

10.1 General

Before 1995 the identification of the maintenance and upgrading needs of rural roads within the Province was controlled by the Natal Provincial Administration's Roads Branch (NPA Roads) and the KwaZulu Government's Department of Works (DoW). Other role players such as the KwaZulu Department of Agriculture and the NPA's Department of Local Government administered certain rural roads such as in-field and community roads.

10.2 Application Sources

10.2.1 Pre-CARNS Studies

The responsibility for identifying the needs of rural roads within KwaZulu fell on the DoW whose methods for identifying road needs evolved from the Authority Affairs and Finance Circular No.5 of 1975. This circular made the various tribal authorities within the areas administered by the KwaZulu Government responsible for the planning and maintenance of all so-called 'Tribal Roads'. The planning and maintenance of the formal road network (previously ZM and ZD roads) was carried out by the KwaZulu DoW.

In terms of this Circular no budget or formal support was made available to the Tribal Authorities to administer and maintain the Tribal (informal) Roads and these authorities relied on ad hoc grants from the Chief Minister for this purpose. It became common practice for the Tribal Authorities to hire plant from the DoW to upgrade or maintain these roads.

After 1980 the DoW ceased most of their plant operations on the Tribal (informal) Road network and the upgrading of these roads was carried out using various drought relief and job creation programmes.

Applications for the upgrading of roads in the Tribal Authority areas were channelled through the DoW to various funding sources in the form of ad hoc requests until the implementation of the TRUMP programme in the late 1980s. An acronym for

Tribal Road Upgrading and Maintenance Programme, this was based on a comprehensive and systematic method for Tribal Authorities to apply for funding for roads which they had selected for upgrading or maintenance. More details of the programme appear in Section 1.3.3.

During this period, before the amalgamation of KwaZulu with Natal, the NPA Roads Branch was responsible for all proclaimed roads within Natal. The process of proclamation was formally set out in the Provincial Roads Ordinance No 10 of 1967. Allowance was made in this Ordinance for the subsidising of lesser roads known as By-Roads. At present the Department of Transport is responsible for some 350 By-Roads in KwaZulu-Natal.

10.3 CARNs

10.3.1 Interviews with Communities

The majority of applications for construction of Community Access Roads were generated by field investigations carried out by the CARNs Consultants Group during late 1995 and 1996.

The consultants' field teams set up meetings with each Tribal Authority in their district where representatives of the community either submitted written or verbal applications for Community Access Roads. In many cases it was necessary for the field teams to investigate each road application so that the physical characteristics of that road or track could be captured.

10.3.2 Desktop Studies

To ensure that the study was as comprehensive as possible the fieldwork described in 10.3.1 was augmented by a desktop study, which has been more fully described in Section 3.1. The desktop study was also used to identify deficiencies in the existing formal (proclaimed) network.

10.4 Findings

Lists of these road applications for each of the 24 Magisterial Districts of the former KwaZulu were produced in order that a clear and deliberate implementation strategy for the construction of the Community Access Roads could be formulated.

The road applications listed were prioritised using the methodology described in Chapter 6 based on the revised

'points system' and the results for each Magisterial District are presented in Appendix A of this report. The applications are catalogued from the highest priority (ie the application with the highest number of points) to the lowest priority (the application with the lowest number of points).

10.4.1 Statistics on Information Gathered

Before the commencement of CARNS it was estimated, mainly from comparison with data from other African countries, that the backlog of Local or Community Access Roads in KwaZulu-Natal was approximately 17 000km. However, there has been no local data until now to justify this estimate and the figure has remained as an educated 'guestimate'.

Table 10.1 summarises the overall statistical information gathered by the field and desktop studies from all 24 Magisterial Districts.

TABLE 10.1 : FINDINGS OF THE CARNS STUDY	
Total number of road applications	3 370
Total length of all roads applied for	11 421km
Average length of road	3,4km
No of roads needed to serve Schools	1 550 (46%)*
No of roads needed to serve Clinics	592 (18%)*
No of roads needed to serve Both	447 (13%)*

* Percentage of total applications

The findings presented in Table 10.1 are thus a 'snapshot' of the Province's present Community Access Roads needs. These figures will in all likelihood be updated by expected alterations to local and metropolitan boundaries and additional applications after the submission of this Report.

10.5 Classification of Road Needs

The existing deficiencies and redundancies in the Provincial network must be addressed to enable the network to serve the needs of the Province as efficiently as possible. To this end the applications were classified as indicated in Table 10.2 according to the size of population served as recommended in Table 7.1 on page 7.9, and a road type was assigned to each application. Construction costs for the three types of road were based on recent experience for similar roads. Design standards

for Type 6, 7A and 7B Community Access or Local Roads appear in Section 8.3 of this Report.

TABLE 10.2 : CLASSIFICATION OF LOCAL ROADS		
TYPE	POPULATION SERVED	CONSTRUCTION COST
6	> 2 000 people	R90 000/km
7A	500 - 2 000 people	R60 000/km
7B	<500 people	R45 000/km

It is envisaged that the higher order Type 6 roads are possible candidates for later proclamation as either Provincial Main or District Roads (ie addressing the backlog of formal roads). The Type 7A road would be the norm in terms of Community Access Road standards and the Type 7B road would apply to the lowest order of road serving smaller communities.

Table 10.3 presents a summary of the data collected by the fieldwork and desktop studies. The table also presents the proposed budget allocations as recommended in Table 6.6 on Page 6.15 of this Report.

TABLE 10.3 : COMMUNITY ACCESS ROAD APPLICATION DATA BY MAGISTERIAL DISTRICT

MAGISTERIAL DISTRICT		PERCENT BUDGET ALLOCATION EX TABLE 6.6 (%)	APPLICATIONS								
NO.	NAME		NO.	LENGTH km	AVE LENGTH km	Type 7B		Type 7A		Type 6	
						LENGTH km	NO.	LENGTH km	NO.	LENGTH km	NO.
1	Emnambithi	4.0	259	997	3.8	864	240	77	13	57	6
2	Emzumbe	4.1	99	323	3.3	73	38	214	55	35	6
3	Enseleni	7.1	76	402	5.3	287	59	98	16	17	1
4	Hlabisa	4.9	64	328	5.1	211	47	73	13	44	4
5	Hlanganani	2.6	259	657	2.5	409	199	180	48	68	12
6	Ingwavuma	5.7	56	518	9.3	66	15	152	20	300	21
7	Inkanyezi	4.1	166	657	4.0	142	56	261	70	254	40
8	Izingolweni	3.1	94	239	2.5	106	61	107	30	27	3
9	Madadeni	4.8	31	149	4.8	27	9	58	12	64	10
10	Mahlabathini	2.4	155	460	3.0	140	66	216	72	103	17
11	Maphumulo	3.0	186	670	3.6	234	78	179	62	258	46
12	Mpumalanga	3.7	82	229	2.8	163	72	66	10	0	0
13	Msinga	4.8	53	385	7.3	68	18	204	25	112	10
14	Ndwedwe	5.2	92	277	3.0	105	54	154	35	18	3
15	Nkandla	3.0	112	583	5.2	66	24	213	49	303	39
16	Nongoma	3.0	339	888	2.6	217	127	516	175	155	37
17	Nquthu	7.5	41	276	6.7	5	1	128	19	143	21
18	Okhahlamba	5.8	261	1005	3.9	404	167	399	77	202	17
19	Ongoye	4.1	134	385	2.9	58	18	118	52	208	64
20	Simdlangentsha	2.5	83	339	4.1	114	32	180	43	46	8
21	Ubombo	4.4	77	619	8.0	48	11	273	43	299	23
22	Umbumbulu	5.4	412	612	1.5	106	143	218	157	289	112
23	Vulamehlo	1.8	112	276	2.5	47	37	123	50	106	25
24	Vulindlela	3.0	127	143	1.1	112	115	31	12	0	0
TOTALS		100.0	3,370	11,417	3.4	4,072	1 687	4,238	1 158	3,108	525

10.6 Addressing the Backlog of Local Roads

With the ultimate or long term goal being the construction of all Community Access Roads in the Province, a strategy was necessary to address this need in a reasonable time period and on an acceptable budget. It is envisaged that the amount of money set aside for the construction and maintenance of Community Access Roads will start at a relatively low figure and gradually increase as the capacity and capability of the both government and the private sector increases.

In the 1996 financial year, R24 million was set aside for the construction of Community Access Roads, and this figure is expected to grow to a maximum annual expenditure of R100 million (in 1996 terms) over the next 4 years. The R100 million per annum would then be maintained until the long term goal has been achieved.

With this budget scenario it is possible to determine the time spans necessary to achieve some short, medium and long term goals. Taking into account the funds allocated to each Magisterial District and setting aside a proportion of each allocation to design and administration costs, the length of road which would be constructed for each District has been determined. In these calculations funds have also been set aside, on an annual basis, for the maintenance of those roads which were constructed in previous years, as this is considered essential.

10.6.1 Short Term Goal

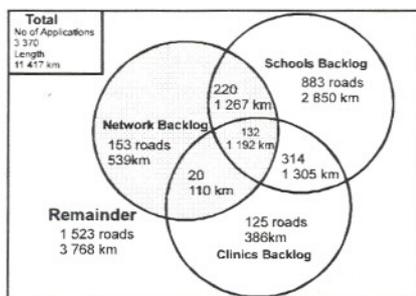


FIGURE 10.1 : Network Backlog of Type 6 Roads Serving Communities of More than 2 000 People

Total Applications = 153+220+132+20 = 525
 Total Length = 539+1267+1192+110=3108km

The immediate or short term goal is to address the most urgent need of the people, which is to construct roads which serve isolated communities of 2 000 people or more (ie Type 6 roads). A total of 525 applications for roads which fall in this category have been received, with an overall length of 3 108km. This comprises 27% of the total applications received. The majority of these applications also serve schools and/or clinics as indicated in the shaded area of the set diagram in Figure 10.1 opposite. (This drawing is reproduced at a larger size as part of Figure 10.5 at the end of this Section.)

This number of applications compares favourably with the theoretical road network backlog of 2 681km presented in

Table 6.5 on 6.13 of this Report. A comparison of the theoretical and the actual applications for each Magisterial District are presented in Table 10.5 on page 10.10. It also gives an estimate of the time needed to address the theoretical backlog for each District.

10.6.2 Medium Term Goal

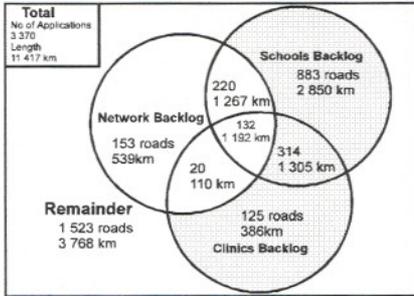


FIGURE 10.2 : Applications for Roads Serving Schools and Clinics

Total Applications = 883+314+125=1 322
 Total Length =2 850+1 305+386=4 541km.

The medium term goal should be to construct those roads which serve the communities most important health and educational needs. A total of 1 322 applications were received for roads needed to serve existing clinics or schools or both as indicated in the two shaded portions of Figure 10.2, indicating roads required to serve schools and clinics separately. Their total length was a substantial 4 541km which accounts for some 40% of the overall length of the applications. It is thus evident that roads to schools feature highly amongst the communities needs with 58% of all applications serving schools.

10.6.3 Long Term Goal

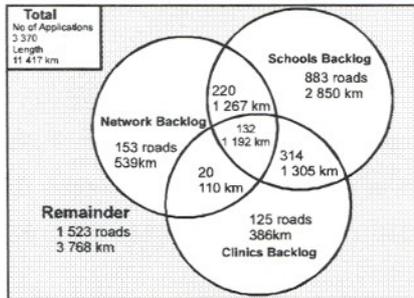


FIGURE 10.3 : Applications for Roads Serving Facilities Other than Schools and Clinics

Total Applications = 1 523
 Total Length = 3 768 km

The long term or ultimate goal should be to construct the remaining 1 523 roads which have a length of 3 768km. These are roads which are not related to schools and clinics, and serve more economic and social needs such as agricultural holdings, shops, religious facilities or tourist sites. These applications account for 33% of the total applications and are predominately for Type 7B roads. These are shown in the shaded outer area of Figure 10.3.

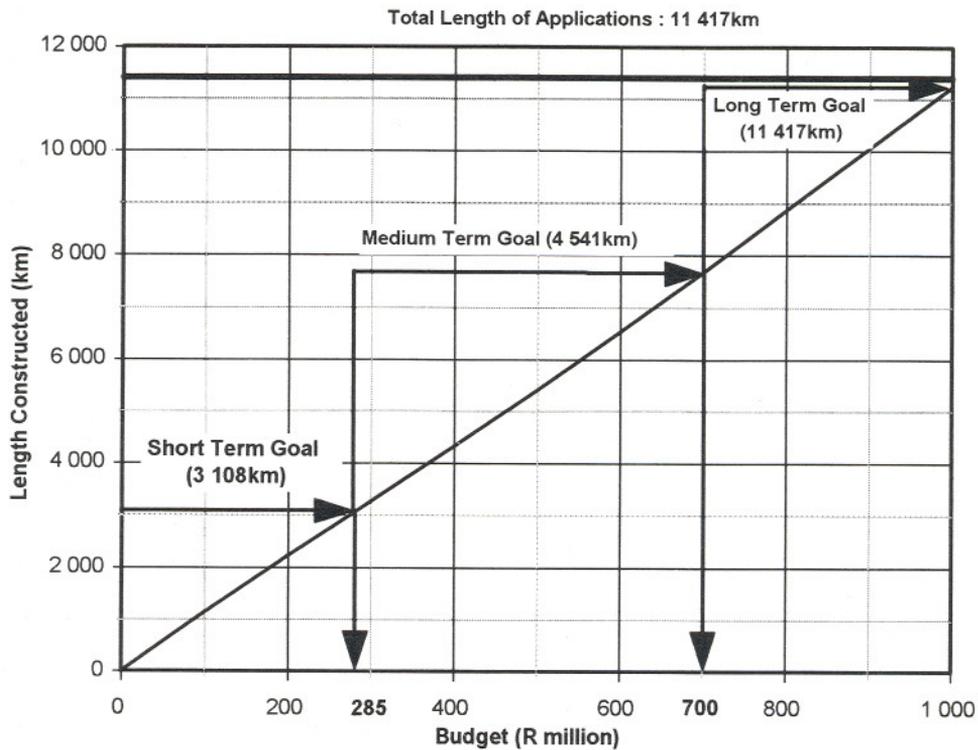


FIGURE 10.4 : Budget Requirements to Address the Backlog of Community Access Roads

10.7 Construction Programme

Figure 10.4 and Table 10.4 indicate that, with the proposed budget scenario, the following budget requirements and timing may be proposed:

a. **Short Term Goal**

The short term goal of constructing 3 108km of road which serve communities of greater than 2000 people requires a budget of about R285 million may be achieved in 5 years (ie by the year 2000 ★).

b. **Medium Term Goal**

The medium term goal of constructing 7 649km of road which serve mainly schools and clinics would require a total budget of R700 million which would be achieved in 9 years (ie by the year 2004 ★★).

c. **Long Term Goal**

To address all the applications for other roads which serve economic and social functions would require a total budget of just over R1 000 million which would be achieved in just over

12 years (after the year 2007 ★★★).

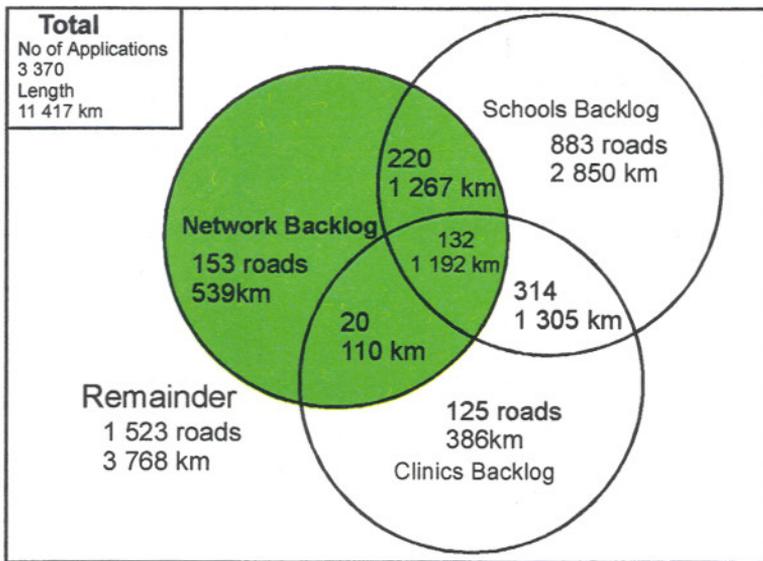
Table 10.5 presents the period of time necessary to address the theoretical road network backlog for each Magisterial District as determined in Table 6.5 on page 6.13 of this Report, based on the budget scenario in Table 10.5. The length of the road applications for Type 6 Community Access Roads are also presented for comparison.

TABLE 10.4 : PROPOSED BUDGET SCENARIO TO ADDRESS THE BACKLOG							
YEAR		BUDGET (R millions)				TO BE CONSTRUCTED	
NO.	YEAR	TOTAL	ANNUAL CONSTRUCTION	ACCUMULATED CONSTRUCTION	MAINTENANCE	ANNUAL LENGTH, km	ACCUMULATED LENGTH, km
1	1996	24.00	20.40	20.40	0.00	284	284
2	1997	40.00	33.19	53.59	0.81	474	758
3	1998	66.00	53.93	107.51	2.17	723	1,481
4	1999	80.00	63.76	171.27	4.24	867	2,348
5	2000	90.00	69.77	241.04	6.73	1,015	3,363
	★	R285 million target					<i>cf 3 108km</i>
6	2001	100.00	75.37	316.41	9.64	1,095	4,458
7	2002	100.00	72.23	388.64	12.77	1,056	5,514
8	2003	100.00	69.20	457.84	15.80	1,184	6,698
9	2004	100.00	65.81	523.65	19.19	1,084	7,782
	★★	R700 million target					<i>cf 7 649km</i>
10	2005	100.00	62.70	586.35	22.30	1,075	8,857
11	2006	100.00	59.62	645.98	25.38	1,063	9,920
12	2007	100.00	56.58	702.56	28.42	1,051	10,971
	★★★	R1 000 million target					<i>cf 11 417km</i>
TOTAL		1,000.00			31.43	10,971	10,971

NOTE: All costs include a provision for 15% administration and overheads.

TABLE 10.5 : TIME REQUIRED TO ADDRESS BACKLOG					
DISTRICT		BUDGET SHARE %	APPLICATIONS FOR TYPE 6 ROADS km	THEORETICAL BACKLOG km	
NO.	NAME	ex Table 6.5		ex Table 6.4	ADDRESSED IN NO OF YRS ★
1	Emnambithi	4.0	57	163	6
2	Emzumbe	4.1	35	49	3
3	Enseleni	7.1	17	198	4
4	Hlabisa	4.9	44	105	4
5	Hlanganani	2.6	68	0	0
6	Ingwavuma	5.7	300	202	6
7	Inkanyezi	4.1	255	169	7
8	Izingolweni	3.1	27	0	0
9	Madadeni	4.8	64	150	5
10	Mahlabathini	2.4	103	24	3
11	Maphumulo	3.0	258	35	2
12	Mpumalanga	3.7	0	128	4
13	Msinga	4.8	113	198	6
14	Ndwedwe	5.2	18	69	4
15	Nkandla	3.0	304	130	6
16	Nongoma	3.0	155	0	0
17	Nquthu	7.5	143	289	6
18	Okhahlamba	5.8	202	221	6
19	Ongoye	4.1	208	104	5
20	Simdlagentsha	2.5	46	114	7
21	Ubombo	4.4	299	200	7
22	Umbumbulu	5.4	289	100	4
23	Vulamehlo	1.8	106	0	0
24	Vulindlela	3.0	0	33	3
TOTALS			3,111	2,681	

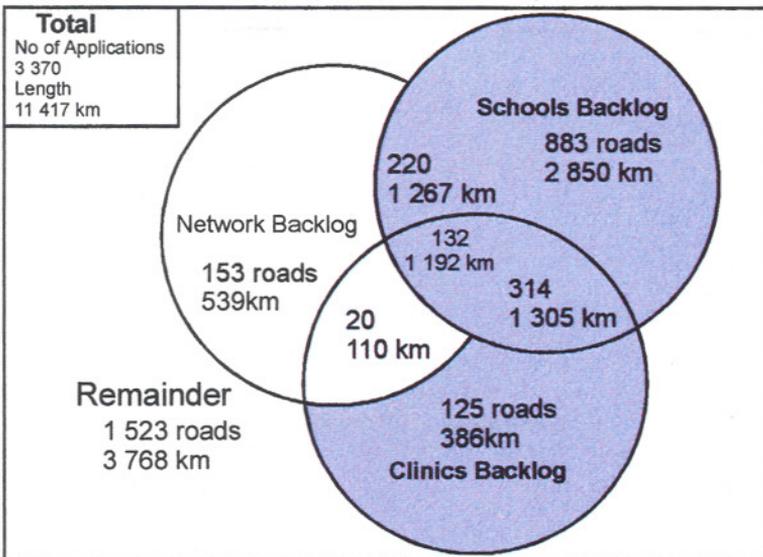
A further conclusion which may be drawn from the data presented in Appendix A is that although the majority of Type 6 roads fall within the top third of the rankings, they do not **always** have the highest priority ratings. It is therefore plausible that roads which will not enhance the formal network (ie address the backlog stated in Chapter 6) may be constructed before roads that will enhance the formal network. It is therefore not possible to state with certainty when the backlog would be addressed in a District.



Applications for Roads Serving Communities of greater than 2 000 people

Total applications :
 $153+220+132+20=525$
 Total length :
 $539+1\ 267+1\ 192+110=3\ 108\text{km}$

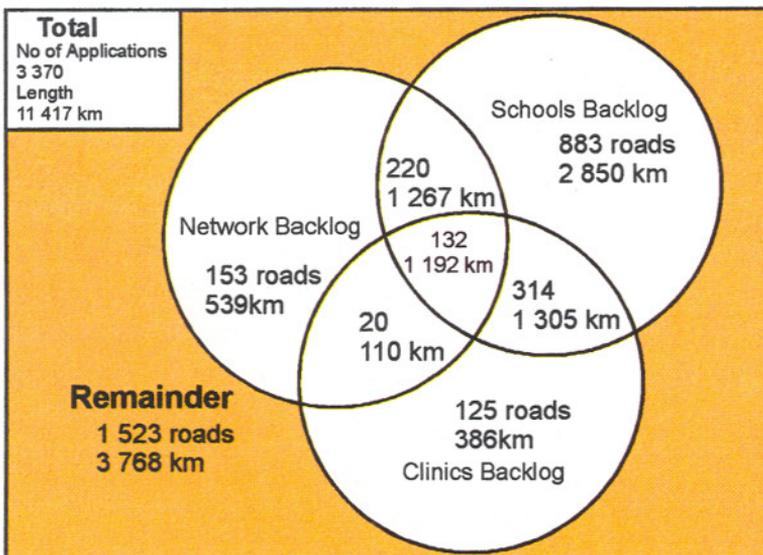
SHORT TERM GOAL



Applications for Roads Serving Schools and Clinics

Total applications :
 $883+314+125=1\ 322$
 Total length :
 $2\ 850+1\ 305+386=4\ 541\text{km}$

MEDIUM TERM GOAL



Applications for Roads Serving Facilities other than Schools and Clinics

Total applications = 1 523
 Total length = 3 768km

LONG TERM GOAL

FIGURE 10.5 : Distribution of Applications