for local Council owned roads but can be used regional roads.
- Council own funds, Council has put its own money into regional road, but normally on the basis of "topping" up any expenditure from other available grants so that a rehabilitation program can be completed.
- AUSLINK these funds are provided if it can be proven with the assistance of adjoining Councils that the roads are of a REGIONAL significance for the transport of people, stock or produce, or that they lead to destinations that have inter-modal forms of transport, i.e. road, rail, air, or sea interchanges.

It is unlikely that Councils two regional roads would receive money from this grant.

FUTURE UPGRADE WORK

MR241 – TEMORA TO YOUNG ROAD

- Segment 1 Shire boundary, Bland Creek Bridge. The Grogan Bridge is maintained by Council, it is narrow by today's standards and will require widening or total replacement at some stage in the not too distant future. Tension cracks are visible on the underside of beams. Ideally the replacement cost would be shared with Young Shire Council
- Segment 12 Intersection of Morangarell Road and MR241 requires upgrading to a T intersection to achieve greater sight distance
- Segment 12 Narraburra Creek Bridge, will require widening or replacement at some time in the future.

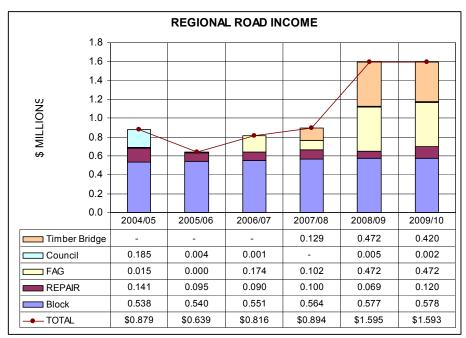
MR398 – COOLAMON, ARIAH PARK, BARMEDMAN TO GRENFELL ROAD

- Segment 17 Peters Creek Bridge, will require widening or replacement at some time in the future.
- Segment 30 Duck Creek Bridge requires the old wire fencing to be replaced with guard rail.

A list of Council's Regional Roads are given in Appendix 2

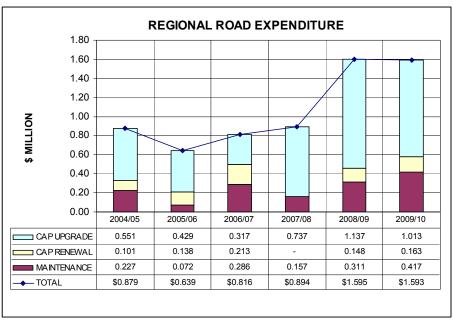
FUNDING FOR REGIONAL ROADS

In the previous six years funding for Regional Roads has been a combination of BLOCK Grants, REPAIR, FAGS, Timber Bridge Partnership Program and Council own funds. Graph 1, gives the combination of these grants.



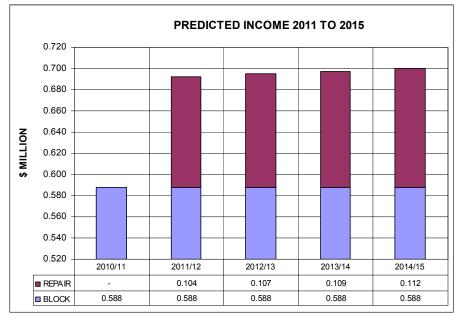
Graph 1 – Regional Road Income

Graph 2 illustrates the components that the income was spent on. In years 2007/08 to 2009/10 there was an above average expenditure on capital upgrade works, and in the latter years was due to the replacement of Broken Dam Bridge and Morangarell Bridge on MR398.



Graph 2 – Regional Road Expenditure

From 2010/11 to 2014/15, based on previous years, the income for the BLOCK Grant is anticipated to remain constant at \$588,000. The REPAIR Program from 2011/12 to 2014/15 has been included as advised by the RTA, and no additional funds from Council has been included as in previous years. Graph 3, gives the predicted income.



Graph 3 – Predicted Income

5.3 CLASS 2 – RURAL LOCAL ROAD – SEALED – UPGRADE

This class is an existing sealed rural road, irrespective of its sealed width. The road is major link roads within the Shire. The road seal will be widened from their current width to a maximum of 6.8 metres.

Council has 353.8 kilometres of sealed road of varying width. Roads in this category are expected to have a relatively high traffic volume, which in turn will generate a high total score. This score if exceeded will be the determination if the road is to be upgraded.

DEFINITION CLASS 2 – RURAL LOCAL ROAD SEALED – UPGRADE

The following criteria be applied to roads for the category of Class 2

- > The roads are considered to be major link roads in the Shire
- > The roads are existing sealed roads
- The sealed width be increased to 6.8 metres
- The traffic volume on the road results in a Hierarchy Score of 100 or greater
- The roads be resealed preferably every 10 years but at maximum every 12 years

This class will allow existing sealed rural roads to be widened from a 5.5 metre seal to 6.8 metre seal. The consequence of increasing the seal area is that for each kilometre that is

widened from 5.5 metres $(5,500m^2)$ to 6.8 metres $(6,800m^2)$ will increase the sealed area by $1,300m^2$ per kilometre, a 24% (1300/5500) increase.

Apart form the initial cost of gravelling and sealing there is also the ongoing cost of maintaining the seal each 10 - 12 years. At the current cost of $$4.50/m^2$ this will add \$5,850 per kilometre ((6,800 -5,500) @ \$4.50) that needs to be allocated to the reseal program.

FUNDING

Funding for rural roads comes from three main sources.

- Commonwealth Government Federal Assistance Grants (FAGs), which is untied and can be spent where Council determines.
- Roads to Recovery (R2R), also a Federal Government Grant, which is untied and can be spent where Council determines.
- Council's own funds. Even though the R2R has injected additional funding into local roads, it is important that Council still maintains its level of funding as one of the conditions of R2R program.

Roads that meet the Class 2 criteria are listed below, with Appendix 3,

PROPOSED ROAD UPGRADE

On this basis the roads that have had traffic counts completed and reached a hierarchy score greater than 100 are:

| | Road Name | Distance | Hierarchy Score |
|---------------|----------------------|----------|----------------------------------|
| 1. | | <u> </u> | 203 – 267 (completed) |
| 2. | Morangarell Road | 9.70 km | 109 - 199 |
| 3. | Old Cootamundra Road | 6.10 km | 419 |
| 4. | Thanowring Road | 4.75 km | 155 |
| 5. | Trungley Hall Road | 4.0 km | 123 – 295 |
| 6. | Tara Betric Road | 16.1 km | 139 - 168 |

The funding implications to upgrade the above five roads is given below.

| Financial Implications of Class 2 Roads | | | |
|--|--------------------------|-----------|----------------|
| LENGTH OF ROADS | | 40.65 | km |
| SEAL INCREASE IN WIDTH | | 1.2 | m |
| INCREASE IN SEAL AREA | | 48,780 | m ² |
| ESTIMATE FOR WIDEN ROAD | @ \$20.00/m ² | \$975,600 | total |
| COST TO PLACE A 2 COAT SEAL | @ \$5.50/m ² | \$268,290 | total |
| COST OF ADDITIONAL RESEAL EACH 12 YEARS | @ \$4.50/m ² | \$219,510 | |
| ADDITIONAL FUNDS REQUIRED EACH YEAR (12 YEARS) | | \$18,293 | yearly |

Apart from the cost to widen the roads, an additional \$219,510 will need to be found each 12 years for resealing to maintain the road, or \$18,293 per year.

A list of the proposed Class 2 roads is given in Appendix 3

5.4 CLASS 3 – RURAL LOCAL ROAD – SEALED – MAINTAINED

This class will be an existing sealed rural road, irrespective of the sealed width. These roads are not necessarily major link roads within the Shire. The roads will remain at their current standard with by general maintenance and/or heavy patching and resealing each 12 to 15 years.

DEFINITION CLASS 3 – RURAL LOCAL ROAD SEALED – MAINTAINED

The following criteria be applied to roads for the category of Class 3

- > The roads are sealed and the seal will be maintained at its current width,
- The traffic volume on the road results in a Hierarchy Score less than 100,
- The road may have been upgraded to a sealed width of 6.8 metres
- The road will resealed each 12 years

FUNDING

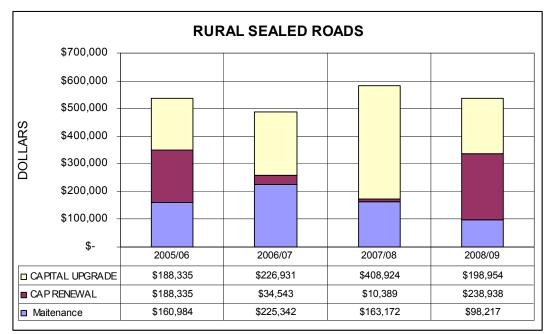
Funding for rural roads comes from three main sources.

- Commonwealth Government Federal Assistance Grants (FAGs), which is untied and can be spent where Council determines.
- Roads to Recovery (R2R), also a Federal Government Grant, which is untied and can be spent where Council determines.
- Council's own funds. Even though the R2R has injected additional funding into the local road maintenance it is important that Council still maintains its level of funding, which is one of the conditions of R2R program.

As not all the roads have had traffic counts completed it is proposed that these be placed in Class 3 until such time that the counts show that they can be elevated to Class 2

Roads in Class 3 category are shown in Appendix 4, which comprise the bulk of the sealed roads.

Over the last four years, Council has spent the following on Class 2 and 3 sealed local roads. Graph 4 gives the expenditure components.



Graph 4 – Expenditure on Rural Sealed Roads – Class 2 and 3

5.5 CLASS 4 – RURAL LOCAL ROAD – UNSEALED – UPGRADE

This class will be any unsealed rural road that can demonstrate the traffic volume warrants the road to be sealed. At present it is difficult to adequately assign a score since the wheat harvest over the past five years have been small for this reason the score has been set at 75. It is expected that this will need to be further investigated in the next few years to obtain a more realistic value.

DEFINITION CLASS 4 – RURAL LOCAL ROAD – UNSEALED – UPGRADE

The following criteria be applied to roads for the category of Class 4

- The roads are unsealed roads.
- The traffic volume on the road results in a Hierarchy Score equal to or greater than 75
- The initial seal will placed at 6.8 metres
- The road then will fall into Class 3 once sealed.

FUNDING

Funding for rural roads comes from three main sources.

- Commonwealth Government Federal Assistance Grants (FAGs), which is untied and can be spent where Council determines.
- Roads to Recovery (R2R), also a Federal Government Grant, which is untied and can be spent where Council determines.
- ➤ Council's own funds. Even though the R2R has injected additional funding into the local road maintenance it is important that Council still maintains its level of funding as one of the conditions of R2R program.

There are no roads in Class 4 category in Appendix 5.

5.6 CLASS 5 - RURAL LOCAL ROAD - UNSEALED - MAINTAINED

This class will cover the majority of the unsealed roads. The roads will be maintained by grading and/or gravel resheeting as the need arises. Resheeting cycles are difficult to predict as the wear in the gravel pavement is dependent on the volume of traffic. In general Council's major roads are resheeted every 15 years.

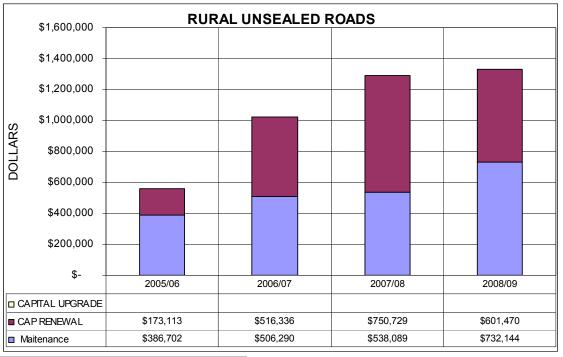
DEFINITION CLASS 5 – RURAL LOCAL ROAD – UNSEALED – MAINTAINED

The following criteria be applied to roads for the category of Class 5 the roads are unsealed roads.

- The traffic volume on the road results in a Hierarchy Score less than 75
- The road will have a full resheet between 10 to 15 years depending on its traffic count.

Roads in Class 5 are shown in Appendix 6

Over the last four years, Council has spent the following on Class 5 unsealed local roads. Graph 6 gives the expenditure components.



Graph 6 – Rural Unsealed Local Roads

5.7 CLASS 6 – URBAN ROAD – SEALED – MAINTAINED

This class of road will be any existing sealed road in Temora or the villages. The road can be of any sealed width.

DEFINITION CLASS 6 – URBAN ROAD – SEALED – MAINTAINED

The following criteria be applied to roads for the category of Class 6

- the roads are sealed roads of any width
- the road will be resealed on a 15 year basis.

Roads in Class 6 are shown in Appendix 7.

5.8 CLASS 7 – URBAN ROAD – UNSEALED – UPGRADE

Council has indicated a desire to seal all unsealed urban roads. The criteria being to lower the dust nuisance to residents. Initially the seal will be placed to a width of 6.8 metres in the centre of the road reserve. This may leave shoulders along some roads unsealed.

If the Hierarchy Score exceed 50 the road will be sealed for its full width

DEFINITION CLASS 7 –URBAN ROAD – UNSEALED – UPGRADE

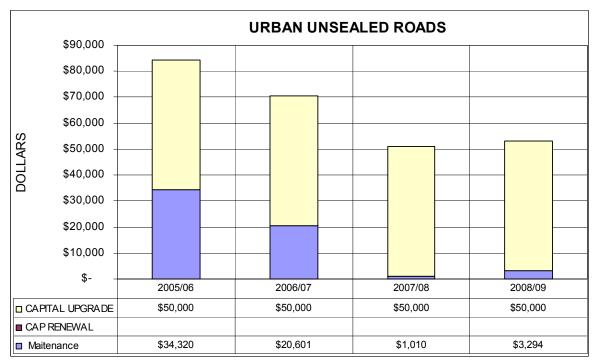
The following criteria be applied to roads for the category of Class 7

- the roads are unsealed roads
- the sealed width will be placed on the central 6.8m of road
- if the road is wider than 6.8 metres the shoulders will remain unsealed
- the road will be sealed kerb to kerb if the Hierarchy Score exceeds 50
- the road will be resealed on a 15 year cycle..

Roads in Class 7 are shown in Appendix 8.

Over the last four years, Council has spent the following on Class 7 unsealed urban local roads. Graph 7 gives the expenditure components.

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Graph 7 – Unsealed Urban Road Expenditure

5.9 ROAD NAMES IN URBAN AREAS

The naming of lanes in the urban areas has been adopted as follows:

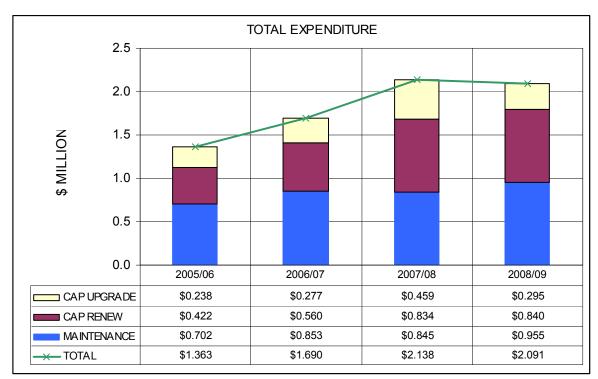
- Lanes running north-south to be named after the street immediately to the west of the lane with the word "Little" added to the street name,
- Lanes running east-west to be similarly named after the street immediately north of the lane.

6. FUNDING

The funding for Local and Regional Roads are from several sources, such as BLOCK and REPAIR 3x3 Council determined for Regional Roads and FAGS, R2R and Council own funds for all Local Roads.

In the past four years Council allocation to Local roads has generally increased as can be seen in Graph 8 below

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Graph 8 – Total Expenditure on Local Roads

ASSET MANAGEMENT

Council has implemented a full Asset Management Plan for all local and Regional Roads, plus included kerb and guttering and footpaths in the one plan.

The Asset Management Plan gives a more detailed explanation of Councils road network and the funding requirements.

CLASS 0 ROADS

STATE ROADS

CLASS 1 ROADS

REGIONAL ROADS

CLASS 2 ROADS

LOCAL RURAL ROADS

SEALED UPGRADE

CLASS 3 ROADS

LOCAL RURAL ROADS

SEALED MAINTAINED

CLASS 4 ROADS

LOCAL RURAL ROADS

UNSEALED UPGRADE

CLASS 5 ROADS

LOCAL RURAL ROADS

UNSEALED MAINTAINED

CLASS 6 ROADS

LOCAL URBAN ROADS

SEALED MAINTAINED

CLASS 7 ROADS

LOCAL URBAN ROADS

UNSEALED UPGRADE

SHIRE & TOWN MAPS