



**Malawi Government**

**Ministry of Transport and Public Infrastructure**



## **Road Sector Programme**

**Investment Programme for the Road Sector in  
Malawi  
2010 to 2020**

**Final Report**

**March 2010**

## List of Abbreviations

Abbreviation	Meaning
AADT	Annual average daily traffic
ADT	Average daily traffic
BADEA	Arab Bank for Economic Development in Africa
BMS	Bridge Management System
bn	Billion
EC	European Commission
EDF	European Development Fund
DfID	Department for International Development
FY	Financial Year
GDP	Gross Domestic Product
GoM	Government of Malawi
HDM-4	Highway Development & Management (road management software)
IGPWP	Income Generating Public Works Programme
IMF	International Monetary Fund
INSTAP	Institutional Support to Transport Public Sector Bodies
IRI	International Roughness Index
JICA	Japanese International Cooperation Agency
MCA	Millennium Challenge Account
MGDS	Malawi Growth Development Strategy
MoTPI	Ministry of Transport and Public Infrastructure
MWK	Malawi Kwacha
mn	Million
NCIC	National Construction Industry Council
NRA	National Roads Authority
OPEC	Organisation of Petroleum Exporting Countries
PRC	People's Republic of China
PVHO	Plant & Vehicle Hire Organization
RA	Roads Authority
RBM	Reserve Bank of Malawi
RDM	Road Data Management
RFA	Roads Fund Administration
ROCKS	Roads Costs Knowledge System
RMI	Road Maintenance Initiative
RSP	Road Sector Programme
UNEAC	United Nations Economic Commission for Africa
USD	United States Dollar
vpd	Vehicles per day

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# 1 INTRODUCTION

## **The Road Sector Programme**

The Road Sector Programme (RSP) is intended to chart the way forward for road maintenance and development in Malawi in both physical and financial terms. This proposed RSP comprises a detailed first 5 years investment programme with preliminary annual work programmes, and indicative medium (next 5 years), and long-term (10<sup>th</sup> to 20<sup>th</sup> year) annual costed programmes, which are dependent on the first five years investment being fully made. The proposed RSP has been developed with the assistance of the Institutional Support to Transport Public Sector Bodies Programme (INSTAP) and is based on an assessment of the problems facing the roads sector, and a detailed analysis of road network conditions and traffic volumes. Extensive consultations with key stakeholders, including Government agencies, the private sector and development partners, were carried out during the development of the programme.

## **Contents of this Report**

This document begins by providing a brief overview of the economic and policy context (Malawi Growth and Development Strategy and National Transport Policy) in which the RSP has been developed. Attention is drawn to the financial environment in which the Government of Malawi (GoM) is managing its funding of infrastructure and social expenditure, to the heavy dependence of Government programmes on continuing donor assistance, and to the importance of an efficient transport sector in the Government's plans to facilitate economic growth and reduce poverty.

The third chapter describes the key features of the road sector, drawing attention to the past shortage of funding that has led to insufficient periodic maintenance and the detrimental effect that it had on the network. It provides a summary of network characteristics, in terms of pavement type, road condition and traffic volumes. It notes recent developments in expenditure and funding, in particular the recent substantial increase in the resources available to the Roads Authority through the Roads Fund, which should make it possible to fund long-term maintenance requirements from local sources. It describes the procedures used to plan network maintenance activity and demonstrates that this will be improved as more up-to-date data becomes available.

The final chapter describes the procedures used to develop the RSP and provides an estimate of the costs of implementation. The proposed RSP takes account of the need to devote more resources to long-term, preventative maintenance in order to protect the investments that have been made in the sector. The chapter demonstrates that, when the RSP is successfully implemented over the first 5 years, it should be possible to reduce the requirement for further major road rehabilitation and that, by the end of that period Malawi should be in a position to maintain its road network in good condition from its own resources, subject to regular adjustment of the fuel levy, and other user charges, to meet this target.

## **Review**

Annual programmes that result from the Road Sector Programme should be reviewed every year to accommodate changes in the operating environment, such as delays to planned work, changes in costs or the financial resources made available to the road sector.

## 2 ECONOMIC AND POLICY CONTEXT

### 2.1 RECENT ECONOMIC DEVELOPMENTS

The Gross Domestic Product (GDP) of Malawi was approximately US\$ 4 bn in 2008. Economic growth in recent years has increased from the low levels of the mid-1990s to nearly 9% p.a. in 2008, in response to improved economic policies and to the long global boom. Malawi has also benefited from the Highly Indebted Poor Countries (HIPC) debt relief initiative, which has reduced the external debt burden to less than 13% of GDP in 2008. In line with the country's Economic Outlook a conservative growth estimate of 5% per annum over the next few years is assumed. It is assumed that income to the Roads Fund will also grow at 5% per year in the future, from traffic and other growth.

**Table 2.1: Key Economic Indicators**

	2004	2005	2006	2007	2008
Population (millions)	12.6	12.9	13.2	13.5	13.8
GDP (market prices)					
MK bn	285.9	326.2	396.8	465.3	550.6
US\$ bn	2.6	2.8	2.9	3.3	3.9
GDP/head (US\$)	208	213	221	245	284
Growth (% p.a.)		2.5	3.6	11.1	15.6
Government Finance (MWK bn)					
Revenue					
Domestic Taxes	48.1	63.0	74.9	94.6	98.0
Grants	19.8	37.2	50.6	61.4	64.9
Total Revenue	67.9	100.3	125.5	156.0	162.9
Expenditure					
Recurrent	63.7	81.4	97.2	108.2	110.4
Capital	14.8	20.3	26.9	55.0	62.4
Total Expenditure	78.5	101.7	124.0	163.3	172.8
Budget Surplus/Deficit	-10.6	-1.4	1.5	-7.3	-9.9
External Debt (% GDP)	621	572	202	134	12.7
Expenditure as % of GDP	27.5	31.2	31.3	35.1	31.4
Exchange Rate (MWK per USD)	109.0	118.5	136.0	140.4	140.6

Sources: RBM, IMF, UNECA, Ministry of Finance

Government expenditure in 2007 was MWK 163 bn (approximately US\$ 1.2 bn), corresponding to 35 % of GDP. This proportion rose over the period 2004 to 2007 from 27.5% to 35.1%. Tax revenues in 2007, at MWK 95 bn (US\$ 674 million), correspond to less than 60% of expenditure, the balance being made up of grant aid (37%) and net borrowing (6%). Although GDP per capita growth has been strong in recent years, the Government is unable to fund all the desirable social and economic programmes from its own resources. It is likely that continued support from development partners will be needed to assist the Government to fund programmes to meet development objectives.

Road expenditure in the Financial Year (FY) 2008/09 was budgeted at MWK 14.6 bn (US\$ 104 million), nearly 10% of total Government proposed expenditure. Planned expenditure for FY

2009/10 is MWK 28 bn<sup>1</sup> (around US\$ 200 million). The increase over the previous year was due to an expanding recurrent (maintenance) allocation, as well as the identification of backlog maintenance needs in urban roads in Lilongwe, Blantyre and Zomba. The Roads Fund is expected to be able to contribute around MWK 8 bn. The Road Sector Programme is needed to identify complimentary sources of funds to ensure that road expenditure needs can be met.

## **2.2 GOVERNMENT POLICY**

### **Malawi Growth Development Strategy**

Overall national economic direction is set by the Malawi Growth Development Strategy<sup>2</sup> (MGDS), which aims to reduce poverty through (overall) economic growth. The strategy is now underpinned by a greater emphasis on production and export, and road infrastructure provision is identified as a key policy element to assist the strategy, through efficient movement by road of both inputs and outputs, particularly on main corridors. Transport is expected to contribute to reduced lead times on export, decreased cost of domestic trucking, lower costs of cross-border and transit trade with neighbouring countries, lower cost to reach domestic, regional and international markets (supply and distribution) and improved mobility and connectivity of rural communities to markets. In the medium term efforts are intended to concentrate on improving mobility and accessibility of the population to key road corridors within Malawi and out of Malawi while facilitating the improved mobility and accessibility of rural communities to goods and services in the rural areas at low cost to the economy. The strategies put in place to achieve these goals are:

- Provision of an adequate network of roads based on appropriate standards through rehabilitating and upgrading the “all weather” roads to meet sub-regional agreed standards;
- Implementation of routine road maintenance to clear backlog through the use of performance-based term maintenance contracts,
- Building the capacity of the local private sector to build the roads through the national construction industry;
- Replacing timber-deck bridges with concrete decks with the intention of reducing the number of timber deck bridges to zero for rural roads/ feeder roads and
- Maintaining urban road networks.
- Bringing all unpaved roads from fair to good condition by the end of the five-year period ; and
- Implementing appropriate road user charges<sup>3</sup>.

Measurement of the implementation of MGDS against targets is under review. The Road Sector Programme has been developed with a view to targets that are consistent with those of the MGDS.

### **Transport Sector Policy**

In 1999, the Cabinet approved the National Transport Sector Policy, which emphasizes the importance of economic efficiency in the transport sector. The private sector is expected to play the major role in both transport operations and infrastructure provision, with both road construction and maintenance being contracted out to private sector contractors.

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<sup>1</sup> Excluding administration costs

<sup>2</sup> Government of Malawi, Malawi Growth and Development Strategy, From Poverty to Prosperity, 2006-2011, November 2006

<sup>3</sup> Appropriate to the level of needs for road maintenance etc.

The Policy incorporates the principle that users should pay for services provided, including the long-run maintenance of infrastructure. This principle forms the basis of the charges collected from road users by the Roads Fund Administration (RFA). Importantly, the Policy explicitly states that the RFA should have adequate resources to pay for both road maintenance and rehabilitation.

With regard to the road sector, the Policy recognizes the importance of extending and upgrading the road network to improve accessibility, particularly in rural areas. The policy states that such improvements should be justified against socio-economic criteria. The policy also calls for adequate funding for maintenance and for economical and efficient provision of road infrastructure.

In developing the road sector programme, in accordance with Policy guidelines, priority is given to the preservation of investment already made in the road network, and upgrading of roads in rural areas that are economically or socially justified.

### 3 SECTOR REVIEW

#### 3.1 ROAD NETWORK AND TRAFFIC

##### 3.1.1 The Network

The classified network consists of 15,451 km of roads., The main, secondary and tertiary roads, shown in Figure 2.1, and totalling around 10,600 km, form the trunk road network, district roads account for 3,500 km, and urban roads for 1,350 km. Approximately 25% of the network is paved.

**Table 3.1: Road Network by Surface Type and Designation (km)**

	Paved	Unpaved	Total
Main (M)	2,809	548	3,357
Secondary (S)	407	2,718	3,125
Tertiary (T)	44	4,077	4,121
District (D)	8	3,492	3,500
Urban (U)	770	578	1,348
<b>Total</b>	<b>4,038</b>	<b>11,413</b>	<b>15,451</b>

Source : Road Authority, Road Data Manager

In 2006, a further 9,073 km of unpaved unclassified or community roads, mainly tracks and trails<sup>4</sup>. were identified to be designated as part of the classified road network. The majority (6,950 km) are proposed to be designated under a new class of Community (C) roads. The remainder are proposed to be classified as Secondary (10km) or District (2,473 km) roads. It is assumed that by financial year 2012/13 these roads will be classified, and are therefore included in the RSP from that time.

##### 3.1.2 Traffic Volumes

Most recent traffic counts were undertaken in FY 2008/09, at 445 stations. The Roads Authority then made estimates of the volumes on all other links by combining the count data with local knowledge. Table 3.2 shows that on the paved network, 28% of the roads carry more than 1,000 vehicles per day (vpd), and the highest flows do not exceed 1,800 vpd. On the unpaved network 406 km carry more than 150 vpd.

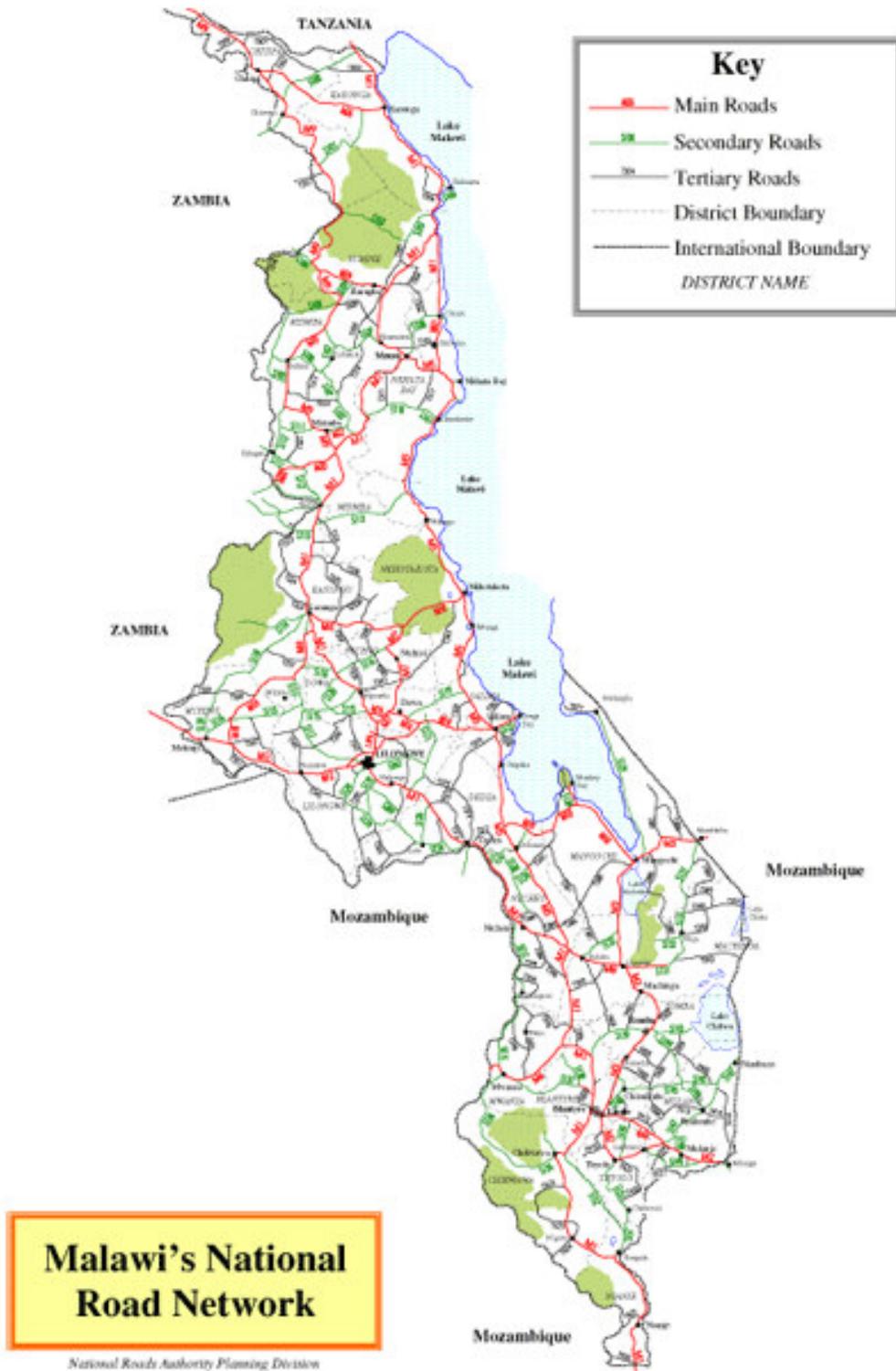
**Table 3.2: Traffic Volumes by Road Kilometrage 2007**

Vehicles per Day	Paved	Unpaved	Total
<150	110	11,007	11,117
150 - 250	434	0	434
250 -350	733	315	1,047
350 - 500	670	91	761
500 - 750	699	0	699
750 - 1000	262	0	262
1000 - 1500	775	0	775
> 1500	355	0	355
	<b>4038</b>	<b>11,413</b>	<b>15,451</b>

Source : Road Authority, Road Data Manager

<sup>4</sup> The Reclassification Study of 2006 proposed incorporating all unclassified road into the classified network, eliminating the tertiary class and expanding the secondary road class. A Bill for the re-classification is drafted.

Figure 2.1 : Malawi Classified Road Network



### 3.1.3 Road Condition

The state of the network has varied widely in recent years, though it is currently in reasonably good shape. The road condition survey of 2007 addressed 14,211 km (92%) of the network. Roads not included in that survey include a number of urban roads known to be in poor condition, and the survey results have been adjusted to reflect this. Table 3.3 shows that the paved network is generally in good to fair condition, partly as a consequence of the very large donor funded programmes of backlog maintenance. The unpaved network is generally in worse shape, but even so, only 17% was in poor condition. Unpaved road conditions tend to be dynamic, and are sensitive to environment, weather, and changes in traffic levels.

**Table 3.3: Road Conditions in 2007**

Condition	Paved			Unpaved			Total	
	Criterion (IRI)	Km	%	Criterion (IRI)	Km	%	km	%
Good	< 3.5	2,204	54.6	< 7.0	2,481	21.7	4,685	30.3
Fair	3.5 – 5.0	1,196	29.6	7.0 – 10.0	7,013	61.5	8,210	53.2
Poor	> 5.0	638	15.8	> 10.0	1,919	16.8	2,556	16.5
<b>Total</b>		<b>4,038</b>			<b>11,413</b>		<b>15451</b>	<b>100.0</b>

Source : 2007 Road Condition Survey, adjusted for un-surveyed roads

## 3.2 ROAD MANAGEMENT

### 3.2.1 Administration

In 1997, The Government of Malawi set up a National Roads Authority (NRA) and a Roads Fund. The NRA at that time administered the Roads Fund and was responsible for the whole classified network of approximately 15,451 km. In 2006, under the *Roads Authority and Roads Fund Administration Act*, responsibility for the Roads Fund was transferred to the Roads Fund Administration (RFA), and the Roads Authority (RA) was made responsible for the management of designated roads.

Local authorities (district and urban assemblies) are responsible for maintaining some urban and district roads, tracks and trails, but presently the Roads Authority tends to take care of these roads. One of the purposes of the Roads Fund is to finance on a cost sharing basis, routine and periodic maintenance of roads, tracks and trails under the responsibility of a City, Town, Municipal or District Assembly (Section 19 (a) (iii) of the Act)<sup>5</sup>. Local authorities do undertake maintenance, and need human and technical capacity enhancements in order that they can manage their networks more efficiently. Active consideration is now being given to devolving the management of local roads to the local authorities, starting with the major cities, in the expectation that each local authority would receive an allocation from the Roads Fund, which they could supplement with local funds.

### 3.2.2 Funding

There are two main sources of funds for roads under the RA. The largest part comes from the Government's Development Budget, including development partner grants and loans, and is used mainly for major road improvements, new roads, upgrading unpaved roads to paved, and rehabilitation and periodic maintenance. The second source is the Re-current Budget funded by the Roads Fund, which raises revenue from the fuel levy, transit fees and various other minor

<sup>5</sup> Roads Fund Administration Act, 2005

sources, and provides this money to finance (under Section 19 (1) (a) of the Act) the maintenance and rehabilitation of public roads and surveys and monitoring related to such maintenance and rehabilitation of public roads. Under Section 18 (1) (a) of the Act, the Roads Fund may also be supplemented by Government grants

The allocation of the Roads Fund to the RA is the subject of an annual financing agreement, which identifies the work programme for the coming year and costs each component. The purpose of the Roads Fund is to finance the maintenance and rehabilitation of public roads, along with relating surveys and monitoring activities.

At present, the GoM contribution and development partner project resources are administered separately, but consideration is being given to making the RFA responsible for handling all road sector funds from whatever source.

Until recently, the Roads Fund has not raised sufficient money to pay for all necessary maintenance work. In early 2009, the Government increased the fuel levy to MK 23.7 per litre for diesel, and MK 28.7 per litre of petrol. The Roads Fund revenue for FY 2009/10 is forecast to be MK 8.34 bn (US\$ 60 million).

**Table 3.4: Roads Fund Income from Fuel Levy FY 2001/2 to FY 2008/9**

Income	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
MWK bn	0.65	1.34	1.48	1.53	1.82	2.70	3.67	5.70
US\$ mn	9.7	17.9	18.5	17.0	16.5	16.2	20.2	37.8

Source : RFA audited accounts.

Provided the real value of the Fuel Levy is maintained, the RFA revenue should continue to increase approximately in line with the growth in GDP. For the purposes of projecting revenue, it has been assumed that GDP will grow at an average of 5% p.a., and, on this basis, the revenue forecasts are shown in Table 3.5.

**Table 3.5: Projected Roads Fund Revenue (MWK bn)**

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Fuel Levy	8.34	8.76	9.21	9.67	10.15	10.66	11.18
Other <sup>6</sup>	.4	.42	.97	1.01	1.06	1.12	1.17
Total	8.74	9.68	10.18	10.68	11.21	11.78	12.35

Source : Roads Fund Administration Strategic Plan, 2009

### 3.2.3 Road Sector Expenditure

Table 3.6 shows expenditure in the road sector over the period 2002 to 2010. Expenditure rose by around 150% between 2002 and 2008, and the requirement since increased even more sharply. This is partly due a greater emphasis on maintenance. However, whilst most of the paved network is now under routine maintenance contracts, the unpaved network is not yet fully maintained. One of the purposes of this programme is to redress this.

#### *Maintenance*

<sup>6</sup> International Transit Fees and Road User Charges, excludes loans

Recent expenditure on routine maintenance is shown in Table 3.7. The RA has taken great strides over the last few years to expand the network covered by routine maintenance contracts. For 2009/10 it is planned that 94% of the Main, Secondary and Tertiary roads will be routinely maintained. Although cost rates have risen over the same period, they are currently lower than average costs per km for routine maintenance in other African countries.<sup>7</sup> The increasing focus on routine maintenance means that large numbers of contracts have to be let annually.

**Table 3.6: Roads Expenditure**

	2001/ 2002	2002/ 2003	2003/ 2004	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010
<b>Income (MK bn)</b>									
Fuel Levy	1.34	1.48	1.53	1.82	2.31	2.41	2.19	3.82	7.84
Grants	2.95	2.47	2.09	2.30	3.97	4.06	9.77	14.24	18.53
<b>Total Income</b>									
<b>MK bn</b>	<b>4.29</b>	<b>3.95</b>	<b>3.62</b>	<b>5.12</b>	<b>6.28</b>	<b>6.47</b>	<b>11.96</b>	<b>18.06</b>	<b>26.37</b>
<b>US\$ mn</b>	<b>55.9</b>	<b>40.5</b>	<b>33.2</b>	<b>43.1</b>	<b>46.2</b>	<b>46.1</b>	<b>85.1</b>	<b>129.0</b>	<b>188.4</b>
<b>Expenditure (MK bn)</b>									
Operations	1.19	1.46	1.53	1.40	2.15	2.58	2.35	4.50	6.94
Utilization of Grants	3.12	2.48	2.10	2.30	4.16	4.00	8.33	10.82	18.57
Administration	0.07	0.11	0.20	0.20	0.13	0.15	0.17	0.19	0.86
Depreciation	0.01	0.02	0.03	0.03	0.03	0.03	0.05	0.26	0.00
Grants to MoTPW	0.03	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00
Public Works Programme	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00
<b>Total Expenditure</b>									
<b>MK bn</b>	<b>4.42</b>	<b>4.09</b>	<b>3.88</b>	<b>3.95</b>	<b>6.50</b>	<b>6.94</b>	<b>10.91</b>	<b>15.77</b>	<b>26.37</b>
<b>US\$ mn</b>	<b>57.6</b>	<b>42.0</b>	<b>35.6</b>	<b>33.33</b>	<b>47.8</b>	<b>49.4</b>	<b>77.6</b>	<b>112.6</b>	<b>188.4</b>

Sources: NRA & RA Annual Reports; RFA & RA Financing Agreements (FA)

The RA is aiming to reduce administrative costs by packaging road works in such a way that variable overhead expenses are minimised. The RA is striving to package fewer contracts to reduce administrative costs and the time required to attend to numerous roads contracts.

**Table 3.7 : RA expenditure on routine maintenance**

Year	Expenditure (MWK Million)	Km roads	Cost per km (MWK)	Cost per km (USD)
2006/07	564	4,034	140,000	1,029
2007/08	528	3,200	165,000	1,179
2008/09	892	4,955	180,000	1,286
2009/10 <sup>(1)</sup>	1,917	10,007	192,000	1,371

<sup>(1)</sup>Planned

### *Development*

Table 3.8 shows planned and out-turn expenditure for the Development expenditure for the three years 2006/07 to 2008/09. It demonstrates that recurrent programmes are reasonably well-spent whilst it is the Development budget that has recently been under-spent. The RA is taking steps to improve programming to ensure that, in future, allocations for development can be fully spent.

<sup>7</sup> World Bank, Road Cost Knowledge System, Version 2.3, December 2006

**Table 3.8: RA Budget and Out-turn Expenditure – 2006/07 to 2008/09**

Year	Budget			Out-turn		
	Recurrent	Development	Total	Recurrent	Development	Total
2006-07	1.25	2.79	4.04	1.22	2.79	4.01
2007-08	1.82	12.12	13.94	1.76	7.06	8.81
2008-09	4.32	11.04	15.35	3.85	9.87	13.72

*Unit Cost Rates*

Planned and out-turn costs for maintenance interventions for the year 2007/08 are shown in Table 3.9. Routine maintenance activities, including grass cutting and patching, tend to be well costed. Other types of interventions have shown variations (both up and down) between planned and actual costs in the past, and so in the light of this, the RA has reviewed unit cost rates in section 3.9 of this report, so that the investment plan for the future is robust.

**Table 3.9: Unit Rates for Maintenance Interventions – 2007/08**

	Expenditure		Kilometrage		Costs per km			
	MK million				MK million		USD 000	
	Budget	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Routine Maintenance	546	528	3,881	3,200	0.1	0.2	1.0	1.2
Grass Cutting	43	36	2,708	2,557	0.0	0.0	0.1	0.1
Patching	144	137	3,197	4,202	0.0	0.0	0.3	0.2

**3.2.4 Planning Procedures and Data Management****Planning Procedures**

The RA budget is formally divided into two parts: Development and Recurrent expenditures. Recurrent expenditures cover maintenance works and administration, using Roads Fund resources, while Development expenditure includes any new construction and upgrading work. Generally, all the major rehabilitation projects and some of the small amount of periodic maintenance works that have been carried out in recent years have been incorporated into the Development Programme. HDM-4<sup>8</sup> is used by the RA to identify and prioritise interventions of periodic maintenance, rehabilitation and upgrading. The Road Data Manager, combined with the results of field surveys by the RA, is used to prioritise maintenance activities.

A Road Sector Programme was prepared by WSP in 2006 to 2007 to cover the period to mid-2011. The Programme was developed using formal economic analysis to select a set of major road rehabilitations and upgrading projects, and a number of the projects it identified were incorporated into the Development Programme. The RA plans all Development Programmes in close collaboration with development partners, and all major projects are subjected to formal feasibility studies.

Until recently, financial constraints on the recurrent budget have meant that it has not been possible to carry out all required routine maintenance, and periodic maintenance (resealing) on the paved network has got behind schedule. To overcome this, recent budgets have included large allocations for patching to address the lack of preventative periodic maintenance.

<sup>8</sup> Highway Development and Management, World Bank, 2000

### **Data Management**

The Roads Authority now uses formal prioritization procedures with its Road Data Management (RDM) system, which incorporates road inventory, road condition and traffic data, together with an inventory of bridges. The RDM is linked to HDM-4, the international standard road investment model for the evaluation and optimization of road maintenance strategies and road improvement projects.

The RDM currently covers approximately 14,200 km (92%) of the network, and is currently being extended to incorporate urban roads. A comprehensive traffic counting programme covering 400 points was completed in May 2009, the inventory of urban roads is complete, following surveys, and road condition surveys on the paved network were completed in August 2009. Roughness surveys on unpaved roads will be carried out in the last quarter of 2009, and traffic counts on urban roads are planned for 2010. By early 2010, the RDM will be fully up-to-date.

The complete and reliable RDM will be the key tool in the preparation of annual work plans, in particular in prioritizing rehabilitation and periodic maintenance work and demonstrating the consequences of any failure to make adequate financial provision for maintenance.

The RA is committed to the use and up-keep of the RDM system. Therefore the costs of undertaking annual traffic counts and condition surveys are included in the Road Sector Programme.

### **3.3 ROAD PROGRAMMES**

Between 2002 and 2008, development partner funding rehabilitated approximately 1,250 km of the national road system, with works on the M1 accounting for 675 km. Ongoing and planned development partner projects will rehabilitate or upgrade a further 1,020 km by 2011. In addition, planned projects include the upgrading of approximately 820 km of unpaved roads to improve accessibility in rural areas. The Programme for 2009/10 is shown in Table 3.10. EU Feeder Road programmed works are shown in Tables 3.11 and 3.12. The total in the Government budget is MWK 20,326 million, and excludes costs associated with the Karonga – Chitipa scheme. The re-current budget for the year is MWK 7,665 million, giving a total MWK 28 billion.

The 2009/10 Programme gives rise to certain commitments which are taken account of in the 5-year RSP, 2010/11 to 2014/15. For projects which are already contracted, forecasts were made of the likely cash flows in the remainder of 2009/10 and future years, based on the length of the contract, and the current rate of progress. New priority projects are programmed over the next five years, based on progress with feasibility studies, design and procurement. The resulting committed expenditure programmed over the RSP period is shown as Appendix 1. It should be noted that two current contracts: Lilongwe-Nsipe, and Chikwawa-Nchalo-Banglwa are currently the subject of negotiations for contract amendments which will give rise to additional expenditure shown in 2010/11 and 2011/12.

**Table 3.10 : 2009/10 Roads Authority Development Programme**

Road No.	Description	Work	Funding Source	Length (km)	2009/10 Allocation (Mn MWK)
-	Mzuzu City roads	Upgrading	GoM	22	112
-	EU Feeder Roads	Spot Improvements	9th EDF	2,400 <sup>(a)</sup>	1100
-	Infrastructure Service Programme	Feasibility	World Bank	0	50
-	Mzimba St, Lilongwe	Upgrading	GoM	3	200
M1	Lilongwe By Pass	New Construction	ADB	14	132
M1	Lilongwe-Nsipe	Periodic	9th EDF	137	1800
M1	Chikwawa-Nchalo	Rehabilitation	9th EDF	50	600
M1	Chiweta – Mlowe	Rehabilitation	GoM	70	200
M1	Bangula-Nsanje	Upgrading	GoM	50	650
M1	Nchalo-Bangula	Rehabilitation	GoM	30	950
M10	Masasa - Golomaoti Monkey Bay	Rehabilitation	9 <sup>th</sup> EDF	80	35
M18	Mangochi - Monkey Bay	Rehabilitation	9 <sup>th</sup> EDF	70	5
M26	Karonga - Chitipa	Upgrading	PRC	109	<sup>(a)</sup>
M3	Liwonde - Naminga	Rehabilitation	OPEC	22	885
M3	Blantyre Zomba	Rehabilitation	ADB	47	140
M35	Zomba - Jali - Phalombe – Chitakale	Upgrading	Kuwait, OPEC, BADEA	102	3950
M5	Msulira – Nkhotakota	Rehabilitation	GoM	33	300
M7	Lumbadzi-Dowa-Chezi	Upgrading	GoM	24	750
M9	Rumphi-Nyika-Chitipa	Feasibility (Upgrading)	BADEA	275	280
S107	Mzimba – Mzalange	Upgrading	GoM	87	1800
S108	Mzuzu - Bula – Usiysa	Rehabilitation	GoM	25	200
S113	Kasilu - Lupashe - Kakwale	Rehabilitation	GoM	86	200
S117	Lilongwe - Kasiya - Santhe	Feasibility (Upgrading)	GoM	133	200
S125	Bunda – Mitundu	Upgrading	GoM	9	310
S135	Ntcheu-Tsangano-Neno-Mwanza	Feasibility	ADB	140	126
S138	Mwanza - Chapananga – Chikwawa	Feasibility (Upgrading)	GoM	106	49
S147	Chiradzulu-Miseu Folo - Chilinga	Upgrading	GoM	90	681
S150	Malowa- Goliati - Chiperoni	Upgrading	GoM	36	300
S161	Thyolo - Thekerani - Makhanga - Bangula	Upgrading	Kuwait, OPEC, BADEA	94	3216
S212/M9/		Feasibility	Kuwait, Saudi		
S209/M24	Jenda - Euthini - Rumphi	(Upgrading)	donors	200	835
T393	Ntaja – Nayuchi	Rehabilitation	GoM	50	200
T415	Chiringa-Mloza	Upgrading	GoM	80	70
Total				2,274	20,326

(a) Directly financed by PRC

(b) Spot improvements, not included in total length

### 3.4 FUTURE MAINTENANCE REQUIREMENTS

#### 3.4.1 Projected Road Condition

As part of the development of this proposed RSP, a simplified projection of network condition for mid-2010 has been made. This assumes that around 6,400 km of roads (around 60%) of unpaved roads were graded or re-shaped in FY 2008/09, and that this rate of maintenance continued through FY 2009/10. It also assumes that completed development projects adds to the total kilometrage of paved roads. Routine maintenance is assumed to be implemented properly over 90% of the network. The projected condition of the network is shown in Table 3.11.

**Table 3.11 : 2009/10 Feeder Road Programmed Works on Main Roads**

Road No.	From	To	Length (km)	Works
Central Region				
S116	M7 at Mpalo	Madisi	51.7	Spot regravelling, drainage, timber deck replacement
T328	Chatoloma (on M1)	Mtunthama (on M18)	85.5	Spot regravelling, drainage, timber deck replacement
T333	Kapezi	Mkanda	34.4	Drainage, timber deck replacement
T336	Plaka Estate	Kapiri	28.2	Spot regravelling, drainage, timber deck replacement
T341	Mbonekela	Kasakule	28.2	Spot regravelling, drainage, timber deck replacement
T358	Chipembedza	Maganga	13.2	Spot regravelling, drainage
T358	Kachule	Mikute	13.2	Spot regravelling, drainage
T381	Kasinje	Namwiri	14.4	Spot regravelling, drainage, timber deck replacement
T384	Bilila	Kansapato	33.5	Timber deck replacement
T385	Mkutumula T/off M5	Chiripa	26.0	Drainage, timber deck replacement
Northern Region				
S100	Kapoka	Misuku	29.3	Drainage, timber deck replacement
S105	Chanyama	Kazuni	75.0	Spot regravelling, drainage, timber deck replacement
S110	Chintheche	Mazamba Hill	41.0	Spot regravelling, drainage, timber deck replacement
S111	Engalaweni	Kandodo Chisi	26.0	Drainage, timber deck replacement
T303	Karonga Village	Mwenitete	38.6	Drainage, timber deck replacement
T305	Chipokababoli	Phoka Court	47.0	Drainage, timber deck replacement
T309	Chesamu	Engucwini	30.7	Drainage, timber deck replacement
T315	Mbowe	Mazamba Hill	19.8	Drainage, timber deck replacement
T316	Choma Vet.	Chikwina	17.7	Drainage
T321	Manyamule	Mbawa	19.7	Timber deck replacement
Southern Region				
S133	Balaka	Hoba	28.4	Spot regravelling, drainage
S134	M5 at Kasinje	M1 at Ntcheu	45.0	Spot regravelling, drainage, timber deck replacement
S137	Moffati	Mpatamanga Gorge	21.7	Timber deck replacement
S137	Mpatamanga Gorge	Chileka Airport	48.5	Timber deck replacement
S139	M1 at Lirangwe	Linjisi	8.0	Spot regravelling, drainage, timber deck replacement
S139	Chingale	Zomba	8.0	Spot regravelling, drainage, timber deck replacement
S143	M3 to Zomba	Kachulu	27.3	Spot regravelling, drainage, timber deck replacement
S149	M2 at Chonde	M2 at Mimosa	44.0	Spot regravelling, drainage, timber deck replacement
S150	M2 near Thyolo	M4 at Mikolongwe	29.3	Spot regravelling, drainage
S152	Thabwa	Sevn	60.0	Spot regravelling
T386	Itunji	Kwisimba	22.7	Drainage, timber deck replacement
T387	Idulusi	Itunji	16.0	Timber deck replacement
T388	Mbalula	Malombe	28.1	Drainage, timber deck replacement
T389	Masuku T/off S131	Nakapa	8.0	Drainage, timber deck replacement
T390	Matope	Machina	26.7	Drainage, timber deck replacement
T391	Machinga	Mpakaka	15.2	Drainage, timber deck replacement
T392	Ntaja	Chikwewo	23.4	Drainage, timber deck replacement
T393	Nsanama	Nayuchi	43.0	Drainage, timber deck replacement
T399	Chiendausiku	Nyamyala	47.8	Drainage, timber deck replacement
T400	Ntalika	Utale	22.2	Drainage, timber deck replacement
T403	Jokala	Maondole	8.7	Drainage, timber deck replacement
T405	Thondwe	Mayaka	21.0	Drainage, timber deck replacement
T415	Singano	Sukasanje River	27.6	Drainage, timber deck replacement
T421	Luwanje	Khombezi River	17.3	Drainage

T422 Matombi Syiama 7.6 Drainage, timber deck replacement

**Table 3.12 : 2009/10 Feeder Road Programmed Works on District Roads**

District	Road No.	From	To	Length (km)	Works
Salima	D149	Gwirize	Mlamba	9.3	Drainage, timber deck replacement
Salima	D150	Kaferera	Midima	4.3	Drainage, timber deck replacement
Dedza	D232	Mtakataka	Chitukula Village	12.9	Drainage, timber deck replacement
Dedza	D234	Mganja	Mau Hospital	17.7	Drainage, timber deck replacement
Mangochi	D276	Naminga	Chamatwa	41	Timber deck replacement
Zomba	D293	North Jokala	Lake Chilwa	24	Timber deck replacement

**Table 3.11 : Projected Road Condition mid-2010**

Condition	Paved			Unpaved			Total	
	Criterion (IRI)	km	%	Criterion (IRI)	Km	%	km	%
Good	< 3.5	1933	47.9	< 7.0	709	6.2	2642	17.1
Fair	3.5 – 5.0	1373	34.0	7.0 – 10.0	8435	73.9	9809	63.5
Poor	> 5.0	732	18.1	> 10.0	2268	19.9	3000	19.4
<b>Total</b>		<b>4038</b>	<b>100</b>		<b>11413</b>	<b>100</b>	<b>15451</b>	<b>100</b>

Notes on assumptions about deterioration 2007 - 2010:

1. Roughness of paved roads will increase by 0.25 IRI p.a.
2. Roughness of unpaved roads will increase by 2.0 IRI p.a., unless graded
3. Roughness after grading will be IRI 7.0

The implementation of the unpaved road upgrading programmes will result in a marked increase in the kilometrage of paved roads. There will be a relatively small requirement (around 600km) for interventions on paved roads with an IRI greater than 5, but a substantial programme of reseals will be necessary to prevent paved roads from deteriorating to the point where they require rehabilitation in the future.

The interventions undertaken since 2007, and programmed for FY 2009/10 will have had the effect of improving the paved network, such that 88% is projected to be in 'good' or 'fair' condition. However, the lack of a full grading programme means that the condition of the unpaved network could have deteriorated by 2010 to the extent that around 2,268 km will have an IRI in excess of 10. This will necessitate a substantial programme of rehabilitation.

### 3.4.2 Programme Proposals for Maintenance

A recent study<sup>9</sup> funded by DfID examined how the condition of the network would evolve under different maintenance strategies. It demonstrated very clearly that failure to carry out regular routine and periodic maintenance would result in the rapid deterioration of both the paved and unpaved networks. Resultant recommendations, adopted by the Government, which are incorporated in the Road Sector Programme are shown below.

#### *Paved Roads*

A programme of condition based reseals will ensure that all of the network will remain in good or fair condition, and that roads in poor condition would be eliminated. Failure to carry out regular reseals will result in a dramatic deterioration of network condition, with over 40% of the network

<sup>9</sup> Greg Morosiuk, *HDM-4 Analysis of the Malawi Road Network*, March 2009

in poor condition within 5 years, and will mean that another large scale programme of rehabilitation will become necessary. **Recommendation : 5-year programme of 1,845 km of Main, Secondary, Tertiary and District roads, and 239 km of Urban roads to be included in the programme.**

#### *Unpaved Roads*

Regular grading (once or twice a year, depending on traffic volumes) with appropriate local rehabilitation will eliminate poor quality roads within 5 years; but continuation of a policy of grading only once every 3 years will result in a rapid deterioration of the unpaved network, with the whole network dropping into poor condition after 5 years. **Recommendation : 5-year programme to rehabilitate 7,784 km of unpaved roads.**

#### *Maintenance*

In the past, financial constraints on the recurrent budget have meant that periodic maintenance has been neglected. However, now that the Roads Fund is able to provide significantly more resources, the RA is committed to undertaking regular routine and periodic maintenance in a systematic way, to ensure that the very large investments made in upgrading and rehabilitating the network in recent years are not lost. **Recommendations : All paved roads in a maintainable condition should be put under routine maintenance contracts. All unpaved roads which are in a maintainable condition will be put under grading and routine maintenance contracts. Timely periodic maintenance should be carried out on paved roads.**

### 3.5 UPGRADING

#### 3.5.1 Policy

Government policy is to continue the upgrading of unpaved roads to paved standard, where socially or economically justified. Conventional economic criteria for upgrading are discussed below. Social factors are included in multi-criteria analyses of potential upgrading proposals

#### 3.5.2 Thresholds

The *HDM-4 Analysis* also investigated the economic case for upgrading unpaved roads. The net benefits of upgrading depend on (a) the volumes of traffic; (b) the condition of the unpaved road to be upgraded, which in turn depends on the maintenance regime; and (c) the cost of upgrading. A range of costs investigated. On the assumption that roads can be upgraded for MWK 54 million per km and that the unpaved road receives regular maintenance, a minimum traffic volume (or threshold) of 350 vpd is required to economically justify upgrading. Recent upgrading contracts show that, in practice, the unit cost is in the range MWK 70 to 84 million per km, which would require a much higher volume of traffic to economically justify upgrading, probably in the range 500 to 600 vpd.

**Table 3.12: Traffic Thresholds to Economically Justify Unpaved Road Upgrading**

Cost (MWK million per km)	7	14	28	54
Traffic volume (vpd)				
Grading every 3 years	75	100	150	250
Grading twice a year	125	150	225	350

Source: Derived from *HDM-4 Analysis of the Malawi Road Network*, Table 10

The analysis of road kilometrage by traffic volume (see Table 3.2) showed that in the year 2007, 315 km of unpaved roads had between 250 and 350 vehicles per day, while 91 km of unpaved roads carried more than 350 vpd. Table 3.13 shows the projected situation in 2010, if the current upgrading programme is carried through, on the assumption of annual traffic growth of 5% p.a.

Table 3.13 suggests that 5km of the unpaved roads are projected to have traffic in excess of 500 vpd, where, at current costs, further upgrading could be economically justified. However, if it is possible to reduce the costs of upgrading to around US\$ 200,000, there are 182 km of unpaved roads with traffic in excess of 250 vpd that would economically justify upgrading. Where lower cost rates can be achieved, then more unpaved roads will become candidates for upgrading. Furthermore, for low volume rural roads, social factors should also contribute to the justification for upgrading of unpaved roads. The Roads Authority will use multi-criteria analyses, including the World Bank's RED<sup>10</sup> model. This can take into account such factors as poverty levels in the area of influence of the road, potential for economic development in the area, and the role the road can play in access to social services. Table 3.14 lists schemes that meet economic criteria to be included in RSP.

**Table 3.13: Projected Traffic Volumes by Road Kilometrage – 2010**

Vehicles per Day	Kilometres by Surface Type		
	Unpaved	Paved	Total
< 150	8,898	915	9,813
150 – 250	1,379	250	1,630
250 – 350	124	683	807
350 – 500	53	1,000	1,054
500 – 750	5	654	659
750 – 1000	0	210	210
> 1000	0	1,278	1,278
	10,460	4,991	15,451

**Table 3.14: Proposed Upgrading Schemes (2010/11 to 2014/15)**

Road No.	From	To	Length (km)	Cost (M MWK)	Cost (USD M) <sup>11</sup>	IRR
M010	Njolo	Kapiri	15.4	377	2.7	79.1
D328	Nsomba	Madziababgo	20.2	495	3.5	77.2
T411	Chinkankheni	Nguludi	11	270	1.9	76.0
M001	Ngabu	Lalanje Bridge	13.1	321	2.3	54.0
T418	Didi	Thunga	23.5	576	4.1	34.1
S129	Makanjira	Chingo	61.4	1,504	10.7	34.0
S125	Mitundu	Diamphwi Bridge	22.1	541	3.9	33.5
S149	Losa	Chonde	11.8	289	2.1	33.3
S126	Linthipe	Lobi	27	662	4.7	24.0
S118	Kawere	Mkanda Kapiri	31	760	5.4	24.0
T378	Monkey Bay	Cape Maclear	18	441	3.2	16.5
S138/T401	Lirangwe	Machinga	74	1,813	13.0	15.0
<b>Total</b>			<b>328.5</b>	<b>8,049</b>	<b>57.5</b>	

<sup>10</sup> Road Economic Decision Model, Road Maintenance Initiative, World Bank Sub-Saharan Africa Transport Policy Program, 2004

<sup>11</sup> USD 1 = MWK 140

### **3.6 URBAN ROADS**

Urban roads account for less than 10% of the network, though they probably carry the major part of the national traffic, a point that will become clearer after the urban traffic surveys are carried out. Maintenance of urban roads has been neglected and many roads are visibly in poor condition. The exact extent of the maintenance problem will be determined by the RA following analysis of recent road survey and condition data in the RDM.

The RA has already made efforts to tackle this problem. The 9<sup>th</sup> EDF has funded periodic maintenance in Lilongwe and, currently, in Mzuzu. The Government of Japan funded rehabilitation of the Blantyre - Limbe road. The FY 2009/10 RA recurrent budget includes a large provision (MWK 3.1 billion) for backlog maintenance of 138 km of roads in Lilongwe, Blantyre and Zomba, based on the local authorities' assessment of needs.

Urban roads are included in the Road Sector Programme, and the RDM will contain a complete set of urban road inventory, condition and traffic data. From early 2010 it will be possible to use HDM-4 to identify needs and to prioritize maintenance and rehabilitation activities, so that individual schemes can be put into future Annual Road Programmes, within the overall scope of the Road Sector Investment Programme.

### **3.7 BRIDGES**

There are approximately 2,500 bridges on the classified network, of which 1,100 are concrete and 480 are timber, which are found mainly on low volume roads. The timber bridges are becoming difficult to maintain; obtaining timber is becoming increasingly costly and the use of timber is seen as environmentally unacceptable. Development partners, including the EC, have been and are assisting the RA with a programme to replace timber bridges with concrete. It seems sensible to continue with the replacements, whenever it becomes necessary to make major repairs to the bridges.

The RA has set up a new Bridge Management System (BMS), which incorporates an improved bridge database, recording location, structure type and condition data, and a system of regular bridge inspections. This will help identify which bridges are in need of repair, and can be used to prioritize the replacements. A budget allocation for bridge improvement is proposed of MWK 300 mn per year of the programme. The BMS will be used annually to identify candidate bridge improvement projects within that financial limit.

The first priority of the Programme will be to widen single lane bridges on M Roads. The second priority will be to replace all remaining timber deck bridges.

### **3.8 SECTOR CAPACITY**

#### **3.8.1 Contracting Industry**

There are a small number of large international and national contractors working on a regular basis in the road sector and able to undertake large construction and rehabilitation works. South African contractors used to be very active in the sector, but are not currently pursuing work in Malawi, apparently because of the large volumes of work for them in RSA in preparation for the 2010 Football World Cup. Their absence has reduced the levels of competition in the sector.

Table 3.15 lists the numbers of civil engineering contractors registered with the NCIC in FY 2008/09. More than 90% of contractors are limited to contracts with a value of less than MWK 50 million, and there were only 38 firms able to take on contracts of more than MWK 50 million.

**Table 3.15: Registered Civil Engineering Contractors in Malawi, FY 2008/09**

Category of Contract Allowed to Bid For (MWK mn)	Number of Firms	% of Total
0-5	269	57.2
5-15	118	25.1
15-50	45	9.6
50-100	17	3.6
100-200	5	1.1
Unlimited	16	3.4
<b>Total</b>	<b>470</b>	<b>100.0</b>

There is a large body of small contractors, able to take on routine maintenance, and other minor works, although quality of patching work tends to be variable. In the absence of guaranteed work, local contractors have been unwilling to invest in staff training and the purchase of equipment. The smaller contractors are aware of skills shortages, and eager to take up training at the right price. The capacity limitations in the medium/large contractor categories needs to be addressed to ensure that the Road Sector Programme is fully implemented.

### 3.8.2 National Construction Industry Council

The NCIC is specifically empowered to build capacity in the Malawian contracting sector. The NCIC is now fully privately funded, receiving its income from registration fees from contractors, and charges for training. Fees, set in 2009, range from MWK 7,500 for Category I (MWK 0-5 mn) contractors, to MWK 200,000 for contractors in the unlimited category. Fees tend to be progressively more, pro rata, for the smaller contractors. The NCIC undertakes training across a wide variety of engineering and business topics, using modules developed under EU funding in 2004. However, many smaller contractors claim that training fees are too high, and inhibit them from participating in training.

The NCIC receives income from a 1% levy on all civil engineering and building contracts awarded in Malawi, including those let by the Roads Authority. This income stream is expected to be fully flowing in the financial year 2009/10. This should allow the NCIC to improve training standards, and lower fees.

The Government intends to revise the enabling legislation for the NCIC in order that the Council can be more focussed to deal with road sector issues in line with the new organisational arrangements for the RFA and RA.

### 3.8.3 Supervisory and Skilled Staff

There is a general consensus that there is a shortage of supervisory staff, such as foremen and clerks of works, and of skilled manual workers, such as plant operators. The shortage is variously attributed to emigration to neighbouring countries, where pay rates are higher, and to lack of domestic training facilities. The lack of supervisory capacity can be partly ascribed to the fact that Diploma courses in civil engineering are no longer offered at universities or polytechnics in

Malawi. The NCIC intend to overcome this by offering accredited Diploma level courses from 2010.

### 3.8.4 Plant and Equipment

Most local contractors own very little plant and equipment. Contractors engaged in work requiring heavier plant are able to hire from the private sector or to import equipment, whether new or second-hand, from abroad. The private sector hire sector is very under-developed, with only Barloworld being a recent entrant to the hire business, and some Local Assemblies, e.g. Lilongwe, which also maintain graders available to hire to contractors. As a result the Government's Plant & Vehicle Hire Organization (PVHO) is the primary source of plant and equipment for hire to contractors and has a key role to play in the development of the indigenous contracting business in Malawi. Table 3.16 lists plant, equipment and vehicles available for hire from PVHO.

**Table 3.16: Vehicles and Equipment Owned by PVHO, 2009**

Item	Number in Serviceable Condition
Motor Grader	29
Tipper	22
Water Bowser	3
Excavator	4
Front End Loaders	8
Dozers	11
Vibrating roller	5
Horse for low loader	2
Heavy Recovery Vehicle	3
Twin Cabs	1
JCB Back-hoe	1
Transit concrete carriers	3
Concrete mixers	4
Screw compressors	4
Needle Vibrators	10
Concrete cutters	4
Pedestrian rollers	3
Stand-by generators	4

Source : PVHO

PVHO has a stock of 54 graders with an average age of 11 years. Of these, 9 are newly acquired, and of the remainder 20 are serviceable. Under current demand, PVHO estimates that it needs to acquire a further 16 graders. The private sector is also active in plant hire operations. Under the Road Sector Programme, there will be an increased need for graders and other plant for both maintenance and rehabilitation interventions.

PVHO was primarily created as a Treasury Fund responsible for management of a fleet of plant and vehicles to be hired to government and the private sector. In addition, PVHO provides maintenance and repair services to government vehicles; acts as a registration authority for all Government plant and vehicles; provides technical advice to Government on plant and vehicles matters and purchase policy; Inspects new plant and vehicles bought by Government; and facilitates insurance policies for Government plant and vehicles. As a Treasury Fund PVHO is

governed by Government procedures and therefore does not allow flexible approach to business that commercial organizations require.

A study<sup>12</sup> designed to examine privatisation options for PVHO in 2005 recommended that the plant hire business be continued under 100% Government control until a more developed and competitive plant hire market developed, and that the business be run on a commercial basis. It also recommended that the business be conducted through a limited liability company whose governance structure would be more appropriate than a treasury fund for the conduct of commercial operations. The report also argued that measures should be taken to improve plant serviceability and availability of the range of plant required by the target market, and noted that this would require a significant investment as old plant is disposed of and new and appropriate plant acquired. Finally, the report recommended outsourcing plant maintenance to the private sector.

The Government intends to re-structure PVHO so that it can better support the road construction industry, through an appropriate legal mandate.

### **3.8.5 Roads Authority**

The RA is currently managing over 350 contracts, some of them very small. All are subject to tendering and all require some form of supervision, which places a significant administrative burden on the RA. The increase in maintenance work that will result from the increase in the Roads Fund's resources for recurrent expenditure will place further pressure on the RA's administrative capacity. As noted in para 3.2.3, the RA intends to move towards a smaller number of larger contracts, effectively encouraging the development of medium, rather than small contractors. The expansion of the RA contract administration capacities is also required, along with strengthening of the RDM Section.

## **3.9 UNIT COSTS FOR BUDGETING AND PLANNING PURPOSES**

There has been a marked increase in road construction and maintenance costs throughout Africa in recent years, for reasons that, despite extensive investigation, remain unclear. Lack of competition in the sector appears to explain some of the increase in some countries, while costs of inputs, particularly fuel and bitumen, rose rapidly until mid-2008.

### **3.9.1 World Bank Data**

The World Bank has recently revived the Road Costs Knowledge System (ROCKS), and carried out an analysis of over 100 contracts in Sub-Saharan Africa<sup>13</sup>. This shows wide variation between countries, but average costs are shown in Table 3.17, together with the first and third quartile values.

From ROCKS a cost of \$1 mn per km of new 2 lane construction is assumed.

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<sup>12</sup> Commercialisation and Privatisation Options for Plant and Vehicle Hire Organisation, O&M Development Consulting Limited, 2005

<sup>13</sup> *Monitoring Road Works Contracts and Unit Costs for Enhanced Governance in Sub-Saharan Africa*: Transport Paper 21, World Bank

**Table 3.17: Road Unit Costs – Sub-Saharan Africa (US\$000)**

Works	Q1	Average	Q3
Re-gravel	28.9	66.3	84.0
Periodic Maintenance	78.1	133.1	183.8
Rehabilitation / Reconstruction	221.8	397.9	450.8
Upgrade to Paved	296.5	360.1	403.8

### 3.9.2 Road Authority Experience

The RA has also experienced a significant increase in out-turn costs. In FY 2007/08 periodic and rehabilitation works, which were budgeted as \$ 73,000 per km, actually cost \$ 192,000 per km. Upgrading works were budgeted at US\$ 144,000 but actually cost US\$ 435,000 per km. The RA currently estimates that reseals should cost US\$ 250,000 per km, while rehabilitation work cost around \$ 500,000 per km. The 2009 AfDB feasibility study for rehabilitating Limbe-Zomba estimated the cost at US\$ 38 million for 60 km, corresponding to US\$ 636,000 per km, including all costs such as compensation. In some cases, prices have risen above estimates where surveys have revealed new issues. For example, the intervention on Lilongwe-Nsipe was originally planned to be periodic maintenance, at US \$7.6 million. The RA has now designed a more appropriate intervention at US\$ 12 8 million.

A summary of the prices of contracts awarded in FY 2008/09 by the RA is shown in Table 3.16. Most of these contracts are ongoing and it is possible that final costs will be in excess of the values shown in Table 3.18.

**Table 3.18: Average RA Contract Prices FY 2008/09**

	Km	Contract Cost	Cost per km	
		(MK mn)	(MK mn)	(US\$ 000)
Upgrading	392.0	34,116	87.0	621.6
Rehabilitation & Reseal	577.5	8,506	14.7	105.2
Reseal & drainage	19.6	173	8.8	62.9
Rehabilitation & Reconstruction	25.0	3,174	127.0	907.0
Construction	194.0	16,974	87.5	625.0

For unpaved road upgrading to Class 1 standards, contract prices are running in the range US\$ 500,000 – 600,000 per km. Future *HDM-4 Analysis* evaluations of road upgrading will reflect this figure.

Much of the unpaved network is in need of major rehabilitation work, which will involve provision of new material and improved drainage works. The RA estimates that this type of intervention will cost around \$25,000 per km.

#### *Low Volume Sealed Roads*

Seals on low volume roads can keep costs low by minimizing realignments and new drainage works, and using a 120mm granular base with a bituminous seal. Recent (2009) experience of using this type of construction by the RA in Malawi, gave costs in the range \$ 100,000 to \$150,000 per km.

### 3.9.3 IGPWP Experience

The EU-funded Income Generating Public Works Programme (IGPWP) contained a significant roads component designed to improve accessibility of the rural and peri-urban communities. The road component is planned to rehabilitate 3,240 km of low-volume rural feeder roads using labour intensive construction methods. By June 2008, 1,110km of unpaved roads had been rehabilitated at a cost of Euro 3.88 million. This equated to a cost per km of around US\$ 5,000.

### 3.9.4 Provisional Unit Costs for Road Sector Investment Programme

For the purposes of budgeting the proposed intervention and development costs in the RSP the above experience has been used to derive the assumptions below.

#### *Routine Maintenance*

The overall average cost of routine maintenance for all paved roads is currently of the order of MWK 250,000 per km. The equivalent costs for trunk, district and urban roads are assumed to be around MWK 240,000, MWK 150,000 and MWK 290,000 respectively.

The overall average cost of routine maintenance for all unpaved roads is currently of the order of MWK 180,000 per km. The equivalent costs for trunk, district and urban roads are assumed to be around MWK 190,000, MWK 154,000 and MWK 230,000 respectively.

The overall average cost of routine maintenance for all roads (paved and unpaved) is around MWK 200,000 per km.

Annual grading of unpaved trunk and urban roads is assumed to be around: MWK 160,000 per km, and for district roads around MWK 100,000 per km.

#### *Periodic Maintenance*

The average periodic maintenance cost for paved roads consists of a simple reseal at \$ 45,000 per km for 70% of the section, and a minor rehabilitation on 30% of the section at \$ 150,000 per km, giving an average cost of approximately \$ 75,000 per km. For district roads a 40mm overlay at \$6 per sq.m would give a cost of \$ 33,000 per km. For trunk roads an overlay of 50mm at \$8.6 per sq.m would give a cost of \$ 88,000 per km, and for urban roads a similar thickness would result in per km cost of around \$120,000 per km.

#### *Rehabilitation*

Recent analysis of rehabilitation cost estimates for paved roads gave a range of costs between \$40,000 and \$1.3 million per km, for trunk roads, depending on the existing road condition and level of proposed intervention. A future average cost for trunk roads of \$300,000 per km is proposed. The equivalent cost for district roads should be around \$120,000 per km. The cost of paved urban road rehabilitation is taken from estimates contained in the FY 2009/10 programme (for roads in Lilongwe, Blantyre and Zomba) at just over \$250,000 per km.

The rehabilitation of low volume unpaved roads using labour-based construction is assumed to be \$5,000 per km, in line with IGPWP experience, and \$25,000 per km using machinery for higher volume roads with drainage improvements.

*Upgrading*

Upgrading of unpaved roads to Class I standard, from recent contract awards, is estimated to cost \$ 625,000 per km for Main and urban roads. For upgrading to Class II, a pro-rata figure of \$ 515,000 per km is used. Low volume seals on secondary, tertiary and district roads are expected to cost around \$175,000 per km in the future.

*New Construction*

The cost estimate for the Lilongwe by-pass provides for a rate of MWK 217.9 M per km. For trunk roads the assumption is MWK 140 million per km.

Cost rates are summarised in Tables 3.19 and 3.20.

**Table 3.19 : Unit cost rates for road sector interventions (Million MWK per km)**

Intervention	Trunk	District	Urban	Community
Routine maintenance – paved roads	0.2	0.2	0.3	-
Routine maintenance and grading – unpaved roads	0.4	0.3	0.4	0.15
Periodic maintenance – paved roads	12.3	4.6	16.8	-
Rehabilitation – paved roads	42.0	16.8	35.0	-
Rehabilitation – unpaved roads	3.5	0.7	3.5	-
Upgrading to Class I of unpaved roads	87.5	-	87.5	-
Upgrading to Class II of unpaved roads	72.0	-	72.0	-
Low cost seals on unpaved roads	24.5	24.5	-	-
New Construction	140.0	-	217.9	-
Replacement of single-lane timber deck bridges with concrete decks (per m length)	0.2	0.2	0.2	-

\$1=MWK140, July 2009

**Table 3.20 : Unit cost rates for road sector interventions ('000 USD per km)**

Intervention	Trunk	District	Urban	Community
Routine maintenance – paved roads	1	1	2	-
Routine maintenance and grading – unpaved roads	3	2	3	0.2
Periodic maintenance – paved roads	88	33	120	-
Rehabilitation – paved roads	300	120	250	-
Rehabilitation – unpaved roads	25	5	25	-
Upgrading to Class I of unpaved roads	625	-	625	-
Upgrading to Class II of unpaved roads	514	0	514	-
Low cost seals on unpaved roads	175	175	-	-
New Construction	1,000	-	1,556	-
Replacement of single-lane timber deck bridges with concrete decks (per m length)	1	1	1	-

## **4 PROGRAMME DEVELOPMENT**

### **4.1 OVERVIEW**

The condition of the Malawian paved road network has improved significantly in recent years as a consequence of major rehabilitation works, mainly funded by development partners. The paved network is now mainly in good to fair condition, with a relatively small ongoing requirement for rehabilitation, mainly on lower volume roads.

As result of limited resources, the unpaved network has generally been given a lower priority, and has tended to deteriorate, and the investment programme is designed to redress this. A substantial programme of rehabilitation of work has been identified, along with regular annual grading to avoid further deterioration.

Traffic volumes are generally low on the unpaved network and the costs of upgrading unpaved roads appear relatively high, but upgrading is often justified for both social and economic reasons. Indeed, experience has shown that traffic volumes increase markedly upon paving a road – typically between 2 and 3 times the volume on the unpaved road. Multi-criteria analyses and the RED model will be used to determine the priorities for upgrading within budgets. Low volume seals will be used on roads where feasible, and this increases the potential number of roads which can be up-graded during the programme period.

The resources of the Roads Fund have been significantly increased, and, with further steady increases, it will be possible to start to plan for full maintenance needs to be met in around 5 year's time. Hence the emphasis of the road sector programme is on preserving the existing asset base, and on rehabilitating and maintaining the unpaved network, so as to ensure affordable and reliable access in rural areas. The guiding principles for the development of the RSP are therefore to:

- Bring the whole of the maintainable network under routine maintenance contracts
- Rehabilitate roads in bad condition and then ensure that they are routinely maintained thereafter
- Adequately maintain, through regular grading and re-shaping, the unpaved roads
- Ensure timely periodic maintenance of the paved road network
- Upgrade unpaved roads, where economically or socially feasible, and to then ensure that they are adequately maintained

### **4.2 PRINCIPLES AND PRIORITIES**

The Government has proposed the following general principles and priorities for the management and development of the road network:

1. Building on the successes of the past – network preservation through regular maintenance
2. Dealing with the mistakes of the past – through rehabilitation, timely periodic maintenance, and measures to reduce road accidents
3. Meeting new challenges – of traffic growth and the need to improve access to potentially productive rural areas through upgrading unpaved roads to paved standard.

The components of this approach are shown in Table 4.1. The components of the investment programme are explained more fully in Section 4.3.

**Table 4.1 :Road Sector Focus Areas and Components**

Focus Area	Content	Components
1	Network Preservation	Routine maintenance on all roads Routine maintenance of all bridges Regular annual grading and re-shaping of unpaved roads Timely reseals for paved roads Axle load control Road and bridge management systems Condition surveys Road safety measures
2	Dealing with past mistakes	Rehabilitation programme for paved roads Rehabilitation programme for unpaved roads Replacement of timber bridges Physical improvements at accident black spots Measures to combat HIV/Aids Improved social/environmental safeguards
3	Future Challenges	Upgrading unpaved roads Traffic management measures City by-passes to reduce congestion Small town protection measures Measure to combat human trafficking Development of the contracting sector Capacity building

### 4.3 PROGRAMME COMPONENTS

#### 4.3.1 Network Preservation

##### *Road Maintenance*

On the basis of the projected future condition of the network (described in Section 3.4), roads were selected for periodic (re-seals) or routine maintenance based on their condition. For each year of the programme all roads that are not subject to rehabilitation or upgrading are to be preserved under routine maintenance contracts. For the first 5 years of the programme, these roads can be identified now, subject to verification by future condition surveys. Thereafter, the average annual maintenance requirement for network preservation can be identified for preliminary budgeting purposes.

##### *Bridge Maintenance*

Resources need to be allocated for bridge inspection, maintenance and repair, and when required, reconstruction. Inspections have to be regular, and a system developed so that interventions can be made speedily for minor repairs. For more major repairs, the Programme attempts to ensure that sufficient resources are in place, subject to feasibility and design processes. The deterioration of bridges is not so predictable as for roads, and so not all specific structures are not identified in the programme. The priorities of widening single lane bridges and replacing timber deck bridges will be identified in annual programmes.

##### *Axle Load Control*

Axle load control is very important for the preservation of the road network, and it is critical to the success of the Road Sector Programme that the loading of vehicles below allowable weight limits is strictly enforced. This needs to be done by ensuring the full operation of existing weighbridges, by unloading over-laden trucks, and by ensuring that the legal maximum fines for overloading are paid. In future, locations for additional weighbridges may be identified close to heavy vehicle generators. The resource implications of all these measures are relatively small. The RFA is able to fund some of these measures.

#### *Management Systems*

The preservation of the network will rely on the use of good management systems, both in terms of the data – from road and bridge condition surveys and traffic counts – and in terms of validation of systems and their use in planning and prioritising interventions. The RA wishes to ensure that sufficient resources are allocated on an annual basis for this.

#### *Road Safety Measures*

The Road Sector Programme contains provision for measures to be implemented by the Roads Authority to improve road safety. These will be a combination of physical measures at places on the network of high or potentially high, road accidents, such as improved signing, speed restriction initiatives, and road markings, along with road safety audits on rehabilitation, upgrading and new construction projects to assist the design process to reduce the potential for accidents. A Road Safety Masterplan will be developed to identify and detail these issues. Resource allocation for this is provided in the Programme in line with estimates given in the Roads Fund Administration Strategic Plan, 2009.

#### *Social and Environmental Issues*

The Road Authority will continue to address key social and environmental issues where road construction or improvement has an impact. In particular, social and environmental mitigation measures will be incorporated into the design process, along with complimentary and associated conditions of contract. The RA will continue to play its role in combating the spread of HIV/Aids, and addressing other cross cutting issues.

### **4.3.2 Dealing with Past Mistakes**

#### *Road Rehabilitation*

A major part of the Road Sector Programme is the rehabilitation of both paved and unpaved roads in poor condition. Using the analysis outlines in section 3.4, roads were selected for rehabilitation based on their condition. Most rehabilitation works were then ranked using a combination of traffic and the forecast IRI. Additional rehabilitation schemes have been subjected to preliminary feasibility studies, and where economically justified, these are included in the programme. The programme of works has been spread more or less evenly over the 5-year period, with the highest ranking roads being implemented first.

*Replacement of Timber Bridges*

The on-going programme of replacing timber bridge decks with concrete structures is proposed to be completed over the 5-year period FY 2010/11 to FY 2014/15. In the past this has been funded from the re-current budget, with some assistance from the IGPWP, which is expected to have improved 80 bridges by the end of the programme.

*Accident Blackspots*

Concentrations of road accidents at specific links or junctions on the network can often be attributed to the physical state of the road(s) at those points, even if the root of cause of accidents is driver-related, e.g over-speeding. The Road Sector Programme contains provision for the analysis of blackspots to enable physical improvement measures to be implemented at the worst sites in the country. Measures to improve driver behaviour will also be brought forward. Table 4.2 shows indicative programme areas and costs for inclusion in the Road Sector Programme.

**Table 4.2 : Indicative Road Safety Action Plan Budget (Million MWK)**

Action Area	2010/11	2011/12	2012/13	2013/14	2014/15
Safety Audits	10	12	14	14	14
Blackspot Treatments	20	25	25	25	25
Signs and Markings	20	20	20	20	20
Non-motorised vehicle protection measures	20	25	30	30	35
Speed reduction measures	40	40	40	45	45
Awareness campaigns	32	32	32	32	32
Education	17	19	23	26	29
Enforcement	16	11	9	11	13
<b>Total</b>	<b>175</b>	<b>184</b>	<b>193</b>	<b>203</b>	<b>213</b>

**4.3.3 Future Challenges***Upgrading unpaved roads*

One of the major challenges addressed by the Road Sector Programme is the improvement of access to/from and within rural areas to improve local economies and social conditions through the construction of paved roads. The RSP makes provision for upgrading around 870 km of unpaved roads over the five year period FY 2010/11 to FY 2014/15, through a combination of low-volume seals and full-upgrading works.

*Traffic Management*

As traffic grows on the network the RA will bring forward low-cost measures to manage traffic without resorting to large scale construction. This particularly applies to urban areas, and junctions on the Main Road network. Allied to this, the RA will also examine the possibility of implementing measures in towns and villages to reduce the adverse impacts of through traffic, and to reduce community segregation through, for example, protected crossings. Resource allocation for this is provided in the Programme in line with estimates given in the Roads Fund Administration Strategic Plan, 2009.

*Human Trafficking*

Human trafficking is a new challenge, already taking place in Africa. New and improved roads can make trafficking easier, and open up new routes. The Government will bring forward measures to address this issue and identify implementing agencies during the implementation of the Road Sector Programme.

### *Contracting Sector*

The capacity of the local contracting sector will need to be enhanced in quality and scale for the effective implementation of the Road Sector Programme. The RA will work closely with Government, the NCIC, and development partners to assist the development of effective measures for capacity enhancement.

### *Capacity Building*

The effective implementation of the RSP will also require capacity building within the Ministry of Transport and Public Infrastructure, Roads Authority, and within local government institutions charged with delivering components in the future. Within the RA, the key areas for capacity enhancement are in planning, design and project appraisal, along with contract preparation. The local government bodies require skills enhancement in tender preparation and supervision. Within the Ministry, the Roads Department will need capacity building in the areas of policy, planning, development of design standards and project management. The Central Materials Laboratory (CML), which is under the Roads Department, is responsible for maintaining quality in construction, and needs capacity building in appropriate material technologies and testing. Funds for these activities are expected to be provided by a range of development partners.

## **4.4 THE PROGRAMME**

### **4.4.1 Programme Development**

In developing Programme for the financial years 2010/11 – 2019/20 account has been taken of the committed expenditure generated by the FY 2009/10 programme, which provides for expenditure up to and including FY 2011/12. The programme of works takes into account full annual maintenance needs, prioritised rehabilitation needs, and upgrading proposals over the first 5-year period. The condition of the network in 2016 was then projected, on the assumption that the proposed RSP was fully implemented, and requirement for rehabilitation and periodic maintenance in the period 2016 – 20 identified.

Urban road projects for re-seals and rehabilitation are included in the programme.

An upgrading programme of unpaved roads is also included in the Programme. This includes commitments from FY 2009/10 (shown in Table 3.10), along with new schemes found to be economically viable.

### **4.4.2 Programme**

The interventions by kilometre in the first five years of the Road Sector Programme, and the annual average thereafter are summarized in Tables 4.3 to 4.7 and summarised in Table 4.8. On the paved road network, just over 300 km of re-seals will be needed annually, both in the first years and thereafter. However, the need for rehabilitation of the paved network should drop from an annual average of 262 km in the first five years to slightly less than 50 km per year thereafter, so long as routine and periodic maintenance regimes are fully implemented. The length of the paved network in maintainable condition should rise by nearly 750 km over the first 5 years, as a result of rehabilitation of paved roads, and upgrading of unpaved roads. Thereafter, the increase in the length of the paved network will be less, and mainly due to upgrading works.

For the unpaved network, the RSP is characterised by a major programme of rehabilitation over the first years, of around 1,500 km annually. After that time, rehabilitation needs will reduce, and around 12,500 km of unpaved roads will need routine maintenance and annual grading.

By 2015, if the 2010 – 15 programme is fully implemented, the need for further rehabilitation of paved or unpaved roads will be virtually eliminated. The proportion of the paved network in good or fair condition, and hence under routine maintenance contracts forecast as result of the programme is shown in Table 4.9.

The forecasts in Table 4.9 are the targets against which the RA will be monitored and judged. In order to achieve these targets, the RA will need the resource allocations outlined in the investment programme in Table 4.12.

**Table 4.3 : Proposed Road Sector Programme Interventions (km), 2010/11**

	Trunk	District	Urban	Total
<b>Paved Roads</b>				
Routine Maintenance	2,820	8	770	3,598
Re-seal	209	0	0	209
Rehabilitation	231	0	0	231
New Construction	5	0	0	5
<b>Total Paved</b>	<b>3,260</b>	<b>8</b>	<b>770</b>	<b>4,038</b>
<b>Unpaved Roads</b>				
Routine/Grading	7,157	3,492	578	11,228
Rehabilitation	0	0	0	0
Full Upgrade	185	0	0	185
Low Volume Upgrade	0	0	0	0
<b>Total Unpaved</b>	<b>7,342</b>	<b>3,492</b>	<b>578</b>	<b>11,412</b>
Maintenance	10,186	3,500	1,348	15,035
Development	416	0	0	416
<b>Total</b>	<b>10,602</b>	<b>3,500</b>	<b>1,348</b>	<b>15,451</b>
New Construction	5	0	0	5
<b>Total Roads</b>	<b>10,607</b>	<b>3,500</b>	<b>1,348</b>	<b>15,456</b>

**Table 4.4 : Proposed Road Sector Programme Interventions (km), 2011/12**

	Trunk	District	Urban	Total
<b>Paved Roads</b>				
Routine Maintenance	2,914	8	770	3,692
Re-seal	277	0	0	277
Rehabilitation	259	0	0	259
New Construction	7	0	0	7
<b>Total Paved</b>	<b>3,450</b>	<b>8</b>	<b>770</b>	<b>4,228</b>
<b>Unpaved Roads</b>				
Routine/Grading	5,800	3,127	513	9,440
Rehabilitation	1,187	366	65	1,617
Full Upgrade	142	0	0	142
Low Volume Upgrade	28	0	0	28
<b>Total Unpaved</b>	<b>7,157</b>	<b>3,492</b>	<b>578</b>	<b>11,228</b>
Maintenance	8,991	3,135	1,283	13,409
Development	1,616	366	65	2,046
<b>Total</b>	<b>10,607</b>	<b>3,500</b>	<b>1,348</b>	<b>15,456</b>
New Construction	7	0	0	7
<b>Total Roads</b>	<b>10,614</b>	<b>3,500</b>	<b>1,348</b>	<b>15,463</b>

**Table 4.5 : Proposed Road Sector Programme Interventions (km), 2012/13**

	Trunk	District	Urban	Community	Total
<b>Paved Roads</b>					
Routine Maintenance	2,939	8	770		3,683
Re-seal	339	0	0		339
Rehabilitation	351	0	0		384
New Construction	2	0	0		2
<b>Total Paved</b>	<b>3,628</b>	<b>8</b>	<b>770</b>		<b>4,406</b>
<b>Unpaved Roads</b>					
Routine/Grading	6,016	5,350	416	6,980	18,732
Rehabilitation	742	595	162		1,499
Full Upgrade	137	0	0		137
Low Volume Upgrade	102	20	0		122
<b>Total Unpaved</b>	<b>6,997</b>	<b>5,965</b>	<b>578</b>		<b>20,490</b>
Maintenance	9,294	5,358	1,186		22,754
Development	1,331	615	162		2,142
<b>Total</b>	<b>10,624</b>	<b>5,973</b>	<b>1,348</b>		<b>24,896</b>
New Construction	2	0	0		2
<b>Total Roads</b>	<b>10,626</b>	<b>5,973</b>	<b>1,348</b>		<b>24,898</b>

**Table 4.6 : Proposed Road Sector Programme Interventions (km), 2013/14**

	Trunk	District	Urban	Community	Total
<b>Paved Roads</b>					
Routine Maintenance	3,083	26	770		3,879
Re-seal	360	2	0		362
Rehabilitation	425	0	0		425
New Construction	0	0	0		0
<b>Total Paved</b>	<b>3,868</b>	<b>28</b>	<b>770</b>		<b>4,666</b>
<b>Unpaved Roads</b>					
Routine/Grading	5,849	5,400	335	6,950	18,534
Rehabilitation	702	545	243		1,491
Full Upgrade	132	0	0		132
Low Volume Upgrade	75	0	0		75
<b>Total Unpaved</b>	<b>6,759</b>	<b>5,945</b>	<b>578</b>		<b>20,232</b>
Maintenance	9,292	5,428	1,105		22,775
Development	1,334	545	243		2,123
<b>Total</b>	<b>10,626</b>	<b>5,973</b>	<b>1,348</b>		<b>24,898</b>
New Construction	0	0	0		0
<b>Total Roads</b>	<b>10,626</b>	<b>5,973</b>	<b>1,348</b>		<b>24,898</b>

**Table 4.7 : Proposed Road Sector Programme Interventions (km), 2014/15**

	Trunk	District	Urban	Community	Total
<b>Paved Roads</b>					
Routine Maintenance	3,378	15	762		4,154
Re-seal	244	13	5		261
Rehabilitation	453	1	4		457
New Construction	0	0	0		0
<b>Total Paved</b>	<b>4,075</b>	<b>28</b>	<b>770</b>		<b>4,873</b>
<b>Unpaved Roads</b>					
Routine/Grading	5,889	4,917	247	6,950	18,002
Rehabilitation	432	1,028	331		1,792
Full Upgrade	134	0	0		134
Low Volume Upgrade	97	0	0		97
<b>Total Unpaved</b>	<b>6,552</b>	<b>5,945</b>	<b>578</b>		<b>20,025</b>
Maintenance	9,511	4,944	1,013		22,418
Development	1,115	1,029	335		2,479
<b>Total</b>	<b>10,626</b>	<b>5,973</b>	<b>1,348</b>		<b>24,898</b>
New Construction	0	0	0		0
<b>Total Roads</b>	<b>10,626</b>	<b>5,973</b>	<b>1,348</b>		<b>24,898</b>

**Table 4.8: Summary of Proposed Road Sector Programme Interventions**

	2010/11	2011/12	2012/13	2013/14	2014/15	Average 2010/15	Average 2015/30
<b>Paved Roads</b>	Km	Km	km	km	km	Km	km
Routine Maintenance	3,598	3,692	3,717	3,879	4,154	3,808	4,604
Re-seal	209	277	339	362	261	290	450
Rehabilitation	231	259	351	425	457	345	50
New Construction	5	7	2	0	0	3	0
<b>Total Paved</b>	4,043	4,235	4,407	4,666	4,873	4,445	5,104
<b>Unpaved Roads</b>							0
Routine/Grading	11228	9440	18732	18534	18002	15,187	19,644
Rehabilitation	0	1617	1499	1491	1792	1,280	200
Full Upgrade	185	142	137	132	134	146	100
Low Volume Upgrade	0	28	122	75	97	64	50
<b>Total Unpaved</b>	11412	11228	20490	20232	20025	16,677	19,794
<b>Total Roads</b>	15,456	15,463	24,898	24,898	24,898	21,122	24,898

**Table 4.9: Percentage of Paved Road Network in Good or Fair Condition**

	2007	2010	2011	2012	2013	2014	2015
Km in good/fair condition	3,400	3,306	3,348	3,592	3,717	3,879	4,254
Total km	4,038	4,038	4,038	4,228	4,406	4,666	4,873
% in good/fair condition	84.2	81.9	82.9	85.0	84.4	83.1	87.3

**Table 4.10: Road Sector Programme Interventions on Trunk Roads (km)**

	Region			Total
	Central	Northern	Southern	
2010/11	750.0	898.3	1,334.5	2,982.8
2011/12	1,000.4	1,357.6	1,016.2	3,374.2
2012/13	1,010.3	1,119.1	790.7	2,920.1
2013/14	510.9	581.7	615.6	1,708.2
2014/15	441.8	487.4	384.1	1,313.3
<b>Total</b>	<b>3,713.4</b>	<b>4444.1</b>	<b>4113.1</b>	<b>12,298.6</b>

#### 4.4.3 Investment Programme

The Road Sector Programme is summarised in Appendix 2. The costs of these components of the RSP for 2010 – 15 are shown in Table 4.11. It provides for a much increased programme of reseals of paved roads and regular grading of unpaved roads. The breakdown of costs by road class is shown in Appendix 3.

**Table 4.11: Road Sector Programme (Maintenance and Development) Costs**

		2010/11	2011/12	2012/13	2013/14	2014/15
<b>Recurrent Expenditure</b>		MWK (Million)				
Paved	Routine	899	921	927	964	1,030
Paved	Re-seal	2,577	3,411	4,170	4,449	3,146
Unpaved	Grading/Routine	3,612	3,019	4,660	4,582	4,439
<b>Development Expenditure</b>		MWK (Million)				
Paved	Rehabilitation	10,974	8,163	5,797	9,402	8,489
Unpaved	Rehabilitation	0	4,635	3,581	3,692	3,391
Unpaved	Upgrade	16,158	12,431	11,952	11,566	11,724
Unpaved	Low Volume Seal	0	695	2,986	1,835	2,367
Paved	New Construction	1,655	1,207	313	0	0
	New Bridges	906	453	500	1,000	3,500
<b>Totals</b>		MWK (Million)				
Total Recurrent Expenditure		7,088	7,352	9,757	9,994	8,615
Total Development Expenditure		29,692	27,584	25,130	27,495	29,472
<b>Total Expenditure</b>		<b>36,780</b>	<b>34,936</b>	<b>34,887</b>	<b>37,490</b>	<b>38,087</b>

Note : Constant (2009) prices

### *Urban Roads*

The proposed RSP makes an indicative provision for urban roads. The necessary data to evaluate individual schemes will be available once the RDM is fully updated, by the final quarter of 2009. Full scheme identification should then be undertaken, which may include rehabilitation schemes.

#### **4.4.4 Programme Details**

The annual indicative programmes for periodic maintenance (re-seals) and rehabilitation for FY 2010/11 through FY 2014/15 are shown in detail in Appendix 4, and are based on EIRR's and Net Present Value / cost ratios. Within the years, the schemes are not shown in order of type of intervention and not by economic benefit. The principles of the Road Sector are embodied in these programmes and are expected to be adhered to, in that the key programmes of road re-seals and rehabilitation will form large parts of future annual plans. Table 4.12 summarises interventions by District for the first five-year period. The Road Sector Programme will be reviewed on a regular basis, especially to reflect new road condition and traffic data which will affect priorities within road programmes. The RSP will also be reviewed against key targets, such as paved road condition, and amount of the network under routine maintenance. More detailed road programmes for the financial years 2015/16 to 2019/20 can be prepared on a rolling basis at the time of reviews. In order for paved road rehabilitations scheduled for the period 2010 – 2011 to be implemented, design and feasibility studies should be carried out during FY 2009/10.

**Table 4.12 : Road Re-seals and Rehabilitations in Km by District (2010/11-2014/15)**

District	Paved Rehabilitation	Paved Re-seal	Unpaved Rehabilitation	Total
Balaka	24.0	63.3	262.2	349.5
Blantyre	6.4	29.8	129.0	165.2
Chikwawa	0.0	14.9	290.8	305.7
Chiradzulu	3.6	14.0	57.3	74.9
Chitipa	0.0	0.0	548.3	548.3
Dedza	0.0	23.2	510.9	534.1
Dowa	0.0	112.0	373.7	485.7
Karonga	0.0	152.7	82.7	235.4
Kasungu	0.0	151.7	387.0	538.7
Likoma	32.4	51.3	53.8	137.4
Lilongwe	10.1	78.8	492.2	581.1
Machinga	24.0	63.3	262.2	349.5
Mangochi	0.0	186.4	461.3	647.7
Mchinji	0.0	112.7	455.0	567.7
Mulanje	0.0	0.0	141.1	141.1
Mwanza	0.0	28.5	74.2	102.7
Mzimba	49.0	107.1	1048.1	1204.2
Neno	0.0	28.5	74.2	102.7
Nkhata Bay	32.4	51.3	53.8	137.4
Nkhotakota	137.4	44.2	232.5	414.1
Nsanje	0.0	0.0	97.7	97.7
Ntcheu	0.0	45.5	347.4	392.9
Ntchisi	0.0	0.0	358.3	358.3
Phalombe	0.0	0.0	141.1	141.1
Rumphi	116.5	45.2	287.3	449.0
Salima	2.5	9.6	279.6	291.7
Thyolo	0.0	0.0	90.6	90.6
Zomba	0.0	37.6	192.0	229.6
Total	438.1	1451.4	7784.2	9673.7

## 4.5 FUNDING

### 4.5.1 Funding the Overall Programme

Preliminary funding proposals are shown in Table 4.13. It shows the scale of resources whose source is yet to be identified. One of the purposes of this programme is to clearly identify these needs at an early stage. For 2010/11, the programme is balanced. For 2011/12, the additional anticipated requirement from the Government of Malawi, assuming no further donor support for that year, is MWK 4.1 billion. Table 4.14 sets out the sources of Development Partner support included in Table 4.13, both committed and anticipated in the sector.

**Table 4.13: Road Sector Programme Funding (MWK million)**

	2010/11	2011/12	2012/13	2013/14	2014/15
<b>Expenditure</b>					
Maintenance	7,088	7,352	9,757	9,994	8,615
Development	29,692	27,584	25,130	27,495	29,472
Road Safety Programmes	175	184	193	203	213
Traffic Management	88	92	96	109	114
Bridges	300	300	300	300	300
Social/Environmental Safeguarding	150	180	180	180	150
Capacity Building	260	260	260	260	200
Agency Operating Costs	1,125	1,333	1,463	1,602	1,682
<b>Total Programme Cost</b>	<b>38,878</b>	<b>37,285</b>	<b>37,379</b>	<b>40,144</b>	<b>40,746</b>
<b>Income</b>					
Roads Fund	9,676	10,178	10,682	11,213	11,774
Donor Commitments	19,227	11,777	4,417	4,946	7,128
Government Funding <sup>(1)</sup>	13,115	8,478	9,066	9,712	10,424
DFID	913	1,140	1,140	1,367	
EU/DFID Capacity Building	260	260	260	260	200
<b>Required from Government of Malawi and/or additional Donor Funds</b>	<b>-</b>	<b>5,452</b>	<b>11,814</b>	<b>12,645</b>	<b>11,221</b>

Notes: (1) Includes Proposed EU Sector Budget Support

(2) Constant (2009) Prices

(3) Donor Commitments for 2010/11 and 2011/12 in line with projections provided in Approved Estimates of Expenditure on Recurrent and Capital Budget for the financial Year 2009/10, Malawi Government, 2009.

(4) Donor Commitments for 2012/13 to 2014/15 based on programmed needs in this Road Sector Programme

(5) Malawi Government commitments for 2012/13 to 2014/15 based on annual increases of 10% in Government allocation to road sector

(6) Uncommitted Funds represents the balance not yet earmarked by donors of Government of Malawi

(7) Potential funding from World Bank for Infrastructure Service Project not included

**Table 4.14 : Anticipated Committed Development Partner Support for Road Sector**

Development Partner	Project(s)	Anticipated Support 2009/10 to 2014/15
European Union	Rehabilitation of Chikwawa – Nchalo	Euro 16 M
	Lilongwe - Nsipe	Euro 7.6 M
	Feeder Roads Upgrading	Euro 18 M
	Sector Budget Support for Works	Euro 65 M
	Sector Budget Support for Capacity Building	Euro 5M
Republic of China	Upgrading Karonga - Chitipa	USD 38 M
Kuwait, Saudi donors	Upgrading Thyolo-Thekarani-Bangula	USD 24 M
BADEA	Upgrading Jenda – Eutheni - Rumphu	USD 25 M
African Development Bank	Ntcheu – Tasangano	USD 1.77 M
	Lilongwe By-pass	USD 21.01 <sup>14</sup> M
	Zomba-Blantyre	USD 36.17 M
Millenium Challenge Account	Feeder Road Upgrading	USD 45 M
	Capacity Building	USD 7 M
DFID	Unpaved road rehabilitation and upgrading (URP)	GBP 19 M
	Capacity Building	GBP 1 M
JICA	Bridge Replacement	USD 20 M
World Bank	Infrastructure Service Project	USD 35 M
Government of Japan	South Rukuru and Chiromo Bridges	USD 43 M

<sup>14</sup> Loan

Table 4.15 shows the indicative investment proposals for the road sector works from FY 2015/16 to FY 2019/20, and for the period FY 2020/21 to FY 2029/30. The medium and long-term future expectations are predicated on the successful implementation of the first 5-year programme. This will lead to a significant reduction in the need for rehabilitation, with an accent on routine and periodic maintenance. However, the medium and long-term future programmes allow for continued improvement of the network through upgrading unpaved roads, along with the recognition that as traffic grows, there will be a need for new construction in the form of four-laning or dualling some of the major strategic traffic arteries in the country. Despite this, the overall budget requirement ought to be less, in real terms, than that required over the next 5 years.

**Table 4.15 : Indicative investment programmes, 2015/16 to 2029/30**

		Annual for 5 years 2015/16 to 2019/20	Annual for 10 years 2020/21 to 2029/30
<b>Recurrent Expenditure</b>		MWK (Million)	
Paved	Routine	1,100	1,200
Paved	Re-seal	5,500	6,100
Unpaved	Grading/Routine	6,800	6,100
<b>Development Expenditure</b>		MWK (Million)	
Paved	Rehabilitation	2,100	1,100
Unpaved	Rehabilitation	700	900
Unpaved	Upgrade	8,800	8,800
Unpaved	Low Cost Seal	1,200	1,200
Paved	New Construction	3,700	9,200
<b>Totals</b>		MWK (Million)	
Total Recurrent Expenditure		13,500	13,500
Total Development Expenditure		16,500	21,200
<b>Total Expenditure</b>		<b>30,000</b>	<b>34,700</b>

#### 4.5.2 Ability of Roads Fund to Cover Re-current Costs

One of the objectives of the Road Sector Programme is to reach a point at which the re-current budget needs of the road sector are met from the sustainable source of the Roads Fund. The re-current budget needs includes periodic maintenance (re-seals) on the paved network. The projected Roads Fund revenue is based on the current level of fuel levies (section 3.2.2) and growth in traffic, and is therefore constrained in the future to the projected levels, assuming that traffic grows at 5% per year. However, expenditure on road maintenance will be subject to inflation, which in the last three years has been running at an average of around 11% per year, although the figure has been reducing. For the purposes of this programme it is assumed that cost escalation for road maintenance will be around 6% per year over the next 5 years. The consequent requirements, and expected coverage by the Roads Fund are set out in Table 4.16. Re-current budget needs are set to cover: routine and periodic maintenance; traffic management; road safety; bridge management, maintenance, and timber deck replacement; and agency operating costs.

**Table 4.16 : Potential Coverage by Roads Fund of Re-current Road Sector Expenditure**

	2010/11	2011/12	2012/13	2013/14	2014/15
Recurrent Budget Needs at 6% pa cost escalation (M MWK)	9,461	10,608	14,279	15,640	14,821
% coverage by Road Fund at fixed fuel levy	102.3	95.9	74.8	71.7	79.4
Potential Road User Charge Increase (%)	0	5	25	5	0

Road Fund Income with fuel levy increase (M MWK)	9,676	10,668	14,001	15,437	16,208
% coverage by Road Fund with increased Road User Charges	102.3	100.6	98.1	98.7	109.4

Table 4.17 shows that in order for the Roads Fund to cover on average 100% of re-current road sector costs, then road user charges would need to be increased periodically to meet needs. In 2012/13, when the maintenance needs for Community Roads will add to total need, the increase needs to be around 25%, resulting in the fuel levy on diesel rising by MWK 6.22. The following year the increase could be around MWK 1.56. Whilst these figures are illustrative, they do show that a mechanism needs to be put in place soon, in order that the target of the Roads Fund meeting re-current expenditure being met. The above is an example. **It is recommended that Roads Fund income is automatically increased annually in order to meet maintenance needs.**

Table 4.17 lists the works programme costs in US dollars. 65% of the programme is to be devoted to road maintenance and rehabilitation, emphasising the Government's priorities in these areas.

**Table 4.17: Road Sector Works Programme Costs (USD million)**

	2010/11	2011/12	2012/13	2013/14	2014/15	5 Year Programme
<b>Expenditure</b>						
Routine Maintenance	32.2	28.1	39.9	39.6	39.1	178.9
Periodic Maintenance	18.4	24.4	29.8	31.8	22.5	126.8
Rehabilitation	78.4	91.4	67.0	93.5	84.9	415.2
Upgrading	115.4	88.8	85.4	82.6	83.7	455.9
Low Volume Seals	-	5.0	21.3	13.1	16.9	56.3
New Construction	11.8	8.6	2.2	-	-	22.7
New Bridges	6.5	3.2	3.6	7.1	25.0	45.4
<b>Total Programme Cost</b>	<b>262.7</b>	<b>249.5</b>	<b>249.2</b>	<b>267.8</b>	<b>272.0</b>	1,301.3

**Appendix 1 : Programmed Expenditure from Committed and Priority Projects (Million MWK)**

No.	Name of Contract	Contractor	Expenditure planned in MWK					Forecast Cash flow Nov 09 to June 2010	Remaining Payments	Planned Expenditure				
			Contract Sum (if known)	GoM Allocation 2009/10	Donor Allocation 2009/10	Certification to Nov 09	2010/11			2011/12	2012/13	2013/14	2014/15	
1	Nsanje - Bangula	Mota Engil	7,400,000,000	650,000,000	-	2,487,039,652	1,854,000,000	3,058,960,348	1,700,000,000	485,000,000	873,960,348	-	-	
2	Lumbadzi - Dowa - Chezi	Cicon Ltd	3,150,000,000	750,000,000	-	619,788,706	629,461,294	1,900,750,000	800,000,000	1,022,000,000	78,750,000	-	-	
3	Thyolo - Thekerani - Muona - Bangula	M A Kharafi & Sons	9,750,000,000	250,000,000	2,666,000,000	-	281,000,000	9,469,000,000	2,684,800,000	2,684,800,000	2,684,800,000	1,414,600,000	-	
4	Chiringa - Misewu Folo - Chiradzulu	Mota Engil	6,448,493,889	681,000,000	-	1,256,389,635	1,519,763,454	3,672,340,799	1,272,340,800	1,200,000,000	1,200,000,000	-	-	
5	Mzimba - Eswazini - Mzlangwe	Fargo Ltd.	7,126,974,102	-	1,500,000,000	-	990,000,000	6,136,974,102	800,000,000	800,000,000	3,000,000,000	1,536,974,102	-	
6	Zomba - Jali - Phalombe - Chitakale	M A Kharafi & Sons	9,000,000,000	450,000,000	3,000,000,000	8,289,849,477	270,000,000	440,150,523	2,812,000,000	938,000,000	93,750,000	-	-	
7	Golati - Chiperoni	Mota Engil	3,637,209,231	300,000,000	-	1,676,447,748	860,761,483	1,003,761,482	800,000,000	300,000,000	-	-	-	
8	Msulira - Nkhokhokota	Shire	3,140,000,000	300,000,000	-	647,665,772	850,000,000	1,642,334,228	900,000,000	78,500,000	-	-	-	
9	New Bunda - Mitundu	Plem	795,234,028	310,000,000	-	-	616,359,028	178,875,000	159,000,000	19,875,000	-	-	-	
10	Ekwendeni - Ezondweni & Ezondweni - Njakwa	Fargo Ltd.	1,889,853,908	-	Combined with (5)	654,934,190	737,419,718	497,500,000	450,000,000	47,500,000	-	-	-	
12	Jenda-Euthini-Rumph	New	11,000,000,000	50,000,000	735,000,000	-	-	-	1,418,100,000	1,418,100,000	1,418,100,000	3,245,700,000	3,500,000,000	
15	Karonga - Chilipa (Phase 1)	China Road	11,250,000,000	-	3,750,000,000	-	-	7,500,000,000	3,750,000,000	3,750,000,000	-	-	-	
16	Lilongwe - Nsipe	Mota Engil	3,334,650,000	-	1,500,000,000	214,073,818	2,098,167,432	1,022,408,750	980,000,000	42,408,750	-	-	-	
17	Chikwawa - Nchalo - Bangula	Mota Engil	6,059,804,725	-	1,300,000,000	138,000,000	2,495,804,725	3,426,000,000	2,420,000,000	941,000,000	65,000,000	-	-	
18	Liwonde - Namanga	M A Kharafi & Sons	3,450,000,000	785,000,000	-	433,949,883	1,129,800,117	1,886,250,000	1,800,000,000	86,250,000	-	-	-	
23	Lilongwe-Kasiya-Santhe	New	8,940,000,000	200,000,000	-	-	-	-	64,800,000	-	1,788,000,000	2,950,200,000	4,201,800,000	
24	Mzimba St., Lilongwe	Mota Engil	330,000,000	200,000,000	-	-	288,750,000	41,250,000	33,000,000	8,250,000	-	-	-	
25	Chiringa-Mioza	New	-	70,000,000	-	-	-	-	56,000,000	-	815,000,000	815,000,000	815,000,000	
26	Ntcheu-Tsangano-Neno-Mwanza	New	8,018,000,000	6,000,000	120,000,000	-	-	-	157,500,000	57,300,000	-	1,603,600,000	3,207,200,000	
27	Blantyre-Zomba	New	5,531,000,000	20,000,000	120,000,000	-	-	-	2,639,349,900	1,916,383,100	505,733,800	469,500,000	-	
28	Lilongwe Bypass	New	3,175,594,450	29,000,000	103,000,000	-	-	-	1,654,983,550	1,207,255,400	313,355,500	-	-	
29	South Rukuru Bridge	New	1,359,375,000	-	-	-	-	-	906,000,000	453,375,000	-	-	-	
30	Chiromo Bridge	New	5,000,000,000	-	-	-	-	-	-	-	500,000,000	1,000,000,000	3,500,000,000	
31	EU Feeder Roads Spot Improvements	Various	881,500,000	-	-	-	-	881,500,000	881,500,000	22,037,500	-	-	-	
32	EU Feeder Roads Mchinji Kawere	Various	1,505,000,000	-	-	-	-	553,000,000	553,000,000	236,000,000	216,000,000	-	-	
33	ISP	Various	50,000,000	-	-	-	-	50,000,000	50,000,000	-	-	-	-	
<b>Total</b>			<b>122,222,689,332</b>	<b>4,266,000,000</b>	<b>15,579,000,000</b>	<b>16,418,138,882</b>	<b>14,621,287,251</b>	<b>42,758,055,232</b>	<b>29,742,374,250</b>	<b>17,714,034,750</b>	<b>13,552,449,648</b>	<b>13,035,574,102</b>	<b>15,224,000,000</b>	

**Appendix 2 : Summary Road Sector Programme (Million MWK)**

Scheme	Intervention	Status	2010/11	2011/12	2012/13	2013/14	2014/15
Paved Roads Routine Maintenance	Maintenance	Annual	899	921	927	964	1,030
Unpaved Roads Routine/Grading	Maintenance	Annual	3,612	3,019	4,660	4,582	4,439
Paved Roads Re-Seal	Maintenance	Annual	2,577	3,411	4,170	4,449	3,146
Unpaved Roads	Rehabilitation	New	-	4,635	3,581	3,692	3,391
District and Urban Roads	Rehabilitation	New	-	-	-	-	143
Msulira - Nkhotakota	Rehabilitation	Contracted	900	79	-	-	-
Chikwawa - Nchalo - Bangula	Rehabilitation	Contracted	2,420	941	65	-	-
Liwonde - Naminga	Rehabilitation	Contracted	1,800	86	-	-	-
EU Feeder Roads	Rehabilitation	Contracted	1,435	258	216	-	-
Lilongwe - Nsipe	Rehabilitation	Contracted	980	42	-	-	-
Goliati - Chiperoni	Rehabilitation	Contracted	800	300	-	-	-
Blantyre-Zomba	Rehabilitation	New	2,639	1,916	506	470	-
M3 Liwonde-Mangochi	Rehabilitation	New	-	-	-	1,449	1,411
M1 Bua River - Miti	Rehabilitation	New	-	-	-	-	-
S124 Lilongwe-Chinsapo	Rehabilitation	New	-	-	-	-	-
M1 Miti - Lumbadzi River	Rehabilitation	New	-	1,865	-	-	-
M1 Nkumbe River - Mlombe	Rehabilitation	New	-	1,235	739	-	-
M1 Kasungu - Bua River	Rehabilitation	New	-	1,441	-	-	-
S122 Mpatsanjoke Bridge - Livingstonia Hotel	Rehabilitation	New	-	-	92	-	-
M5 Mlowe - Nkhotakota - Chilua	Rehabilitation	New	-	-	4,179	2,541	-
M1 Karonga - Songwe	Rehabilitation	New	-	-	-	2,258	1,722
M5 Salima - Balaka	Rehabilitation	New	-	-	-	2,685	2,685
T318 Majiga - Nkhata Bay	Rehabilitation	New	-	-	-	-	193
S137 Chirimba - Blantyre	Rehabilitation	New	-	-	-	-	227
M5 Mzuzu - Kwale	Rehabilitation	New	-	-	-	-	1,588
S117 Njewa - Airwing	Rehabilitation	New	-	-	-	-	168
M24 Rumphu - Njakwa River	Rehabilitation	New	-	-	-	-	353
Bunda - Mitundu	Upgrading	Contracted	159	20	-	-	-
Ekwendeni - Ezondweni & Ezondweni - Njakwa	Upgrading	Contracted	450	48	-	-	-
Mzimba - Eswazini - Mzalangwe	Upgrading	Contracted	800	800	3,000	1,537	-
Lumbadzi - Dowa - Chezi	Upgrading	Contracted	800	1,022	79	-	-
Chiringa - Misewu Folo - Chiradzulo	Upgrading	Contracted	1,272	1,200	1,200	-	-
Nsanje - Bangula	Upgrading	Contracted	1,700	485	874	-	-
Karonga - Chitipa (Phase 1)	Upgrading	Contracted	3,750	3,750	-	-	-
Zomba - Jali - Phalombe - Chitakale	Upgrading	Contracted	2,812	938	94	-	-
Thyolo - Thekerani - Muona - Bangula	Upgrading	Contracted	2,685	2,685	2,685	1,415	-
Mzimba Street, Lilongwe	Upgrading	Contracted	33	8	-	-	-
Lilongwe-Kasiya-Santhe	Upgrading	Feasibility	65	-	1,788	2,950	4,202
Ntcheu-Tsangano-Neno-Mwanza	Upgrading	New	158	57	-	1,604	3,207
Jenda-Euthini-Rumphu	Upgrading	Feasibility	1,418	1,418	1,418	3,246	3,500
Chiringa-Mloza	Upgrading	New	56	-	815	815	815
S126 Lintipe - Lobi	Upgrading	New	-	331	331	-	-
S138/T401 Lirange - Machinga	Upgrading	New	-	364	364	-	-
M10 Njolo - Kapiri	Upgrading	New	-	-	377	364	547
D328 Nsomba - Madziabango	Upgrading	New	-	-	495	-	-
T411 Chinkankhene - Nguludu	Upgrading	New	-	-	270	-	-
M1 Ngabu - Lalange Bridge	Upgrading	New	-	-	321	-	-
T378 Monkey Bay - Cape Mclear	Upgrading	New	-	-	447	-	-
S118 Kawere - Mkanda - Kapiri	Upgrading	New	-	-	381	381	-
S125 Mitundu - Diamphwi	Upgrading	New	-	-	-	541	-
S129 Chingo - Makanjira	Upgrading	New	-	-	-	549	956
T418 Didi -Thunga	Upgrading	New	-	-	-	-	576
S149 Losa- Chonde	Upgrading	New	-	-	-	-	289
Lilongwe Bypass	New Construction	New	1,655	1,207	313	-	-
South Rukuru Bridge	New Construction	New	906	453	-	-	-
Chiromo Bridge	New Construction	New	-	-	500	1,000	3,500
<b>Total</b>			<b>36,780</b>	<b>34,936</b>	<b>34,887</b>	<b>37,490</b>	<b>38,087</b>

**Summary Road Sector Programme (Million US\$)**

Scheme	Intervention	Status	2010/11	2011/12	2012/13	2013/14	2014/15
Paved Roads Routine Maintenance	Maintenance	Annual	6.4	6.6	6.6	6.9	7.4
Unpaved Roads Routine/Grading	Maintenance	Annual	25.8	21.6	33.3	32.7	31.7
Paved Roads Re-Seal	Maintenance	Annual	18.4	24.4	29.8	31.8	22.5
Unpaved Roads	Rehabilitation	New	0.0	33.1	25.6	26.4	24.2
District and Urban Roads	Rehabilitation	New	0.0	0.0	0.0	0.0	1.0
Msulira - Nkhotakota	Rehabilitation	Contracted	6.4	0.6	0.0	0.0	0.0
Chikwawa - Nchalo - Bangula	Rehabilitation	Contracted	17.3	6.7	0.5	0.0	0.0
Liwonde - Naminga	Rehabilitation	Contracted	12.9	0.6	0.0	0.0	0.0
EU Feeder Roads	Rehabilitation	Contracted	10.2	1.8	1.5	0.0	0.0
Lilongwe - Nsipe	Rehabilitation	Contracted	7.0	0.3	0.0	0.0	0.0
Goliati - Chiperoni	Rehabilitation	Contracted	5.7	2.1	0.0	0.0	0.0
Blantyre-Zomba	Rehabilitation	New	18.9	13.7	3.6	3.4	0.0
M3 Liwonde-Mangochi	Rehabilitation	New	0.0	0.0	0.0	10.4	10.1
M1 Bua River - Miti	Rehabilitation	New	0.0	0.0	0.0	0.0	0.0
S124 Lilongwe-Chinsapo	Rehabilitation	New	0.0	0.0	0.0	0.0	0.0
M1 Miti - Lumbadzi River	Rehabilitation	New	0.0	13.3	0.0	0.0	0.0
M1 Nkumbe River - Mlombe	Rehabilitation	New	0.0	8.8	5.3	0.0	0.0
M1 Kasungu - Bua River	Rehabilitation	New	0.0	10.3	0.0	0.0	0.0
S122 Mpatsanjoke Bridge - Livingstonia Hotel	Rehabilitation	New	0.0	0.0	0.7	0.0	0.0
M5 Mlowe - Nkhotakota - Chilua	Rehabilitation	New	0.0	0.0	29.9	18.2	0.0
M1 Karonga - Songwe	Rehabilitation	New	0.0	0.0	0.0	16.1	12.3
M5 Salima - Balaka	Rehabilitation	New	0.0	0.0	0.0	19.2	19.2
T318 Majiga - Nkhata Bay	Rehabilitation	New	0.0	0.0	0.0	0.0	1.4
S137 Chirimba - Blantyre	Rehabilitation	New	0.0	0.0	0.0	0.0	1.6
M5 Mzuzu - Kwale	Rehabilitation	New	0.0	0.0	0.0	0.0	11.3
S117 Njewa - Airwing	Rehabilitation	New	0.0	0.0	0.0	0.0	1.2
M24 Rumphi - Njakwa River	Rehabilitation	New	0.0	0.0	0.0	0.0	2.5
Bunda - Mitundu	Upgrading	Contracted	1.1	0.1	0.0	0.0	0.0
Ekwendeni - Ezondweni & Ezondweni - Njakwa	Upgrading	Contracted	3.2	0.3	0.0	0.0	0.0
Mzimba - Eswazini - Mzalongwe	Upgrading	Contracted	5.7	5.7	21.4	11.0	0.0
Lumbadzi - Dowa - Chezi	Upgrading	Contracted	5.7	7.3	0.6	0.0	0.0
Chiringa - Misewu Folo - Chiradzulo	Upgrading	Contracted	9.1	8.6	8.6	0.0	0.0
Nsanje - Bangula	Upgrading	Contracted	12.1	3.5	6.2	0.0	0.0
Karonga - Chitipa (Phase 1)	Upgrading	Contracted	26.8	26.8	0.0	0.0	0.0
Zomba - Jali - Phalombe - Chitakale	Upgrading	Contracted	20.1	6.7	0.7	0.0	0.0
Thyolo - Thekerani - Muona - Bangula	Upgrading	Contracted	19.2	19.2	19.2	10.1	0.0
Mzimba Street, Lilongwe	Upgrading	Contracted	0.2	0.1	0.0	0.0	0.0
Lilongwe-Kasiya-Santhe	Upgrading	Feasibility	0.5	0.0	12.8	21.1	30.0
Ntcheu-Tsangano-Neno-Mwanza	Upgrading	New	1.1	0.4	0.0	11.5	22.9
Jenda-Euthini-Rumphi	Upgrading	Feasibility	10.1	10.1	10.1	23.2	25.0
Chiringa-Mloza	Upgrading	New	0.4	0.0	5.8	5.8	5.8
S126 Lintipe - Lobi	Upgrading	New	0.0	2.4	2.4	0.0	0.0
S138/T401 Lirange - Machinga	Upgrading	New	0.0	2.6	2.6	0.0	0.0
M10 Njolo - Kapiri	Upgrading	New	0.0	0.0	2.7	2.6	3.9
D328 Nsomba - Madziabango	Upgrading	New	0.0	0.0	3.5	0.0	0.0
T411 Chinkankhene - Nguludu	Upgrading	New	0.0	0.0	1.9	0.0	0.0
M1 Ngabu - Lalange Bridge	Upgrading	New	0.0	0.0	2.3	0.0	0.0
T378 Monkey Bay - Cape Mclear	Upgrading	New	0.0	0.0	3.2	0.0	0.0
S118 Kawere - Mkanda - Kapiri	Upgrading	New	0.0	0.0	2.7	2.7	0.0
S125 Mitundu - Diamphwi	Upgrading	New	0.0	0.0	0.0	3.9	0.0
S129 Chingo - Makanjira	Upgrading	New	0.0	0.0	0.0	3.9	6.8
T418 Didi -Thunga	Upgrading	New	0.0	0.0	0.0	0.0	4.1
S149 Losa- Chonde	Upgrading	New	0.0	0.0	0.0	0.0	2.1
Lilongwe Bypass	New Construction	New	11.8	8.6	2.2	0.0	0.0
South Rukuru Bridge	New Construction	New	6.5	3.2	0.0	0.0	0.0
Chiromo Bridge	New Construction	New	0.0	0.0	3.6	7.1	25.0
<b>Total</b>			<b>262.7</b>	<b>249.5</b>	<b>249.2</b>	<b>267.8</b>	<b>272.0</b>

### Appendix 3 : Proposed Annual Periodic Maintenance and Rehabilitation Programmes

#### FY 2010/11 Proposed Periodic Maintenance and Rehabilitation Projects

##### Part 1 : Paved Roads 2010/11

Road No.	From	To	Work	Length (km)	Cost 2010/11 (MWK M)	NPV/Cost
S124	Chinsapo: Junction S124/Access Chinsapo S/School	Start Likuni Bridge	Reseal	2.4	30	39.9
M001	Start Lingadzi Bridge	Mchinji Roundabout: Junction M1/M12	Reseal	3.2	39	37.9
M001	Mchinji Roundabout: Junction M1/M12	City Hall R/About: Junction M1/S124	Reseal	2.4	30	34.5
M001	Start Lumbadzi Bridge	K.I.A. T/Off: Junction M1/T361	Reseal	2.8	34	33.3
M003	Liwonde: Junction M8/M3	Liwonde: Junction M3/T401	Reseal	27.2	335	23.9
M003	Machinga: Junction M3/T401	Start: Likwenu Bridge	Reseal	0.5	6	23.6
M003	Likwenu River	Jcn Zomba-Ndege Road	Reseal	24.2	298	23.6
M001	Ntcheu: Junction M1/T384 North	Njereza Junctionm1/T384 South	Reseal	21.7	267	23.4
M008	Chiendausiku: Junction M8/T399	Liwonde: Junction M8/M3	Reseal	5.7	70	23.1
M001	Senzani	Lipaluwa River	Reseal	25	308	21.1
M001	Mopho Jere: Junction M1/T316	Mzuzu: Junction M1/M5 Mlangeni: Junction M1/Post Office	Reseal	10.2	126	18.3
M001	Masasa: Junction M1/S127		Reseal	34.4	424	16.3
S024	Balaka: Junction M8/S024 West	Balaka: Junction M8/S024 East	Reseal	1.4	17	12.5
M003	Liwonde: Jcn M8 / M3	Hoba	Rehabilitation	20.2	848	12.2
M003	Hoba	Mpale River	Rehabilitation	14.3	601	10.8
S124	Lilongwe: City Hall	Chinsapo	Rehabilitation	6.1	256	10.6
M014	Lumbadzi River	Njoka Quarry	Reseal	48.1	593	10.0
M001	Bua River	Madisi	Rehabilitation	21.1	886	6.8
M001	Madisi	Miti	Rehabilitation	0.8	34	3.0
Sub-Total				237.2	3,651	

## FY 2011/12 Proposed Periodic Maintenance and Rehabilitation Projects

### Part 1 : Paved Roads 2011/12

Road No.	From	To	Work	Length (km)	Cost 2011/12 (MWK M)	NPV/Cost
M001	Nkumbe River	Madziabango Mwanza: Start Of Customs Office	Rehabilitation	29.4	1235	34.9
M006	Moffati: Junction M6/S137	Office	Reseal	13	160	18.8
M006	Zalewa	Zeka	Reseal	30.8	379	17.9
M001	Miti	Lumbadzi River	Rehabilitation	44.4	1865	17.7
M006	Zaka: Junction M6/T397	Moffat: Junction M6/S137	Reseal	7.9	97	17.6
M006	Mwanza: Start Of Customs Office	Zobwe: International Boundary	Reseal	5.2	64	17.4
M012	Link 1011: Km 2	Namitete River	Reseal	8.5	105	15.6
M005	Chiluwa River	Salima: Jcn M5 / M14	Reseal	44.2	545	10.8
M001	Mbowe: Junction M1/T315	Champhoyo: Junction M1/S110	Reseal	45.2	557	10.6
S021	Dauya: Junction M1/S021 North	Kapesi: Junction M1/S021 South	Reseal	5.4	67	9.2
M001	Chataloma	Kasungu	Reseal	40.8	503	9.1
M001	Chimaliro Forest Camp	Chatoloma	Reseal	5	62	8.8
M001	Kasungu Nanjoka: Junction M14/Quarry T/Off	Bua River	Rehabilitation	34.3	1441	8.2
M014		Kaphatenga: Junction M14/M5	Reseal	7.8	96	8.0
M001	Mzuzu: Junction M1/M5	Mbowe: Junction M1/T315	Reseal	16.5	203	7.9
M012	Mchinji Border Post	Mchinji	Reseal	12.6	155	6.4
M001	Champhoyo	Majighasawa	Reseal	34	419	1.0
Sub- Total				385	7,952	

## Part 2 : Unpaved Road Rehabilitation 2011/12

Road No.	From	To	Work	Length (km)	Cost 2011/12 (MWK M)	Rank
D017	Ghembe:Junction M1/D17	Start Songwe River (No Bridge)	Rehabilitation	3.5	2	1
T335	Dambo junctin M18/T335	Bua TC junction M1/T335	Rehabilitation	9.4	33	2
D384	Mlomba: Junction M001/D384	Belewu Admarc	Rehabilitation	13	9	3
S110	Mazamba Hill: Junction S110/T315	Mzenga: Junction S110/T317	Rehabilitation	30.7	107	4
U047	Vyovy: Junction M005/U047	Mtambalika: End of Road	Rehabilitation	5	18	5
T337	Malipela school junction S114/T337	Kasela junction M18/T337	Rehabilitation	24.4	85	6
M007	malomo junction M7/M18	Ntchisi: junction M7/T350	Rehabilitation	26	91	7
T345	Malingunde :Junction T345/S124	Kabyzala :Junction t345/T366	Rehabilitation	3.2	11	8
T392	Majiga (Beyadi Road): Junction T392/D278	Chikwewo: Junction T390/T392/T391	Rehabilitation	8.5	30	9
D091	farm junction M5/D91	Jalo school at football ground	Rehabilitation	0.7	0	10
D111	Mgombe junction D94/D111	Chemalire school LHS	Rehabilitation	2.2	2	11
T344	Majiga junction T345/T344	Daminga Estate junction S117/T344	Rehabilitation	13.3	47	12
T399	Chiendausiku: Junction M8/T399	Mlulu (Maduwane): Rail Line	Rehabilitation	11.9	42	13
T424	Ngabu: Junction M001/T424	Kunginda (Intnl. Border)	Rehabilitation	21.3	75	14
U001	Kazguli (end of road)	Matima: junction M1/U001	Rehabilitation	18.6	65	15
D370	Chinakakaka: Junction M2/D370	Msikawanjala: Junction T421/D370	Rehabilitation	8.6	6	16
M028	chitenje school junction T338/T339	chamwabvi junction M18/T338	Rehabilitation	16.2	57	17
S133	Hoba: Junction M3/S133	Mbela: Junction S133/T383	Rehabilitation	13.8	48	18
T349	Nselema: Junction S131/T349	Nantwe: Junction T349/T389	Rehabilitation	5.8	20	19
T400	Utale 1: Crossroads T399/T400	Shire North: End of Road	Rehabilitation	17.1	60	20
D342	P.I.M: Junction T411/D342	Khwalala: Junction to Trading Centre	Rehabilitation	17.8	12	21
T387	Chitumba: Junction T387/Masaf Road on LHS	Namwera: Junction M3/T387	Rehabilitation	12	42	22
D295	Songani: Junction M3/D294	Kasonga	Rehabilitation	11.6	8	23
M009	Chitanga: junction M9/M24	Bowe: Junction M9/S109	Rehabilitation	29.4	103	24
T308	Engucwini: Junction T308/T309	Mtwalo: Junction S107/T308	Rehabilitation	30	105	25
T328	DWANGWA RIVER	KAPWAYE: Junction T328/T329	Rehabilitation	23.5	82	26
T388	Malombe Culvet at Y Junction	Masanje Bridge	Rehabilitation	25.3	89	27
T400	Balaka Chipiko(Ntalka) Junction M008/T400	Likoja Phalula Junction T400/Drimp Road	Rehabilitation	6.5	23	28
T332	Chamama Admarc junction T332/t329	Chima junction M18/T332	Rehabilitation	21.7	76	29
T344	Daminga Estate junction S117/T344	Dangaliro junction S115/T344	Rehabilitation	32.3	113	30
T346	KAYABWA: JUNCTION S125/T346	KALONGA: JUNCTION T345/T346	Rehabilitation	15.8	55	31
T351	Mchinji Customs: Junction M12/T351	Mtukwa: Junction T351/UDJ	Rehabilitation	50.4	176	32
T374	Start of Linthipe Bridge	Start of Mlulu Bridge	Rehabilitation	26	91	33
D148	MAFCO gate	Kambiri Point (end of road )	Rehabilitation	1.9	1	34
T347	Sanama Admarc turn off junction T344/T347	Mutu junction S123/T347	Rehabilitation	23.7	83	35
T387	Katuli: Junction T387/Mozambique Bodr Road	Chitumba: Junction Masaf Road on LHS	Rehabilitation	19.5	68	36
T383	mwaya: Junction T383/T385	Kapire: Catholic Church Signpost on LHS	Rehabilitation	14.6	51	37
T329	kapwaye junction T328/T329	chamama Admarc junction T332/t329	Rehabilitation	6.3	22	38
T343	CHIWOShYA: Junction T342/T343	BUA RIVER WEST BANK	Rehabilitation	5	18	39
D038	Bolero junction M24/D38	Jumbe school	Rehabilitation	11.7	8	40
S106	Euthini: Junction M9/S106	Mtantha: Junction S106/S107	Rehabilitation	24.8	87	41
T394	Matale: Junction T380/T394	Senzani: Junction M1/T394	Rehabilitation	11.8	41	42
T396	Start of Lisungwe Bridge	Kamwamba: Junction M1/T396	Rehabilitation	14.7	51	43
T421	Msika Wanjala: Junction T421/S149	Simbatiyawo: Junction to Lunchenza	Rehabilitation	4.7	16	44
T314	Start of Mozela Bridge	Chigude T/off junction M1/T314	Rehabilitation	11.9	42	45
T345	Kasiya: Junction T345/T342	Majiga: Junction T345/T344	Rehabilitation	12.1	42	46
T358	msangu junction S122/T358	maganga clinic gate	Rehabilitation	12.5	44	47

T374	Tembwe : Junction T374/Chikuse Road	Mlunduni : Junction T374/D226	Rehabilitation	16.7	58	48
T314	Emvuyeni School: Junction S107/T314	Ngoma: Junction T314/PR11	Rehabilitation	15.2	53	49
U030	Kadifula junction T339/U30	chilowamatambe junction T338/U30	Rehabilitation	7.3	26	50
T328	Kapwaye: Junction T328/T329	Mphepo junction T328/T331	Rehabilitation	17.8	62	51
D338	Nasawa: Junction T407/D338	Manawa: Junction S146/D338	Rehabilitation	12.5	9	52
S125	Start Diamphwe Bridge	Livinza : Junction S125/T366	Rehabilitation	17.8	62	53
T413	Chilemba: Junction T412/T413	Bwanaisa: Junction T408/S147	Rehabilitation	42.5	149	54
U173	Thekelani: Junction S151/U173	Saideni: End of Road at Railway line	Rehabilitation	7.6	27	55
T356	Start Chitala Bridge	Kanyenyeva Junction M14/T356	Rehabilitation	8.3	29	56
T340	Ng`ombe junction T340/T350	Nyalavu junction T340/T341	Rehabilitation	0.4	1	57
D343	P.I.M Junction T411/D343 Nchenachena junction	Kuchombe: Junction T412/D343	Rehabilitation	16.9	12	58
D031	T305/D31	coffe pulpery/Zombe primary school	Rehabilitation	7.2	5	59
S113	Rupashe Brigde (S 113)	Katete Juncton M5/S113 Yesaya Nkosi (Ngomiyawo): Junction	Rehabilitation	33.2	116	60
T313	Kamchocho Banda: Junction M9/T313	T313/D61	Rehabilitation	16.5	58	61
D094	Benga junction M5/D94	Mwansambo junction T431/D94	Rehabilitation	23.1	16	62
U174	Kholokhwi: Start of Road	Mitembo: Junction S151/U174	Rehabilitation	5.1	18	63
T345	Majiga: Junction T345/T344	Chileka: Junction M12/T345	Rehabilitation	23	81	64
U050	Ngala junction M5/U50 Mwangala CrossRoads at Trading	Chidembwe Admarc Gate	Rehabilitation	6.7	23	65
M007	centre	Dzeleka junction M7/M16	Rehabilitation	24.1	84	66
D250	Saidi Tsanya	Maloya	Rehabilitation	17.4	12	67
D093	Sani T.C : Junction M5/D93	San School: At Sign Post	Rehabilitation	3.9	3	68
D380	Mpulujiro: Junction T416/D380 Embangweni: junction M20/S112 to	Mthumba: Junction S136/D380	Rehabilitation	15.4	11	69
M020	Edingeni	Kajisotere: junction M20/D64	Rehabilitation	7.3	26	70
D081	suza junction M1/D81	Gogode at the clinic RHS	Rehabilitation	10.6	7	71
D353	Nansadi: Junction S150/D353	Henderson: Junction D353/UD1	Rehabilitation	16.7	12	72
T364	Namvula: Junction T364/U80	Kakoma: Junction T364/D195	Rehabilitation	8.4	29	73
M009	Junction M9/Nganga Primary School	Chitipa: Junction M9/M26	Rehabilitation	54	189	74
D085	changaluwa junction S114/D85	misosi Hqs junction T337/D85	Rehabilitation	9.7	7	75
D214	Mwenje School : Junction S126/D214	Kawelama Village :Junction D214/D215 Fort Mangochi: Opposite Cell Mast on	Rehabilitation	20	14	76
D258	Majumbe: Junction M3/D258	RHS	Rehabilitation	8.7	6	77
D270	Kalonga: Junction T388/D270	Nsonje: Junction S131/D270	Rehabilitation	17.3	12	78
D302	Masale Junction S144/D302	Sulumba Junction T408/302	Rehabilitation	19.3	14	79
D385	Fombe S136/D385	Tomali Junction T423/D385	Rehabilitation	16.7	12	80
D396	Mbenje: Junction M1/D396 Mbalachanda Turn off junction	Sabawo: Junction M1/D396	Rehabilitation	1.3	1	81
S106	S105/S106	Euthini Junction M9/S106	Rehabilitation	10.6	37	82
S116	Bua River Bank (No Bridge)	Chapuma junction M1/S116	Rehabilitation	18.3	64	83
S119	Makiyoni:Junction S119/D136	Mchepea Junction M5/S119	Rehabilitation	13.4	47	84
D324	Lunzu: Junction IB2/D324	Chileka Airport: Junction S137/D324	Rehabilitation	5.8	4	85
T308	Njakwa: Junction M24/T3009	Engucwini: Junction T308/T309	Rehabilitation	19.4	68	86
T314	Ngoma: Junction T314/PR11	Emtiyani School: Junction T314/D57	Rehabilitation	22.1	77	87
D326	Maleule: Junction T406/D326 Mpherembe: Junction M9/S311 to	Njuli: Junction M3/D326	Rehabilitation	14.4	10	88
T311	East	Sokopo Chinura: Junction S107/T311	Rehabilitation	14.3	50	89
T364	Samu: Junction M12/T364 Kokoma FP School: Junction	Namvula: Junction T364/U80	Rehabilitation	11.8	41	90
D383	S136/D383	Tomali West: Junction T423/D383	Rehabilitation	22.7	16	91
T420	Chinzama: Junction S151/420	Sandama: Junction to 50 Miles	Rehabilitation	20.2	71	92
T420	Sandama Station at Railwayline	50 Miles Junction S151/T420	Rehabilitation	17.1	60	93
U046	Vyovyvo: Junction M005/U046	Mkuta School: End of Road	Rehabilitation	3.2	11	94
D113	Mzandu Health centre	kayuwi school End of road	Rehabilitation	8.4	6	95
T386	Kwisimba	Mpita Bridge	Rehabilitation	7.5	26	96
U160	Mthumba Junction S136/U160	Chikhambi East S136/U160	Rehabilitation	5.1	18	97
U180	Sorgin: Junction M1/U180	Mbenje: End of Road	Rehabilitation	6	21	98

D368	Chingoli: Junction M4/D368	Chemaliro: Junction T408/D368	Rehabilitation	14.2	10	99
D217	Kachezi Farm : Junction M 1/D217	Thete : Junction S126/D217	Rehabilitation	12.3	9	100
T368	Sitima: Junction S125/T368	Balani: Junction T368/T367	Rehabilitation	5.6	20	101
M022	Mzimba: Junction M9/M22 roundabout Yesaya Nkosi (Ngomiyawo): Junction	Mtangatanga: Junction M1/M22	Rehabilitation	24.7	86	102
T313	T313/D61	Eswazini: Junction S107/T313	Rehabilitation	13.6	48	103
S116	bOWE JUNCTION s116/t339	kamsonga junction S116/340	Rehabilitation	14.1	49	104
T342	Kwanyanda: Junction S117/T342	Tonde School	Rehabilitation	13.4	47	105
T345	Kabyzala :Junction T345/T366	Kalonga :Juncyion T345/T346	Rehabilitation	3.1	11	106
T345	Chileka :Junction M12/T345	Malingunde :Junction T345/S124	Rehabilitation	36.1	126	107
Sub- Total				1,617	4,635	

## FY 2012/13 Proposed Periodic Maintenance and Rehabilitation Projects

### Part 1 : Paved Roads 2012/13

Road No.	From	To	Work	Cost 2012/13 (MWK M)	NPV/Cost	
M001	Mtangatanga: Junction M1/M22	Majighasawa: Junction M1/M9	Reseal	0.6	7	6.8
M001	Majighasawa John Mzumara: Junction M1/T308	Jenda	Reseal	48.5	598	6.6
M001	M1/T308	Enukweni: Opposite Post Office	Reseal	8.7	107	6.4
M001	Enukweni: Opposite Post Office Endongoloweni: Junction M1/T309	Endongoloweni: Junction M1/T309	Reseal	13.7	169	6.4
M001	M1/T309	Ekwendeni: Junction M1/S107	Reseal	7.5	92	6.4
M001	Ekwendeni: Junction M1/S107	Mopho Jere: Junction M1/T316	Reseal	10.4	128	6.4
M001	Jenda	Kachinda	Reseal	21.8	269	6.2
M001	Kelula: Junction M001/T327	Chatoloma: Junction M001/T328	Reseal	14.1	174	6.2
S122	Mpatsanjoke Bridge	Livingstonia Hotel	Rehabilitation	2.2	92	5.5
M012	Mchinji	Link 10111: Km 2	Reseal	51.5	634	5.3
M001	Phwezi: Junction M1/T306	Chilumba	Reseal	14.4	177	5.2
M001	Karonga	Chilumba	Reseal	69.6	857	4.6
M001	Middle Of Songwe Bridge	Middle Of Kyungu Bridge	Reseal	9.8	121	4.5
M001	Mwenitete : Junction M1 / T303	Karonga : Roundabout	Reseal	17.4	214	4.5
M003	Idulusi	Mangochi	Reseal	24.1	297	2.5
M003	Chiponde	Idulusi	Reseal	26.4	325	2.5
M001	Madziabango	Mlombe	Rehabilitation	17.6	739	1.8
M005	Mlowe Bridge	Dwambazi River	Rehabilitation	0.3	13	1.7
M005	Dwanga River	Chia Lagoon - km 19	Rehabilitation	99.2	4166	1.7
Sub- Total				457.8	9,180	

## Part 2 : Unpaved Road Rehabilitation 2012/13

Road No.	From	To	Work	Length (km)	Cost 2012/13 (MWK M)	Rank
D082	kapindulu junction M1/D82	chisumbu school junction T323/D82	Rehabilitation	16.9	12	1
D215	End Diamphe Bridge	Chidewe School junction S125/D215	Rehabilitation	10.8	8	2
T333	Kapezi: End of Road	Mkanda: Junction S118/T333	Rehabilitation	31.6	111	3
U041	Msenjere: junction M5/U41	Katimbira Community Hall	Rehabilitation	7.2	25	4
M009	Chitipa: Junction M9/M26	Chendo:Junction M9/S100	Rehabilitation	27.4	96	5
D129	Nalungu junction S119/D129	Mvera T> C> junction M14/D129	Rehabilitation	17.6	12	6
D388	Nsangwe: Junction M001/D3388	Masnduko School: End fo Road	Rehabilitation	8.7	6	7
U042	Lozi Secondary School junction M5/U42	Nguluwe Game Reserve Boundary	Rehabilitation	11.2	39	8
D036	Chozoli junction M24/D36 East	Luviri junction junction M24/D36 West	Rehabilitation	24.2	17	9
T325	Start dwangwa River (Chavwerema)	Chasato junction M18/T325	Rehabilitation	27.8	97	10
D098	Njobvu kamwendo village start of road	Malomo junction M18/D98	Rehabilitation	10.5	7	11
D322	Nsamba Mwali: Junction S139/D322	Jordan: Track at end of road	Rehabilitation	10.6	7	12
D340	Manjawira : Junction M 1/D340	Matale : Junction T380/D340	Rehabilitation	9.5	7	13
D365	Nasiyaya	Monja	Rehabilitation	2.7	2	14
U040	Chilembwe Admarc junction U40/U49	Nkhunga junction M5/U40	Rehabilitation	16.8	59	15
U049	Mtendere School: End of Road	Chisaka: Junction M005/U049 Emtiyani School sign post: Junction T314/D57	Rehabilitation	8.9	31	16
D057	Tione Bar: Junction S107/D57		Rehabilitation	16.7	12	17
T301	Wingston Kameme:Junction M9/T301	Adam:Junction T301/D2	Rehabilitation	8.6	30	18
T326	mabulobo junction T326/T327	chombe junction T326/T328	Rehabilitation	20.3	71	19
T341	Ling'ona: Junction M5/T341	Kayoyo: Junction T341/U44	Rehabilitation	41.3	145	20
D371	Misisi: Junction D370/D371	Chisitu junction M2/D371	Rehabilitation	6	4	21
U045	Lajabu junction M5/U45	Mpamantha T.C Junction T341/UDK	Rehabilitation	5.3	19	22
U163	Biason: Start of Road	Belewu: Junction M1/U163	Rehabilitation	6.9	24	23
D389	Thudzu North: Junction M001/D389	Mwananjobvu School: End of Road	Rehabilitation	4.9	3	24
U172	Mathiya: Junction S151/U172 Chemchere: Junction Mbera/Kandiwo Road	Thukuta: End of Road at Railway line	Rehabilitation	11	39	25
D323		PA 17 Junction M1/D323	Rehabilitation	4.9	3	26
T416	Kapichira Bridge Junction T416/D329	Chapananga T/off Junction S136/T416	Rehabilitation	15	53	27
T311	Mnyanjagha Bota junction S105/T311	Mpherembe Junction: M9/T311 to West	Rehabilitation	17.7	62	28
D188	Junctin D187/D188	Mbavi junction S117/D188	Rehabilitation	5.7	4	29
D291	Dzaone Junction T405/D291	Nasawa Junction T407/D291	Rehabilitation	7.4	5	30
U044	Mwansambo: junction M5/U44 Mtengo wa Mbalame: Junction S138/U132	Kayoyo: junction T341/U44	Rehabilitation	10.1	35	31
U132		Lunzu T.C: Junction M1/U132	Rehabilitation	10.7	37	32
U161	Mtsingano: Junction D386/U161	Nchalo: Junction M1/U161	Rehabilitation	12.9	45	33
S135	Khonjiwa: Junction S135/T398	Chipondeni: Junction S135/D307	Rehabilitation	0.6	2	34
S135	Chipondeni: Junction S135/D307	Liwonde Village: Junction S135/M6 Mwangala crossroads at trading centre13	Rehabilitation	19.7	69	35
M007	Ntchisi junction M7/T341		Rehabilitation	17.8	62	36
T394	Biliate: Junction S125/T394	Matale: Junction T380/T394	Rehabilitation	24.8	87	37
D126	Dowaq Boma Junction M16/D126	Robert Blake Sec School(End of Road)	Rehabilitation	2.4	2	38
D373	Nalipiri: Junction M2/D373	Nantombozi: Junction S149/D373	Rehabilitation	14.6	10	39
T425	Mpungu: Junction T423/T425	Kumaniza School: Junction T424/425	Rehabilitation	15.2	53	40
U131	Namadzi: Junction M3/U131	Chizola: Junction T406/U131/U134	Rehabilitation	23.8	83	41
D125	Mwerero junction M7/D125	Nanthomba Parish Junction M16/D125	Rehabilitation	10.5	7	42
D185	Nsaru: Junction S117/D185	Nkonkhomwala: Junction D184/D185 Chanika: Junction with Kaombe primary School	Rehabilitation	11.8	8	43
D092	Kachuma Village: Junction M18/D92		Rehabilitation	7.6	5	44
D292	Domasi Police: Junction M3/D292 Mabuka End of road near Luchenza River	Sumayesi: Junction D292/D294	Rehabilitation	2.7	2	45
D374		Mathambi: Junction T422/D374	Rehabilitation	7.8	5	46
D386	Mafunga TC: Junction Nyasa/Misi	Jombo: Junction M001/D386	Rehabilitation	7.9	6	47

T341	Kayoyo: Junction T341/U44	Mwansambo :Junction T341/D94	Rehabilitation	15.9	56	48
M009	Chendo:Junction M9/S100	Kapirinkhonde: Junction M9/S101	Rehabilitation	69.9	245	49
D364	Nyezerera: Junction S145/D364	Naminjiwa: Junction S147/D364	Rehabilitation	10.9	8	50
S118	START MABVUBWE RIVER	MKANDA: Junction S118/T333	Rehabilitation	40.6	142	51
U181	Tengani: Junction M1/U181	Ndumba: Junction D395/U181	Rehabilitation	2.6	9	52
D394	Makhanga: Junction S151/D394	Sandama: Junction S151/D394	Rehabilitation	24.9	17	53
D286	Masaula: Junction T400/D286	Mpalume: Junction S139/D286	Rehabilitation	10.7	7	54
D364	Chitekeza: Junction D361/D364	Nyezerera: Junction S145/D364	Rehabilitation	18.3	13	55
D124	Mponela junction M1/D124	Msakambewa junction M7/D124	Rehabilitation	24.7	17	56
D127	Dowa Hospital junction D126/127	Katete junction D127/PRA Khanda: Rice Scheme (End of the Road)	Rehabilitation	16.7	12	57
D298	Chidule: Junction S143/D298	Itunji: Junction T387/T386	Rehabilitation	10.9	8	58
T386	Start Mpita Bridge	Y-Junction T311/D51	Rehabilitation	14.6	51	59
D051	Kazuni junction M9/D51	Junction: T345/D184	Rehabilitation	22.5	16	60
D184	Kapiri: Junction M12/D184	Old Linthipe T.C: Junction M1/D220	Rehabilitation	18	13	61
D220	Mkola: Junction T374/D220	Embangweni: Junction M20/S112	Rehabilitation	11.7	8	62
S112	Edingeni: Junction S112/UDY	Bowe junction S116/339	Rehabilitation	18.9	66	63
S116	chisoso junction S116/T339	Kambanizithe : Junction T367/T366	Rehabilitation	6.1	21	64
T367	Near Sitima : Junction T367/T368	Makali: Junction M6/D313	Rehabilitation	15.7	55	65
D313	Mapudi: Junction T396/D313	Mkwinda junction S115/D120	Rehabilitation	31.1	22	66
D120	Mlengwe junction D120/111 to East	Kamtole (Ukwe Turn off) junction S123/D187	Rehabilitation	3.1	2	67
D187	Kauta (Past Ukkwe) junction T344/D187	Nkhoma Post Office: Junction D202/T374	Rehabilitation	23.3	16	68
D202	Mpeya:Junction S121/T363	Khanganya: Junction with road to Mchochema	Rehabilitation	6.6	5	69
D230	Bembeke T/Off: Junction M1/T372/D230	Milonde School : Junction T371/D236	Rehabilitation	5.1	4	70
D236	Namilulu : Junction T374/D236	Ng`ombe: Junction T340/T350	Rehabilitation	8.9	6	71
T340	Kamsonga: Junction S116/340	Milepe School: Junction S145.D361	Rehabilitation	24.8	87	72
D361	Phutheya: Junction D361/UDZ	Kansapato: Junction S134/T384	Rehabilitation	22.7	16	73
S134	Kandeu: Junction S134/S138	Kandeu: Junction S134/S138	Rehabilitation	17.2	60	74
S134	Kasinje: Junction M5/S134	ofesi clinic roundabout	Rehabilitation	13.5	47	75
D080	Mayera junction T328/D80	Ngalipa: Junction T387/D256	Rehabilitation	8.3	6	76
D256	Manjombe: Junction T386/D256	Kapende: Junction D300/D301	Rehabilitation	9.1	6	77
D300	Chipande: Junction D299/D300	Mikute: Junction S122/T357	Rehabilitation	7.9	6	78
T357	Old Dist. Hosp.: Junction S122/T357	Chilinda T/off: JunctionM9/S103	Rehabilitation	40.9	143	79
M009	Kapirinkhonde:Junction M9/S101	Mwanga: Junction S144/D362	Rehabilitation	53.6	188	80
D362	Khancha: Junction D361/D362	Sasani School LHS	Rehabilitation	6.8	5	81
U043	Kachuma junction M18/U43	Thonje Junction T356/D140	Rehabilitation	5.1	18	82
D140	Chipala junction M14/D140	Chimaliro Police: Junction S113/D78	Rehabilitation	12.3	9	83
D078	Chatoloma:Junction M1/D78	Domwe: Junction U131/U133	Rehabilitation	25.9	18	84
U133	Matindi: Junction M1/U133	Engalaweni junction S111/S112	Rehabilitation	10.4	36	85
S112	chaiso Ndlovu junction M9/S112	Mabulobo junction T326/T327	Rehabilitation	20.2	71	86
T326	chimaliro forest junction M1/T326	Katonya Admarc T/off: Junction M005/U048	Rehabilitation	20.4	71	87
U048	Nthanga: Junction D111/U048	Chikuli: Junction S137/D320	Rehabilitation	19.1	67	88
D320	Dziwe: Junction S138/D320	Mbonekela junction M7/T341	Rehabilitation	12.2	9	89
T341	Kasangadzi River junction T341/T339	Kandeu: Junction S134/S138	Rehabilitation	24.8	87	90
S138	Chitambe: Junction S127/S138	Chikwina:Junction M11/T316	Rehabilitation	25.2	88	91
T315	Choma Veterinary: Junction S108/T316	Goma: Junction M001/T423	Rehabilitation	21.9	77	92
T423	Start Chirambangombe River Bank	Kalumba Junction D213/D219	Rehabilitation	21.1	74	93
D213	Njati T.C Junction D212/D213	Chamama Admarc turn off junction T332/T329	Rehabilitation	6.7	5	94
T332	Kapelula junction T332/Drimp road (LHS)	Namiwawa: Junction D299/S144	Rehabilitation	9.1	32	95
D299	Chikowi Turn off		Rehabilitation	13.4	9	96
Sub-Total				1,499.3	3,581	

## FY 2013/14 Proposed Periodic Maintenance and Rehabilitation Projects

### Part 1 : Paved Roads 2013/14

Road No.	From	To	Work	Length (km)	Cost 2010/11 (MWK M)	NPV/Cost
M001	Ngabu: Junction M001/T424	Start Lalanje Bridge	Reseal	4	49	8.1
D328	Nsomba Junction M1/D328	Madziababgo Junction M1/D328	Reseal	2	9	7.8
M001	Mchenga: Junction M1 / D30	Phwezi: Junction M1/T306	Reseal	26.1	322	7.8
M001	Bwengo :Junction M1/M24	John Mzumara: Junction M1/T308	Reseal	6.7	83	7.2
M001	Start Luzi Bridge	Bwengo:Junction M1/M24	Reseal	10.2	126	7.1
M005	Link 5100: Km 10	Chinganya	Reseal	23	283	5.3
S125	Bunda Turn-Off	Bunda	Reseal	15.9	196	4.2
M005	Mua: Junction M5/T372	Njolo Junction M5/M10	Reseal	3.4	42	3.2
M005	Kasinje: Junction M5/T381	Sharpevale: Junction M5/D242	Reseal	10.7	132	3.1
M001	Middle Of Kyungu Bridge	Mwenitete: Junction M1 / T303	Reseal	18.6	229	3.0
M001	Chilumba Jetty Road: Junction M1/S102	Livingstonia T/Off: Junction M1/S103	Reseal	20.7	255	2.9
M001	Livingstonia T/ Off: Junction M1 / S103	Chiweta: Junction M1 / S103	Reseal	14.1	174	2.7
S131	Naminga: Junction S131/T402	Liwonde: Junction M3/S131	Reseal	24	296	2.1
S143	Mwanandakale: Junction M3 / S143	Ndege: Junction S143/S144	Reseal	3.7	46	1.9
M024	Start Njakwa Bridge	Bwengo: Junction M1/M24	Reseal	5	62	1.8
S146	Chikankheni: Junction S146/T411	Chiladzulu T / Off: Junction M3/S146	Reseal	7.5	92	1.8
M1	Karonga	Songwe	Rehabilitation	46	2,258	1.4
M005	Dwambazi River	Dwangwa River	Rehabilitation	38.2	1,604	1.7
S146	Chamdimbo: Junction S145/S146	Chikankheni: Junction S146/T411	Reseal	6.5	80	1.7
M005	Chia Lagoon - km 21	Chilua River	Rehabilitation	22.3	937	1.6
M3	Mangochi	Mpale River	Rehabilitation	33.6	1830	1.1
S129	Mwanjati: Start At Box Culvert	Chingo: Junction M3/S129	Reseal	34.1	420	1.3
S131	Ntaja: Junction S131 / T392	Naminga: Junction S131/T402	Reseal	25.8	318	1.3
S131	Sonje: District Boundary	Ntaja: Junction S131/T392	Reseal	16.4	202	1.3
M005	Chinganya	Dwambazi River	Reseal	74.5	918	1.2
S137	Chileka Airport: Junction S137/T409	Chilimba Rail Crossing	Reseal	10.7	132	0.3
M5	Salima	Balaka	Rehabilitation	143	2685	0.1
M003	Liwonde: Jcn M8 / M3	Hoba	Rehabilitation	20.2	848	12.2
M003	Hoba	Mpale River	Rehabilitation	14.3	601	10.8
Sub-Total				691.2	11,092	

## Part 2 : Unpaved Road Rehabilitation 2013/14

Road No.	From	To	Work	Length (km)	Cost 2010/11 (MWK M)	Rank
S121	Mwera MDF: Junction M14/S121	Lilongwe River water intake (no bridge)	Rehabilitation	12.6	44	1
T396	Start Matope Bridge	Mdeka: Junction M1/T396	Rehabilitation	11.7	41	2
T423	Lengwe Nat Park T/Off: Junctoin M001/T423	Tomalli East: Junction T423/D385	Rehabilitation	12.6	44	3
S112	Engalaweni: Junction S111/S112	Edingeni: Junction S122/U012	Rehabilitation	17.1	60	4
S111	Engalaweni junction S111/S112	kandodo chisi junction m9/s111	Rehabilitation	25.5	89	5
S114	Lifupa game camp gate	Lisitu River	Rehabilitation	18.7	65	6
D034	katowo p school	junction S104/D34	Rehabilitation	0.6	0	7
T366	Kabyzala :Junction T345/T366	Start Diamphwe River	Rehabilitation	28.6	100	8
T312	Magodi Nyerenda: Junction S107/T312	Yesaya Nkosi (Ngomiyawo): Junction T313/T312	Rehabilitation	21.4	75	9
S112	Ephengweni International Boundary	Edingeni: Junction S112/U19	Rehabilitation	3.3	12	10
S114	Lisitu River	Msokera Nguluyanawambe Gate	Rehabilitation	32.2	113	11
S105	Mnyanjagha Bota: Junction S105/T310	Chanyama: Junction M9/S105	Rehabilitation	58.3	204	12
T423	Tomali East: Junction T423/D385	Dzikolatho: End of Road	Rehabilitation	16.6	58	13
D163	Kamphata : Junction M1/D163	Namano : Junction T370/D163	Rehabilitation	8.7	6	14
D189	Valley chicks junction M1/D189	Area 25 Jun ction S123/D189	Rehabilitation	20.3	14	15
T336	Chimwamkango T/off: Junction S118/T336	Kapiri: Junction M18/T336 NKHOLONI SCHOOL: Junction M012/D165	Rehabilitation	22	77	16
D165	NDAWAMBE VILLAGE: Culvert	M012/D165	Rehabilitation	13.7	10	17
S103	Gamba turn off junction M9/S103	Kasalamba turn off	Rehabilitation	48.7	170	18
D010	Misuku:Junction T301/D10	Chanya F.P School (Std 8 Block)	Rehabilitation	5.3	4	19
S107	Eswazini: Junction S107/T313	Junction M22/S107	Rehabilitation	22.9	80	20
T375	MAYANI JUNCTION: M005/T375	MALAPA 2: JUNCTION	Rehabilitation	8	28	21
T395	KANYODOLE VGE (JUMBE)	BONGA VGE (BAYANI)	Rehabilitation	18.9	66	22
D191	Sapesa :Junction M14/D191	Lundu : JunctionT363/D191	Rehabilitation	26.2	18	23
T357	Mikute : JunctionS122/T357	Kachule: Junction T357/T358	Rehabilitation	10	35	24
T368	Start Diamphwe Bridge	Mikondo : Junction T366/T368	Rehabilitation	26	91	25
S100	Junction: S100/D11	Sokora: Junction S100/T301	Rehabilitation	7.4	26	26
S100	Ngona junction S100/Ngona Health Centre	Sokora: Junction S100/T301	Rehabilitation	7.4	26	26
S100	Ngona junction S100/Ngona Health Centre	Songwe: Junction M1/S100	Rehabilitation	10.9	38	27
T300	International borer near UCZ Church	Siyombwe junction M9/T300	Rehabilitation	2.8	10	28
T372	Chikombero: Junction T372/T376	Nadzikhale: End road opposite store	Rehabilitation	11	39	29
D239	Bangala: Junction M1/D239	Beni Chauya: Junction T384/D239	Rehabilitation	8.3	6	30
S101	Mpanga Fp School T/off	Start of North Rukuru Bridge (end of road)	Rehabilitation	6.6	23	31
T375	Gwengwe Village(end of road)	Mayani : Junction T375/T374	Rehabilitation	8.8	31	32
D011	Misuku: Junction T301/D11	Junction S100/D11	Rehabilitation	16.2	11	33
D074	Hoho t/off junction m1/D74 North	champhira junction M1/D74 south	Rehabilitation	15.6	11	34
T366	Mikondo : Junction T366/T368	Livinza : Junction S125/T366 Katete Farm (Chinsapo): Junction S124/D190	Rehabilitation	16.7	58	35
D190	Junction M1/D190	S124/D190	Rehabilitation	7.4	5	36
M020	junction M20/D20/D64	Mqocha customs 12	Rehabilitation	18.7	65	37
D072	Champhira: Junction D72/D74	Katete Mission Girls P. School Block	Rehabilitation	2.1	1	38
T384	Njereza: Junction M1/T384	Billila: Junction M5/T384	Rehabilitation	11.7	41	39
U130	Nkumbe: Junction M1/U130	Kalaiti: End of Road at Nakayas House	Rehabilitation	3.8	13	40
T301	Misuku:Junction T301/D10	Sokora:Junction S100/T301	Rehabilitation	13.4	47	41
T341	Mwansambo :Junction T341/D94	Kasakula Court LHS	Rehabilitation	6	21	42
T301	Fikolo Mkisi: Junction T301/D7	Mwenichinga: Junction T301/T302	Rehabilitation	14.5	51	43
D174	Tembwe: Junction T351/D174	Chinkhota: North West Junction M12/D174	Rehabilitation	3.3	2	44
D035	Mujanika	Kaduku: Junction S104/D35	Rehabilitation	5.4	4	45
T377	Chongwe School: sign post	Maganga School: culvert	Rehabilitation	3.6	13	46
D232	Mtakataka : Junction M5/D232	Chitukula Village ( Fishing Area )	Rehabilitation	11.4	8	47

U153	Mpinda: Junciton S147/U153	Sombani: Junction S147/U153	Rehabilitation	8.3	29	48
D023	Mwambelo	Mlale junction M1/D23	Rehabilitation	4	3	49
D059	Mbelwa Farm junction S107/D59	Malangazi junction T312/D59	Rehabilitation	8.2	6	50
U060	Start Nakale Stream Chikombe (At the end of the road at the lake)	Kantayeni junction D127/U60	Rehabilitation	21.4	75	51
D137		Siyasiya Junction M5/D136	Rehabilitation	10.8	8	52
T306	Thumbwe river (Banda)	Bula: Junction S108/T306	Rehabilitation	22.8	80	53
U020	Camp Gordon(MDF)	Lukwezga T306/U20	Rehabilitation	6.2	22	54
U090	Ngodzi junction M5/U90	chilambula fishing ground	Rehabilitation	3.2	11	55
U184	Thunye Clinic Junction	Mapanje School T/Off: Junction M1/U184	Rehabilitation	5.1	18	56
U154	Nambazo: Junction S147/U154	Sombani: Junction S147/U154	Rehabilitation	16.2	57	57
U063	Bowe Admarc junction T339/U63	Nkalo River End of road	Rehabilitation	2.4	8	58
D009	Junction M26/D9	Nachinganda School	Rehabilitation	17	12	59
D053	Mpherembe: Junction T311/D53	Ezweleni: End at School Sign Post	Rehabilitation	5.2	4	60
U185	Mapanje East: Junction M1/U185	Khulubvi School: End of Road	Rehabilitation	1.8	6	61
D037	Luviri junction M9/D37	kamphenda junction M9/D37	Rehabilitation	15.3	11	62
D173	Sitima: Southern Junction T351/D173 Emcisweni - east of Malidade school junction T311/U12	Gullime School: Junction D172/D174	Rehabilitation	2.6	2	63
U012		Kabwafu junction M9/U12	Rehabilitation	12.1	42	64
D033	Katowo junction S104/D33	Zolokere (vwaza marsh game reserve)	Rehabilitation	9.1	6	65
U186	Malemia: X road Mchacha/Mbango Roads	Nsanje: Junctio M1/U186	Rehabilitation	2.3	8	66
T301	Adam: Junction T301/D2	Fikolo Mkisi: Junction T301/D7	Rehabilitation	17.2	60	67
D153	Chief Ndindi Headquarters	Chipoka Rest House	Rehabilitation	1.5	1	68
T331	Mambwe International Border	Nthalire junction M9/311	Rehabilitation	12.4	43	69
S135	Chilengo: Junction S135/T395	Kweneza: Junction S135/T395	Rehabilitation	8.2	29	70
U074	Msukuwala School End of road	Mtukwa junction T351/U74	Rehabilitation	4.3	15	71
D122	Kasangadzi River (No Bridge)	Chinkoka School junction s116/D122	Rehabilitation	11.8	8	72
D259	Chiutula: Junction M3/D259W	Chasuku: Junction D259W/D259E	Rehabilitation	4.1	3	73
U010	Edingeni junction S112/U10	Mkonje Primary School Bumbunyika Stream (Impassable No Bridge)	Rehabilitation	4.5	16	74
D072	Jenda: Junction M1/D72	Mbenje: Junction M1/D397	Rehabilitation	4.4	3	75
D397	Mbale School Start of road	Migowi: Junction S147/U152	Rehabilitation	10.3	7	76
U152	Nampinga: Junction S147/U152	Matundu School: Junction M1/U183	Rehabilitation	10	35	77
U183	Makoka School Junction	Maonde: Junction D218/Undesignated road RHS	Rehabilitation	4.6	16	78
D218	Mphunzi Village: Junction D/127/D218		Rehabilitation	10.1	7	79
D223	Fumbwa School Junction	Chitundu CCAP sign: Junction T374/D223	Rehabilitation	11	8	80
D243	Chitsulo: Junction M5/D243	Mphola: Access to Salamba House	Rehabilitation	1.7	1	81
D260	Mpango Junction D260/D275	Liwonde National Park Gate	Rehabilitation	11.3	8	82
D275	End Katapasha Bridge	Mvera Market	Rehabilitation	7.3	5	83
T306	Mphompha: Junction T306/T307	Jinhajembe	Rehabilitation	9.7	34	84
U012	Kabira school junction D51/U12	Malidade school junction T311/U12	Rehabilitation	2.8	10	85
D147	Senga Bay : Junction S122/D147	Mikute :Junction S122/D147	Rehabilitation	5	4	86
D321	Green corner: Junction M1/D321	Ntonda School End of Road	Rehabilitation	3.1	2	87
D001	David Kameme: Junction M9/D1	Chipitu School (Road ends at school)	Rehabilitation	20.8	15	88
D022	Mpata Junction M26/D22	Kasikizi primary School12	Rehabilitation	5.4	4	89
D064	mbawa junction S112/D64	junction M20/d64	Rehabilitation	3	2	90
D106	kayoyo school junction	Nyanga village junction T341/D106	Rehabilitation	17.3	12	91
U073	Start Gumulira School drift	Misale: Junction T351/U73	Rehabilitation	1.2	4	92
D002	David Kameme: Junction M9/D2	Adam: Junction T301/D2	Rehabilitation	11.9	8	93
D054	Zombwe EPA (End of Forestry Gate)	Junction S107/D54	Rehabilitation	3.2	2	94
D277	Chamba: Junction D277/D276	Junction: D277/Forest Boundary Road	Rehabilitation	3.9	3	95
U155	Mpasa: Junction S144/U155	Migowi: Junction S147/U155	Rehabilitation	8.3	29	96
D144	Nachidze: Beginning of the Road	Nanjoka: Junction M5/D144	Rehabilitation	9.2	6	97
D224	mayani junction T374/D224	mpatamilonde junction T371/D224	Rehabilitation	10.6	7	98
U061	Kafulu School	Mbingwa junction T349/U61	Rehabilitation	5.8	20	99
U064	Lambwe junction T349/U64	Chagunda junction d120/U64	Rehabilitation	3.4	12	100
U115	Maliyana: Junction S286/U115	Gwaza Rail Station: Y Junction after Rail Line	Rehabilitation	3.1	11	101

T311	Mnyanjagha Bota: Junction T310/T311	Mnyanjagha Bota: Junction S105/T311	Rehabilitation	8.9	31	102
U014	Estate No 100 T/off junction T310/U014	Mbalachanda T/off junction S105/U014	Rehabilitation	9.2	32	103
U176	Ndinyaza: Junction S151/U176	Nchedeka: Junction with road to Songola	Rehabilitation	3.3	12	104
D242	Sharpvale: Junction M5/D242	Bwanje River: Bridge Damaged Chikombe Border: Junction D379/Paved Road	Rehabilitation	5.8	4	105
D379	Changoima: Junction S136/D379		Rehabilitation	12.7	9	106
T300	James Kameme: Junction D4/Chitipa Rd	David Kameme: Junction M9/D4	Rehabilitation	13.2	46	107
U106	Simbili (Namwera): Junction T387/U106	Mwawa: End of Road	Rehabilitation	6	21	108
D070	Luwelezi junction S113/D70	kanika junction T326/D70	Rehabilitation	15	11	109
U096	Bembeke: Junction T372/U96	Chinkwita: Junction T372/U96	Rehabilitation	6.7	23	110
U157	Ngongola: Junction T413/U157	Likulezi: Junction S147/U157	Rehabilitation	14.4	50	111
T302	Namatandala: Junction M9/T302	Mwenichinga: Junction T301/T302	Rehabilitation	21.3	75	112
U110	Liwonde Road Block	Mbedza	Rehabilitation	28.4	99	113
U156	Nantali: Junction S147/U156	Manzi: End of road at beacon	Rehabilitation	10.8	38	114
U017	Embangweni Mission junction S112/U017	Thoza junction M20/U017	Rehabilitation	1.5	5	115
D104	Ntchisi Boma junction M7/D104	Nthondo-chinjoka End of road	Rehabilitation	19.3	14	116
D105	Nthondo junction D104/D105	Mndinda Health centre	Rehabilitation	6.3	4	117
D261	Nkambili: Junction S131/D261	Junction: T389/D261	Rehabilitation	8.4	6	118
D271	Nanyumbu: Junction T392/D271	Issa (Namanja): Junction T393/D271 Tee Junction: Road from Chitera ot	Rehabilitation	17.9	13	119
U134	Chizola: Junction T406/U131/U134	Namikati School	Rehabilitation	4.5	16	120
U158	Mpasa: Junction S144/U158	Holy Family: Junction S147/U158	Rehabilitation	7.6	27	121
D073	Luwawa junction M1/D73 north	Luwawa junction M1/D73 south	Rehabilitation	10.7	7	122
D180	Silombe: Junction D7/D180	Msitu: Junction D179/D180	Rehabilitation	7.2	5	123
D275	Ulongwe: Junction M3/D275	Start Katapasha Bridge (Washed away)	Rehabilitation	4.4	3	124
D069	Nyoni junction S113/D69	kapita school	Rehabilitation	4.1	3	125
D286	Mpilisi: Junction M3/D286	Lusanjala River Bank	Rehabilitation	22	15	126
U057	Simlemba: junction D119/U057	Nambuma Bridge	Rehabilitation	2.1	7	127
U151	Mulomba: Junction T413/U151	Likulezi: Junction S147/U151	Rehabilitation	12.4	43	128
D032	Hewe junction S104/D32	Chisimuka p school roundabout	Rehabilitation	4.9	3	129
D119	Kapemphero Junction S115/D119	Nambuma Mission Gate	Rehabilitation	8.3	6	130
D152	Mchoka :Junction M5/D152	Lifidzi Clinic (end of road) MAYOLA: JUNCTION MKANDA/MPUNDA ROAD	Rehabilitation	1.9	1	131
D166	NYOKA: Junction S118/D166		Rehabilitation	6.8	5	132
D222	Livuwadzi River :Junction T374/ D222	Liwunga	Rehabilitation	6.1	4	133
S100	Chendo : Junction M9/S100	Junction :S100/D11	Rehabilitation	26.3	92	134
S104	Chisenga Border Post Katuli (Itunji): Junction T387/U105 to Moz	Chisenga: Junction M9/S104	Rehabilitation	15.2	53	135
U105	Boarder	Near Mozambique Boarder: End of road	Rehabilitation	5.6	20	136
Sub- Total				1,491	3,692	

## FY 2014/15 Proposed Periodic Maintenance and Rehabilitation Projects

### Part 2 : Paved Roads 2014/15

Road No.	From	To	Work	Length (km)	Cost 2010/11 (MWK M)	NPV/Cost
M003	Nkulungu	Mangochi	Rehabilitation	19.3	811	2.2
M003	Mpale River	Nkulungu	Rehabilitation	14.3	601	2.2
U140	Yasini: Jcn S146 / U140		Rehabilitation	0.6	21	2.2
D330	Limbe	Bango	Rehabilitation	1	17	2.1
U141	Manawa Jcn S146 / U141		Rehabilitation	3	105	2.1
S129	Start Lilembe Bridge	Junction M003/S129	Reseal	35.2	434	2.1
T318	Majiga M001 Junction T363 Tsabango	Nkhata Bay	Rehabilitation	4.6	193	1.7
T363	Turnoff	Tsabango T363/Chipasula Junction	Reseal	6	74	1.7
T409	Chileka Airport: Junction S137/T409	Blantyre: Junction M1/M2	Reseal	5.9	73	1.7
M1	Karonga	Songwe	Rehabilitation	46	1722	1.4
M016	Dzeleka Chilumba Jetty Rd: Junction M1 / S102	Dowa	Reseal	13.4	165	1.2
S102		Chilumba Jetty Gate	Reseal	5.4	66	1.2
M3	Mangochi	Mpale River	Rehabilitation	33.6	1830	1.1
M018	Chinkhoma	Kasela	Reseal	13	160	1.1
M018	Kalolo	Kapiri	Reseal	46.5	572	1.1
M018	Kapiri: At Filling Station	Matutu: Junction M18/S116	Reseal	23.5	289	1.1
M018	Matutu: Junction M018/S116	Kamwendo: Junction M018/M012	Reseal	16.6	204	1.1
S117	Msokera Mtunthama Turn Off Junction	Kalolo	Reseal	20	246	1.1
T331	M18/T331	Kamuzu Academy Roundabout	Reseal	23.1	284	0.8
S137	Chirimba Rail Crossing	Blantyre: Jcn M1 / M2	Rehabilitation	15.4	227	0.5
T308	John Mzumara: Junction M1/T308 Kapichira Bridge Junction	Kacheche: Junction T308/T308 Chapananga T/Off Junction	Reseal	12.4	153	0.4
T416	T416/D329	S136/T416	Reseal	22.2	273	0.4
M005	Mzuzu	Kwale	Rehabilitation	37.8	1588	0.3
S117	Njewa	Airwing Robert Blake Sec School(End Of Road)	Rehabilitation	4	168	0.3
D126	Dowaq Boma Junction M16/D126		Reseal	1	5	0.3
S114	Msokera: Nguluyanawambe Gate	Junction M1/S114	Reseal	30	37	0.3
S131	Chiponde	Nsalema Chikumba(Mpili): Junction	Reseal	45.1	556	0.3
D272	Nselema: Junction S131/D272	T390/D272	Reseal	3	14	0.2
D286	Zomba: Junction M3 / S065	Kuchawe Hotel	Reseal	7.5	35	0.2
U130	Nkumbe: Junction M1/U130	Kalaiti: End Of Road	Reseal	1	17	0.2
M024	Rumphu	Njakwa River	Rehabilitation	8.4	353	0.03
M5	Salima	Balaka	Rehabilitation	143	2685	0.01
Sub-Total				661.8	13,974	

## Part 2 : Unpaved Road Rehabilitation 2014/15

Unpaved Roads				Length (km)	Cost 2010/11 (MWK M)	Rank
Road No.	From	To	Work			
D008	Near Chitipa: Junction M26/D8	Junction: D8/D7/D6	Rehabilitation	26.4	18	1
D174	Chinkhota: North West Junction M12/D174	Mbachulu School: End of Road	Rehabilitation	8.6	6	2
D199	Malambo junction D199	chulu (kawaka ) junction T340/D199 DICKSON: JUNCTION T366/U81	Rehabilitation	5.6	4	3
U081	JUNCTION: T366/U081	(ARDMARC LHS)	Rehabilitation	22.9	80	4
U150	Nyandulo: Start of road at Lake Chilwa	Phutheya: Junction D361/U150	Rehabilitation	8.4	29	5
D102	khuwi T.C junction T350/D102	khwangwala junction T341/D102	Rehabilitation	5.2	4	6
D107	Mwera, Hill junction M7/D107	Mitungwe junction D107/D108	Rehabilitation	5.4	4	7
D149	Mlamba junction M5/D146	Lifidzi CDSS junction M5/D149	Rehabilitation	20.7	14	8
D150	Kateleza :Junction M5/D150	Midima (end of road)	Rehabilitation	4.3	3	9
D176	Nkhwazi: Junction M12/D176	Lekado Farm: Junction D176/U70	Rehabilitation	7.6	5	10
D228	marioni junction T374/D228	Milonde School	Rehabilitation	6.4	4	11
U059	Msopa junction T341/U59	Pakuya Kasangadzi Bridge	Rehabilitation	7.4	26	12
U072	Gumba End of Road	Chimwamkango junction S118/U72	Rehabilitation	17.2	60	13
D062	Kamteteka: junction S112/D61	Zubayumbo: junction M9/D61	Rehabilitation	25.2	18	14
D175	Misale: Junction T351/D175	Bua: Junction M12/D175	Rehabilitation	8.8	6	15
D200	Chamchere :Junction M1/D200	Chitsime Admarc : Junction S369/D200	Rehabilitation	3.1	2	16
D224	Mikango: Junction T375/D224	Mayani: Junction T374/D224	Rehabilitation	17	12	17
D259	Chasuku: Junction T387/D259E	Kwiputi: Junction M3/D259E	Rehabilitation	9.3	7	18
U052	Chatawa: Junction T340/UDD	Kalewa: Junction M7/UDD	Rehabilitation	13.6	48	19
U055	Chigoma junction S116/U55	Kabwinja junction T349/U55	Rehabilitation	6.1	21	20
D120	Mtiti junction M1/D120	Mlengwe junction D120/D111 to West	Rehabilitation	19.2	13	21
D141	Chikumba : Junction M5/D141	Mkhuki: Junction T356/D141	Rehabilitation	8.2	6	22
D154	Lifidzi :Junction M5/D154	Dziwe (end of road )	Rehabilitation	11.7	8	23
D178	Lisoka Stream	Kankhande: Junction M12/D178	Rehabilitation	7.3	5	24
D296	Tisaiwale Esate: Junction T403/D296	Khanda: Junction D296/D298	Rehabilitation	9.7	7	25
U116	Mayaka Juncton T405/U166	Ngwelero Trading Centre	Rehabilitation	12.9	45	26
D060	Manoro: Junction S107/D60	Lunjika Sec School Gate	Rehabilitation	2.8	2	27
D101	Chalumbe school junction T340/D101	Mwala junction T350/D101	Rehabilitation	15	11	28
D121	Katalima School junction M1/D121	Kasangazi River (No Bridge)	Rehabilitation	3	2	29
D215	Makanya junction D370/D215	Start Diamphwi	Rehabilitation	3	2	30
D307	Chiponden: Junction S135/D307	Mwanza Admarc: Junction S135/D307	Rehabilitation	25.8	18	31
U159	Muhawiwa: Junction S145/U159	Migowi: Junction S147/U159	Rehabilitation	1.6	6	32
D139	Chikumba : Junction M5/D139	Kapirintiwa : Junction T356/D139	Rehabilitation	8.5	6	33
D279	Majiga: Junction D276/D279	Start Domasi Bridge	Rehabilitation	6.9	5	34
D099	Mkanile shool junction T340/D99	Bowe junction S116/D99	Rehabilitation	21.4	15	35
U095	Kalilombe: Junction D230/U95	Alberto School: Junction with road to Maliteni	Rehabilitation	10.1	35	36
D276	Naminga: Junction S131/D276	Chamatwa: Junction T402/D276	Rehabilitation	37	26	37
T310	Hewe: Junction S104/T310	Kalindamawe Game camp	Rehabilitation	47.9	168	38
U016	Chasengo farm T/off junction T310/U016	Madede junction s105/U016	Rehabilitation	10.6	37	39
D006	Nkangwa School: Junction D3/D6	Junction D6/D8	Rehabilitation	7.1	5	40
D168	Mkonka: Junction M12/D168	Start Namitete River	Rehabilitation	21.8	15	41
D219	kaliozi junction D218/D219	Mphathi Border pillar market after market	Rehabilitation	11.1	8	42
T303	Sokora:Junction S100/T303	Mwenitete Junction M1/T303	Rehabilitation	47.1	165	43
U058	Mkwichi School junction U65/U58	Chimudi junction D119/U58	Rehabilitation	8.4	29	44
D100	Mbuyedziko	Nkhuzi school End of road	Rehabilitation	3.3	2	45
D186	Mayele : Junction M1/D186	Chadza T/Court :Junctin S369/D186	Rehabilitation	8.7	6	46
D311	Mwanza: Junction M6/D311	Kachere School: End of Road	Rehabilitation	25.1	18	47
D138	MNEMA (End of Road at The Lake)	KHOMBEDZA: JUNCTION M005/D138	Rehabilitation	10.8	8	48

D184	Njati T.Centre: Junction M5/D134	Kamuona Admarc (end of the road)	Rehabilitation	4.2	3	49
D274	Mijombo (Machina): Junction T391/D274	Napiyala/Maluwele: Junction at TC	Rehabilitation	9.3	7	50
U164	Gola School: Start of Road	Mthonthola: Junction S136/U164	Rehabilitation	13.9	49	51
D135	Kasache : Junction M5/D135	Chikwawa (end of the road at the lake)	Rehabilitation	8.7	6	52
D244	Nsipe : Junction M 1/D244 North	Chitseko : Junction M 1/D244 South	Rehabilitation	19.9	14	53
D280	Nathenje :Junction M1/D280	Chikanga Village: Junction S369/D280	Rehabilitation	13.5	9	54
S101	Kapirinkhonde:Junction M9/S101	Mpanga F P School T/off	Rehabilitation	24	84	55
U100	Mlanda: Junction M1/U100	Mlanda: End of road at church	Rehabilitation	1.5	5	56
D225	Dedza F.College : Junction T371/D225	Mkomeko Village: Junction T374/D225 ZULU HEADQUATERS COURT JUNCTION	Rehabilitation	7.5	5	57
D172	CHEYADI: Junction M012/D172	Mzuzu Regional Admarc junction M1/U11	Rehabilitation	2.1	1	58
U011	Ngoma junction T314/U11	Mbingwa junction PRX1/U62	Rehabilitation	26.3	92	59
U062	Mondwe School (End of road )	Mkwichi School End of Road	Rehabilitation	10.1	35	60
U065	Chisepo Junction S115/U65	Nathyola: Junction M12/U75	Rehabilitation	9.4	33	61
U075	Kabzala School: Junction U75/D177	Kamwe junction T309/D50	Rehabilitation	15.6	55	62
D050	Vongo TC Start of road	MTUWANGOMA: JUNCTION M005/D150	Rehabilitation	11.2	8	63
D155	BANJA: JUNCTION M005/D150	Thete : Junction S126/D216	Rehabilitation	15.2	11	64
D216	Junction D216/S125	Mpira Dam Gate	Rehabilitation	10.6	7	65
D238	Ntcheu: Junction M1/D238	Mphonde Juncton T393/D278	Rehabilitation	12.7	9	66
D278	Beyadi Junction T392/D278	Jumbe: Culvert at field assistants house	Rehabilitation	18.2	13	67
T395	Doviko (Chimbia): Junction S125/T395	Kalema Estate T/off junction S105/U013	Rehabilitation	17.7	62	68
U013	Matala Estate T/off junction T310/U013	Kankhomba : Junction T371/U97	Rehabilitation	9.4	33	69
U097	Nyundo: Junction T374/U97	Kalanga S136/U162 Junction	Rehabilitation	7.3	26	70
U162	Mphepo Zinai S136/U162 Junction	Chadzza Chinjoka Stream	Rehabilitation	25.7	90	71
D128	Mtata junction M7/D128	MAPIKO VGE: JUNCTION T357/D143	Rehabilitation	8	6	72
D143	MKHUTI: JUNCTION M005/D143	Chikumba(Mpili): Junction T390/D272	Rehabilitation	8.2	6	73
D272	Nselema: Junction S131/D272	Kasinje: Junction M5/T381	Rehabilitation	4.8	3	74
T381	Start Namwiri Bridge (Damaged)	chinguluwe junction M7/PR9	Rehabilitation	14.6	51	75
U051	Mbobo junction M18/PR9	Njyuyu T/Off: Junction D56/D57	Rehabilitation	21.4	75	76
D056	Mtwalo: Junction S107/D54	Kasiya: Junction T342/D164	Rehabilitation	13.4	9	77
D164	Junction S115/D164	Nyamithuthu Health Centre: End of Road	Rehabilitation	12.1	8	78
U182	Nyamithuthu: Junction M1/U182	Nombo: Junction S131/U107	Rehabilitation	1.8	6	79
U107	Ngawo: Junction M3/U107	Luperere School (approx 200m before Chakazi bridge): Junction M9/D61	Rehabilitation	11.9	42	80
D061	Kaundi School (Ngomiawo): Junction T313/D61	kanjuchi p school	Rehabilitation	11.1	8	81
D071	chiwandawuka junction T326/D71	Kapesi School (End of road )	Rehabilitation	18.1	13	82
D227	Junction D227/D226	Engucwini: Junction T308/T309	Rehabilitation	3	2	83
T309	Chesamu River: Junction M9/T309	Junction S106/D55	Rehabilitation	31	109	84
D055	Mzambazi: Junction M9/D55	Unyolo junction S113/D68	Rehabilitation	5.7	4	85
D068	champhira junction D68/D74	Muwalo: Junction D236/D237	Rehabilitation	22.4	16	86
D236	Magombo: Junction S138/D236	Mnyanjagha T/off junction T310/311	Rehabilitation	26	18	87
T310	Kalindamawe Game Camp t/off	Siyasiya : Junction M5/D136	Rehabilitation	24.6	86	88
D136	Makiyoni (At the end of the road)	Kapiliuta : Junction T368/D209	Rehabilitation	19.2	13	89
D209	Lifidzi Admarc :Junction D209/D210	Chikuse : Junction with access to the market	Rehabilitation	8.4	6	90
D235	Tembwe : Junction T374/D225	Chilengo: Junction S135/T395	Rehabilitation	5.4	4	91
T395	Bayani School: Junction T395/School Access	CHIPUNI T.C: Junction M018/D161	Rehabilitation	14.8	52	92
D161	MCHEMANI: Junction S118/D161	Lengwe Forest : Junction D226/Madzumbe Rd.	Rehabilitation	19.6	14	93
D226	Kasumbu Court : Junction T374 /D226 CHINTHEBWE SCHOOL Junction:	KALEWA FARM: Junction M005/D108	Rehabilitation	17.6	12	94
D108	T341/D108	Jenda junction m1/M20	Rehabilitation	42.7	30	95
M020	Mqosha customs	Sitima: Northern Junction T351/D173	Rehabilitation	35.1	123	96
D173	Cheyadi: Junction D172/D173	Magomero ; Junction S126/D210	Rehabilitation	11.6	8	97
D210	Chinkhu Village :Junction T368/D210	Mganja : Junction T372/D228	Rehabilitation	15.8	11	98
D234	Mua : Junction M5/D228		Rehabilitation	16.8	12	99

T385	Nankulukuti: Jehovahs Witness sign LHS	Linengwe River: Juncntion M5/T385	Rehabilitation	18.3	64	100
U015	Estate No 1 T/off junction T310/U015	Aggripa Jere junction S105/U015	Rehabilitation	7	25	101
D003	Junction D3/D8	Junction T301/D3	Rehabilitation	8.7	6	102
D177	Kapzala School: Junction D5/D177 Tamanimwendo: Junction D6/D176 South	Mkwazi: Junction M12/D177	Rehabilitation	8.3	6	103
D179		Msitu: Junction M12/D179 to South	Rehabilitation	4.2	3	104
D197	Malingunde: Junction T345/D197	Start Katete Bridge	Rehabilitation	7.4	5	105
T366	Start Diamphwe Bridge	Mikondo : Junction T366/T368	Rehabilitation	47	165	106
D052	Pundi: Junction T311/D52	Majiga: Junction M9/D52	Rehabilitation	3.8	3	107
D058	Jezeni: Junction M9/D58	Mbogo: Junction T313/D58	Rehabilitation	23	16	108
D065	junction M1/D65	Ehendhleni junction to school	Rehabilitation	6	4	109
D066	Hoho junction D66/D74	Hoho school signpost	Rehabilitation	4.7	3	110
T384	Kansapato: Junction S134/T384	Njereza: Junction M1/t384	Rehabilitation	23.7	83	111
D067	junction d67/D68	Msese school seed bank block	Rehabilitation	4.9	3	112
T380	Bemvu : Junction M 1/T380	Matale : Junction T380/T394 Chiole School: Junction U101/Kanyemba rd	Rehabilitation	20.6	72	113
U101	Ntcheu: Junction M1/U101	Muwalo School: Junction D237/School Access	Rehabilitation	3.8	13	114
D237	Mphepozinyai: Junction T384/D237	MZAMA SCHOOL JUNCTION: S115/D164	Rehabilitation	11.5	8	115
D164	MKOTA ROUND ABOUT	Embangweni junction S112/D63	Rehabilitation	10.3	7	116
D063	Nyoni junction M20/D63	CHIBERE: Junction D163/D164	Rehabilitation	11.9	8	117
D163	NTHEMA: Junction M018/D163	Njoka: Junction T345/D195	Rehabilitation	18.4	13	118
D195	Msundwe: Junction M12/D195	Njonja Police :Junction T366/D212	Rehabilitation	17.9	13	119
D212	Njati T. Centre :D212/Mozambique Road	MUKUNDI: Junction T343/U071	Rehabilitation	5	4	120
U071	NSASI: Junction S115/U071	KAZIRA SCHOOL	Rehabilitation	8	28	121
D167	CHAKHALIRA: Junction T342/D167 Mnyanjagha Bota T/off junction T310/T311	Matala Estate T/off junction T310/U013	Rehabilitation	5.6	4	122
T310	Matala Estate T/off junction T310/U013	Estate No. 100 T/off junction T310/U014	Rehabilitation	13.7	48	123
T310	Waliranji: Junction M12/D179 to North	Nkwazi: Junction D177/D179 North	Rehabilitation	13.3	47	124
D179	Chiphazi junction T357/U91	maye (start of road at the lake)	Rehabilitation	13.2	9	125
U091	Lekado Farm: Junction D176/U70	Mandala: Junction U70/D168	Rehabilitation	10.3	36	126
U070	Mlamba : Junction M5/D146	Chagunda Vge(end of road)	Rehabilitation	16.7	58	127
D146	Namvula: Junction T364/U80	Junction S124/U80	Rehabilitation	19.6	14	128
U080	Estate No 100 T/off junction T310/U014	Estate No 1 T/off junction T310/U015	Rehabilitation	11.7	41	129
T310	Estate No 1 T/off junction T310/U015	Chasengo Farm T/off junctin T310/U016	Rehabilitation	9.8	34	130
T310	Uzumara: Junction T306/Transmeter Road	Mphompha: Junction T306/T307	Rehabilitation	14.5	51	131
T306			Rehabilitation	14.6	51	132
Sub- Total				1,791.7	3,391	

#### Appendix 4 : Road Sector Programme, 2010/11 to 2014/15 District and Urban Roads

District	Road No.	Road Section	Works	Length (km)	Cost (M MWK)	Programme Year(s)	
Balaka	D260	Mpango Junction D260/D275	Liwonde National Park Gate	Rehabilitation	11.3	8	2013/14
Sub Total Balaka				11.3	8		
Blantyre	D324	Lunzu: Junction IB2/D324	Chileka Airport: Junction S137/D324	Rehabilitation	5.8	4	2011/12
	D326	Maleule: Junction T406/D326	Njuli: Junction M3/D326	Rehabilitation	14.4	10	2011/12
	U131	Namadzi: Junction M3/U131	Chizola: Junction T406/U131/U134	Rehabilitation	23.8	83	2012/13
	U132	Mtengo wa Mbalame: Junction S138/U132	Lunzu T.C: Junction M1/U132	Rehabilitation	10.7	37	2012/13
	U133	Matindi: Junction M1/U133	Domwe: Junction U131/U133	Rehabilitation	10.4	36	2012/13
	D320	Dziwe: Junction S138/D320	Chikuli: Junction S137/D320	Rehabilitation	12.2	9	2012/13
	D322	Nsamba Mwali: Junction S139/D322	Jordan: Track at end of road	Rehabilitation	10.6	7	2012/13
	D323	Chemchere: Junction Mbera/Kandiwo Road	PA 17 Junction M1/D323	Rehabilitation	4.9	3	2012/13
	D328	Nsomba Junction M1/D328	Madziababgo Junction M1/D328	Low Volume Seal	20.2	495	2012/13
	U130	Nkumbe: Junction M1/U130	Kalaiti: End of Road at Nakayas House	Rehabilitation	3.8	13	2013/14
	U134	Chizola: Junction T406/U131/U134	Tee Junction: Road from Chitera ot Namikati School	Rehabilitation	4.5	16	2013/14
	D321	Green corner: Junction M1/D321	Ntonda School End of Road	Rehabilitation	3.1	2	2013/14
	D328	Nsomba Junction M1/D328	Madziababgo Junction M1/D328	Reseal	2	9	2013/14
	U130	Nkumbe: Junction M1/U130	Kalaiti: End Of Road	Reseal	1	12	2014/15
	D330	Limbe	Bango	Rehabilitation	1	42	2014/15
Sub Total Blantyre				128.4	780		
Chikwawa	D387	Sangwe: Junction M001/D387	Dolo Admarc: Junction D390/D387	Rehabilitation	5.6	4	2010/11

	U160	Mthumba Junction S136/U160	Chikhambi East S136/U160	Rehabilitation	5	18	2011/12
	D380	Mpulujiro: Junction T416/D380	Mthumba: Junction S136/D380	Rehabilitation	15.4	11	2011/12
	D383	Kokoma FP School: Junction S136/D383	Tomali West: Junction T423/D383	Rehabilitation	22.7	16	2011/12
	D384	Mlomba: Junction M001/D384	Belewu Admarc	Rehabilitation	13	9	2011/12
	D385	Fombe S136/D385	Tomali Junction T423/D385	Rehabilitation	16.7	12	2011/12
	U161	Mtsingano: Junction D386/U161	Nchalo: Junction M1/U161	Rehabilitation	12.9	45	2012/13
	U163	Biason: Start of Road	Belewu: Junction M1/U163	Rehabilitation	6.9	24	2012/13
	D386	Mafunga TC: Junction Nyasa/Misi	Jombo: Junction M001/D386	Rehabilitation	7.9	6	2012/13
	D388	Nsangwe: Junction M001/D3388	Masnduko School: End fo Road	Rehabilitation	8.7	6	2012/13
	D389	Thudzu North: Junction M001/D389	Mwananjovu School: End of Road	Rehabilitation	4.9	3	2012/13
	D379	Changoima: Junction S136/D379	Chikombe Border: Junction D379/Paved Road	Rehabilitation	12.7	9	2013/14
	U162	Mphepo Zinai S136/U162 Junction	Kalanga S136/U162 Junction	Rehabilitation	25.7	90	2014/15
	U164	Gola School: Start of Road	Mthonthola: Junction S136/U164	Rehabilitation	13.9	49	2014/15
	Sub Total Chikwawa				172.1	301	
Chiradzulu	D341	Ndunde: Junction S145/D341	Thawani: Junction T411/D341	Rehabilitation	10.1	7	2010/11
	D338	Nasawa: Junction T407/D338	Manawa: Junction S146/D338	Rehabilitation	12.5	9	2011/12
	D342	P.I.M: Junction T411/D342	Khwala: Junction to Trading Centre	Rehabilitation	17.8	12	2011/12
	D343	P.I.M Junction T411/D343	Kuchombe: Junction T412/D343	Rehabilitation	16.9	12	2011/12
	U140	Yasini: Jcn S146 / U140		Rehabilitation	0.6	25	2014/15
	U141	Manawa Jcn S146 / U141		Rehabilitation	3	126	2014/15
	Sub Total Chiradzulu				60.9	191	
Chitipa	D001	David Kameme: Junction M9/D1	Chipitu School (Road ends at school)	Rehabilitation	20.8	15	2013/14
	D002	David Kameme: Junction M9/D2	Adam: Junction T301/D2	Rehabilitation	11.9	8	2013/14
	D009	Junction M26/D9	Nachinganda School	Rehabilitation	17	12	2013/14
	D010	Misuku:Junction T301/D10	Chanya F.P School (Std 8 Block)	Rehabilitation	5.3	4	2013/14
	D011	Misuku: Junction T301/D11	Junction S100/D11	Rehabilitation	16.2	11	2013/14
	D003	Junction D3/D8	Junction T301/D3	Rehabilitation	8.7	6	2014/15
	D006	Nkangwa School: Junction D3/D6	Junction D6/D8	Rehabilitation	7.1	5	2014/15
	D008	Near Chitipa: Junction M26/D8	Junction: D8/D7/D6	Rehabilitation	26.4	18	2014/15
	Sub Total Chitipa				113.4	79	
//Dedza	D214	Mwenje School : Junction S126/D214	Kawelama Village :Junction D214/D215	Rehabilitation	20	14	2011/12
	D217	Kachezi Farm : Junction M 1/D217	Thete : Junction S126/D217	Rehabilitation	12.3	9	2011/12
	D213	Njati T.C Junction D212/D213	Kalumba Junction D213/D219	Rehabilitation	6.7	5	2012/13

	D215	End Diamphe Bridge	Chidewele School junction S125/D215	Rehabilitation	10.8	8	2012/13
	D220	Mkola: Junction T374/D220	Old Linthipe T. C: Junction M1/D220	Rehabilitation	11.7	8	2012/13
	D230	Bembeke T/Off: Junction M1/T372/D230	Khanganya: Junction with road to Mchochemba	Rehabilitation	5.1	4	2012/13
	D236	Namilulu : Junction T374/D236	Milonde School : Junction T371/D236	Rehabilitation	8.9	6	2012/13
	D218	Mphunzi Village: Junction D/127/D218	Maonde: Junction D218/Undesignated road RHS	Rehabilitation	10.1	7	2013/14
	D222	Livuwadzi River :Junction T374/ D222	Liwunga	Rehabilitation	6.1	4	2013/14
	D223	Fumbwa School Junction	Chitundu CCAP sign: Junction T374/D223	Rehabilitation	11	8	2013/14
	D224	mayani junction T374/D224	mpatamilonde junction T371/D224	Rehabilitation	10.6	7	2013/14
	D232	Mtakataka : Junction M5/D232	Chitukula Village ( Fishing Area )	Rehabilitation	11.4	8	2013/14
	U096	Bembeke: Junction T372/U96	Chinkwita: Junction T372/U96	Rehabilitation	6.7	23	2013/14
	D209	Lifidzi Admarc :Junction D209/D210	Kapiliuta : Junction T368/D209	Rehabilitation	8.4	6	2014/15
	D210	Chinkhu Village :Junction T368/D210	Magomero ; Junction S126/D210	Rehabilitation	15.8	11	2014/15
	D212	Njati T. Centre :D212/Mozambique Road	Njonja Police :Junction T366/D212	Rehabilitation	5	4	2014/15
	D216	Junction D216/S125	Thete : Junction S126/D216	Rehabilitation	10.6	7	2014/15
	D219	kaliozi junction D218/D219	Mphathi Border pillar market after market	Rehabilitation	11.1	8	2014/15
	D224	Mikango: Junction T375/D224	Mayani: Junction T374/D224	Rehabilitation	17	12	2014/15
	D225	Dedza F.College : Junction T371/D225	Mkomeko Village: Junction T374/D225	Rehabilitation	7.5	5	2014/15
	D226	Kasumbu Court : Junction T374 /D226	Lengwe Forest : Junction D226/Madzumbe Rd.	Rehabilitation	17.6	12	2014/15
	D227	Junction D227/D226	Kapesi School (End of road )	Rehabilitation	3	2	2014/15
	D228	marioni junction T374/D228	Milonde School	Rehabilitation	6.4	4	2014/15
	D234	Mua : Junction M5/D228	Mganja : Junction T372/D228	Rehabilitation	16.8	12	2014/15
	D235	Tembwe : Junction T374/D225	Chikuse : Junction with access to the market	Rehabilitation	5.4	4	2014/15
	U095	Kalilombe: Junction D230/U95	Alberto School: Junction with road to Maliteni	Rehabilitation	10.1	35	2014/15
	U097	Nyundo: Junction T374/U97	Kankhomba : Junction T371/U97	Rehabilitation	7.3	26	2014/15
	Sub Total Dedza				273.4	259	
Dowa	D120	Mlengwe junction D120/111 to East	Mkwinda junction S115/D120	Rehabilitation	3.1	2	2012/13
	D124	Mponela junction M1/D124	Msakambewa junction M7/D124	Rehabilitation	24.7	17	2012/13

D125	Mwerero junction M7/D125	Nanthomba Parish Junction M16/D125	Rehabilitation	10.5	7	2012/13	
D126	Dowaq Boma Junction M16/D126	Robert Blake Sec School(End of Road)	Rehabilitation	2.4	2	2012/13	
D127	Dowa Hospital junction D126/127	Katete junction D127/PRA	Rehabilitation	16.7	12	2012/13	
D129	Nalungu junction S119/D129	Mvera T> C> junction M14/D129	Rehabilitation	17.6	12	2012/13	
D140	Chipala junction M14/D140	Thonje Junction T356/D140	Rehabilitation	12.3	9	2012/13	
D119	Kapemphero Junction S115/D119	Nambuma Mission Gate	Rehabilitation	8.3	6	2013/14	
D122	Kasangadzi River (No Bridge)	Chinkoka School junction s116/D122	Rehabilitation	11.8	8	2013/14	
U057	Simlemba: junction D119/U057	Nambuma Bridge	Rehabilitation	2.1	7	2013/14	
U060	Start Nakale Stream	Kantayeni junction D127/U60	Rehabilitation	21.4	75	2013/14	
U061	Kafulu School	Mbingwa junction T349/U61	Rehabilitation	5.8	20	2013/14	
U063	Bowe Admarc junction T339/U63	Nkalo River End of road	Rehabilitation	2.4	8	2013/14	
U064	Lambwe junction T349/U64	Chagunda junction d120/U64	Rehabilitation	3.4	12	2013/14	
D120	Mtiti junction M1/D120	Mlengwe junction D120/D111 to West	Rehabilitation	19.2	13	2014/15	
D121	Katalima School junction M1/D121	Kasangazi River (No Bridge)	Rehabilitation	3	2	2014/15	
D126	Dowaq Boma Junction M16/D126	Robert Blake Sec School(End Of Road)	Reseal	1	12	2014/15	
D128	Mtata junction M7/D128	Chadza Chinjoka Stream	Rehabilitation	8	6	2014/15	
U055	Chigoma junction S116/U55	Kabwinja junction T349/U55	Rehabilitation	6.1	21	2014/15	
U058	Mkwichi School junction U65/U58	Chimudi junction D119/U58	Rehabilitation	8.4	29	2014/15	
U059	Msopa junction T341/U59	Pakuya Kasangadzi Bridge	Rehabilitation	7.4	26	2014/15	
U062	Mondwe School (End of road )	Mbingwa junction PRX1/U62	Rehabilitation	10.1	35	2014/15	
U065	Chisepo Junction S115/U65	Mkwichi School End of Road	Rehabilitation	9.4	33	2014/15	
Sub Total Dowa				215.1	376		
Karonga	D018	Chakwera:Junction M1/D18	Ngoto: At Beach entrance	Rehabilitation	1.5	1	2010/11
	D019	Pusi: Junction M1/D19	Mwangukulu: Rg Rd Junction M1/D19	Rehabilitation	11.5	8	2010/11
	D020	Ngerenge Dip Tank	Kakoma:Junction M1/D21	Rehabilitation	7.9	6	2010/11
	D021	Lusako: Junction M1/D20 North End	Kabwe: Junction M1/D20 Souh End	Rehabilitation	19.4	14	2010/11
	D017	Ghembe:Junction M1/D17	Start Songwe River (No Bridge)	Rehabilitation	3.5	2	2011/12
	U001	Kazguli (end of road)	Matima: junction M1/U001	Rehabilitation	18.6	65	2011/12
	D022	Mpata Junction M26/D22	Kasikizi primary School12	Rehabilitation	5.4	4	2013/14
	D023	Mwambelo	Mlale junction M1/D23	Rehabilitation	4	3	2013/14
Sub Total Karonga				71.8	102		
Kasungu	D079	chisemphero junction M1/D79	Mkwewe junction T328/D79	Rehabilitation	11.5	8	2010/11
	D083	kasungu ADD: junction M18/D83	kasungu prison: junction M1/D83	Rehabilitation	1.7	1	2010/11

	D081	suza junction M1/D81	Gogode at the clinic RHS	Rehabilitation	10.6	7	2011/12
	D085	changaluwa junction S114/D85	misozi Hqs junction T337/D85	Rehabilitation	9.7	7	2011/12
	U030	Kadifula junction T339/U30	chilowamatambe junction T338/U30	Rehabilitation	7.3	26	2011/12
	D078	Chatoloma:Junction M1/D78	Chimaliro Police: Junction S113/D78	Rehabilitation	25.9	18	2012/13
	D080	Mayera junction T328/D80	ofesi clinic roundabout	Rehabilitation	8.3	6	2012/13
	D082	kapindulu junction M1/D82	chisumbu school junction T323/D82	Rehabilitation	16.9	12	2012/13
	Sub Total Kasungu				91.9	85	
Lilongwe	D184	Kapiri: Junction M12/D184	Junction: T345/D184	Rehabilitation	18	13	2012/13
	D185	Nsaru: Junction S117/D185	Nkonkhomwala: Junction D184/D185	Rehabilitation	11.8	8	2012/13
	D187	Kauta (Past Ukkwe) junction T344/D187	Kamtole (Ukwe Turn off) junction S123/D187	Rehabilitation	23.3	16	2012/13
	D188	Junctin D187/D188	Mbavi junction S117/D188	Rehabilitation	5.7	4	2012/13
	D202	Mpeya:Junction S121/T363	Nkhoma Post Office: Junction D202/T374	Rehabilitation	6.6	5	2012/13
	D163	Kamphata : Junction M1/D163	Namano : Junction T370/D163	Rehabilitation	8.7	6	2013/14
	D189	Valley chicks junction M1/D189	Area 25 Junction S123/D189	Rehabilitation	20.3	14	2013/14
	D190	Junction M1/D190	Katete Farm (Chinsapo): Junction S124/D190	Rehabilitation	7.4	5	2013/14
	D191	Sapesa :Junction M14/D191	Lundu : JunctionT363/D191	Rehabilitation	26.2	18	2013/14
	D164	Junction S115/D164	Kasiya: Junction T342/D164	Rehabilitation	12.1	8	2014/15
	D186	Mayele : Junction M1/D186	Chadza T/Court :Junctin S369/D186	Rehabilitation	8.7	6	2014/15
	D195	Msundwe: Junction M12/D195	Njoka: Junction T345/D195	Rehabilitation	17.9	13	2014/15
	D197	Malingunde: Junction T345/D197	Start Katete Bridge	Rehabilitation	7.4	5	2014/15
	D200	Chamchere :Junction M1/D200	Chitsime Admarc : Junction S369/D200	Rehabilitation	3.1	2	2014/15
	D215	Makanya junction D370/D215	Start Diamphwi	Rehabilitation	3	2	2014/15
	D280	Nathenje :Junction M1/D280	Chikanga Village: Junction S369/D280	Rehabilitation	13.5	9	2014/15
	U080	Namvula: Junction T364/U80	Junction S124/U80	Rehabilitation	11.7	41	2014/15
	U081	JUNCTION: T366/U081	DICKSON: JUNCTION T366/U81 (ARDMARC LHS)	Rehabilitation	22.9	80	2014/15
	Sub Total Lilongwe				228.3	257	
Machinga	D286	Mpilisi: Junction M3/D286	Lusanjala River Bank	Rehabilitation	22	15	2013/14
	U110	Liwonde Road Block	Mbedza	Rehabilitation	28.4	99	2013/14
	D271	Nanyumbu: Junction T392/D271	Issa (Namanja): Junction T393/D271	Rehabilitation	17.9	13	2013/14

	D275	Ulongwe: Junction M3/D275	Start Katapasha Bridge (Washed away)	Rehabilitation	4.4	3	2013/14
	D275	End Katapasha Bridge	Mvera Market	Rehabilitation	7.3	5	2013/14
	D277	Chamba: Junction D277/D276	Junction: D277/Forest Boundary Road	Rehabilitation	3.9	3	2013/14
	D272	Nselema: Junction S131/D272	Chikumba(Mpili): Junction T390/D272	Reseal	3	37	2014/15
	D272	Nselema: Junction S131/D272	Chikumba(Mpili): Junction T390/D272	Rehabilitation	4.8	3	2014/15
	D274	Mijombo (Machina): Junction T391/D274	Napiyala/Mlaluwele: Junction at TC	Rehabilitation	9.3	7	2014/15
	D276	Naminga: Junction S131/D276	Chamatwa: Junction T402/D276	Rehabilitation	37	26	2014/15
	D278	Beyadi Junction T392/D278	Mphonde Juncton T393/D278	Rehabilitation	18.2	13	2014/15
	D279	Majiga: Junction D276/D279	Start Domasi Bridge	Rehabilitation	6.9	5	2014/15
	Sub Total Machinga				163.1	229	
Mangochi	D251	Katema: Junction T385/D251	Ulongwe: Junction M3/D251	Rehabilitation	40.9	29	2010/11
	D254	Bala: Old Borehole on LHS	Mbaluku: Junction M3/D254	Rehabilitation	8.6	6	2010/11
	D250	Saidi Tsanya	Maloya	Rehabilitation	17.4	12	2011/12
	D258	Majumbe: Junction M3/D258	Fort Mangochi: Opposite Cell Mast on RHS	Rehabilitation	8.7	6	2011/12
	D270	Kalonga: Junction T388/D270	Nsonje: Junction S131/D270	Rehabilitation	17.3	12	2011/12
	D256	Manjombe: Junction T386/D256	Ngalipa: Junction T387/D256	Rehabilitation	9.1	6	2012/13
	D259	Chiutula: Junction M3/D259W	Chasuku: Junction D259W/D259E	Rehabilitation	4.1	3	2013/14
	D261	Nkambili: Junction S131/D261	Junction: T389/D261	Rehabilitation	8.4	6	2013/14
	U105	Katuli (Itunji): Junction T387/U105 to Moz Boarder	Near Mozambique Boarder: End of road	Rehabilitation	5.6	20	2013/14
	U106	Simbili (Namwera): Junction T387/U106	Mwawa: End of Road	Rehabilitation	6	21	2013/14
	D259	Chasuku: Junction T387/D259E	Kwiputi: Junction M3/D259E	Rehabilitation	9.3	7	2014/15
	U107	Ngawo: Junction M3/U107	Nombo: Junction S131/U107	Rehabilitation	11.9	42	2014/15
	Sub Total Mangochi				147.3	169	
Mchinji	D171	START LUDZI ST JOSEPH HOSPITAL	CHIMUTU: Junction M012/D171	Rehabilitation	6.3	4	2010/11
	D165	NDAWAMBE VILLAGE: Culvert	NKHOLONI SCHOOL: Junction M012/D165	Rehabilitation	13.7	10	2013/14
	D166	NYOKA: Junction S118/D166	MAYOLA: JUNCTION MKANDA/MPUNDA ROAD	Rehabilitation	6.8	5	2013/14

D173	Sitima: Southern Junction T351/D173	Gullime School: Junction D172/D174	Rehabilitation	2.6	2	2013/14	
D174	Tembwe: Junction T351/D174	Chinkhota: North West Junction M12/D174	Rehabilitation	3.3	2	2013/14	
D180	Silombe: Junction D7/D180	Msitu: Junction D179/D180	Rehabilitation	7.2	5	2013/14	
U073	Start Gumulira School drift	Misale: Junction T351/U73	Rehabilitation	1.2	4	2013/14	
U074	Msukuwala School End of road	Mtukwa junction T351/U74	Rehabilitation	4.3	15	2013/14	
D161	MCHEMANI: Junction S118/D161	CHIPUNI T.C: Junction M018/D161	Rehabilitation	19.6	14	2014/15	
D163	NTHEMA: Junction M018/D163	CHIBERE: Junction D163/D164	Rehabilitation	18.4	13	2014/15	
D164	MKOTA ROUND ABOUT	MZAMA SCHOOL JUNCTION: S115/D164	Rehabilitation	10.3	7	2014/15	
D167	CHAKHALIRA: Junction T342/D167	KAZIRA SCHOOL	Rehabilitation	5.6	4	2014/15	
D168	Mkonka: Junction M12/D168	Start Namitete River	Rehabilitation	21.8	15	2014/15	
D172	CHEYADI: Junction M012/D172	ZULU HEADQUATERS COURT JUNCTION	Rehabilitation	2.1	1	2014/15	
D173	Cheyadi: Junction D172/D173	Sitima: Northern Junction T351/D173	Rehabilitation	11.6	8	2014/15	
D174	Chinkhota: North West Junction M12/D174	Mbachulu School: End of Road	Rehabilitation	8.6	6	2014/15	
D175	Misale: Junction T351/D175	Bua: Junction M12/D175	Rehabilitation	8.8	6	2014/15	
D176	Nkhwazi: Junction M12/D176	Lekado Farm: Junction D176/U70	Rehabilitation	7.6	5	2014/15	
D177	Kapzala School: Junction D5/D177	Mkwazi: Junction M12/D177	Rehabilitation	8.3	6	2014/15	
D178	Lisoka Stream	Kankhande: Junction M12/D178	Rehabilitation	7.3	5	2014/15	
D179	Tamanimwendo: Junction D6/D176 South	Msitu: Junction M12/D179 to South	Rehabilitation	4.2	3	2014/15	
D179	Waliranji: Junction M12/D179 to North	Nkwazi: Junction D177/D179 North	Rehabilitation	13.2	9	2014/15	
U070	Lekado Farm: Junction D176/U70	Mandala: Junction U70/D168	Rehabilitation	16.7	58	2014/15	
U071	NSASI: Junction S115/U071	MUKUNDI: Junction T343/U071	Rehabilitation	8	28	2014/15	
U072	Gumba End of Road	Chimwamkango junction S118/U72	Rehabilitation	17.2	60	2014/15	
U075	Kabzala School: Junction U75/D177	Nathyola: Junction M12/U75	Rehabilitation	15.6	55	2014/15	
Sub Total Mchinji				250.3	352		
Mulange	D368	Chingoli: Junction M4/D368	Chemaliro: Junction T408/D368	Rehabilitation	14.2	10	2011/12
	D370	Chinakanaka: Junction M2/D370	Msikawanjala: Junction T421/D370	Rehabilitation	8.6	6	2011/12
	D371	Misisi: Junction D370/D371	Chisitu junction M2/D371	Rehabilitation	6	4	2012/13
	D373	Nalipiri: Junction M2/D373	Nantombozi: Junction S149/D373	Rehabilitation	14.6	10	2012/13
	D374	Mabuka End of road near Luchenza River	Mathambi: Junction T422/D374	Rehabilitation	7.8	5	2012/13
Sub Total Mulange				51.2	36		
Mwanza	D307	Chipondeneni: Junction S135/D307	Mwanza Admarc: Junction S135/D307	Rehabilitation	25.8	18	2014/15
	D311	Mwanza: Junction M6/D311	Kachere School: End of Road	Rehabilitation	25.1	18	2014/15
Sub Total Mwanza				50.9	36		
Mzimba	D051	Kazuni junction M9/D51	Y-Junction T311/D51	Rehabilitation	22.5	16	2012/13

D057	Tione Bar: Junction S107/D57	Emtiyani School sign post: Junction T314/D57	Rehabilitation	16.7	12	2012/13
D053	Mpherembe: Junction T311/D53	Ezweleni: End at School Sign Post	Rehabilitation	5.2	4	2013/14
D054	Zombwe EPA (End of Forestry Gate)	Junction S107/D54	Rehabilitation	3.2	2	2013/14
D059	Mbelwa Farm junction S107/D59	Malangazi junction T312/D59	Rehabilitation	8.2	6	2013/14
D064	mbawa junction S112/D64	junction M20/d64	Rehabilitation	3	2	2013/14
D069	Nyoni junction S113/D69	kapita school	Rehabilitation	4.1	3	2013/14
D070	Luwelezi junction S113/D70	kanika junction T326/D70	Rehabilitation	15	11	2013/14
D072	Champhira: Junction D72/D74	Katete Mission Girls P. School Block Bumbunyika Stream (Impassable No Bridge)	Rehabilitation	2.1	1	2013/14
D072	Jenda: Junction M1/D72		Rehabilitation	4.4	3	2013/14
D073	Luwawa junction M1/D73 north	Luwawa junction M1/D73 south	Rehabilitation	10.7	7	2013/14
D074	Hoho t/off junction m1/D74 North	champhira junction M1/D74 south	Rehabilitation	15.6	11	2013/14
U010	Edingeni junction S112/U10	Mkonje Primary School	Rehabilitation	4.5	16	2013/14
U012	Kabira school junction D51/U12	Malidade school junction T311/U12	Rehabilitation	2.8	10	2013/14
U012	Emcisweni - east of Malidade school junction T311/U12		Rehabilitation		42	2013/14
U014	Estate No 100 T/off junction T310/U014	Kabwafu junction M9/U12	Rehabilitation	12.1		
U017	Embangweni Mission junction S112/U017	Mbalachanda T/off junction S105/U014	Rehabilitation	9.2	32	2013/14
D050	Vongo TC Start of road	Thoza junction M20/U017	Rehabilitation	1.5	5	2013/14
D052	Pundi: Junction T311/D52	Kamwe junction T309/D50	Rehabilitation	11.2	8	2014/15
D055	Mzambazi: Junction M9/D55	Majiga: Junction M9/D52	Rehabilitation	3.8	3	2014/15
D056	Mtwalo: Junction S107/D54	Junction S106/D55	Rehabilitation	5.7	4	2014/15
D058	Jezeni: Junction M9/D58	Njuyu T/Off: Junction D56/D57	Rehabilitation	13.4	9	2014/15
D060	Manoro: Junction S107/D60	Mbogo: Junction T313/D58	Rehabilitation	23	16	2014/15
D061	Kaundi School (Ngomiawo): Junction T313/D61	Lunjika Sec School Gate	Rehabilitation	2.8	2	2014/15
D062	Kamteteka: junction S112/D61	Luperere School (approx 200m before Chakazi bridge): Junction M9/D61	Rehabilitation	11.1	8	2014/15
D063	Nyoni junction M20/D63	Zubayumbo: junction M9/D61	Rehabilitation	25.2	18	2014/15
D065	junction M1/D65	Embangweni junction S112/D63	Rehabilitation	11.9	8	2014/15
D066	Hoho junction D66/D74	Ehendhleni junction to school	Rehabilitation	6	4	2014/15
D067	junction d67/D68	Hoho school signpost	Rehabilitation	4.7	3	2014/15
D068	champhira junction D68/D74	Msesse school seed bank block	Rehabilitation	4.9	3	2014/15
D071	chiwandawuka junction T326/D71	Unyolo junction S113/D68	Rehabilitation	22.4	16	2014/15
U011	Ngoma junction T314/U11	kanjuchi p school	Rehabilitation	18.1	13	2014/15
U013	Matala Estate T/off junction T310/U013	Mzuzu Regional Admarc junction M1/U11	Rehabilitation	26.3	92	2014/15
U015	Estate No 1 T/off junction T310/U015	Kalema Estate T/off junction S105/U013	Rehabilitation	9.4	33	2014/15
		Aggripa Jere junction S105/U015	Rehabilitation	7	25	2014/15

	U016	Chasengo farm T/off junction T310/U016	Madede junction s105/U016	Rehabilitation	10.6	37	2014/15
Sub Total Mzimba					358.3	484	
Neno	D313	Mapudi: Junction T396/D313	Makali: Junction M6/D313	Rehabilitation	31.1	22	2012/13
Sub Total Neno					31.1	22	
Nkhata Bay	U020	Camp Gordon(MDF)	Lukwezga T306/U20	Rehabilitation	6.2	22	2013/14
Sub Total Nkhata Bay					6.2	22	
Nkhota-Kota	D091	farm junction M5/D91	Jalo school at football ground	Rehabilitation	0.7	0	2011/12
	D093	Sani T.C : Junction M5/D93	San School: At Sign Post	Rehabilitation	3.9	3	2011/12
	D094	Benga junction M5/D94	Mwansambo junction T431/D94	Rehabilitation	23.1	16	2011/12
	D111	Mgombe junction D94/D111	Chemalire school LHS	Rehabilitation	2.2	2	2011/12
	U046	Vyovy: Junction M005/U046	Mkuta School: End of Road	Rehabilitation	3.2	11	2011/12
	U047	Vyovy: Junction M005/U047	Mtambalika: End of Road	Rehabilitation	5	18	2011/12
	U050	Ngala junction M5/U50	Chidembwe Admarc Gate	Rehabilitation	6.7	23	2011/12
	D092	Kachuma Village: Junction M18/D92	Chanika: Junction with Kaombe primary School	Rehabilitation	7.6	5	2012/13
	U040	Chilembwe Admarc junction U40/U49	Nkhunga junction M5/U40	Rehabilitation	16.8	59	2012/13
	U041	Msenjere: junction M5/U41	Katimbira Community Hall	Rehabilitation	7.2	25	2012/13
	U042	Lozi Secondary School junction M5/U42	Nguluwe Game Reserve Boundary	Rehabilitation	11.2	39	2012/13
	U043	Kachuma junction M18/U43	Sasani School LHS	Rehabilitation	5.1	18	2012/13
	U044	Mwansambo: junction M5/U44	Kayoyo: junction T341/U44	Rehabilitation	10.1	35	2012/13
	U045	Lajabu junction M5/U45	Mpamantha T.C Junction T341/UDK	Rehabilitation	5.3	19	2012/13
	U048	Nthanga: Junction D111/U048	Katonya Admarc T/off: Junction M005/U048	Rehabilitation	19.1	67	2012/13
	U049	Mtendere School: End of Road	Chisaka: Junction M005/U049	Rehabilitation	8.9	31	2012/13
Sub Total Nkhota-Kota					136.1	371	
Nsanje	D396	Mbenje: Junction M1/D396	Sabawo: Junction M1/D396	Rehabilitation	1.3	1	2011/12
	U180	Sorgin: Junction M1/U180	Mbenje: End of Road	Rehabilitation	6	21	2011/12
	D394	Makhanga: Junction S151/D394	Sandama: Junction S151/D394	Rehabilitation	24.9	17	2012/13
	U181	Tengani: Junction M1/U181	Ndumba: Junction D395/U181	Rehabilitation	2.6	9	2012/13
	D397	Mbale School Start of road	Mbenje: Junction M1/D397	Rehabilitation	10.3	7	2013/14
	U183	Makoka School Junction	Matundu School: Junction M1/U183	Rehabilitation	4.6	16	2013/14

	U184	Thunye Clinic Junction	Mapanje School T/Off: Junction M1/U184	Rehabilitation	5.1	18	2013/14
	U185	Mapanje East: Junction M1/U185	Khulubvi School: End of Road	Rehabilitation	1.8	6	2013/14
	U186	Malemia: X road Mchacha/Mbango Roads	Nsanje: Junction M1/U186	Rehabilitation	2.3	8	2013/14
	U182	Nyamithuthu: Junction M1/U182	Nyamithuthu Health Centre: End of Road	Rehabilitation	1.8	6	2014/15
	Sub Total Nsanje				60.7	110	
Ntchisi	D113	Mzandu Health centre	kayuwi school End of road	Rehabilitation	8.4	6	2011/12
	D098	Njobvu kamwendo village start of road	Malomo junction M18/D98	Rehabilitation	10.5	7	2012/13
	D104	Ntchisi Boma junction M7/D104	Nthondo-chinjoka End of road	Rehabilitation	19.3	14	2013/14
	D105	Nthondo junction D104/D105	Mndinda Health centre	Rehabilitation	6.3	4	2013/14
	D106	kayoyo school junction	Nyanga village junction T341/D106	Rehabilitation	17.3	12	2013/14
	D099	Mkanile shool junction T340/D99	Bowe junction S116/D99	Rehabilitation	21.4	15	2014/15
	D100	Mbuyedziko	Nkhuzi school End of road	Rehabilitation	3.3	2	2014/15
	D101	Chalumbe school junction T340/D101	Mwala junction T350/D101	Rehabilitation	15	11	2014/15
	D102	khuwi T.C junction T350/D102	khwangwala junction T341/D102	Rehabilitation	5.2	4	2014/15
	D107	Mwera, Hill junction M7/D107	Mitungwe junction D107/D108	Rehabilitation	5.4	4	2014/15
	D108	CHINTHEBWE SCHOOL Junction: T341/D108	KALEWA FARM: Junction M005/D108	Rehabilitation	42.7	30	2014/15
	D199	Malambo junction D199	chulu (kawaka ) junction T340/D199	Rehabilitation	5.6	4	2014/15
	U051	Mbobbo junction M18/PR9	chinguluwe junction M7/PR9	Rehabilitation	21.4	75	2014/15
	U052	Chatawa: Junction T340/UDD	Kalewa: Junction M7/UDD	Rehabilitation	13.6	48	2014/15
	Sub Total Ntchisi				195.4	235	
Phalombe	D361	Phutheya: Junction D361/UDZ	Milepe School: Junction S145.D361	Rehabilitation	22.7	16	2012/13
	D362	Khancha: Junction D361/D362	Mwanga: Junction S144/D362	Rehabilitation	6.8	5	2012/13
	D364	Chitekeza: Junction D361/D364	Nyezerera: Junction S145/D364	Rehabilitation	18.3	13	2012/13
	D364	Nyezerera: Junction S145/D364	Naminjiwa: Junction S147/D364	Rehabilitation	10.9	8	2012/13
	D365	Nasiyaya	Monja	Rehabilitation	2.7	2	2012/13
	U151	Mulomba: Junction T413/U151	Likulezi: Junction S147/U151	Rehabilitation	12.4	43	2013/14
	U152	Nampinga: Junction S147/U152	Migowi: Junction S147/U152	Rehabilitation	10	35	2013/14
	U153	Mpinda: Junction S147/U153	Sombani: Junction S147/U153	Rehabilitation	8.3	29	2013/14

	U154	Nambazo: Junction S147/U154	Sombani: Junction S147/U154	Rehabilitation	16.2	57	2013/14
	U155	Mpasa: Junction S144/U155	Migowi: Junction S147/U155	Rehabilitation	8.3	29	2013/14
	U156	Nantali: Junction S147/U156	Manzi: End of road at beacon	Rehabilitation	10.8	38	2013/14
	U157	Ngongola: Junction T413/U157	Likulezi: Junction S147/U157	Rehabilitation	14.4	50	2013/14
	U158	Mpasa: Junction S144/U158	Holy Family: Junction S147/U158	Rehabilitation	7.6	27	2013/14
	U150	Nyandulo: Start of road at Lake Chilwa	Phutheya: Junction D361/U150	Rehabilitation	8.4	29	2014/15
	U159	Muhaviwa: Junction S145/U159	Migowi: Junction S147/U159	Rehabilitation	1.6	6	2014/15
	Sub Total Phalombe				159.4	386	
Rumphi	D030	Lura junction T305/D30	mchenga junction M1/D30	Rehabilitation	15.6	11	2010/11
	D031	Nchenachena junction T305/D31	coffe pulpery/Zombe primary school	Rehabilitation	7.2	5	2011/12
	D038	Bolero junction M24/D38	Jumbe school	Rehabilitation	11.7	8	2011/12
	D036	Chozoli junction M24/D36 East	Luviri junction junction M24/D36 West	Rehabilitation	24.2	17	2012/13
	D032	Hewe junction S104/D32	Chisimuka p school roundabout	Rehabilitation	4.9	3	2013/14
	D033	Katowo junction S104/D33	Zolokere (vwaza marsh game reserve)	Rehabilitation	9.1	6	2013/14
	D034	katowo p school	junction S104/D34	Rehabilitation	0.6	0	2013/14
	D035	Mujanika	Kaduku: Junction S104/D35	Rehabilitation	5.4	4	2013/14
	D037	Luviri junction M9/D37	kamphenda junction M9/D37	Rehabilitation	15.3	11	2013/14
	Sub Total Rumphi				94.0	66	
Salima	D148	MAFCO gate	Kambiri Point (end of road )	Rehabilitation	1.9	1	2011/12
	D137	Chikombe (At the end of the road at the lake)	Siyasiya Junction M5/D136	Rehabilitation	10.8	8	2013/14
	D144	Nachidze: Beginning of the Road	Nanjoka: Junction M5/D144	Rehabilitation	9.2	6	2013/14
	D147	Senga Bay : Junction S122/D147	Mikute :Junction S122/D147	Rehabilitation	5	4	2013/14
	D152	Mchoka :Junction M5/D152	Lifidzi Clinic (end of road)	Rehabilitation	1.9	1	2013/14
	D153	Chief Ndindi Headquarters	Chipoka Rest House	Rehabilitation	1.5	1	2013/14
	U090	Ngodzi junction M5/U90	chilambula fishing ground	Rehabilitation	3.2	11	2013/14
	D135	Kasache : Junction M5/D135	Chikwawa (end of the road at the lake)	Rehabilitation	8.7	6	2014/15
	D136	Makiyoni (At the end of the road)	Siyasiya : Junction M5/D136	Rehabilitation	19.2	13	2014/15
	D138	MNEMA (End of Road at The Lake)	KHOMBEDZA: JUNCTION M005/D138	Rehabilitation	10.8	8	2014/15
	D139	Chikumba : Junction M5/D139	Kapirintiwa : Junction T356/D139	Rehabilitation	8.5	6	2014/15
	D141	Chikumba : Junction M5/D141	Mkhuki: Junction T356/D141	Rehabilitation	8.2	6	2014/15
	D143	MKHUTI: JUNCTION M005/D143	MAPIKO VGE: JUNCTION T357/D143	Rehabilitation	8.2	6	2014/15
	D146	Mlamba : Junction M5/D146	Chagunda Vge(end of road)	Rehabilitation	19.6	14	2014/15
	D149	Mlamba junction M5/D146	Lifidzi CDSS junction M5/D149	Rehabilitation	20.7	14	2014/15
	D150	Kateleza :Junction M5/D150	Midima (end of road)	Rehabilitation	4.3	3	2014/15
	D154	Lifidzi :Junction M5/D154	Dziwe (end of road )	Rehabilitation	11.7	8	2014/15

			MTUWANGOMA: JUNCTION M005/D150	Rehabilitation	15.2	11	2014/15
	D155	BANJA: JUNCTION M005/D150				3	2014/15
	D184	Njati T.Centre: Junction M5/D134	Kamuona Admarc (end of the road)	Rehabilitation	4.2	36	2014/15
	U091	Chiphazi junction T357/U91	maye (start of road at the lake)	Rehabilitation	10.3	166	
Sub Total Salima					183.1		
Thyolo	D356	PA 11km: Junction S160/D356	Makapwa At Railway line	Rehabilitation	9.6	7	2010/11
	D353	Nansadi: Junction S150/D353	Henderson: Junction D353/UD1	Rehabilitation	16.7	12	2011/12
	U173	Thekelani: Junction S151/U173	Saideni: End of Road at Railway line	Rehabilitation	7.6	27	2011/12
	U174	Kholokhwi: Start of Road	Mitembo: Junction S151/U174	Rehabilitation	5.1	18	2011/12
	U172	Mathiya: Junction S151/U172	Thukuta: End of Road at Railway line	Rehabilitation	11	39	2012/13
	U176	Ndinyaza: Junction S151/U176	Nchedeka: Junction with road to Songola	Rehabilitation	3.3	12	2013/14
Sub Total Thyolo					53.3	113	
Zomba	D287	Masaula: Junction TR8/T287	Matanda: Junction T401/D287	Rehabilitation	11.9	8	2010/11
	D288	Chiseu: Junction T401/D288	Masanjala: Junction S142/D288	Rehabilitation	11.5	8	2010/11
	D294	Chesamba: Junction M3/D293; North	Pamanda: Junction M3/D294; South Mikuyu Museum: Opposite 2 Pillars RHS	Rehabilitation	10	7	2010/11
	D297	Near Likangala Bridge: Junction S144/D297	Kasonga	Rehabilitation	3.7	3	2010/11
	D295	Songani: Junction M3/D294	Sulumba Junction T408/302	Rehabilitation	11.6	8	2011/12
	D302	Masale Junction S144/D302	Mpalume: Junction S139/D286	Rehabilitation	19.3	14	2011/12
	D286	Masaula: Junction T400/D286	Nasawa Junction T407/D291	Rehabilitation	10.7	7	2012/13
	D291	Dzaone Junction T405/D291	Sumayesi: Junction D292/D294	Rehabilitation	7.4	5	2012/13
	D292	Domasi Police: Junction M3/D292	Khanda: Rice Scheme (End of the Road)	Rehabilitation	2.7	2	2012/13
	D298	Chidule: Junction S143/D298	Namiwawa: Junction D299/S144	Rehabilitation	10.9	8	2012/13
	D299	Chikowi Turn off	Kapende: Junction D300/D301	Rehabilitation	13.4	9	2012/13
	D300	Chipande: Junction D299/D300	Gwaza Rail Station: Y Junction after Rail Line	Rehabilitation	7.9	6	2012/13
	U115	Maliyana: Junction S286/U115	Kuchawe Hotel	Rehabilitation	3.1	11	2013/14
	D286	Zomba: Junction M3 / S065	Khanda: Junction D296/D298	Reseal	7.5	92	2014/15
	D296	Tisaiwale Esate: Junction T403/D296	Ngwelerero Trading Centre	Rehabilitation	9.7	7	2014/15
	U116	Mayaka Juncton T405/U166		Rehabilitation	12.9	45	2014/15
Sub Total Zomba					154.2	240	
Total District and Urban Roads					3,461.2	5,474	