

# ROAD STRATEGY 2010

*Revised – February 2013*



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## 1 INTRODUCTION



The Road Strategy provides a framework to guide Golden Plains Shire in making best use of available road funding by establishing priority local roads for improvement and maintenance works, and recommendations for externally funded programs such as Auslink and Roads to Recovery.

Council is responsible for an extensive local road network comprising 971 kilometres of sealed local roads, 726 kilometres of gravel local roads and approximately 167 kilometres of unmade fire access tracks and the like.

VicRoads controls and maintains a further 225 kilometres of roads within the Shire comprising main roads and highways which include Rokewood-Skipton, Rokewood-Shelford, Shelford-Bannockburn, Colac-Ballarat, Lismore-Scarsdale, Winchelsea-Inverleigh, Inverleigh-Shelford, Fyansford-Gheringhap and Geelong-Ballan main roads and Steiglitz Road (tourist road) in addition to the Glenelg, Midland and Hamilton Highways.

For Council's local road network the type of road surface and level of maintenance generally reflects the traffic volumes using the road. Council also uses an Asset Management program for determining the condition rating of the sealed and gravel roads and for calculating the depreciation value of the network. Using this information Council has annually allocated a budget for road maintenance equal to the full depreciation value which has enabled Council to maintain the road network at an acceptable condition.

In addition to the road network, Council has an extensive network of bridges, major culverts, footpaths and signage that are a vital part of the overall infrastructure.

The 2002 Road Strategy has been very useful in implementing a large number of local road improvement projects, which have been funded through substantial federal and state government grants and Council funds. Over the last ten years a total of \$20M has been invested in local road improvements in Golden Plains including:

- Sealing 34.4 km of gravel roads;
- Widening 90.5 km of narrow sealed roads;
- Sealing 7.3 km of road shoulders
- Resurfacing and improving 10 major intersection;
- Replacing or improving 4 bridges; and
- Extending the footpath network by 6.6 km.

The federal government recently announced a commitment under the 'Roads to Recovery' program of \$1m per annum to Golden Plains until 2013/2014 financial year for local road improvements.

Council also spends annually \$2.7M on local road maintenance from its own budget.

## 1.1 Relationship to Asset Management Planning

In its Asset Management Planning Council adopted a three stage Asset Management Framework consisting of an:

1. Asset Management Policy – which broadly defines how and why Asset Management will be undertaken across the organisation as a whole;
2. Asset Management Improvement Strategy – which details specific actions to be undertaken by an organisation in order to improve or enhance Asset Management capability and achieve specific objectives; and
3. Asset Management Plans – which define long term plans (usually 20 years or more for infrastructure assets) that outline the asset actions.

This Road Strategy is a review of the 1999 Road Strategy (reviewed in 2002) which provides the long term plans for road assets and forms the third stage of the Asset Management Framework for Roads and Bridges (Road Asset Management Plan).

## 1.2 Moloney Asset Management System

The principle tool guiding Council on setting the level of expenditure on roads and establishing priorities of work is the Moloney Asset Management System.

The Moloney Asset Management System has been in place since 1997, which establishes a condition rating (0-10) of all roads and calculates the depreciation value of the road assets.

Moloney has completed four independent road audits in 1997, 1999, 2003 & 2008 providing historical trend data on road conditions compared with expenditure. Moloney presents an independent report to Council after each audit which includes recommendations on road funding levels and road work priorities.

Council fully funds the annual depreciated value of roads with the aim to maintain all assets at or above the previous condition rating

The Moloney asset system now includes bridges with the first audit completed in 2008.

**Actions:**

1. **Continue undertaking a full condition surveys of the road network every five (5) years to review / confirm:**
  - a. **Reseal life cycle;**
  - b. **Sealed pavement life cycle;**
  - c. **Gravel pavement life cycle; and**
  - d. **Funding levels.**

### **1.3 Relationship with Other Council Strategies, Plans and Policies**

Total Asset Management planning requires the interfacing of Council's Asset Management Policy, Asset Management Improvement Strategy and Asset Management Plans (Road Strategy) with other key Council Strategies and Plans.

A number of the adopted Strategies and Plans have direct influence on Asset Management Planning in setting priorities for infrastructure asset, capital, renewal, rehabilitation and replacement expenditure.

The key Golden Plains Shire Strategies and Plans include the following:

- Council Plan
- Risk Management Strategy
- Economic Development Strategy
- Revenue Strategy
- Finance 2009 Plan
- Best Value Strategy
- Road Management Plan
- Road Safety Plan
- Waste Strategy
- Recreation Strategy
- Municipal Public Health Strategy
- Maternal and Child Health Services Action Plan
- Health Ageing Strategy Action Plan
- Disability Action Plan
- Golden Connections Community Transport Plan
- Municipal Strategic Statement
- Environment Strategy
- Urban Design Framework and Land Use Structure Plans
- Roadside Management Plan

## 1.4 Community Engagement and Consultation

The 2010 review of the Road Strategy included actively consulting and engaging with the community at three different stages:

1. Community Survey Questionnaire - to provide initial direction on some key issues;
2. Public Information Meetings - for discussion and comment on issues and formed positions; and
3. Draft Road Strategy Exhibition - formal community comment.

### 1.4.1 Community Survey Questionnaire

The questionnaire provided initial direction on two main topics, gravel road improvements and unmade (farm access) roads, which had previously been identified by the community as important issues. The 378 people who responded represent 5.6% of the number of households within Golden Plains Shire.

A detailed analysis of the results is available at the Council Offices.

### 1.4.2 Public Information Meetings

Base on the questionnaire results, local knowledge and petitions previously submitted to Council, Golden Plains Shire Council identified key issues with proposed actions which were presented at seven public meetings for discussion prior to the development of a Draft Strategy.

### 1.4.3 Draft Road Strategy Exhibition

A Draft Road Strategy was placed on Public Exhibition in May 2010 inviting the community to make formal written submissions for Council's consideration prior to adoption of the Strategy in July/Aug 2010.

## 2 ROAD STRATEGY KEY COMPONENTS

Providing a best value local road network involves effectively managing eleven [11] key inter-related components within the system. The Strategy identifies these as:

1. Sealed Roads
2. Gravel Roads Maintenance
3. Truck Routes
4. Subdivision & Development Roads
5. Bridges
6. Road Signage & Delineation
7. Railway Crossings
8. Intersection Improvements
9. Formed Only/Unmade Roads (Farm Tracks)
10. Road Improvements – Gravel & Narrow Sealed Roads
11. Widening Sections of Narrow Gravel Roads

Each component is addressed in the Strategy with discussion on the various elements within each component, as well as a number of Actions to be undertaken over the next ten [10] years to ensure the road assets are maintained at or above the condition rating level of the last independent audit.

### 3 SEALED ROADS



*The Moloney Road Condition Survey Report Oct 2008* states that the sealed road network is the most significant infrastructure asset maintained by Council, having a replacement value of \$105,577,265 and an annual depreciation of \$1,675,898 p.a.

There is a direct correlation between the amount of expenditure required to maintain the road network and its condition. Of particular importance is the management of the annual resealing program to ensure that roads do not deteriorate quickly due to failed seals.

The Moloney Road Condition Survey undertaken on a five year cycle provides an overall picture of the condition of each local road broken up into various sub-assets such as the sealed surface and the pavement. Each local road asset is given a weighted condition rating from 0 to 10, with zero being a new asset and the 8 - 10 range indicating there is no remaining life in the asset.

The Moloney condition rating is the key tool used for preparing the annual resealing and sealed road pavement reconstruction programs.

#### 3.1 Sealed Surfaces

*The Moloney Road Condition Survey Report Oct 2008* found that Golden Plains' sealed road surfaces are in excellent overall condition and benchmark as being very favourable with the other 38 councils assessed by Moloney. Council has maintained these seals in excellent condition for some years now and as a consequence maximises the pavement life of each road.

The desirable intervention level for reseals is a Moloney condition rating of 6.25. This condition rating is assessed from a number of components such as: seal cracking, loss of surface stone, oxidation (a measure of the elasticity of the bitumen binder), and extent of patching. If the sealed surface is not properly maintained then water can penetrate the seal and cause premature failure of the pavement below the sealed surface.

The Moloney Survey of 2008 found that:

- Golden Plains had 5.19% of the local road network sealed surfaces at or above condition 6, which is a very small increase on 5.07% in the 2003 Survey, but a significant improvement from the 10.43% in the 1998 Survey;

- Council's past commitment to expenditure of \$500,000 p.a. is well below the predicted present renewal demand and has resulted in the slight growth in the extent of poor condition assets (above Condition 6) since the time of the last survey in 2003; and.
- The heavy increases in the cost of reseals is the reason council finds itself behind with this asset set and if condition is to be maintained expenditure needs to be lifted to \$800,000 p.a. for the next 4-years before being reviewed again following the next condition survey.

In response to the Moloney Road Survey Condition Report Oct 2008, Council lifted its sealing road expenditure to \$800,000 in 2009/10.

**Actions:**

- 2. *Maintain as a minimum a funding level for reseals of \$ 800,000 per annum for the period of Finance 2009 from 2010/11 to 2014/15 to maintain the present sealed surface condition rating.***
- 3. *Review the minimum level of funding from 2014/15 onwards following the next condition survey to be undertaken in 2013.***
- 4. *Prepare the annual resealing program using the Moloney System sealed surface condition ratings to prioritise the local roads to be included in the program.***

### **3.2 Sealed Road Pavements - Rehabilitation**

The Moloney Road Condition Survey Report Oct 2008 found that Golden Plains sealed road pavement assets are in good overall condition and benchmark as being in good overall condition when compared to the other 38 councils assessed by Moloney.

The exact life of a road pavement is difficult to determine as there is a grey area between rehabilitation and major patching and the level of roughness that is acceptable on any particular class of road.

The suggested intervention level for rehabilitation is generally around 7, however some local roads with very low traffic volumes and of lower strategic importance may not be rehabilitated until they reach a condition rating of 8 or more.

The 2008 Moloney Survey found a slight condition decline since the last survey of 2003, but the degradation curves suggest a very long life for these assets. At present there is only 1.06% of the road network at or above condition rating 7, and a further 5.14% within condition 6.

The Moloney Report states these assets have held their condition well given the very low levels of renewal expenditure of 13.1 % of the long term renewal demand over the last five years. However, eventually all of the pavements will need to be rehabilitated, and a short-term capital expenditure \$225,000 p.a. for the next 3 years is recommended with a further review of expenditure after the next condition survey in 2013.

The funding level for road rehabilitation works for 2009/10 was \$200,000, with an increase to \$265,000 per annum in the 2010/11 and subsequent budgets.

**Actions:**

5. ***Maintain as a minimum the current funding level of \$265,000 per annum for sealed road rehabilitation works through to 2014/15.***
6. ***From 2014/15 review the level of funding following the next condition survey to be undertaken in 2013.***
7. ***Prepare the annual pavement reconstruction program using the Moloney System pavement condition ratings to prioritising the local roads to be included in the program.***

### **3.3 Sealed Road Routine Maintenance**

Sealed road routine maintenance involves pothole patching, gravel shoulder grading and top up, cross culvert maintenance, kerb and channel sweeping and intersection sweeping.

A report to Council on 'Road and Bridge Maintenance' dated 26 March 2009 identified a funding requirement of \$850,000 p.a. for routine maintenance of sealed roads.

Finance 2009 allows for routine sealed road maintenance a reduced budget of \$800,000 p.a. until 2014/15. The allocated funds are \$50,000 p.a. less than identified in the 'Road and Bridge Maintenance' report and the level of funding will need to be increased after 2014/15 in order to address the funding shortfall identified.

**Actions:**

8. ***Maintain as a minimum the current funding level of \$800,000 per annum for sealed road routine maintenance works for the period of Finance 2009 to 2014/15.***
9. ***From 2014/15 increase the level of funding following the next condition survey to be undertaken in 2013 and make up the funding shortfall identified.***

## 4 UNSEALED ROADS – MAINTENANCE



Like local sealed roads, the unsealed or gravel road network is also a significant infrastructure asset, having a pavement and formation replacement value of \$ 12,722,762, and an annual pavement depreciation of \$ 404,688 p.a.

Gravel roads are maintained through Periodic (re-sheeting) and Routine (grading) maintenance programs.

### 4.1 Gravel Road - Periodic Maintenance (Gravel Re-sheet)

*The Moloney Road Condition Survey Report Oct 200* concluded that the Unsealed Road Pavement (Gravel) assets were in excellent overall condition with a quite measurable improvement in overall condition since the last survey in 2003. They also compare very favourably with the other 32 council districts inspected by Moloney.

The Survey found that an improvement in the weighted average asset condition of 46% along with the average pavement depth increasing by 20% is considered to be an outstanding outcome. The only indicators that went backwards were the shape characteristics and pavement isolated failures, all of which are routine maintenance related matters rather than a periodic maintenance (capital condition) consideration.

There is a great variety in the standard of gravel roads, ranging from access tracks to roads carrying over 150 vehicles per day. These roads have been classified accordingly and the following performance standards set:

Road Classification:	Construction Standard:
Fire Access Tracks	Formed only, no gravel.
Roads <50 vpd	30-40mm gravel pavement
Roads <100 vpd	75mm gravel pavement
Roads <150 vpd	100mm gravel pavement
Roads >150 vpd	150mm gravel pavement

The Moloney System sets the desirable intervention level for gravel roads based upon traffic volumes and splits them into 3 categories:

- Greater than 70 vehicles per day (VPD), with intervention at rating 5;
- 30 – 70 VPD, with intervention at rating 6; and
- less than 30 VPD, with intervention at rating 7.

The 2008 Moloney report concluded that capital renewal demand is presently sitting at \$266,000 p.a. and is predicted to peak at \$390,000 in 2029. The present renewal expenditure at \$230,000 p.a. is a little below the predicted present demand, but overall asset condition has improved quite measurably since the last survey in 2003, suggesting that the current expenditure level is sufficient to meet demand.

Based upon the observed improvement in overall condition since the 2003 survey it is recommended that the present level of renewal expenditure at \$230,000 be maintained for the next 3 years before being reviewed again, following the next condition assessment in 2013.

**Actions:**

10. ***Maintain the current funding level of \$ 230,000 p.a. for Unsealed Roads Periodic Maintenance (re-sheeting) for the period of Finance 2009 to 2014/15.***
11. ***From 2014/15 adjust the level of funding following the next condition survey to be undertaken in 2013.***

## **4.2 Gravel Road - Routine Maintenance**

Routine maintenance of gravel roads involves grading and cross culvert maintenance. These works impact on the shape characteristics and pavement isolated failures, which were the only indicators that went backwards between the 2003 and 2008 Moloney Surveys.

Adverse climatic conditions of long dry periods and lack of summer rains have resulted in the rapid deterioration of the surface of gravel roads, including increased incidence of corrugations, rutting and dust issues.

The impact of adverse climatic conditions on the ability to perform effective routine gravel road maintenance requires investigation and costing of alternative methods of maintenance if a reasonable standard is to be achieved during these periods.

A report to Council on 'Road and Bridge Maintenance' dated 26 March 2009 identified a funding requirement of \$310,000 p.a. for routine maintenance of gravel roads.

Finance 2009 allows a reduced budget of \$300,000 p.a. for gravel road maintenance until 2014/15. The level of funding will need to be increased after 2014/15 in order to address the funding shortfall.

One area that received much discussion at the community information meetings was gravel road maintenance was a desire to see an increased level of gravel road maintenance involving:

- use of an improved material (perhaps by mixing the Kaolin and Sago Hill materials),
- ripping or rotary hoeing the material onsite each time the road was graded;
- rolling the road after each grading;
- increased frequency of grading on higher traffic volume gravel roads; and
- removing vegetation from roadside shoulders and drains.

There is a compelling argument that in some circumstances the higher level of maintenance is justified and may in the longer term provide a better road surface for longer periods to the users. Achieving the higher level will need an injection of additional funds to ensure other gravel roads do not suffer.

**Actions:**

- 12. *Maintain as a minimum the current funding level of \$300,000 per annum for gravel road routine maintenance works for the period of Finance 2009 to 2014/15.***
- 13. *From 2014/15 increase the level of funding following the next condition survey to be undertaken in 2013 and to make up the funding shortfall identified.***
- 14. *Investigate options for improved maintenance of gravel roads during extended dry periods.***
- 15. *At future budgets consideration be given to increasing the level of funding to enable a higher standard of gravel road routine maintenance.***

## 5 TRUCK ROUTES



It is important to provide a network of truck routes suitable for the various freight requirements within the shire including grain, wool, plantation timbers, and gravel transportation. The timber industry has assisted in this regard as part of the TIRES study which identified and agreed on the preferred strategic roads the timber industry will use.

It is desirable that any local road identified as being a strategic truck route should be constructed to at least a 6.2 metre wide standard, unless truck and traffic volumes are very low, or seasonal in nature.

To protect the Local Road network there are regulatory tools available to Council for managing heavy trucks use of the network.

### 5.1 B-Double Trucks & higher Mass Limit Trucks

High productivity vehicles, such as B-doubles and vehicles at Higher Mass Limits are important to the efficiency of the freight task in Victoria. The larger capacity of these vehicles also reduces the number of vehicles required to transport a given amount of freight.

Access for these vehicles is allowed where these vehicles can operate safely with other traffic and where road infrastructure (road pavement and bridges) is suitable.

B-doubles and semi trailers of the higher mass capacity may not travel on a Local Road unless:

1. The road is listed in the VicRoads publication “Local Roads Approved for B-doubles & Higher Mass Limit Trucks”; or
2. The use of the road has the written consent of the Council and a permit has been obtained from VicRoads.

Golden Plains Shire currently has no roads listed in the VicRoads publication. However there are two local roads that are being constructed using federal and state funds that when completed Council may consider listing in the VicRoads publication, or may retain control under permit. These roads are:

- English Road from Shelford-Bannockburn Road to Scanlon Road, being constructed using state funds under the ‘Safer B Double Route for Intensive Agriculture’; and

- Shelford – Mt Mercer Road and Buninyong – Mt Mercer Road which, except for one short section, has been reconstructed using Auslink federal funding and Timber Roads state funding.

Upon request, Golden Plains issues permission letters for B-Doubles & Higher Mass Limit trucks to use local roads for the purpose of servicing the local community only provided the local road is capable of safely conveying the vehicle without damage to the pavement. No permits are issued for through traffic movements. The permission is issued for fixed periods, varying from one off events and up to two year periods. There are no proposals to change the current system.

## 5.2 Load Limits Roads & Bridges

Council has load limits on some local roads and bridges which have been in place for many years restricting the ability of heavy trucks to service some properties. Load limits are generally applied to protect the asset and for user safety reasons. Many of the limits are historical in nature and may or may not be valid today in light of road improvements, new industry developments and bridge upgrades and changed traffic movements.

It is proposed that all load limits (road and bridge) be reviewed.

No load limits are proposed for gravel roads, as little significant damage is done to these roads by trucks.

### **Actions:**

- 16. Undertake a review of all load limits on local roads and bridges.**
- 17. Maintain the current system of issuing permits for B-doubles and Higher Mass Vehicles.**
- 18. When the reconstruction of English Road from Shelford-Bannockburn Road to Scanlon Road and Shelford – Mt Mercer Road and Buninyong – Mt Mercer Road is completed review the status of the roads for potential listing with VicRoads as B-double designated routes.**

## 6 SUBDIVISION & DEVELOPMENT ROADS



Private subdivision works as part of housing, commercial and industrial development provides Council with roads constructed to established standards set by Council in both urban and rural environments. Once built, the new roads are the responsibility of Council for on-going maintenance, rehabilitation and resealing of the roads. It is important the standards set meet current day requirements and expectations.

It is important to remember that Council only gets one opportunity to require a high standard road construction as part of the planning permit conditions for a subdivision or development impacting on an existing road. It is therefore important to ask for a high standard road, but not making costs too prohibitive to discourage development.

Standards established in the 1999 Strategy were limited to residential development in urban and rural areas. Over time they have required interpretation and changes to meet user expectations, different standards established by VicRoads and AusRoads, higher requirement for traffic calming and different uses such as commercial, industrial and multi unit developments.

A new set of standards need to be consolidated and expanded to address both design and construction of subdivision and development roads addressing the following six (6) areas of development:

1. Urban Residential;
2. Multi Unit Development Access;
3. Rural Residential;
4. Rural;
5. Industrial; and
6. Commercial.

The new standards will address the areas of road widths, pavement composition (pavement depth, pavement materials, spray seal, asphalt, gravel), kerb & channel, road drainage (underground, open drains, retardation systems, use of roads for 1 in 1000 overland flood flow), incorporation of bicycle lanes, traffic control devices (roundabouts, speed humps), signage, road markings and footpaths.

**Action:**

- 19. Undertake a review of the road design and construction standards for subdivision and development roads and develop a new set of standards for subdivisions and development in the six areas of Urban Residential; Multi Unit Development Access; Rural Residential; Rural; Industrial; and Commercial development.**

## 7 BRIDGES



Golden Plains maintains 128 structures comprising bridges with major timber components, non timber bridges, large concrete culverts and large steel culverts. They are an integral part of the Shire's local road network. *Moloney Bridge Condition Survey Report May 2008 states that the bridges have a replacement value of \$21,527,595 and an annual depreciation of \$235,615 p.a.*<sup>2</sup>

Bridges are maintained through Periodic (renewal & rehabilitation) and Routine (repair) maintenance programs.

### 7.1 Bridge Periodic Maintenance (renewal & rehabilitation)

Periodic maintenance of bridges is major renewal work required to maintain the structure or elements of the structure so that the full life of the structure is achieved. The work includes, bridge replacement, expansion joint and bearing repair and replacement, concrete deck overlay, concrete repairs and painting of steel work or fittings.

The Moloney Bridge Survey 2008 concluded that the bridge assets are in a relatively poor overall condition when compared to other councils assessed by Moloney. This being largely a consequence of the age profile of the structures and certainly not meant as a criticism in any way. Golden Plains' bridges attained an average condition score of 4.67 compared to the other councils average of 3.35.

Council has embarked upon a substantial bridge renewal program which has already had a big impact on overall condition and will continue to do so into the future if funding is maintained.

The present renewal demand to maintain all bridges below condition 8 is predicted at \$447,000 p.a. Moloney identified 9 bridges with a condition rating at or above 7 that are most likely to require major rehabilitation or renewal over the next 10 years. Three of the bridges listed, Wilgul-Werneth bridge renewal, Kelly Road and Parkers Road bridge replacements will be completed by 2010/2011.

Finance 2009 allows for periodic bridge maintenance funding of \$150,000 p.a. until 2014/15, which will provide for the delivery of the remaining proposed replacement/renewal projects identified. However the funding level will need to be increased after 2014/15 in order to address the funding shortfall.

As only one bridge condition survey has been undertaken so far for incorporation into the Moloney Asset Management System, it is imperative that a second condition survey be undertaken within five years to allow more accurate predictions of the bridge life cycles and degradation of the structures.

By undertaking the next bridge condition survey in 2013-2014, aligning with the road condition survey, it will provide bridge conditions and confirm asset management assumptions which will be used to predict future expenditure regimes beyond 2014/15 as set by Finance 2009.

**Actions:**

- 20. *Maintain the current minimum funding level of \$ 150,000 per annum for Bridge Periodic Maintenance (renewal & rehabilitation) for the period of Finance 2009 to 2014/15.***
- 21. *From 2014/15 adjust the level of funding following the next bridge condition survey to be undertaken in 2013/14.***
- 22. *After the next bridge condition survey in 2013/14, continue to review / confirm bridge life cycle and funding level by undertaking a full survey of the bridge network at predetermined cycles that best provide for the most accurate forecasting of requirements, but not at intervals greater than ten (10) years.***
- 23. *Prepare the annual bridge periodic maintenance program by using the Moloney System bridge condition ratings in prioritising the bridges to be included in the program.***

## **7.2 Bridge Routine Maintenance (repair)**

Routine maintenance of bridges involves minor repairs such as concrete patching of spalled areas, deck plank replacement on timber deck bridges, painting of barriers and fencing, repair of accident damage and annual safety inspections (level 1 bridge inspections) as required by the Road Management Plan and for safety and condition monitoring

Moloney 2008 identified around \$1,300,000 in works requirements for the whole of the bridge asset group. These matters will be addressed on a needs basis within the routine maintenance budget that has been allocated and, if relevant, from the periodic maintenance budget if funding permits.

A report to Council on 'Road and Bridge Maintenance' dated 26 March 2009 identified a funding requirement of \$60,000 per annum for routine maintenance of bridges.

Finance 2009 allows for a reduced budget of \$50,000 p.a. until 2014/15. The level of funding will need to be increased after 2014/15 in order to address the funding shortfall of \$10,000 p.a.

**Actions:**

- 24. *Maintain as a minimum the current funding level of \$50,000 per annum for bridge routine maintenance works for the period of Finance 2009 to 2014/15.***
- 25. *From 2014/15 increase the level of funding following the next condition survey to be undertaken in 2013 and to make up the funding shortfall identified.***
- 26. *Funding of bridge barrier maintenance and installation is to be considered for inclusion in each annual budget.***

## 8 ROAD SIGNAGE AND DELINEATION



Along with the maintenance of Councils roads comes the responsibility to maintain signage, line marking and guideposts on the road network. This includes the provision of street blades at road intersections, advance warning sign, speed limit signs and Give Way/Stop signs at intersections as well as appropriate line marking and the provision of guideposts to VicRoads standards.

In addition to the routine maintenance of the road signage and delineation Council has recently completed a program of delineating and signing bridge approaches to standard, including single lane bridges.

It is important that signage and delineation continue to be upgraded on the heavier trafficked local roads such as the link and collector road network.

Finance 2009 provides a total budget of \$160,000 p.a. for signs (\$120,000 p.a.) and line marking (\$40,000p.a.)

### **Actions:**

- 27. Maintain the current minimum funding level of \$ 160,000 per annum for Road Signs and Delineation for the period of Finance 2009 to 2014/15.**
- 28. Link and Collector Local Roads be given priority for upgrading and improving signage and delineation, along with any specifically identified site on a needs basis.**

## 9 RAILWAY CROSSINGS



There are two major rail lines that transit Golden Plains Shire. The Gheringhap – Maroona Line is part of the Standard Gauge line between Melbourne and Adelaide while the Broad Gauge line between Gheringhap and Warrenheip is part of the Geelong to Mildura freight link. The section of line within Golden Plains Shire from Batesford to Gheringhap is a dual Standard and Broad Gauge track. These lines are important inter and intra state transport links traversing the Shire.

On these lines there are 22 rail crossings within Golden Plains Shire. Seven crossings are active crossings with either flashing lights or boom barriers. The remainder of the crossings are passive crossings, some with speed restrictions for vehicular traffic crossing the lines. Further there are no crossings within the Shire that are surplus and suitable for closure.

There are significant safety advantages derived from having active crossings especially where the crossing traffic volumes are high and/or comprise commercial vehicles particularly large trucks.

The Rail Authorities in conjunction with Council continue to undertake ALCAM (Australian Level Crossing Assessment Model) inspections of all crossings. These inspections are to ensure that signage at crossings is maintained at the correct standard and also to identify any deficiencies that exist at the crossings.

As part of the ongoing ALCAM inspections and assessments, and in accordance with Rail Safety Act 2006, Safety Interface Agreements SIA's between the Rail Authority and Municipalities are being prepared as an agreement about the management of safety risks which arise from shared interfaces between road and rail authorities. Council's Road Management Plan RMP refers to these SIA's.

### **Actions:**

- 29. Council develop a list of priority crossings for upgrade.**
- 30. Council continue to advocate to have all rail crossings within the Shire area upgraded to active crossings in accordance with the priority listing.**

## 10 INTERSECTION IMPROVEMENTS



Along with the numerous road improvement works, there are a number of a number of isolated intersections that do not form part of the road improvement program, that may be modified or altered to improve road safety.

Intersections generally occur at three levels of roads under different controlling authorities and funding sources:

1. Local road with local road;
2. Local road with a VicRoads road; and
3. VicRoads road with a VicRoads road

In recent years numerous intersections in the above categories 2 and 3 have been upgraded by VicRoads in conjunction with Council under various state programs.

All intersections are potentially dangerous and different road users will have different interpretations as to whether an intersection is more dangerous than another. VicRoads Crashstats statistics and local knowledge are important inputs in the selection intersections for improvement.

Also not all intersections identified for improvement will require the same work to make them safer. Works may vary from simply erecting signs to a complex realignment and reconstruction of the pavement; each attracting different costs to undertake the work.

### **Actions:**

31. ***Council develop a list of intersections and the improvement works required to increase the safety of the intersection, with selection based on VicRoads Crashstat data and local knowledge.***
32. ***Council prioritize the intersections for treatment and pursue funding for upgrades of the priority intersections.***
33. ***Council lobby VicRoads to design and upgrade intersection treatments for priority intersections involving roads under the control of VicRoads.***

## 11 FORMED ONLY / UNMADE ROADS



### Introduction

Council has 140.5 km of formed only or unmade roads within the Shire that Council does not in any way maintain. These consist of a variety of standards, from formed only tracks, to vacant road reserves. The majority provide access to either vacant blocks or farm paddocks. Council currently has a Formed Only Roads Report detailing all the known formed only and unmade roads within the Shire.

### Background

Council has historically not been involved in the upgrading or maintenance of formed only and unformed tracks. There has however, been some community interest expressed encouraging Council to become involved in these roads.

To test the wider community views on this matter, the Community Survey Questionnaire addressed the issues of:

- (1) Inclusion of 'farm tracks' in Council's road improvement strategy; and
- (2) Methods of financing the cost of any works.

Analysis of the survey results reveals that, overall, the results are inconclusive in relation to 'farm tracks' as demonstrated by the following:

#### (1) Inclusion in Strategy

- Overall the community was evenly divided on supporting inclusion of a strategy to improve, by upgrading to gravel roads, 'farm access' tracks which connect paddocks, with responses to the question being: 49% supporting the proposal, 47% not supporting and 4% not committed either way.
- However, of note is that respondents on sealed roads were more supportive, with 54% answering 'yes' and 42% 'no', while respondents on gravel roads did not support the proposal, with only 42% answering 'yes' and 51% 'no'.

#### (2) Financing

- 57% of all respondents supported benefitting owners contributing to the cost of upgrading the farm track to a gravel road, with 49% of gravel road respondents and 63% of sealed road respondents answering 'Yes'.

- Respondents that supported a farm access strategy (previous question) did not support the benefiting owners contributing to the cost by a small majority (93 to 88).
- Respondents that did not support a farm access strategy (previous question) strongly supported the benefiting owners contributing to the cost by a majority of 127 to 44.

## Discussion

Council has 140.5 kilometres of unformed and formed only roads. At a cost of \$90,000 per kilometre, it would cost a total \$12,645,000 to construct them to a basic standard of 4 metre wide, 200 mm depth of local gravel pavement, with minimal shoulders and table drains and no major drainage structures such as bridges or flood ways. Even though constructed to a lesser standard, once constructed (by any funding means), the roads become the responsibility of Council to maintain and to upgrade if traffic volumes increase. Maintenance would entail grading once per year, with a gravel re-sheet approximately every 15 years. Once constructed, Council would bear the legal obligation as it does for all other constructed roads.

Should construction of the unformed and formed only roads be supported, there are three possible methods of funding:

- a. Method 1: Benefitting Owner/s Funded – 100% of cost borne by benefiting owner/s.
- b. Method 2: Council Fully Funded – Council to set aside a small amount from the Road Improvement Budget each year for the upgrade of ‘farm tracks’, with Council identifying and prioritising the roads to be constructed at full cost to Council.
- c. Method 3: Council & Benefitting Owner/s Funded – Council set aside a small amount from the Road Improvement Budget each year for the upgrade of ‘farm tracks’, with Council identifying and prioritising the roads to be constructed, with the benefiting owner/s contributing a set percentage of the cost under a Special Charge Scheme. The percentage of contribution to be established by Council.

## Actions:

- 34. Retain current position of not including formed only/unmade roads in the road improvement program**
- 35. Strategic upgrade at 100% benefiting owners cost following consideration of a detailed report regarding cost of ongoing maintenance and depreciation**
- 36. Cost to be recovered through a Special Charge Scheme**

## 12 ROAD IMPROVEMENTS – GRAVEL ROADS & NARROW SEALS



Council over the past few years has upgraded many local roads as part of externally funded works. A review of the proposed project list for ongoing improvements to local roads will be required as funding continues.

### Introduction

Over the last ten years Council has upgraded 34.4 km of gravel local roads to a sealed surface and widened 90.5 km of narrow sealed local roads as part of council, federal and state funded works. Traffic volumes were used for prioritising gravel roads and narrow sealed roads for improvement works, together with some external funding agencies extra criteria such as B-double heavy vehicle use. In the past the use of traffic volumes has served the community well with many roads upgraded.

However, Council recognised the limitations that the methodology may have moving forward and resolved in 2008 that, *“In the preparation of the next Road Strategy, review the current policy relating to roads in larger towns and small rural areas, with particular reference to vehicle movement numbers and priority lists”*. The Survey Questionnaire supports adding other guidelines to assist in setting priorities.

This 2010 Road Strategy examines the methodology used to prioritise projects for ongoing improvements to local gravel roads and narrow sealed roads and, with input from the community through the Survey Questionnaire, recommends an updated process for selecting and prioritising projects.

### Background

The 1999 Road Strategy adopted a methodology of using the road standard criteria of 200 vehicles per day for an existing rural gravel road, 250 vehicles per day for a narrow sealed road and 75 vehicles per day for a township gravel road, for upgrading to a 6.2 metre wide sealed road and developed a list of priority roads.

## Supplementary Guidelines for setting Project Priorities

The following project assessment criteria, providing for social and economic values, are to be used for supplement traffic volume criteria when setting priorities for road improvements:

- ❖ Number of properties along the road
- ❖ Number of dwellings in a cluster or clusters being accessed from the road
- ❖ Safety issues associated with intersection and / or alignment and / or vegetation and / or accident history
- ❖ Designated bus route
- ❖ Significant tourist feature or facility on the road that attracts motorists not familiar with the terrain or local traffic conditions
- ❖ Significant community feature or facility on the road that attracts motorists not familiar with the terrain or local traffic conditions
- ❖ Number of commercial vehicles using the road (*ie*, farming, logging, quarrying vehicles)
- ❖ Importance of the road as part of a linkage route

The new guidelines for assessing road improvement projects, comprising weighted traffic volume counts and social & economic criteria, are to be based on the scoring guidelines set out in Attachment 2 (social & economic criteria) and Attachment 3 (traffic volumes).

### 12.1 Gravel Roads

The Australian Roads Research Board (ARRB) in the latest 'Unsealed Roads Manual - Guide to Good Practice', March 2009, developed key principles in applying economic evaluations as a method to justify the sealing of a road. The principles when applied, generally demonstrate as a rough guide that it may be difficult to justify sealing a road carrying less than 100 vehicles per day, whereas if the road is carrying over 250 vehicles per day it will probably be justified. In between the 100 and 250 vehicles per day is the 'grey area', where using additional guidelines may be of benefit in ranking these gravel roads based on economic and social values.

### 12.2 Rural Gravel Roads

The latest research by the Australian Road Research Board (ARRB) justifies Council's current road standard criteria of 200 vpd for upgrading rural gravel roads.

Council could lower the road standard (vehicle count) criteria, but, given Golden Plains' climate and topography, on economic grounds it would be difficult to justify the change. The preferred option to assist in justifying priority improvement works is to add additional guidelines that address both economic and social benefits.

The survey questionnaire showed that the community strongly supports the use of additional guidelines, such as setting a maximum distance travelled on a gravel road before connecting to a sealed road, where 66% said that up to two (2) kilometres is reasonable. A new additional guideline could include assessing the 'reduced gravel road travel' impact of any proposed improvement, particularly where a number of properties currently travel more than 2 kilometres to a sealed road. Other guidelines supported by the community include using crash history and bus routes.

To be effective, the additional guidelines must be supported by data that is readily available, current and accurate. Fortunately Council has access to crash history data through VicRoads 'Crashstats' web based statistics for fatal, serious injury and other injury (require transport to hospital) crashes for all roads within the municipality and bus routes are available from the Department of Infrastructure.

Community meetings identified that if a road does not meet the warrants residents should have the opportunity to consider paying for the improvement of a road through a special charge scheme, even though the community has expressed that this is not a preferred option.

Under this program the gravel roads are upgraded to 6.2m wide sealed surfaces and extended to 6.8 metres wide where the traffic volumes exceed 1,000 vpd.

**Actions:**

- 37. Policy of 150 vehicles per day is used as the primary criteria for prioritising the upgrading of rural gravel roads to a sealed surface.**
- 38. Where the gravel road does not meet the traffic count criteria, but may have other benefits if sealed, the gravel road be further assessed on the following additional guidelines, in order of priority:
  - i. Reduced travel distance on gravel roads benefit;**
  - ii. Crash history; and**
  - iii. Bus route improvement.****
- 39. Where a gravel road does not meet any of the warrants for improvement, residents be given the opportunity to consider paying for the improvement of a road through a special charge scheme, subject to Council approval.**

### **12.3 Township Gravel Street**

The current road standard criteria for upgrading township gravel streets to a sealed surface is less onerous than rural gravel roads, with a requirement of 75 vehicles per day for the township street to be prioritised for improvement works.

Township roads may be considered differently from rural roads as the lot sizes are smaller and houses are usually located closer to the road than on rural roads. Therefore the issue of dust generation from the road is a greater issue in townships. As a result, apart from traffic volumes, other amenity issues, including dust, are considered when setting an improvement program.

These criteria have worked well in the past with many gravel streets being improved, and there does not appear to be any reasonable case for change.

The issue is, what defines a 'township street' from other roads, particularly with townships often fringed by rural residential development. Fortunately Golden Plains has already established the boundaries through its differential rating system, where defined townships are charged a separate rate. It is proposed that, for the purpose of defining 'gravel township streets' for improvements under this section, it must be within the 'township' differential rating boundaries.

Maps of township boundaries are included in the Golden Plains' Annual Budget document.

**Actions:**

- 40. Confirm policy of 75 vehicles per day be used as the primary criteria for prioritising the upgrading of township gravel roads to a sealed surface.**
- 41. That for the purpose of defining a gravel township street for improvement, it must be located within the 'Township' differential rating boundaries.**

## 12.4 Narrow Sealed Roads

The current road standard criterion for widening narrow sealed roads to 6.2 metres is 250 vehicles per day. With over 90.5 kilometres of narrow sealed roads widened over the past ten years, an examination of the *Moloney Road Condition Survey Report Oct 2008* shows only three [3] roads meet the criterion as of February 2013.

The narrow sealed roads listed below, which have narrow seal widths equal to or less than 5 metres, meet the road standard criterion of 250 vpd and have not been widened or are not currently programmed to be widened.

Road Name	Traffic Count (vpd)	Current Width (m)
Sobeys Road (Part)	260	3.7
Tall Tree Road Lethbridge	291	3.9
Finchs Road Haddon	257	3/9

In setting priorities for improvement of Narrow Sealed Roads the new guidelines for assessing road improvements incorporating traffic count data and social & economic criteria are to be applied.

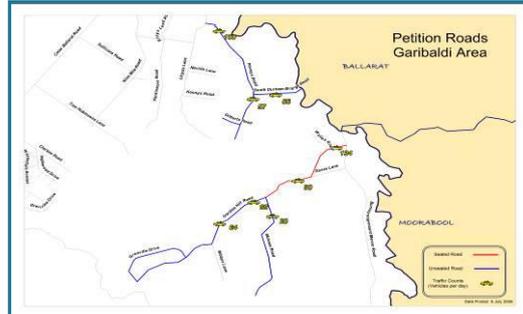
The Strategy supports Council developing a program to undertake widening works on narrow sealed roads at selected critical locations such as crests, curves and dips. Where these works are to be undertaken on roads with high value native vegetation, all reasonable care must be taken to minimise adverse impacts but still attain wider and safer roads.

A program for the widening of narrow sealed roads at selected critical locations - such as crests, curves and dips - is to be incorporated into the Road Improvement Program.

**Action:**

- 42. Confirm the policy of 250 vehicles per day to be used as the primary criteria for prioritising the widening of narrow sealed roads, together with supplementary criteria providing for consideration of social & economic values.**
- 43. Develop a priority list of works for narrow sealed roads requiring widening at selected sections based on the following criteria:**
  - **Traffic counts**
  - **Crash history**
  - **Strategic routes and bus routes**
  - **Historic maintenance costs.**

## 13 WIDENING NARROW GRAVEL ROADS



The widening of narrow gravel roads is an issue that has been raised by the community through petitions, service requests and letters and reported as a need for improvement accessibility by service vehicles such as the Waste Collection trucks. These are roads that carry low volume traffic and do not warrant sealing, but could provide a better travelling surface if widened as a gravel road.

### Introduction

The widening of narrow gravel roads is an issue that has been raised by the community through petitions, service requests and letters and reported as a need for improved accessibility by service vehicles such as waste collection trucks. These are roads that carry low volume traffic and do not warrant sealing, but could provide a better travelling surface if widened as a gravel road.

The community survey acknowledged this matter, particularly where any widening works have the potential to conflict with the need to protect native vegetation on the roadsides. Analysis of the questionnaire results demonstrated that the community generally (88%) supported removal of some native vegetation, with equally strong responses for just removing any vegetation and removing vegetation only in critical areas such as bends.

The Strategy supports Council developing a program to undertake gravel road widening works on narrow roads at selected critical locations such as curves, crests and dips. Where these works are to be undertaken on roads with high value native vegetation, all reasonable care must be taken to minimise adverse impact but still attaining wide and safer gravel roads.

The following lists the roads that could benefit from a selected widening program. These roads have been brought to the attention of council officers, but it is not a definitive list and Councillors may add other roads for inclusion in the program. The list is not in any priority order.

Road Name	Location
Log Hut Road	Thorpes Rd to Lawrence Rd
Hoveys Road	Lloyds Lane to South Durham Bridge Rd
South Durham Bridge Rd	Hoveys Rd to Boundary

Road Name	Location
Francis Lane	Pittong Rd to Linton-Mannibadar Rd
Linton-Mortchup Road	Glenelg Hwy to Boundary
Hillcrest Road	Glenelg Hwy to Boundary
Gists Road	Glenelg Hwy to Hillcrest Rd
Grams Road	Glenelg Hwy to end
Hendra Road	Full length off Russells Bridge Road
Cellante Road	Full length off Derwent Jacks Road
Bamganie Road	Shelford- Meredith Rd to Meredith-Mount Mercer Rd

**Actions:**

- 44. A programme for the widening of narrow gravel roads at selected critical locations such as crests, curves and dips be incorporated into the Road Improvement Program.**
- 45. A priority list of narrow gravel roads requiring widening at selected sections be developed from the roads identified in this report.**

## 14 PUBLIC LIGHTING

Council regularly receives requests for the installation of street lights on local roads at specific locations and historically budgets annually for new installations (\$30,000 in the 2012/13 Year).

The installation and maintenance of public lighting to provide safe passage on local roads and streets for vehicles and pedestrians is a Council responsibility.

A street lighting register is compiled and maintained and regularly updated as requests for new installations are received.

Lighting installations are currently prioritised against the following criteria:

(a) Community Benefit

There are community facilities in most of the townships in the Shire such as schools, community centres, halls, shops and recreation facilities.

Many of the community facility precincts generate higher level pedestrian and traffic activities and on that basis provide increased public risk associated with walking and cycling on the surrounding roads.

(b) Road Hierarchy and Safety

The provision of street lighting at intersections of roads that carry higher traffic volumes continues to be a significant factor when determining priorities for such installations, because of the safety implications at these sites.

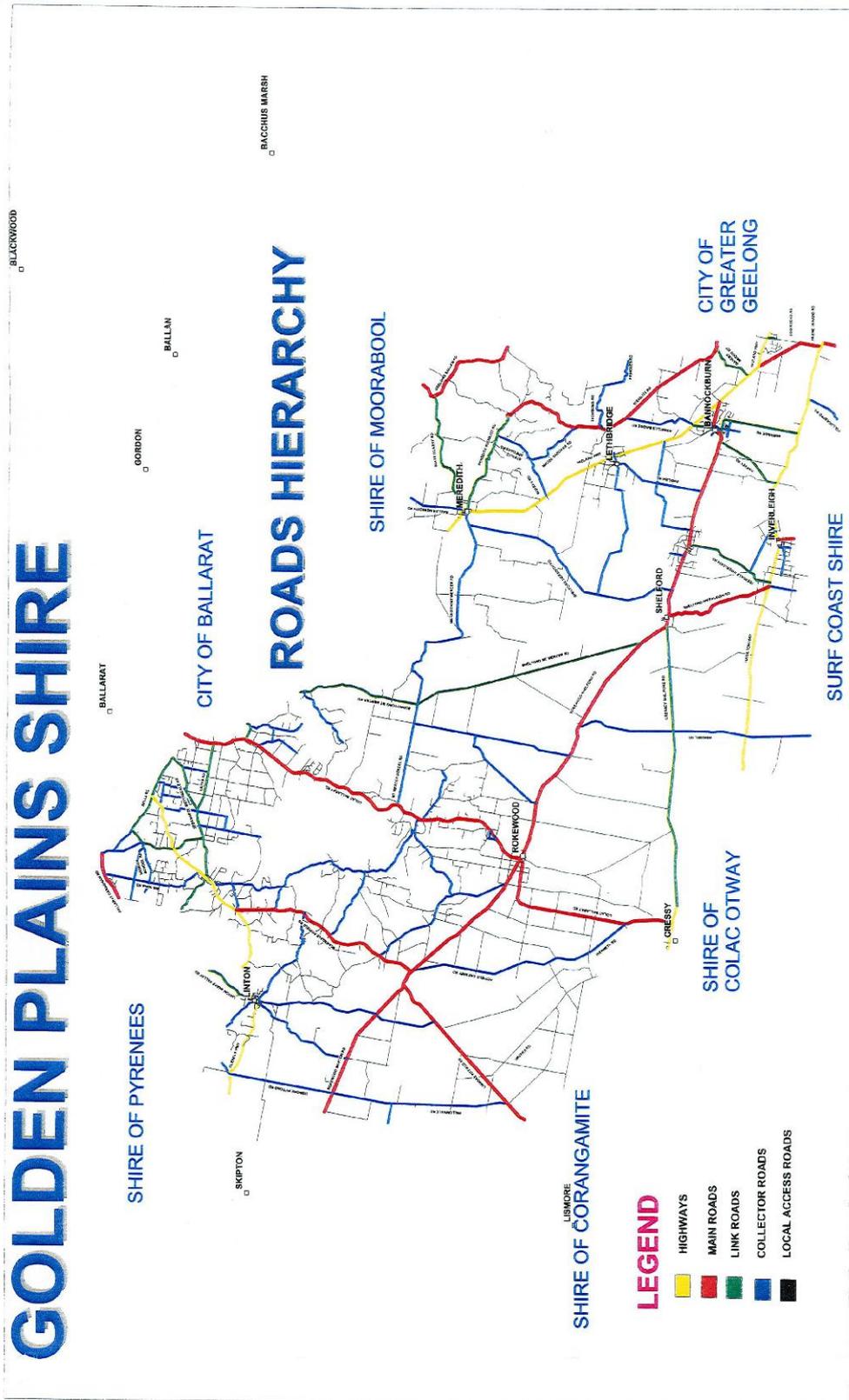
(c) Neighbourhood

High priority is also given to improving and / or providing street lighting in centres with the highest populations such as township residential and commercial areas, primarily because of increased pedestrian and bicycle activity in those areas.

**Actions:**

- 46. Maintain and upgrade, as appropriate, a priority program of street light installations with priority being given to improved public lighting in the following locations:**
  - **Community facility precincts – ie, schools, community centres, halls, shops and recreation facilities**
  - **Road intersections that carry high traffic volumes**
  - **Neighbourhood precincts that have higher populations, such as township residential and commercial centres**
  
- 47. Maintain a minimum funding level of \$30,000 each year until 2015/16 for new street lighting installations.**

## Attachment 1 – Road Hierarchy Map



## Attachment 2 - Social & Economic Scoring Guidelines

No.	Element	Score				
		1	2	3	4	5
1	Number of Properties along gravel road	1 dwelling per kilometre	2-4 dwellings per kilometre	5-7 dwellings per kilometre	8-10 dwellings per kilometre	> 10 dwellings per kilometre
2	Number of dwellings in a cluster or clusters accessing from the gravel road (eg, Grenville Drive housing cluster off Hardies Hill Road)	0 dwellings	1-5 dwellings in cluster/s	6-10 dwellings in cluster/s	10- 15 dwellings in cluster/s	> 15 dwellings in cluster/s
3	Safety issue associated with intersections and/or alignment and/or vegetation	N/A	N/A	Issue with one of the three safety items or Anecdotal evidence of traffic incidents over the last five years	Issue with two of the three safety items or History of serious injury accident in last five years	Issue with all three safety items or History of fatality accident in the last five years
4	Designated bus route	N/A	N/A	N/A	Is designated Bus route for part length of gravel road	Is designated Bus route for full length of gravel road
5	Significant 'Tourist' attractor (eg, Nimons bridge) along or at end of gravel road that may attract city drivers unfamiliar with the terrain and local traffic	Significant 'tourist' attractor that attracts extra traffic only occasionally (say, one day every year)	Significant 'tourist' attractor that attracts extra traffic only occasionally (say, one day every month)	Significant 'tourist' attractor that attracts extra traffic only occasionally (say, one day every two weeks)	Significant 'tourist' attractor that attracts extra traffic during weekdays or weekends only	Significant 'tourist' attractor that attracts extra traffic daily
6	Significant 'Community Infrastructure' (eg, school or church camp) attractor along or at end of gravel road that may attract additional city drivers unfamiliar with the terrain and local traffic	Significant 'Community Infrastructure' that attracts extra traffic only occasionally (say, one day every year)	Significant 'Community Infrastructure' that attracts extra traffic only occasionally (say, one day every month)	Significant 'Community Infrastructure' that attracts extra traffic only occasionally (say, one day every two weeks)	Significant 'Community Infrastructure' that attracts extra traffic during weekdays or weekends only	Significant 'Community Infrastructure' that attracts extra traffic daily
7	Number of commercial vehicles using the road due to farming, logging, quarrying or other industry activities, either along or accessing the road	1-2 commercial vehicles per day	3-4 commercial vehicles per day	5-7 commercial vehicles per day	8-10 commercial vehicles per day	> 10 commercial vehicles per day
8	Important route linkage with other sealed roads	N/A	N/A	N/A	Forms linkage with sealed local roads	Forms linkage with sealed arterial roads

N/A to be scored "0"

### Attachment 3 - Traffic Volume Scoring Guidelines

TRAFFIC VOLUME	ROAD PROGRAM		
	GRAVEL TOWN	GRAVEL RURAL	NARROW SEAL
250-241			30
240-231			20
230-221			10
220-211			5
210-201			0
200-191			
191-181			
180-171			
170-161			
160-151			
150-141		30	
140-131		20	
130-121		10	
120-111		5	
110-101		0	
100-091			
090-081			
080-071	30		
070-061	20		
060-051	10		
050-041	5		
040-001	0		