URALLA SHIRE COUNCIL

Invergowrie

Section 94 Contributions Plan
1 (c) Rural Small Holding

Section 94 Contributions Plan

PART A - INTRODUCTION

1. Citation

This plan may be referred to as the "S.94 Contributions Plan for Invergowrie". It has been prepared according to the requirements of Section 94 (9a) of the Environmental Planning and Assessment Act, 1979.

2. Purpose

The purpose of the plan is to enable the levying of developer contributions for the public amenities and services specified, which will be required as a consequence of increased demand generated by development in Invergowrie.

3. Aims and Objectives

The aims and objectives of the plan are:

a) to provide a fair and even basis for levying developer contributions;

b) to identify the nature of services and amenities to be provided by Council through developer contributions as a result of new development;

c) to predict future population demands and establish a nexus between anticipated development and contributions as a result of new development;

d) to maintain and enhance existing environmental and social amenity in accordance with current council policies;

e) to provide developers with minimum standards of works as per Council's Development Control Plan No. 1 - Rural Subdivision;

f) to enable the provision of facilities and services prior to, or in the early stages of development;

g) to encourage and ensure that the community is given every opportunity to participate in the formulation of the plan and in any subsequent changes to it;

h) to provide early advice to the development industry as to the amount of contribution which will be required for individual developments;

i) to facilitate appropriate financial management and accountability for expenditure of contributions received;

j) to ensure appropriate charges are levied to protect the environment and to ensure the provision of adequate facilities and services within the area;

k) to ensure that no additional burden is placed upon the existing rate payers within the Shire as a result of development;

l) to enable apportionment of developer contributions where applicable;

m) to provide advice as to the cost of studies which are to be met by the developer;

n) to use developer contributions within a "reasonable amount of time".

4. Relationship to Environmental Planning Instruments

The plan enables the levying of developer contributions specified for land uses permissible under Uralla Local Environmental Plan, 1988, as amended.

5. Land to which Plan applies

The plan applies to all land within Uralla Shire, known as Invergowrie which includes Zone 1(c), Rural Small Holdings, as identified on the map attached.

PART B - ASSESSMENT OF CONTRIBUTIONS

6. Assessment of Contribution

The amount of S.94 contributions to be levied for the specified amenities and services will be based on the increase in population generated by the proposed development and an assessment of the level of demand created for new amenities and services. This is referred to as the "nexus" between the development and the S.94 levy.

The provision of amenities and services will be staged prior to critical population thresholds being reached. S.94 contributions may either be obtained in advance of the provision of amenities and services or as a recoupment of funds previously spent on such amenities and services. Recoupment will only occur where amenities and services have been provided in anticipation of, and are of benefit to subsequent development, and subject to demonstration that there is a nexus between the development and the amenity and/or service.

7. Formula for Contribution

The formula for calculating the amount of contribution may vary according to the type of amenity or service in question.

* the additional demand generated by a development based on a rate for additional population, floor space or other factors;

* the current capital cost of providing the amenity including, where appropriate, the current cost of acquiring land and maintenance of any such amenities or services as decided upon by Council;

* the application of any apportionment and/or discount factor (refer to Clauses 8 and 9).

Contribution rates are contained in Schedule 1 and have been determined in accordance with Part C of this plan.

8. Apportionment

Where existing population will receive benefit from new amenities and services provided, the cost of providing those amenities and services will be apportioned between S.94 funds and other monies of Council.

Apportionment rates are included, where appropriate, in the formula for each category of contribution contained in Part C.

9. Discount Rates

In certain instances, as determined by Council, discount contribution rates may be applied by a specified factor. The purpose of this additional discount factor will vary, but may relate to factors such as Council's desire to encourage a particular type of

development or to make a contribution rate less onerous. This decision to discount contribution rates rests solely with Council.

10. Annual Adjustment

The contribution rates contained in Schedule 1 will be indexed annually in line with the CPI and, where applicable, land acquisition costs.

PART C - CONTRIBUTION RATES

ASSESSMENT OF CHARGES

11. Water Supply

The provision of a reticulated water supply for rural small holding areas can be a costly exercise. Accordingly, it is appropriate that some preliminary calculations be completed in order to determine whether it would be viable to consider the implementation of such a scheme.

A number of alternatives exist for the provision of water supply within a rural small holding area, and these are addressed in the sections below.

11.1 Full Reticulation System

This system would provide the greatest flexibility and would give the highest possible guarantee and benefit to land owners. It would be similar to a normal urban water supply. Although it may be possible to implement a system for the reticulation of non-potable water, this would appear to be somewhat counter productive given the extremely high costs of providing the collection headworks and distribution system and the relatively small costs of providing treatment if this were necessary to provide a potable water supply.

Approximately 800 allotments will be provided when the area is fully developed. Annual consumption for rural small holding areas may be significantly higher than that experienced in urban areas, however little information is available on consumption rates in rural residential areas with reticulated water supply on the Northern Tablelands. If we assume an annual consumption of 750 kilolitres per dwelling, then the total annual demand will be nearly 600,000 kilolitres.

Because of the relatively low rainfall in the area, and high losses through infiltration and evaporation, this would require a minimum catchment area of approximately 50 square kilometres to provide a reasonable supply during drought years. The available catchment from both Tea Tree Creek and Blackfellows Gully is approximately 39 square kilometres and it would therefore be necessary to fully dam both these creeks in order to maintain an adequate supply for the area. The Gwydir River has a significantly larger catchment area and would be able to provide sufficient flow to guarantee a reasonable water supply. It would therefore seem appropriate that any fully reticulated supply should be developed using the Gwydir River as a source to construct a dam with sufficient capacity to meet the needs of the study area. To maintain supply would require a storage capacity in the vicinity of 1,500,000 cubic metres with a construction cost of several million dollars. To this would need to be added the cost of pumps, reservoirs and reticulation. Total costs may be calculated as follows:

Construct main dam and spillway	$3,250,000
Pumps and intake works	550,000

Reservoirs 3 each at $110,000	330,000
Trunk mains 15,000 m @ $120/m	1,800,000
Total headworks including dam	$5,930,000

Approximately $7,400 per lot (800 lots)

Annual repayment on this loan over 20 years at 10% would be approximately $689,000 or $860 per potential lot. To this cost would need to be added the cost of subdivision reticulation (estimated at $6,425 per lot), maintenance and other operational costs. This would increase the total annual costs to well over $1,500 per annum for each dwelling. This would appear to be unacceptable and would place the provision of a full reticulated water supply out of reach of normal economic considerations.
The above figures must be considered indicative only and would require substantial refinement after detailed studies and cost estimates. A Public Works subsidy could be sought for the land, but is unlikely to be approved.

The provision of a full reticulated water supply, either potable or non-potable, is not economic for this estate.

11.2 Local System

It may be possible for groups of residents to band together and install a local supply, either operated by Council or as a local community water supply.

Such a supply could be based either upon the installation of a bore and reservoir, or the damming of creeks or rivers within the area.

An example is as follows:

Development comprising 20 allotments subdivided under community titles with the 20 residencies being constructed within a radius of 200 metres giving a total development area of 12.5 hectares, or approximately 0.6 hectares per dwelling. The remainder of the land, which would need to be at least 1.4 hectares per dwelling, could then be held in common ownership and developed for water supply purposes, horticultural purposes, natural bushland, disposal of effluent waste or other uses.

Approximate costs:

Construct earthfill dam	$65,000
Pumps and intake work	15,000
Reticulation 500m @ $90/m	47,500
Total development costs	$128,500

Total Cost per lot will be $6,425

Such a cost could be built into the development costs of the land, without placing the purchase price outside reasonable limits. Alternatively the funds could be repaid by way of a 20 year loan as in the previous example at 10% giving an annual repayment of $14,900 or $750 per allotment. The decision as to whether the cost would be added to the purchase price, or recovered by annual charges would rest with the developer and Council would not be involved.

The above scheme would provide non-potable water for fire fighting, gardening or general house uses, excluding drinking water etc. Provided the system were carefully constructed, it would be possible to install a small treatment plant either at the headworks or individually at each dwelling to provide clean potable water, should purchasers so desire.

11.3 Individual Supply

Presently purchasers make their own arrangements for water supply and Council's Development Control Plans provide requirements for either the construction of dams or other means of supply. Most residents provide rain water tanks together with a farm dam or bore supply.

Individual supplies should be able to maintain normal domestic uses, but are generally inadequate for other uses such as garden watering, stock watering etc, particularly during drought periods.

Residents who purchase in rural small holding areas are generally prepared to make their own arrangements for water supply and to import water in periods of drought or failure of their domestic supply.

11.4 Conclusion

The provision of a full reticulated water supply for developments completed with normal public road access could increase the cost of developing lots by $12,000 to $15,000 per allotment and incur annual rate charges for maintenance of up to $1,200 to $1,600 per dwelling site.

The implementation of local schemes, particularly in developments completed under Community Titles Legislation where dwellings can be located close together to the

water supply source, would appear to be an attractive option adding $5,000 to the purchase price of a block of land, with annual operational costs being quite acceptable.

The provisions of Development Control Plan Numbers 1 and 2 will be adopted with respect to water supply.

Recommendation

It is recommended that water supply comply with Council's Development Control Plan Number 2. This requires that a total roof catchment area of at least 290 square metres be connected to a minimum water storage capacity of 70 000 Litres. A reduction in total roof catchment area can only be approved if there is proven groundwater yield and quality.

ROADS

12. Roads

Any reference to roads includes all necessary works of construction, bridges, drainage, signs, tree planting, warning or protection measures.

Any roadworks that are required due to new development including the provision of new roads, road intersections or improving existing roads will be done at full cost to the developer.

In the case where existing population will benefit from these works, it is reasonable that the cost be apportioned between new development and existing development.

Where appropriate, designated development, new development or heavy traffic generating development will be required to contribute to the maintenance of the roads.

From these factors, the contribution formulae can be derived based on present traffic volumes, axle loadings, maintenance cost, pavement life reduction cost and any other relevant factors.

Current Council policy does not require the provision of bitumen sealed roads within rural small holding areas unless the daily traffic volume exceeds 100 vehicles per day. The levying of charges would be restricted to the provision of sealed roads within future developments, leaving the backlog of unsealed roads within the existing areas to be picked up through the levying of either a special local rate or through general rate income.

It is generally accepted that subdividers' responsibilities should include the cost of constructing all internal roads. If only some of the roads are to be sealed, then it is appropriate that the additional cost of sealing those roads should be equally distributed between all proposed allotments. The increased cost of bitumen sealing as shown to be approximately $118 per metre of roadway (bitumening an already formed gravel road). The construction required may therefore be calculated as follows:

4,500 m * $118/ 500 lots = $1,062 per potential lot

These figures are indicative only and are indexed according to Clause 10 of this plan.

Should Council decide that the standard should be increased such that all internal roads should be sealed, then there would be no need for special contribution unless a significantly higher standard was required for the main arterial routes. The cost per lot would be increased to approximately $6,000 however this would be partly offset by the elimination of the contribution required.

Until subdivision applications are received and the design done it is difficult to estimate the location or length of roads which may be appropriate for sealing, or to estimate the total length of road which may be required within a rural small holding area. The following calculations are based upon a number of assumptions and where appropriate

these assumptions are identified. These figures are based on the sealing of existing gravel roads.

Approximate total number of lots to be developed	500
Minimum Area 2 hectares	
Average Frontage	120m
Total Estimated Length of Road	500/2*120 = 30,000m (30km)
Proportion of main or arterial road	30% = approximately 4.5 km
Construction Costs	
Bitumen roads	10 m formation 6.7 m seal $2230/m
Gravel roads	10 m formation $118/m

The figures presented above are indicative only. Factors which can alter the overall cost of developing roads include design, works to be carried out including the removal of rocks, drainage works, tree clearing and so on and the type of road to be constructed.

13. Road Maintenance Royalties

Any development which contributes to the accelerated deterioration of existing road conditions will be required to contribute to the cost of maintaining such roads in the form of Road Maintenance Royalties. The amount of contribution will be apportioned according to the type of development and consequent pressures placed on existing road systems by such development.

13a. Road Maintenance Formula

Reference 1: Pavement Design, NAASRA, 1987.

Need Present Traffic Volume AADT
Proportion of heavy vehicles - %
Rural Roads Pavement Design - 20 years design life

Class of road (Reference 1, Appendix A, Table A1)

i) Calculate Equivalent Axle loadings (Appendix E, Reference 1)

ii) Calculation of Equivalent Standard Axles generated by the proposed development using Method 3, Appendix E, Reference 1.

iii) Maintenance Cost

$$\text{Average cost} \times \frac{\text{extra standard axles}}{\text{present standard axles}}$$

iv) Pavement Life Reduction

$$20 \text{ years} \times \frac{\text{present E.S.A.}}{\text{present E.S.A.} + \text{extra E.S.A.}}$$

This gives the reduced pavement life.

Annual Reconstruction Cost

$$\frac{\text{length of road affected} \times \text{average width} \times \$/m^2}{20 \text{ years}}$$

Additional cost due to development

$$= \text{Annual Reconstruction Cost} \times \frac{20 \text{ years}}{\text{reduced pavement life}} - 1$$

TRAFFIC MANAGEMENT MEASURES

14. Road Sealing

Any development, including subdivisions, which contribute to increasing the traffic volume on any roads leading to such development to 100+ vehicles per day, will contribute to the cost of sealing such roads.

The amount of contribution to be levied for normal residential development will be determined on the basis of each lot within a new development generating 6 vehicle trips/day. Any other new development will be required to contribute to road sealing according to the amount of traffic generated per day by the development.

Any development in an area that has the potential to generate a traffic volume of 100+ vehicles per day, shall be required to contribute to the cost of sealing all roads leading to the development.

The contribution to be levied will be apportioned between existing traffic generating developments and new traffic generating developments.

Main feeder roads for which contributions will be levied for sealing include:

* Kareela Road
* Kendall Road
* Marble Hill Road
* Kalinda Road
* Any other main feeder road created by the development

Where vehicle trips per day exceed 100 on any other road, contributions will be levied for the sealing of such roads. If a development creates a road generating 100+ vehicle trips per day onto an existing unsealed feeder road the developer will contribute a proportion of the cost of sealing that feeder road indexed according to Clause 10 of this plan.

15. Traffic Management Measures

Any development which is of such a magnitude as to require upgrading or new traffic management measures will be required to make a contribution towards the cost of providing these measures.

Depending on the location of individual developments, and consequent pressures on existing traffic management measures, Council will consider levying an apportionment contribution to upgrade current works or provide new works. Such works may include construction of median strips, shoulder widening and deceleration and overtaking lanes.

16. Rural Road Upgrading

As the Invergowrie area develops and extends further to the west, it is probable that some of the developed areas will gain access to the Bundarra Road to the west of Blackfellows Gully and to the east of Tea Tree Creek.

Low level causeways presently exist at these crossings and these are inundated during periods of flood. It may be appropriate to consider upgrading these crossings and/or considerimprovements to badly aligned sections of Bundarra Road where increased traffic volumes will require such works.

Suggestions of 3 cell 2,400 mm diameter pipes would be sufficient to accommodate the 1 in 100 year flow at these crossings with an estimated cost of construction being approximately $80,000.

It is difficult to estimate the apportionment of contributions to cover that cost because Bundarra Road is a main road providing access between major population centres. As such the existing crossings are below the standards which would normally be applied by the responsible authorities for the construction of such roads and the existing facility may therefore be seen to be below current accepted standards.

The development of the area for rural small holding purposes increases the urgency and therefore it is recommended that Council consider the upgrading of these culverts either with or without contribution requirements from developers, or subdividers within the Invergowrie area.

Should Council proceed with the upgrading and obtain funding from the Roads and Traffic Authority, it is recommended that 30 % of the costs may be appropriately charged against developers within the Invergowrie Estate west of Blackfellows Gully. This would represent a total contribution of $24,000 or $240 per potential allotment based on a maximum of 100 lots being created.

A charge will also be levied for the provision of a high quality intersection between Bundarra Road and any existing or proposed new main distributor into the area. Using figures published by the National Association of Australian State Road Authorities it may be assumed that 3,200 vehicle movements will be generated in and out of the new development when it is fully subdivided. Peak hourly flows may be as high as 300 to 400 vehicles. This flow may be divided between the existing intersections at both Kareela Road and Invergowrie Road and a proposed new intersection between Blackfellows Gully and Tea Tree Creek.

Peak traffic volumes are significant and it would therefore be appropriate for an intersection to be designed and constructed in accordance with the recommendations of the State Road Authority. This would require either a Type "A" intersection at an estimated cost for widening channelization etc., of $48,000 per intersection or a Type "B" intersection at an estimated cost of $16,000.

The following intersections will be the responsibility of future developers:

* one of the two intersections at Kareela Road and Invergowrie Road (contribution of $108 per lot)

* west of Blackfellows Gully (full cost to the developer)

* east of Mount Mitchell Road (full cost to the developer)

The type of intersection to be provided will be determined upon receipt of a development application outlining the location of the subdivision and function points with existing roads. If a development is to create a new intersection, the construction of such an intersection will be the responsibility of the developer.

Council does not intend to pursue funding under the S.94 Contributions Plan for upgrading of the Blackfellows Gully Crossing. This is because of:

* Funding from the RTA is uncertain with no program with regular funding for works of this type.

* The amount of funds provided by S.94 Contributions is minimal and may cause difficulties for Council in it meeting its responsibilities under the plan in carrying out the work, particularly if Government funds are not available.

* It is not known when funding may be available for this project.

17. Open Space and Sporting Fields

No contribution for open space was suggested in the original document. There has however been recent discussions concerning the Saumarez Recreation Area and whether to levy a contribution towards the future development of this site.

18. Community Buildings and Pre-school Facilities

When fully developed, the population of the Invergowrie area will be approximately 3,000 persons. Facilities such as a community hall for a pre-school, youth group and general meeting place may need to be provided.

Should a contribution be levied for these facilities, appropriate charges may be calculated as follows:

Cost of acquisition of 2 hectare site	$45,000
Provision of multipurpose building Total Floor Area 300 square metres	$231,000
Landscaping, beautification, parking and other services	$ 35,500

Total Development Costs	$311,500
Total Contribution Required	= $270,000/800 lots = $390 per allotment

BUSHFIRE CONTRIBUTIONS

19. Bushfire Contributions

Any development on land which is subject to bushfire hazard will be required to contribute to measures to reduce such bushfire risk, as per section 3- Bushfire protection, Uralla Development Control Plan Number 1.

Any development which is to be undertaken in Medium or High risk bushfire hazard areas, as identified on Bushfire Hazard Map No. 11, Local Environmental Plan, 1988, shall contribute to the provision of services to enable control of any such hazards to be carried out. The monetary contribution to be levied has been based on the following:

The amount to be contributed $480 per lot, isbased on the purchase price of a 650 litre tanker trailer (Note Clause10 of this plan).

For every one dollar that is contributed to Council, a further seven dollars is contributed by the Bush Fire Council of NSW, so that the necessary fire fighting equipment may be purchased.

Any contributions levied by Council will be put towards providing the necessary equipment and resources required by local fire fighting agencies to carry out their responsibilities. Such equipment and resources may include tankers, trucks, four-wheel drive vehicles, pumps, land, buildings for housing and storing equipment and the like.

20. Erosion Control

No contributions as such can be levied for these works, however development will be required to be carried out in such a way to prevent erosion in all future areas. Erosion and sediment control plans will be required prior to release of linen plans for subdivision. Standard land and water guidelines are to be provided to future landowners by the developer. These guidelines must comply with Council's Local Environmental Plan, 1988, Development Control Plans 1 and 2 and the Department of Conservation and Land Management requirements.

21. Recovery of Costs of Studies

Where a study is related directly to a proposed development, Council may recoup the cost of that study, either directly from the development or by way of a S.94 contribution. Total costs for completing the Invergowrie study, together with advertising and other internal costs incurred by Council totals approximately $34,500 or $69 per lot.

PART D - PAYMENT OF CONTRIBUTIONS

22. Payment of Contributions

Depending on the type of amenity or service in question, contributions may be required to be settled by one or a combination of the following methods:

* monetary contribution
* dedication of land; and/or
* provision of a material public benefit (MPB) i.e. works "in kind"

Monetary contributions received by Council are to be invested in accordance with the Local Government Act, 1993. Any interest received on such accounts will be used for the service or amenity for which the contributions were levied.

Any contribution currently held by Council, including interest from such holdings, will be clearly distinguished in Council's records.

23. Timing of Contributions

Contributions are required to be paid as follows:

* development applications involving building work - at the time of building approval

* development applications involving subdivision - prior to the signing of linen plans

* development applications where no building approval is required - at the time of development consent

24. Dedication of Land and Material Public Benefit

A decision as to whether to accept the dedication of land or the provision of a material public benefit/ works "in kind" in lieu of a monetary contribution, will be at the discretion of Council. Factors Council will take into consideration include:

* the extent to which the land/ MPB/works satisfies a community need;

* the extent to which the land/MPB/works satisfies the purpose for which the contribution was sought;

* a consideration of location and other factors which may affect usability;

* an assessment of recurrent maintenance costs to Council.

PART E - ACCOUNTABILITY

25. S.94 Statutory Reserve

Council has established a statutory reserve for the management of S.94 contributions. This fund has separate internal ledgers for each category of contribution . The following separate ledgers have been established:

* Roads
* Road Sealing
* Traffic Management Measures
* Road Maintenance Royalties
* Intersection Provision
* Rural Road Upgrading
* Bushfire Contributions
* Community Buildings
* Study and Investigation Costs

Contributions paid into these ledgers must be spent for the purpose for which they were levied in the time specified in the Works Program (Schedule 2). Interest will be calculated on funds held in each ledger and credited to each ledger as appropriate.

26. Priority Spending

Council may permit the short-term transfer of funds between ledgers in order to enable works to be undertaken on a priority basis, for example where drainage works are required to be in place prior to other aspects of a subdivision proceeding. This will only be done on the basis that:

* full details of the transfer and subsequent reimbursement of funds are recorded in the respective ledgers;
* the transferred funds are returned to the relevant ledger by future contributions;
* there is a reasonable expectation that future contributions will be obtained to enable reimbursement of the ledger from which monies have been transferred;
* the purpose for which the contribution was levied will not delay or threaten the provision of any amenity or service identified in the Works Program.

Council is not permitted to transfer funds between the S.94 reserve and other funds of Council, for example the General Fund.

27. Contributions Register

Council will maintain a register of all contributions received. The register will record:

* the origin of each contribution by reference to the development consent to which it relates;
* the date of receipt of the contribution;
* the type of contribution received, eg. money, land, works "in kind";
* the amount of the contribution and the purpose(s) for which it was levied;

* the total of contributions expended each year by purpose;
* expenditures from the fund according to date and purpose, including details of priority spending;
* interest earned by purpose.

The register will be available for public inspection, free of charge, at any time during normal office hours.

28. Annual Statement

Council will produce an annual statement of contributions received which summarises, by purpose and area, details recorded in the contributions register. This information will be available for public inspection, free of charge at any time during normal office hours.

29. Review of Plan

Any material change in the plan with the exception of the annual adjustment of contribution amounts, will require that the plan be amended in accordance with the Environmental Planning and Assessment Regulation, 1994. This will require full public exhibition of the amended plan and consideration of submissions received.

The plan will initially be subjected to a review after one (1) year and every three years thereafter.

30. Designated Development

Any development proposals for designated development and like land uses within the area will be given due consideration under the plan. Large and unusual developments may be subject to a separate contribution plan. These may include such matters as:

* water supply
* waste disposal/ management
* monitoring of the environment e.g. air, water and soil pollution.

SCHEDULE 1

CONTRIBUTION RATES TO BE LEVIED

The following are S.94 Contribution Rates to be levied for Invergowrie (based on 500 lots; note Clause 10, Annual Adjustment):

i)	Sealing of Main Traffic Routes	$1,062 per lot
ii)	Provision of Community Buildings	$390 per lot
iii)	Provision of Fire Fighting Equipment	$480 per lot
iv)	Recoupment of Study and Investigation Costs related to Development	$69 per lot
v)	Recoupment of Provision of a Type "B" Intersection on Bundarra Road	$108 per lot
vi)	Road Maintenance Royalties	To be calculated as per the formula in this schedule
	TOTAL CONTRIBUTION	**$2,109 per lot**

Contribution Calculations

Roads

Cost of bitumen sealing an existing gravel road

Approximate total number of lots	500 to be developed
Minimum Area	2 hectares
Average Frontage	120 m
Total Estimated Length of Road	500/2*120 = 30,000m (30km)
Proportion of main or arterial road	30% = approximately 4.5 km

Construction Costs

Bitumen roads	10 m formation 6.7 m seal $230/m
Gravel roads	10 m formation $118/m

For 500 lots the approximate contribution per lot can be calculated as follows:

4,500 m * $118/m / 500 lots= $1,062 per potential lot

Road Maintenance Royalties

Road Maintenance Formula

Reference 1: Pavement Design, NAASRA, 1987.

Need Present Traffic Volume AADT
Proportion of heavy vehicles - %
Rural Roads Pavement Design - 20 years design life

Class of road (Reference 1, Appendix A, Table A1)

i) Calculate Equivalent Axle loadings (Appendix E, Reference 1)

ii) Calculation of Equivalent Standard Axles generated by the proposed development using Method 3, Appendix E, Reference 1.

iii) Maintenance Cost

$$\frac{\text{Average cost} \times \text{extra standard axles}}{\text{present standard axles}}$$

iv) Pavement Life Reduction

$$\frac{\text{20 years} \times \text{present E.S.A.}}{\text{present E.S.A.} + \text{extra E.S.A.}}$$

This gives the reduced pavement life.

Annual Reconstruction Cost

$$\frac{\text{length of road affected} \times \text{average width} \times \$/m2}{\text{20 years}}$$

Additional cost due to development

$$= \text{Annual Reconstruction Cost} \times \frac{\text{20 years}}{\text{reduced pavement life}} - 1$$

Community Buildings

Cost of acquisition of 2 hectare site	$45,000
Provision of multipurpose building Total Floor Area 300 square metres	$231,000
Landscaping, beautification, parking and other services	$ 35,550
Total Development Costs	$311,500

Total Contribution Required= $311,500/ 800 lots
= $390.00 per allotment

SCHEDULE 2

WORKS SCHEDULE

Services, facilities or amenities to be provided in order of preference:

* Rural Road Upgrading including provision of intersections
* Road Sealing
* Bushfire Fighting Equipment
* Community Hall
* Road Maintenance Royalties

SCHEDULE

Service/Facility/Amenity	Estimated Cost	Time Frame for Provision
Rural Road Upgrading	$130,000	when 100 lots are created
Road Sealing	$480,000	when daily traffic volumes exceed 100 vehicles per day
Bushfire fighting Equipment	$105,000	Yearly
Community Hall	$270,000	When 100 lots are created