

**INVESTIGATING CRITICAL CHALLENGES OF MAINTAINING ROAD
INFRASTRUCTURE IN THE LIMPOPO PROVINCE: A CASE OF MAKHADO
LOCAL MUNICIPALITY**

BY

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DEDICATION

I dedicate this dissertation to my late father Mutshinyalo Samuel Sikhweni, who was called to his resting place before he could see the fruits of his children at his tender age. Before he approached his death he said “*Phundululo ndi a dzama, mutshinyalo ndi sia ndo ita*”. May his soul rest in peace.

DECLARATION

I, Pandelani Mumsy Musitha [REDACTED] hereby declare that this dissertation entitled “Investigating critical challenges of maintaining road infrastructure in the Limpopo Province: a case of Makhado Local Municipality” is hereby submitted to the University of Limpopo, Turfloop Graduate School of Leadership (TGSL), degree for Masters in Public Administration (MPA), has not previously been submitted by me for the degree at this or any other university for the purpose of obtaining a qualification. I declare that all sources that I have used or quoted have been indicated and acknowledged by means of complete references.

.....
SIGNATURE
(MUSITHA PM)

.....
DATE

ACKNOWLEDGEMENTS

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My special thanks go to Mr GT Owen for editing my research professionally giving it meaning.

Aa! Ndi a livhuwa.

LIST OF ACRONYMS

ANC – African National Congress

ANOVA-Analysis of Variance

BBBEE - Broad-Based Black Economic Empowerment Act (Act No. 53 of 2003)

CA-Chartered Accountant

CIDBA - Construction Industry Development Board Act (Act No 38 of 2000)

COGHSTA-Department of Cooperative Governance and Traditional Affairs

CSIR- Council for Scientific and Industrial Research

CTA-Certificate in Theory of Accounting

DBSA- Development Bank of Southern Africa

DFID - Department for International Development

DoRA- Division of Revenue Act (Act No. 2 of 2013)

DPLG - Department of Provincial and Local Government

DPSA- Department of Public Service Administration

ECOSOC- United Nations Economic and Social Council

GRAP-Generally Recognised Accounting Practices

IDP - Integrated Development Plan

IED-Independent Evaluation Department

ILO- International Labour Organisation

IPSS-Infrastructure Planning Support System

KDSLML - King Sabata Dalidyebo Local Municipality

LGDS- Limpopo Growth and Development Strategy

MEC- Member of Executive Committee

MFMA - Municipal Finance Management Act (Act No. 56 of 2003)

MSA- Municipal Systems Act (Act No. 32 of 2000)

OECD- Organisation for Economic Cooperation and Development

PAJA - Promotion of Administrative Justice Act (Act No. 3 of 2000)

PBMC – Performance Based Maintenance of Road

PFMA - Public Finance Management Act (Act No 1 of 1999)

PIARC-Permanent International Association of Road Congress

PPPFA - Preferential Procurement Policy Framework Act (Act No. 5 of 2000)

PPPs-Public Private Partnerships

PR-Proportional Representation

PSC-Public Service Commission

RAL-Road Agency Limpopo

RDP - Reconstruction and Development Programme

SALGA- South African Local Government

SANRAL - South African National Road Agency Limited

SCM - Supply Chain Management

SPSS - Statistical Package for Social Science

SRPA- Soutpansberg Rate Payers Association

UK - United Kingdom

UN - United Nations

UNCAC - United Nations Convention against Corruption, 2003

WPTPS - White Paper on Transforming Public Service, 1997

ABSTRACT

Road infrastructure is usually regarded as an economic backbone of the society. Local government has a responsibility to ensure that local roads are maintained in order to facilitate a movement of people, goods and services. The study was undertaken on the premise that local roads in Makhado Local Municipality are not promoting safety. That is, road infrastructure in this municipality is considered to be deteriorating. It is against this background that the researcher found it worthwhile to investigate critical challenges of maintaining road infrastructure in the Makhado Local Municipality focusing on the following towns, Makhado, Vuwani, Waterval and Dzanani only excluding unpaved communities and other small townships, namely Tshikota and Vleifontein.

The objectives of the research were to determine the condition and effects of municipal road infrastructure within Makhado Local Municipality; to examine the legal framework governing the local municipality in the context of road infrastructure provision and maintenance as well as to recommend strategies to address challenges of road infrastructure within the municipality. The research employed both qualitative and quantitative in nature. A purposive research sampling approach was used to determine the inclusion of relevant respondents to the study.

The research found out that the status of road infrastructure affect various people of different biographical background within the four towns of Makhado Local Municipality in a similar way. In the findings, the study highlight the fact that deteriorating roads conditions are often due to the following: a lack of professionals such as engineers to perform the necessary environmental scanning and identify problems in order to design the roads that suit the area, soil, landscape and climate and that other factors affecting the road infrastructure include corruption in procurement of road infrastructure projects; a lack of accountability of municipal officials; a lack or poor community involvement; and poor monitoring and maintenance of road projects. The study recommends that individuals with knowledge, expertise and skills be employed and further provide proper monitoring of the road projects.

TABLE OF CONTENTS**PAGE**

DEDICATION.....	i
DECLARATION.....	ii
ACKNOWLEDGEMENTS	iii
LIST OF ACRONYMS	iv
ABSTRACT.....	vi
TABLE OF CONTENTS... ..	vii
CHAPTER ONE: INTRODUCTION AND BACKGROUND TO THE STUDY	1
1.1 INTRODUCTION.....	1
1.2 BACKGROUND TO THE STUDY	1
1.3 PROBLEM STATEMENT	2
1.4 GENERAL AIM OF THE STUDY.....	3
1.5 OBJECTIVES OF THE STUDY.....	3
1.6 RESEARCH QUESTIONS.....	3
1.7 EXPLANATION OF TERMS AND CONCEPTUAL CLARIFICATION.....	3
1.7.1 A municipality	4
1.7.2 Basic municipal services	4
1.7.3 Maintenance	4
1.7.4 Development	4
1.7.5 Service standards	4
1.7.6 Integrated Development Planning (IDP)	4
1.7.7 Capacity building	5
1.7.8 Supply Chain Management.....	5
1.7.9 Social accountability	5
1.7.10 Public participation	5
1.7.11 Performance Management System.....	5
1.8 DATA COLLECTION, ANALYSIS AND INTERPRETATION	5
1.8.1 Ethical consideration	6
1.8.1.1 Informed consent	7
1.8.1.2 Confidentiality.....	7
1.9 REFERENCE TECHNIQUES.....	7

1.10 SEQUENTIAL ARRANGEMENT OF CHAPTERS IN THE DISSERTATION	8
1.11 CONCLUSION	9
CHAPTER TWO: LITERATURE REVIEW ON ROAD INFRASTRUCTURE	10
2.1 INTRODUCTION	10
2.2 THE GLOBAL PERSPECTIVE OF ROAD INFRASTRUCTURE	10
2.2.1 United States	11
2.2.2 China	11
2.3 THE NATIONAL PERSPECTIVE OF ROAD INFRASTRUCTURE	12
2.3.1 Road infrastructure funding in South Africa	14
2.4 THE CLASSIFICATION OF ROAD CONDITIONS	15
2.5 THE IMPORTANCE OF ROAD MAINTENANCE	16
2.6 NEGATIVE EFFECTS OF THE COLLAPSE OF ROAD INFRASTRUCTURE	18
2.7 CRITICAL FACTORS THAT CAUSE DETERIORATION OF ROAD INFRASTRUCTURE	18
2.7.1 Political influence	18
2.7.2 The Failure to link Integrated Developmental Plan (IDP) with other government programmes	19
2.7.3 Poor Performance Management System (PMS)	20
2.7.4 Poor development and implementation of road maintenance strategies	20
2.7.5 Poor cooperative governance and accountability	21
2.7.6 Corruption in procurement processes	22
2.7.7 Poor community participation	23
2.7.7.1 Roles of ward committees	24
2.7.7.2 Roles of ward councillors	26
2.7.7.3 Challenges of ward councillors	26
2.8 OTHER CAUSES OF ROAD COLLAPSE OR DETERIORATION	27
2.9 FACTORS PROMOTING GOOD ROAD INFRASTRUCTURE MAINTENANCE	28
2.9.1 Establishment of a Steering Committee	28
2.9.2 Public Private Partnerships (PPPs)	29
2.9.3 Delegating	30

2.9.4 Asset management	30
2.10 CONCLUSION	30
CHAPTER THREE: POLICY AND REGULATORY FRAMEWORK FOR ROAD INFRASTRUCTURE	31
3.1 INTRODUCTION	31
3.2 THE MUNICIPAL REGULATORY FRAMEWORK FOR ROAD INFRASTRUCTURE DEVELOPMENT AND MAINTENANCE	31
3.2.1 The Constitution of the Republic of South Africa, 1996	31
3.2.2 The Municipal Systems Act (Act No. 32 of 2000).....	32
3.2.3 The Municipal Finance Management Act (Act No. 56 of 2003)	32
3.2.4 The Public Finance Management Act (Act No. 1 of 1999)	33
3.2.4.1 The Preferential Procurement Policy Framework Act (Act No. 5 of 2000) ...	33
3.2.4.2 Broad-Based Black Economic Empowerment Act (Act No. 53 of 2003)	33
3.2.4.3 The Promotion of Equality and the Prevention of Unfair Discrimination Act (Act No. 4 of 2000).....	33
3.2.4.4 The Construction Industry Development Board Act (Act No. 38 of 2000) ...	34
3.2.4.5 The Prevention and Combating of Corrupt Activities Act (Act No. 12 of 2004).....	34
3.2.4.6 The White Paper on Local Government, 1998.....	34
3.2.4.7 Performance Management Systems	34
3.3 CHALLENGES FOR THE IMPLEMENTATION OF A REGULATORY FRAMEWORK.....	36
3.3.1 Non-compliance with procurement policies and regulations.....	36
3.3.2 Lack of proper knowledge, skills and capacity	38
3.3.3 Inadequate measures for monitoring and evaluation of the Supply Chain Management	38
3.4 CONCLUSION	39
CHAPTER FOUR: RESEARCH DESIGN AND METHODOLOGY	40
4.1 INTRODUCTION.....	40
4.2 DESCRIPTION OF THE STUDY AREA	40
4.2.1 The origin of the Makhado Local Municipality	40
4.2.2 Location and description of the Makhado Local Municipality	41

4.2.3 Current road infrastructure conditions in the Makhado Local Municipality	41
4.3 RESEARCH DESIGN AND METHODOLOGY	42
4.3.1 Quantitative research design	43
4.4 AIMS OF THE RESEARCH DESIGN	43
4.4.1 Exploration	43
4.4.2 Descriptive	44
4.4.3 Explanatory	44
4.5 SELECTION OF SAMPLING METHOD AND RESEARCH AREAS	45
4.6 DATA COLLECTION	46
4.6.1 Questionnaires	46
4.6.2 Observation	47
4.6.3 Documentary analysis	48
4.7 DATA PROCESSING AND ANALYSIS	49
4.7.1 STATISTICAL ANALYSIS	50
4.7.1.1 Statistical software	50
4.7.1.2 Descriptive statistical analysis	50
4.7.1.3 Inferential statistical analysis	50
4.8 RELIABILITY AND VALIDITY OF THE STUDY	50
4.8.1 Validity	50
4.8.2 Reliability	51
4.9 ETHICAL CONSIDERATIONS RELATED TO DATA COLLECTION	52
4.10 CONCLUSION	52
CHAPTER FIVE: PRESENTATION AND INTERPRETATION OF RESEARCH RESULTS	
RESULTS	53
5.1 INTRODUCTION	53
5.2 RESULTS AND DISCUSSIONS	53
5.3 DATA COLLECTION THROUGH QUESTIONNAIRES	53
5.3.1 Biographical information	54
5.3.2 Perception of effects of the road by road users	59
5.3.3 Perception of effects of the road by Municipal officials	61
5.3.4 Perception of the effects of road by Municipal councillors	61

5.4 PRESCRIBED REGULATORY FRAMEWORK FOR MUNICIPAL SUPPLY CHAIN MANAGEMENT ADHERENCE IN ROAD INFRASTRUCTURE DEVELOPMENT AND MAINTENANCE.....	62
5.4.1 The perception of Municipal officials on regulatory framework	62
5.5 CRITICAL CAUSES OF COLLAPSED ROAD INFRASTRUCTURE WITHIN MAKHADO LOCAL MUNICIPALITY	66
5.5.1 Perception of critical causes of road collapse by Municipal officials.....	66
5.6 OBSERVATION.....	69
5.7 DOCUMENTARY ANALYSIS.....	70
5.7.1 Report on road infrastructure report from 2012-2015	70
5.7.2 Makhado Local Municipality Audit reports	71
5.7.2.1 The strategic planning and performance management.....	73
5.7.2.2 Asset Management	73
5.7.2.3 Procurement and contract management	73
5.7.2.4 Leadership	75
5.7.2.5 Governance.....	75
5.8 CONCLUSION	77
CHAPTER SIX: FINDINGS, RECOMMENDATIONS AND CONCLUSIONS.....	78
6.1 INTRODUCTION.....	78
6.2 RESEARCH QUESTIONS OF THE STUDY.....	78
6.3 SUMMARY OF RESEARCH STUDY	78
6.4 FINDINGS.....	80
6.4.1. Road effect to the road users	80
6.4.2 The critical causes of road collapse	81
6.5 CONCLUSIONS.....	82
6.6 RECOMMENDATIONS.....	83
6.7 FURTHER RESEARCH AREA.....	84
6.8 CONCLUSION.....	84
LIST OF REFERENCES	86

LIST OF ANNEXURES

Annexure A: Respondent informed consent form and questionnaire

Annexure B: Observed street pictures

Annexure C: Request permission to conduct research: TGSL

Annexure D: Request permission to conduct research: Researcher

Annexure E: Permission letter to undertake research study: Makhado Local Municipality

Annexure F: Language Editing Letter

LIST OF TABLES

	PAGE
Table 1: Live vehicle population 2017	13
Table 2: South Africa Road Network (2010)	14
Table 3: Staff establishment of Makhado Local Municipality	48
Table 4: List of completed road infrastructure projects for 2013/14 Makhado towns	49
Table 5: Reliability statistics	48
Table 6: Residents of respondents	57
Table 7: Respondents by gender and age	57
Table 8: Road user-effect	59
Table 9: Municipals official-effect	61
Table 10: Municipal Councillors-effect	61
Table 11: Municipal official adherence to regulatory framework	62
Table 12: Causes of collapsed road infrastructure	66
Table 13: Infrastructure cluster projects (Civil)	70
Table 14: Development of municipal roads	71

LIST OF FIGURES

	PAGE
Figure 1: Makhado Municipality Map	41
Figure 2: Sample study	46
Figure 3: Gender of respondents	54
Figure 4: Age of respondents	55
Figure 5: Educational background of respondents	56
Figure 6: Transport type of respondents	59

CHAPTER ONE: INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION

1.2 BACKGROUND TO THE STUDY

The current state of road infrastructure is topical among citizens in the Makhado Local Municipality. The state of the road is very poor such that residents have started to take up the challenge of improving the road by filling up potholes with soil so as to prevent damage to their vehicles. The Makhado Local Municipality has the responsibility of ensuring that these local roads are properly maintained and are safe for the use of citizens. It is against this background that this research topic was chosen to investigate the critical challenges of maintaining road infrastructure in the Limpopo Province: “in this case the Makhado Local Municipality” was used. Often, politicians and councillors keep on blaming the apartheid government for poor service delivery, but the task of a municipality is to ensure that citizens receive quality services which include good road infrastructure. The Council for Scientific and Industrial Research (CSIR) (2007:10) found that lack of preventive maintenance causes deterioration of road infrastructure and anticipated funding for future maintenance woefully inadequate. The CSIR further found that lack of maintenance is due to limited financial capacity, imprudent allocation of funds, loss of intellectual assets, dearth of guidelines, norms and standards as well as inadequate legislation. This therefore suggests that delays in road maintenance would lead to escalating costs and financial burdens.

The Limpopo Growth and Development Strategy (LGDS) (2009-2014:83) requires that road development be prioritised over a 20 year master planning period according to human settlement and industrial requirements. It also further states that maintenance is a strategy to mobilise capital for road construction and maintenance and requires that job creation implications be reflected in the master plan. The White Paper on Local Government (1998:15) showed that South African Municipalities have huge backlogs in service infrastructure in historically underdeveloped areas, demanding municipal expenditure in excess of revenue.

The Constitution of the Republic of South Africa, 1996 stipulates that public administration should adhere to the following values and principles, namely that;

- A high standard of professional ethics be promoted and maintained;

- Services be provided impartially, fairly, equitably and without bias;
- Resources be utilised efficiently, economically and effectively;
- People`s needs be responded to;
- The public be encouraged to participate in policy-making; and
- It be accountable, transparent and development- orientated.

The above values and principles of public administration are key to the delivery of road infrastructure and they are constitutionally mandatory to government institutions including municipalities.

1.3 PROBLEM STATEMENT

Road infrastructure in the Makhado Local Municipality is in such a bad state despite the fact that there is a requirement by the Department of Cooperative Governance and Traditional Affairs (COGHSTA) that it must formulate an Integrated Development Plan (IDP) to guide its development. This IDP should be the product of a consultative process with the communities and residents and including all other relevant sector departments. Section 152 of the constitution of the Republic of South Africa stipulates the objectives of the local government which must be met. Despite all these legislative requirements the Makhado Local Municipality still experiences deteriorating road infrastructure. For example, the roads have severe potholes, poor road markings and signage, a poor storm water drainage system, lack of stop signs, no street lights and deteriorating pavements. These conditions are the cause of accidents with resultant injuries and deaths as well as wear and tear of tyres thereby increasing the financial burden on motorists.

It is clear that the poor state of road infrastructure negatively affects residents' safety and mobility. The Makhado Local Municipality Integrated Development Plan (IDP) (2011/12:34) acknowledges that the roads of Makhado are in a bad condition. The study by Mavhivha (2007) found that municipalities should deliver services to local citizens. However, road infrastructure problems in Makhado municipalities do not seem to be near any solution but in fact are getting worse. According to Van der Westhuizen (2013:1) the Soutpansberg Rate Payers Association (SRPA) decided to withhold their rate payments and deposit it into a trust fund instead of paying to the municipality. They informed the municipality that they would only transfer it once service delivery happens. Various studies have already been conducted on the deterioration of road infrastructure from different perspectives.

This study therefore is an attempt to investigate the critical challenges facing road maintenance within the Makhado Local Municipality. It explores the critical causes of road collapse, focusing on four towns, namely Makhado, Waterval, Vuwani and Dzanani.

1.4 GENERAL AIM OF THE STUDY

This study aims to investigate the challenges that the Makhado Local Municipality is facing in the provisioning of road infrastructure maintenance.

1.5 OBJECTIVES OF THE STUDY

The specific objectives of the study are three-fold, namely:

- To determine the condition and effects of municipal road infrastructure within the Makhado Local Municipality.
- To examine the legal framework governing the local municipality in the context of road infrastructure provision and maintenance.
- To recommend strategies to address the challenges of road infrastructure within the Makhado Local Municipality

1.6 RESEARCH QUESTIONS

The following specific questions will guide this study to achieve the above objectives.

- What is the current condition and effects of road infrastructure within Makhado Local Municipality?
- Does Makhado Local Municipality have a legal framework governing the road infrastructure provisioning and maintenance?
- What are the strategies for addressing challenges of road infrastructure within the Makhado Local municipality?

1.7 EXPLANATION OF TERMS AND CONCEPTUAL CLARIFICATION

Welman, Kruger and Mitchell (2005:20) define conceptual framework as the definitions which describe concepts. The following concepts are used in this study:

1.7.1 A municipality

A municipality is an organ of state within the sphere of local government exercising legislative and executive authority within an area determined in terms of the Local Government: Municipal Demarcation Act, 1998. It consists of the political structures and administration of the municipality and the community of the municipality itself. (Local Government Municipal Systems Act No. 32 of 2000).

1.7.2 Basic municipal services

Basic municipal services refer to services that are necessary to ensure an acceptable and reasonable quality of life and, if not provided, would endanger public health or safety, water, sanitation, roads etc. (Local Government Municipal Systems Act No. 32 of 2000).

1.7.3 Maintenance

Maintenance is used as a generic term to include planned maintenance, repair, refurbishment and renewal and provision for replacement of the infrastructure (Department of Public Works 2006).

1.7.4 Development

Development means sustainable development, and includes integrated social, economic, environmental, spatial, infrastructural, institutional, organisational and human resources upliftment of a community aimed at improving the quality of life of its members, especially the poor and other disadvantaged sections of the community as well as ensuring that development serves present and future generations (Local Government Municipal Systems Act No. 32 of 2000).

1.7.5 Service standards

Service standards are regarded as benchmarks adopted by a department in order to determine how it should behave with respect to its client base, internal or external. Service standards are integral to the service Delivery Improvement Plan and define the goals that a particular department strives to reach in improving its service delivery (The Public Service Commission (PSC) 2005:17).

1.7.6 Integrated Development Planning (IDP)

Integrated Development Planning is a management tool that enables municipalities to obtain a strategic view of their development and to address key issues in a holistic manner IDP (Department of Provincial and Local Government 2000:5).

1.7.7 Capacity building

Capacity building according to Dool (2005:33) is more than training and human resource development but includes capacity building aimed at developing skills to improve network management. He argued that inadequate human and organisational capacities and unfavourable institutional environments are seen as factors hindering urban governance.

1.7.8 Supply Chain Management

Pauw, Woods, Van der Linde, Fourie and Visser (2009:249) define Supply Chain Management (SCM) as a process of planning, implementing and controlling the operations of supply chains with the purpose of satisfying customers' requirements as efficiently as possible.

1.7.9 Social accountability

Social responsibility refers to the set of tools used by citizens to influence the quality of service delivery by holding providers accountable to citizens, individual and collectively (Ringold, Holla, Koziol and Srinivasan 2011:7).

1.7.10 Public participation

According to Cloete and de Coning (2011:91) public participation is defined as the process which entails the creation of opportunities which enables members of a community and the larger society to actively contribute to and influence the development process in which members of community share equitably in the fruits of development.

1.7.11 Performance Management System

Performance management is defined as an integrated process of defining, assessing, and reinforcing employee work behaviours and outcomes. A well-developed performance management system process enables the organisation to outperform those without this element of organisation design (Cummings and Worley 2013:440).

1.8 DATA COLLECTION, ANALYSIS AND INTERPRETATION

The French Philosopher Auguste Comte (1798-1857) is known as the father of modern discipline of sociology and founder of positivism theory against superstition and prejudice. He was very popular until the beginning of 20th century, which has seen a declining trend in

the past several decades. His thought was so popular that the Latin American country, such as Brazil and Mexico made Comte's thoughts as their national motto, "Ordem e Progresso" (Order and Progress) embossed on their national flag. Comte's followers were equally active in England, America, Turkey and other parts of the world. Comte in his book "The Course on Positive Philosophy" (1830-1842) explains his view on the concept of positivism. He also observed the phenomena dependency between theory and observation in physical sciences which helped him to reach the conclusion that science of society is no different from other natural sciences (Van der Pijl 2009:62).

This study is quantitative and is underlined by a philosophical approach which is known as logical positivism where the emphasis is about objectivity that exists independent of the respondents (Wellman et al. 2005:6). According to Ponterotto (2005:4) positivism is defined as a philosophical stance that assumes the independent existence of an objective reality that can be revealed through careful and bias-free observation. Positivism suggests that things have meaning before and independent of any scientific awareness of them. Positivist researchers often set out to discover reality while maintaining what they refer to as a value free and an objective stance (Ponterotto 2005:128). The study is about providing empirical evidence to answer the set research question (Henning, Van Rensburg and Smit 2004:17). The study also used explorative and descriptive designs. The research explored the why and what questions in order to understand the critical causes of poor road infrastructure within the Makhado Local Municipality. The respondents were comprised of the road users from the four towns, namely, Makhado, Waterval, Vuwani and Dzanani, municipal officials and councillors and ward committee members.

In order to collect information, questionnaire were dispatched to respondents, observations made, and relevant materials were widely consulted, which include unpublished theses and dissertations, public service regulations and relevant legislation, departmental reports and files as well as academic and scholarly research on road deterioration in order to determine what is known and unknown about the study. The study followed a descriptive approach which considered the different perceptions of respondents about service delivery which were then evaluated.

1.8.1 Ethical consideration

According to Mouton (2001:238) ethics is about what is wrong and what is right in the conduct of research and such a researcher has to conform to generally accepted norms and

values. For this research, a request for permission to conduct the study will be made to the Makhado Local Municipality. The letter of request will include information such as names of the supervisors, the name of the researcher, the title of the study and its purpose and objectives. The rights of the participants to take part or refuse will be honoured. Respondents will be informed of the risks and benefits of the study so that they will be able to make an informed decision. Participants will be assured that they will be exposed to no harm. All participants will sign a consent form prior to participation in this study and will be assured of anonymity through non-disclosure of their identity to the public.

1.8.1.1 Informed consent

According to Bailey (1987:409), informed consent entails making the respondents fully aware of the study, its possible dangers and risks. Participants should take part voluntarily in the research and be made fully aware of the aims of the study. The researcher will explain to the participants what the study entails and what is required of them in terms of participation. Consent will be obtained whereby respondents will indicate their willingness to participate in the study. The consent form will include the title of the research together with the background and aims of the study. All participants in this study will be asked to freely consent to participate, without being coerced or unfairly pressurised. Participants will be well-informed about what participation entails, and reassured that declining will not affect any services they receive. Participants who feel uncomfortable about written consent will give consent verbally.

1.8.1.2 Confidentiality

The identity of the person from whom information is gathered will be protected. Their names will not be revealed to other people. Identification codes can be used for names. If collected, the identity of the participants will be protected at all times and not be left lying around in notebooks or un-protected computer files. The participants are assured that the recorded information will be destroyed (Henning et al., 2004).

1.9 REFERENCE TECHNIQUES

Harvard style of referencing was used for the study in which a list of sources listed in alphabetical order, using surname of author, initials, year, title of publication and publisher, depending on the source.

1.10 SEQUENTIAL ARRANGEMENT OF CHAPTERS IN THE DISSERTATION

The content of the study is comprised of the following six chapters which are described briefly below.

Chapter One

Chapter one introduces the study and describes the background within the Makhado Local Municipality. The chapter also describes the proposed research study which includes the problem statement, objectives, research question and the explanation of terms and conceptual framework of the study.

Chapter Two

Chapter two presents the literature review on road infrastructure maintenance, the concept of service delivery and different approaches aimed at improving the quality of the roads to facilitate the mobility of goods and services.

Chapter Three

Chapter three presents the policy and regulatory framework regulating road infrastructure provision and maintenance as well as challenges in implementing regulatory framework.

Chapter Four

Chapter four discusses research design and methodology.

Chapter Five

Chapter five discusses the research findings and interpretations of the study.

Chapter Six

Chapter six provides the summary, recommendations and conclusions of the study.

1.11 CONCLUSION

Chapter one introduced the introduction and background information of the research topic in order to provide critical information about the study. The chapter also included the problem statement, the objectives of the study, research question and an explanation of terms and concept clarification.

This was done in order to understand the significance of the research study. The local municipality has the responsibility to providing service delivery to residence including road infrastructure, however the road infrastructure is increasingly collapsing, causing a concern to residents since they are affected by the state of the road. This chapter further outlined the method of data collection, analysis and interpretation, reference techniques and the sequential arrangement of chapters in the dissertation. The chapter also provide highlights and expansion upon foundational studies conducted in the past describing the road infrastructure challenges. The next chapter presents a review of the literature on road infrastructure.

CHAPTER TWO: LITERATURE REVIEW ON ROAD INFRASTRUCTURE

2.1 INTRODUCTION

Chapter one presented the introduction and background to this study. This chapter presents a literature review on issues pertaining to road infrastructure maintenance. The literature review seeks to consider the causes of continued poor road infrastructure maintenance within the Makhado Local Municipality. Documents such as printed materials, government documents, journal articles, dissertations, papers presented in seminars, newspapers, magazines, reports, theses as well as web pages are reviewed to obtain information related to the topic under study.

Onwuegbuzie, Collins, Leech, Dellinger and Jiao (2010) define a literature review as an interpretation of a selection of relevant published and or unpublished information that is available on a specific topic from one or more sources (i.e. documents, talk, observations and drawings/photographs/videos) that optimally involves summarisation, analysis, evaluation and synthesis of the information of the available literature on a particular topic. A literature review is also regarded as a process of finding relevant research reports and critical studies, and then synthesising the results (Grove, Gray, and Burns 2007:163). The following aspects are discussed under literature review: definition of road maintenance, importance of road maintenance, the global perspective of road maintenance with reference to the United States, China and the National (South African) perspective of road infrastructure maintenance. The current state of road infrastructure in the Makhado Local Municipality, the effects of road collapse, critical factors that cause road deterioration and factors promoting good road infrastructure also receive attention.

2.2 THE GLOBAL PERSPECTIVE OF ROAD INFRASTRUCTURE

According to the Merriam-Webster Dictionary (2009), global refers to the entire world. The discussion will focus on the entire world's view of road infrastructure as encapsulated by various world bodies. The United Nations Economic and Social Council (2015) encourages Member States to sponsor ambitious development projects that include infrastructure development and sustainable progress to be worked on by volunteers through programmes such as providing basic shelter, lighting, roads, and other necessities (United Nations 2015). The ECOSOC emphasised the importance of road infrastructure in Security Council

resolution 16. Burningham and Stankevich (2005:1) state that roads and the means of transport make a crucial contribution to economic development and growth and bring important social benefits. Poorly maintained roads constrain mobility, significantly raise vehicle operating costs, increase accident rates and their associated human and property costs, and aggravate isolation, poverty, poor health, and illiteracy in rural communities. This note highlights the economic and social importance of regular road maintenance and recommends ways to achieve sustainable road maintenance with scarce public resources. Its audience is not specialists but rather people who need to have a sufficient understanding of road maintenance to discharge their responsibilities effectively. These include government policy-makers, mayors, ministry staff, new World Bank staff and staff in sectors such as rural development and social funds. The two global countries are briefly discussed under global perspective in terms of road maintenance, namely, the United States and China.

2.2.1 United States

Miller (2013:29) shows that the average metropolitan area driver spends 46 hours a year stuck in traffic while daily rush hour commuters lose double this time as a result of traffic congestion in large cities. Gridlock results in significant productivity losses and idling cars spew out more exhaust and create more air pollution. What used to be a big-city problem has spread to medium-sized cities and many suburban areas. Poor road conditions also lead directly to \$54 billion spent on needed car repairs annually due to potholes. Major ports and shipping hubs become bottlenecks for high volumes of container trucks and increased traffic inflicts substantial damage on road surfaces. Total road spending is about two-thirds of what is needed to fund necessary improvements.

2.2.2 China

According to Miller (2013:18) in recent years, actions taken at the central and local levels have aggravated prospects for improved road maintenance. From 2005, a rural road maintenance policy provided maintenance subsidies for county, township and village roads. The expansion of a primary network of tolled expressways and Class I highways, including nationalisation of road operators, has generally ensured sufficient resources for maintaining these types of roads. A fuel tax reform in 2009 created a centralized source of revenues for road construction and maintenance. But as the road system expanded, ordinary road development lagged behind. This has created a significant backlog in maintenance, upgrades

and reconstruction. 7.4% of ordinary trunk roads and 35% of rural roads are unpaved. Paving conditions vary across the eastern, central, and western regions (African Development Bank 2011:37). Taylor and Francis (2008:373) are of the opinion that road infrastructure is a key factor for economic growth and poverty reduction strategies in these countries. China finances road infrastructure through mobilising resources such as credit from state-owned banks, while India relies heavily on international institutions and fuel taxes. These methods were seen to be insufficient to meet the investment needs and as a result they needed to explore new ways to attract private capital and expand the fiscal space of central and sub-national governments. In order to promote private participation in road development, the regulatory framework needed to be strengthened and the resources of the domestic financial markets needed to be tapped. China found that the funding for road construction and maintenance would come from the establishment of efficient and sustainable systems of earmarked road-related charges, including tax on fuel.

2.3 THE NATIONAL PERSPECTIVE OF ROAD INFRASTRUCTURE

The Constitution of the Republic of South Africa 1996, section 152 delegates the responsibility of managing roads to local government and defines the powers between the District municipalities and local municipalities to ensure it happens (A Guide for Local Government Officials 2008). During the State of the Nation Address 2015/16, the President of South Africa, Zuma, restated the government's commitment to road improvement to promote economic growth. An allocation of R9 billion was made to the Provincial Roads Maintenance Grant and the Sihamba Sonke Programme and R11 billion to upgrading and maintaining roads which are not tolled.

During the Limpopo Provincial Budget 2015/16 speech, the MEC K. Phala indicated that the Department of Public works, Roads and Infrastructure had been allocated R2, 171 billion. Despite the purported allocation, there were still a number of road building projects left unfinished.

The South African National Roads Agency Limited (SANRAL) (2012) provides guidelines for National, Provincial and Local spheres of government for the classification of roads and how it should be implemented. These guidelines on how roads must be maintained according to their classification result in improved accessibility, greater economic viability, increased land values, and improved productivity. Improved accessibility increases capacity, eases

traffic flows, heightens road safety and enhances the quality of living in residential neighbourhoods as well as reducing the need for new road construction and road building materials. The guidelines specify the different types of roads, namely; arterials, distributors/collectors and local streets.

Ronald (2017) in Arrive Alive showed the numbers of vehicle registered in South Africa as in table below:

Table 1: Live Vehicle Population 2017 in South Africa

28-Feb-2017 · Live vehicle population as per the National Traffic Information System · eNaTIS

Vehicle Class	Province									Total	% of total self-propelled
	GP	KZ	WC	EC	FS	MP	NW	L	NC		
Motor cars and station wagons	2 948 482	967 905	1 227 261	442 851	308 627	411 630	309 411	319 033	125 117	7 060 317	65.08%
Minibuses	120 619	51 228	34 081	23 152	12 424	22 548	18 587	22 198	4 931	309 768	2.86%
Buses, bus trains, midibuses	19 951	7 796	6 862	4 274	3 020	7 918	4 058	6 288	1 674	61 841	0.57%
Motorcycles, quadracycles, tricycles	144 690	33 520	85 521	22 444	19 906	19 491	14 231	9 784	8 283	357 870	3.30%
LDV's, panel vans, other light load veh's GVM <= 3500kg	804 168	351 119	317 796	198 244	128 140	209 963	148 440	219 842	77 053	2 454 765	22.63%
Trucks (Heavy load vehicles GVM > 3500kg)	137 404	49 086	42 997	22 569	22 177	45 190	18 026	24 866	9 252	371 567	3.42%
Other self-propelled vehicles	35 342	32 040	37 763	16 182	36 195	27 373	22 268	16 641	9 108	232 912	2.15%
Total self-propelled vehicles	4 210 656	1 492 694	1 752 281	729 716	530 489	744 113	535 021	618 652	235 418	10 849 040	
Provincial % of Total	39%	14%	16%	7%	5%	7%	5%	6%	2%	100%	% of total tow vehicles
Caravans	39 793	7 422	17 617	5 216	7 714	10 128	6 451	5 603	2 862	102 806	8.97%
Light load trailers GVM <= 3500kg	328 852	81 131	140 640	55 735	62 508	63 698	52 882	41 389	28 183	855 018	74.57%
Heavy load trailers GVM > 3500kg	59 437	23 550	20 024	7 422	17 864	35 151	10 981	8 732	5 625	188 786	16.46%
Total Trailers	428 082	112 103	178 281	68 373	88 086	108 977	70 314	55 724	36 670	1 146 610	
Total Provincial % of total	37%	10%	16%	6%	8%	10%	6%	5%	3%	100%	
All other and unknown vehicles	5 003	3 149	4 492	2 947	3 999	4 019	4 663	2 562	1 376	32 210	
Total number of live vehicles	4 643 741	1 607 946	1 935 054	801 036	622 574	857 109	609 998	676 938	273 464	12 027 860	
Provincial % of total	39%	13%	16%	7%	5%	7%	5%	6%	2%	100%	

Source: National Traffic Information System-eNatis 2017

The table above shows that the Limpopo Province has a total of 676 938 (6%) vehicles, with Gauteng as the province with the most vehicles, 4 643 741 (39%). The large number of vehicles undermines the pressing and urgent need for the sustained maintenance of durable road infrastructure.

According to the Roads Infrastructure Strategic Framework for South Africa (2006), South African road infrastructure services are funded by the municipal roads infrastructure grant, public private partnerships and the municipality's own revenue streams allocated to road infrastructure. This represents a comprehensible fiscal strategy to fund long term sustainability for the provision of road infrastructure services. There should be an increased and stable flow of funds for maintenance, rehabilitation and addressing backlogs in the long-

term. The proposed municipal roads infrastructure grant should not only focus on infrastructure provision but also on rehabilitation and maintenance. A substantial portion of a Municipality`s revenue from local government and other sources should be allocated to road infrastructure, rehabilitation and maintenance. Transport is the heartbeat of the economy; investing more on roads will bring economic benefits to local economies thus increasing the value of properties.

According to the Department of National Treasury (2011:164) it has been estimated that the South African road network comprises 606 978 km of proclaimed national, provincial and municipal roads and approximately 140 000km of unproclaimed roads that serves predominantly rural areas. The South African Road network state is given in the table 2 below:

Table 2: South Africa Road Network (2010)

Roads Authority	Types of road		Total
	Paved (Km)	Gravel Roads	
National Roads	16 170	-	16 170
Provincial Roads	48 176	136 640	184 816
Municipal Roads	89 373	316 619	405 992
Unproclaimed Rural Roads	-	140 000	140 000
Total	153 719	593 259	746 978

Source: The Department of National Treasury (2011:165)

2.3.1 Road infrastructure funding in South Africa

According to the 2014 Budget Review provincial and local governments play critical roles in eliminating poverty and reducing inequality. Legislations such as the Public Finance Management Act (1999) and the Municipal Finance Management Act (2003) modernised public financial management and enhanced transparency and accountability. The local government is responsible for water and sanitation, electricity reticulation, refuse removal, storm water management and municipal transport and roads. The transfer of funds from national to provincial and local governments is done through equitable share and conditional grants. The equitable shares are determined by demographic and developmental factors, while conditional shares are designed to achieve specific objectives, and provinces and municipalities must fulfil certain conditions to receive them.

The Auditor General carried out numerous investigations into alleged irregularities and financial misconduct in Limpopo province which led to more than 300 cases being opened. The conditional grant encourages measurements of road usage conditions resulting in faster travel times and lower transport costs. Local governments raise revenue in the form of charges and taxes and as a result only 27 percent of their spending is financed through the Division of Revenue Act which is enshrined in the Constitution of the Republic of South Africa, 1996. The Auditor General also noted that the municipalities with improved outcomes had political and administrative leadership which worked together to implement and monitor internal controls. This cooperation promotes good governance through identifying processes and systems that directly affect audit findings.

According to Pienaar (2011:13) the ideal way of funding road maintenance is through tax on fuel levies. The funds obtained from toll roads assist in road maintenance and development, which then improve road safety and capacity, leading to safer and shorter travel times, job creation as well as economic growth. Pienaar (2011:13) further argues that toll roads are the only viable option for funding roads in a country like South Africa. According to Heggie and Vickers (1998:1) the economic costs of poor roads is primarily borne by the road users.

2.4 THE CLASSIFICATION OF ROAD CONDITIONS

According to Queiros and Gautam (1992:3) road conditions are classified according to the World Bank Policy Paper as good, fair and poor.

- Good: paved roads substantially free of defects and requiring only routine maintenance or unpaved needing only routine grading and spot repairs.
- Fair: paved roads having significant defects and requiring surfacing or strengthening or unpaved roads needing reshaping or resurfacing (regravelling) and spot repair of drainage.
- Poor: paved roads with extensive defects and requiring immediate rehabilitation or reconstruction or unpaved roads needing construction and major drainage works.

2.5 THE IMPORTANCE OF ROAD MAINTENANCE

Road maintenance is central to the preservation of the road infrastructure, not upgrading them. Unlike major road works, maintenance must be done regularly. Road maintenance comprises “activities to keep pavement, shoulders, slopes, drainage facilities and all other structures and property within the road margins as near as possible to their as-constructed or renewed condition” Permanent International Association of Road Congresses (PIARC) (1994).

According to the International Labour Organisation (2014:14) rural road maintenance has the potential to be a sustainable source of job creation for rural populations. Well maintained rural roads not only support and facilitate development but enhance governance within the local governments through significant savings that could be invested in other beneficial activities.

Roads are among the most important public assets in many countries. Road improvements bring immediate and sometimes dramatic benefits to road users through improved access to hospitals, schools, and markets, improved comfort, speed, and safety and lower vehicle operating costs. For these benefits to be sustained, road improvements must be followed by a well-planned programme of maintenance. Without regular maintenance, roads can rapidly fall into disrepair, preventing realization of the longer term impacts of road improvements on development, such as increased agricultural production and growth in school enrolments. Postponing road maintenance results in high direct and indirect costs. If road defects are repaired promptly, the cost is usually modest. If defects are neglected, an entire road section may fail completely, requiring full reconstruction at three times or more the cost, on average, of routine maintenance costs. The South African National Roads Agency Ltd (SANRAL) 1998, SANRAL estimates that repair costs rise to six times maintenance costs after three years of neglect and to 18 times after five years of neglect. SANRAL first allocates its available funding resources to primary maintenance actions to avoid costs from escalating (e.g. reseals and overlays), and thereafter to more extensive operations (Burningham and Stankovich 2005:1).

According to Andreski, Seth and Walker (2006:6) roads play a crucial role in economic development and growth. However, poorly maintained roads constrain mobility and increase vehicle operating costs and road traffic injuries and their associated human and property

costs. The provision and maintenance of road infrastructure is a major global business and the replacement value of road assets in sub-Saharan Africa is estimated to be \$150 billion.

According to the International Labour Organisation (2007:4) road maintenance is done to ensure that the road that has been constructed or improved is maintained in its original condition. It is accepted that over the life of the road it will deteriorate due to factors with which maintenance activities cannot deal. Nevertheless maintenance is intended to slow down this deterioration and should begin on the first day after the road improvement works are completed. According to the ILO (2007:4) the problems of rural road maintenance are not uniquely related to finance. There are technical issues relating to the lack of planning and the lack of information about the state of the road network as well as major institutional factors relating to the lack of clear responsibility at different decentralised levels for maintenance planning, budgeting and implementation, all of which cause road deterioration.

According to the European Commission (2008:2) road maintenance deserves special attention for two main reasons. Firstly the poor condition of roads is one of the major causes of accidents and secondly, maintenance work impedes and interrupts traffic flows and deliveries thus increasing costs. Kehagia and Mouratidis (2012:2182) found that road maintenance; upgrading and rehabilitation of existing road infrastructure may be routine tasks but may be adversely affected by costs and time delays. In order to mitigate against this, a well-planned schedule of operations should be compiled. Maintenance operations deal with infrastructure matters such as paving and other facilities in order to restore roads to their initial condition. National, regional and local authorities need to develop funding mechanisms to ensure a safe and comfortable transport infrastructure for users through appropriate and timely maintenance. The former Minister of Transport in the South African Government, Dipuo Peters (2014) in her speech pointed out the following:

“As stated in the NDP:” to achieve sustainable and inclusive growth by 2030, SA needs to invest in a strong network of infrastructure.” The NDP further explains that: “in effect, SA has missed a generation of capital investment in roads, rail, ports, electricity, water sanitation, public transport and housing.”

The Minister further committed her department to invest R9, 6 billion to rehabilitate 1100 km of roads and reseal 3000 km of roads, re-gravel 3 150 km of roads and patch some 810,000 square metres of potholes, as part of Operation Tselantle that was launched in July 2014.

2.6 NEGATIVE EFFECTS OF THE COLLAPSE OF ROAD INFRASTRUCTURE

Pienaar (2011:13) found that the Gauteng toll road has economic, social and legislative advantages and disadvantages. He found that poor road conditions increase travel times and high accident rates. Fay and Morrison (2007:18) regard infrastructure as an important determinant of productivity. The researchers further argued that poor infrastructure hampers productivity, growth, and poverty reduction. Poor infrastructure also contributes to high logistics costs and requires large inventories in the municipality. Inadequate infrastructure also undercuts the fight against poverty and inequality. Infrastructure access is critical to improving economic opportunities as it also increases production and transaction costs and increase assets value and enhances agricultural profits.

Road maintenance and rehabilitation projects produce economic rates of return in excess of 35 per cent. Trucking companies suffer from a staggering 30% reduction in vehicle life on poorly maintained rural roads resulting in sharply increased depreciation. It also increases the cost of spare parts and extra fuel for the trucks, as well as accidents and down-time for trucks for repair and also damage to freight inside the vehicle.

2.7 CRITICAL FACTORS THAT CAUSE DETERIORATION OF ROAD INFRASTRUCTURE

2.7.1 Political influence

Breiner (1996:129) argued that politics is distinctly concerned with those qualities of person and circumstance that make it possible for an actor to impose his or her will on a situation, rather than to have commands fulfilled through simple obedience. Politics is now identified with the struggle over ultimate values using political means, not merely with the use of power backed by legitimate force.

Opawole, Jagboro, Babatunde and Opawole (2013:251) in their study conducted in Osun state, South Western Nigeria found that policy and financing issues are factors affecting infrastructure development. The researchers found that the dominance of political executives` opinion in the budgeting process was a serious matter which needed to be seriously looked into. They also found that budgeting for road development did not allow sufficiently for the recruitment of construction professionals such as engineers and quantity surveyors etc. nor

for any overlap projects and budget allocations which accounted for poorly organised road projects in the Osun State (1). The researchers further recommended that there is a need to curtail undue bureaucracy when implementing road projects and also a need for the government to develop a long-term road building programme to boost the economy.

2.7.2 The Failure to link Integrated Developmental Plan (IDP) with other government programmes

Harrison (2001:175) describes IDP as the centrepiece of planning in post-apartheid South Africa, which is intended to provide strategic guidance to newly created municipalities and to link and coordinate many different sectoral plans and planning processes. The IDP is regarded as the product of both national trends and influences within a specifically South African context.

The cost of the IDP must be accounted for in the annual budget that must be based on the development priorities and objectives and performance targets as set down in regulation 12. The IDP must be used to prepare action plans for the implementation of strategies identified by the municipality (Government Gazette, 2001:9). The Local Government Planning and Performance Management Regulations, R. 796, 2001 indicates that the IDP must at least identify any development initiatives in the municipality, including infrastructure, physical, social, economic and institutional development. The IDP must provide a visual representation such as diagrams and photographs of the desired spatial form of the municipality where public and private land development and infrastructure investment should take place.

Gwayi (2010:132) in his study of the King Sabata Dalidyebo Local Municipality (KDSLM) found that the cause of poor service delivery was due to a lack of capacity to implement the IDP since the majority of respondents indicated that they did not understand municipal legislation and IDP. The lack of skills, corruption and nepotism and inadequate political and administrative leadership were cited as challenges that faced this municipality in terms of service delivery.

Madzivhandila and Asha (2012:369) argue that despite the good intentions of the IDP, it also introduced unprecedented challenges in service delivery for local municipalities because most municipalities do not conduct the IDP process according to legislation. The researcher found the core challenges of almost all municipalities to be the integration of community participation and prioritisation of the felt needs in the municipality's IDP planning process. The researchers also concluded that service delivery challenges can be addressed through

formulating strategies to strengthen community participation and integration with other stakeholders in the IDP process.

Dlalisa (2013:81) found that the credibility of the IDP is at stake since there was no linkage with other government department programmes nor was the IDP fully funded. He suggested that for the IDP to be regarded as credible certain indicators should be met, namely financial viability, good governance and institutional arrangements.

2.7.3 Poor Performance Management System (PMS)

According to Grote (2002:1) performance management or appraisal is regarded as a formal management system that provides for the evaluation of the quality of an individual's performance in an organisation. Dobbs, Pohl, YiLin, Mischke, Garemo, Hexter, Matzinger, Palter and Navatty (2013:57) argue that delivery of a project relied on the performance of the contractor. The government exerts influence in various ways so that the contractor is able to achieve optimum results through a well-defined stage-gate process, active monitoring and management of the contract as well as a well-defined dispute arbitration process between the municipality and the contractor. The Local Government Municipal Planning and Performance Management Regulations, 2001 requires that municipalities be performance orientated. According to Van der Walt (2004:318) municipalities lack effective and efficient PMS as a means of enhancing performance. The efficiency of the municipality is judged according to the success or otherwise of projects undertaken. Unfortunately there is a general lack of sufficient skills and resources in South African municipalities to conduct efficient service delivery.

2.7.4 Poor development and implementation of road maintenance strategies

Maintenance is regarded as a problem and improved service delivery depends only partly on better maintenance. There should be an increase in the funding of road infrastructure, repair and renewal in order to improve service delivery (Boschoff 2009:9). He further states that municipalities should look beyond mere maintenance but include the total lifecycle management of all assets, i.e. selecting the right infrastructure solution to meet service needs at the lowest lifecycle cost. What strategies are in place to address infrastructure challenges at the lowest cost? It requires rethinking of and adjustments to policy, fiscal and practice frameworks in order to improve service delivery. Efforts are required for municipalities to come to grips with the extent, location, condition, criticality and the remaining useful lives of their assets. This is a critical precondition to developing maintenance plans and budgets.

Once an inventory of assets has been compiled, care needs and funding requirements can be formulated, operations and maintenance budget provisions can be published to assist municipalities to plan and to budget, and regulatory agents can be nominated to assess the viability of new capital funding proposals and the general adequacy of maintenance and repair budget provisions. The need to improve internal delivery capacity is crucial and this task can be delegated to external agents. There is a need to prioritise asset care activities and funding and to apply risk-based strategies to deal with various types of asset failure that will inevitably occur.

Wall (2009:51) found that some public sectors are able to manage more or less competently their assets but government intervention and assistance is crucial in many authorities, especially at the local government level. The intervention and assistance needs should be comprehensive in nature and should include a regulatory framework, budget restructuring, and issues to do with skills, monitoring and evaluation and provide feedback to improve the whole process. The strategy has to be driven by the national government either directly or through nominees.

2.7.5 Poor cooperative governance and accountability

The Constitution of the Republic of South Africa 1996, Chapter 3 (40) defines South Africa in terms of national, provincial and local spheres which are distinctive, interdependent and interrelated. It further directs that government must observe and adhere to the principles in this Chapter and must conduct its activities within the parameters of the Constitution. Section (41) of the Constitution describes the principles of co-operative government and intergovernmental relations to be adhered to. Cooperative governance leads to a culture of cooperation with other departments. In New York, countries, towns, villages and cities come together and provide public functions jointly. However, arrangements do not necessarily have to be formal but may be informal (A Guide for Local Government Officials 2008:1). The International Labour Organisation (2005:15) also illustrates the ambiguity caused by a lack of foresight in devolving road maintenance responsibilities. The study pointed out that the spread of responsibilities for rural road maintenance within the various levels of government had led to a situation where no one agency felt responsible for maintaining the rural road network. The study showed that very minimal road maintenance had been due to lack of funds and a lack of proper policy and an institutional framework. However, weaknesses in the implementation coupled with the lack of clarity of the institutional responsibilities were

hidden as the emphasis had been placed on the inadequacy of funds. The need for adequate funds is self-evident; it is the more critical institutional issues which require attention (ILO 2007:29). The Constitution of the Republic of South Africa, 1996, section(215) states that budgets and the budgetary process must promote transparency, accountability and the effective financial management of the economy, debt and the public sector and for national legislation to “prescribe” budget formats for all spheres of government.

Adejuwon (2012:25) found that without a reawakening of the culture of accountability and transparency lost over years, the relationship of trust between the government and the governed for the conduct of good governance would not be realised. Public service has been held in contempt by the people because both the government and the governed only pay lip service to the crucial issue of effective and efficient service delivery. Good governance is regarded as a set of values, policies and institutions through which society manages the economic, political as well as social processes at different levels on the basis of interaction among government, civil society and the private sector (Sahni and Medury 2004:42). Accountability means that individuals have a hand in all things they have created, promoted, or allowed. It refers to the ability to furnish a satisfactory analysis and explanation of one`s actions in the process of discharging one`s responsibilities at all levels, whether technical, administrative, political, financial or otherwise (Ola and Effiong 1994:44).

2.7.6 Corruption in procurement processes

Sieber (2012:6) reported that the poor condition of roads may be the result of corruption caused by the following:

- A bias towards large capital projects instead of the maintenance of existing networks;
- A tendency to misuse resources generally by not investing sufficiently in routine maintenance;
- Poor quality of construction and repair work and
- Fraud in construction and repair

Sieber further indicated that corruption can more easily occur during road construction due to the following factors;

1. the size of the infrastructure projects, because the larger the size, the higher the bribes and claims;
2. uniqueness of the project;

3. number of sub-contractual links and phases;
4. the complexity of projects;
5. lack of frequency of projects; no single organisation controls the whole industry and there are many highly specialised companies;
6. Corruption happens during the whole project cycle which includes project appraisal, detailed design and tendering.

Tarawneh and Sarireh (2013:9) found that road deterioration from the contractor`s perspective is due to contractor individual firm factor rank and group contractor firms grouped rank factors. The following factors contributed to road deterioration. 1. Poor maintenance schedules, 2 ineffective sanctions, 3 poor local standards of work and supervision, 4 delayed laboratory tests, 5 high traffic volumes, 6, no or inadequate drainage systems, 7 no allowance for bad weather conditions, 8 thickness of the road surface and width of pavements, 9, geometry and alignment.

2.7.7 Poor community participation

De Vos (2001:407) defines community participation as the creation of a democratic system and procedure to enable community members to become actively involved and to take responsibility for their own development, to share equally in the fruits of community development and to improve the decision-making power. This is in line with section (152) of the Constitution of the Republic of South Africa which provides that community stakeholders should be involved in the affairs of their communities. Section 16(1) the Municipal Structures Act 117 (Act 117 of 1998) requires each municipality to develop representative government for participatory governance and must encourage and create conditions for the local community to participate in the affairs of their municipality including vulnerable members of the community, people who cannot write, people with disabilities and women. This is mandatory legislation which compels all municipalities to actively engage citizens on issues which affect them and it must not neglect them Irvin and Stansbury (2004:1) found that community participation in government enhances ownership of decisions and discourages rebellion from within. If community members participate in decision-making processes they also contribute in a positive way, namely by collaborating and working towards reaching decisions through consensus. Citizen involvement is aimed at producing better decisions for the benefit of the society.

According to Beierle (1999:75) public participation means educating the public, incorporating public values, assumptions and preferences into decision making, increasing

the substantive quality of decisions, fostering trust in institutions, reducing conflict and making decisions cost-effectively. However, there are challenges with ceding control to bureaucracy because it only pays lip service to the idea of public consultation whilst in reality it is aimed at indoctrinating the public by endorsing the government point of view (Rourke and Macey 2003: 54). It is necessary for the government to engage the citizens before, during and after the project has been completed. Engaging the community generates commitment from them and also strengthens their cooperation. Greater community involvement is encouraged by posting updates on the progress of projects on the website and this exercise of transparency also creates a sense of community participation (A Guide for Local Government Officials 2008:3). Participation goes beyond individuals or communities to involve the private sector. This is done through delegating some responsibilities for services and infrastructure to non-government organisations or just leaving them to private enterprise (Rondinelli 2002:16).

Irvin and Stansbury (2004:15) suggest practical strategies for promoting meaningful effective participation, namely, careful selection of a representative group of stakeholders, the establishment of a transparent decision-making process to build trust among the participants, clear authority in decision-making, the appointment of competent and unbiased group facilitators, the holding of regular meetings and the provision of adequate financial resources to support the decision-making process. However, according to Cornwall and Gaventa (2001:32) tokenism and manipulation, devolved power and citizen control may mean that participants are invited merely to rubber stamp and provide legitimacy for decisions taken beforehand. Citizens are becoming sceptical of this practice.

2.7.7.1 Roles of ward committees

The Municipal Structures Act (Act No. 117 of 1998) was the first piece of legislation to formally introduce the concept of ward committees. Part 4 of Chapter 4 of this Municipal Structures Act sets out the composition and election of ward committees, as well as a framework for the powers and functions of committees, the term of office of committee members and procedures for dealing with vacancies and the dissolution of committees. Ward Committees consist of ten individuals plus the ward councillor who, according to the Municipal Structures Act, must be the chairperson of the committee. Municipalities are required to make rules regulating the procedure to elect members onto the ward committee.

Women should be equitably represented, and a diversity of interests needs to be represented on the committee.

The Municipal Structures Act (Act No. 117 of 1998) limits the statutory powers and functions of ward committees to those of advisory bodies. Section 74 of the Municipal Structures Act states that a Ward Committee may make recommendations on any matter affecting its ward to the ward councillor or, through the councillor, to the council executive committee. Ward Committees can also have any duties and powers delegated to them by the municipal council.

Guidelines for the Establishment and Operation of Municipal Ward Committees were gazetted by the Department of Provincial and Local Government (Notice 965 of 2005). The Guidelines state that the object of ward committees is to enhance participatory democracy in local government. The document describes a ward committee as an advisory body, a representative structure, an independent structure and an impartial body that must perform its functions without fear, favour or prejudice.

The Guidelines offer some possible powers and duties that municipalities may delegate to ward committees, namely:

- a) To serve as an official participatory structure in the municipality.
- b) To create formal, unbiased communication channels as well as cooperative partnerships between the community and the council through:
 - i. Advising and making recommendations to the ward councillor on matters and policy affecting the ward;
 - ii. Assisting the ward councillor in identifying challenges and needs of residents;
 - iii. Disseminating information in the ward concerning municipal affairs e.g. the budget, IDP, performance management system, service delivery options and municipal properties;
 - iv. Receiving queries and complaints from residents concerning municipal service delivery, communicating these to the council and providing feedback to the community of the council's response;
 - v. Ensuring a constructive and harmonious interaction between the municipality and community through the use and co-ordination of ward residents' meetings and other community development forums.

2.7.7.2 Roles of ward councillors

The Department of Provincial and Local Governments (DPLGs) Handbook for Ward Committees details the roles of Ward committees and ward councillors as follows:

- He/she is the chairperson of the Ward Committee.
- Responsible for convening constituency meetings for the election of ward committees.
- Responsible for convening ward committee meetings.
- Arranges ward committee schedules of meetings, constituency meetings and special meetings.
- Works with ward committees to compile annual plans of activities.
- Responsible for ensuring that ward committees live up to their mandate in terms of reporting procedures.
- Responsible for handling queries and complaints in the ward.
- Responsible for resolving disputes and making referrals of unresolved disputes to the municipality.
- Obligated to be fully involved in community activities of the ward.
- Responsible for communicating the activities and meeting schedules to the PR councillor.

In a nutshell, ward councillors have leadership and representational roles and responsibility within the community he/she serves. The Councillor is also required to have the following skills, namely, leadership, chairing meetings, organisational skills and other skills such as team work and relationship building, communication and knowledge in order to enhance his or her performance.

2.7.7.3 Challenges of ward councillors

- Paradza, Mokwena and Richards (2010:93) found ward councillors have no decision-making power over the development projects for the wards they represent, but they are decided upon centrally within the council and at the level of the executive authority structure in the municipal administration. Residents do not see the implementation of development projects they have expressed a need for in their own wards, which undermines participatory democracy.
- Most councillors only receive basic councillor induction training relating to their broad roles and functions as councillors. They lack training in the area of drawing up budgets and financial management.

- There is poor coordination between different municipal service departments where service delivery units may be geographically spread over several towns, making it more difficult for the councillor to oversee.

Paradza et al. (2010:89) found that councillors can influence service delivery and their relationship with the community. The researchers found that the ineffectiveness and lack of transparent oversight and accountability affect service delivery in two ways; 1) there is a lack of a means of public participation by residents and 2) poor access to information on the progress of service delivery by ward councillors renders the municipal oversight role ineffective. The researchers further found that ward councillors are under-capacitated in terms of numbers and `voice` in representing the needs of residents at Council level. They also found that many councillors lacked basic skills to perform their functions effectively, and were frequently accused of not performing their duties honestly and in good faith in the interests of the residents and the municipality. Moreover, new councillors and those who were elected during mid-term were often not well acquainted with the rules and procedures of council meetings and committees while some councillors were found to be lacking basic literacy skills and therefore not able to read and interpret documents such as the Councillors Handbook to inform themselves. The researchers also found that residents appeared to have a very poor understanding of the mandates of councillors and the jurisdiction of local government as a tier of government that is responsible for the provision of particular services and that councillors were appointed to oversee Portfolio Committees without adequate knowledge of or insight into the technical aspects of service delivery

2.8 OTHER CAUSES OF ROAD COLLAPSE OR DETERIORATION

Zumrawi (2015:1) in his study conducted in Khartoum State, Sudan found that road deterioration is caused by the following, namely, climate, poor drainage, construction with low quality materials and expansive subgrade soil. The researcher found that in order to improve the roads, understanding the causes of deterioration would significantly contribute to effective maintenance techniques resulting in prolonged road service life and significant savings for the government.

In their study in Ghana, Twerefou, Adjei-Mantey and Strzepek (2014:1) argued that climate change had an economic impact on road infrastructure using the stressor-response methodology. Climatic change increases costs in terms of maintenance, repairs and lost

connectivity which can be mitigated and avoided by pro-active adaptation measures Schweikert, Chinowsky, Espinet and Tarbert (2014:306). The researchers developed methodological advances and the use of a new software tool, the Infrastructure Planning Support System (IPSS) designed to quantify impacts of both extreme events and incremental climatic changes on road infrastructure in any geographical location throughout the world. Climate change is the single biggest environmental threat faced by humanity but may be mitigated by promoting and supporting the protection of natural resources, energy efficiency, and the reduction of Greenhouse Gases and the use of renewable energy sources. The eThekweni Municipality's sustainability Best Practice Portfolio (2005/6:2) found that high temperatures cause road surfaces to soften and expand as well as rutting and potholes further exacerbated by high traffic volumes. Heavy rains result in flooding, which shortens the life expectancy of highways and roads. All these cause damage which requires more frequent road maintenance, and repairs and rebuilding.

Harischandra (2004:3) identifies the following as deteriorating agents of road infrastructure, namely, high traffic volumes, age, road geometry, weather, drainage, construction quality, and construction material and maintenance policy. The researcher found that potholes and cracks were significantly correlated with age as well as traffic volumes.

CSIR (2000:122) found that the importance of topography on the design and functional use of streets is reflected in the requirements of street drainage and maintenance. In rolling and mountainous terrain there may be steep gradients which result in the erosion of gravel streets and drainage facilities. It is therefore important that the requirements of the layout plan and storm water management be met before embarking on structural design.

The CSIR (2000:103) urges that before any new roads are constructed or existing roads are rehabilitated or upgraded, the relevant authorities should determine the impact on both the biophysical and the socio-economic environments.

2.9 FACTORS PROMOTING GOOD ROAD INFRASTRUCTURE MAINTENANCE

2.9.1 Establishment of a Steering Committee

The key to implementation is consultation. Ideally a Steering Committee comprising major figures in Government from the Roads, Finance, Civil Service, and Local Government ministries should be members. A strong representation from the private sector is also important from bodies such as Chambers of Commerce, Road Associations, National

Coordinating Committees, the Institute of Engineers, Academia, Transport Operators, Agriculture, Tourism, Contractors and Consultants. This Committee should meet every two months. Regular communication with stake-holders is essential and a communications matrix should be prepared detailing recipients, frequency of appearance, information and the medium of transfer (Andreski, et al. 2006:20).

2.9.2 Public Private Partnerships (PPPs)

Pauw et al. (2009:319) define PPP as a contract between a public sector institution and a private party for the delivery of a public service, in which the private body partly assumes the financial, technical and operational risk in the design, financing, building and operation of a project. Rondinelli (2002:4) in his study found that public-private partnerships are employed world-wide in the delivery of services. PPPs are often used in many developing countries to finance railroads, airports and education among others. Consistent with this, Zubane (2011:65) found that public services are not delivered in a vacuum. Both the internal and the external environment have an important role in determining the quality of service delivery. The reason for adopting PPPs is that government alone cannot meet the developmental needs of South Africa. PPPs increase the provision of infrastructure without additional government borrowing or debt. The government and the private sector should combine their efforts and capabilities in order to provide infrastructure which will ensure quality services. The government uses the following strategies for service delivery, namely, collaboration or partnerships, contracting out or outsourcing, privatisation and electronic service models (Rondinelli 2002:4). Poor service delivery is not a problem unique to South Africa. By contracting with a number of suppliers, the government is able to offer sustainable service delivery and determine the real costs of the project. (Rondinelli 2002:4).

Maseko (2014:138) in his study of the analysis of critical success factors for public-private partnerships in infrastructure development in South Africa recommended that there should be an adequate feasibility analysis including technical capability and the availability of funds before any PPP projects are approved. He further recommended that the criteria for selecting private partners should prioritise experience and proven capacity to deliver projects on time within budget together with quality controls, transparency and a competitive edge. Private partners should ensure that they have adequate human and financial resources.

2.9.3 Delegating

Delegation is defined as assigning projects, tasks, and responsibilities with clear authority to be accomplished in a timely and acceptable manner by the effective use of subordinates (Ward and McPhail-Wilcox 1999:15). Delegating some urban services to non-state sectors is crucial for the achievement of productivity and efficiency in municipalities. The municipality is able to plan and manage human resources and capital which creates job opportunities, increases efficiency and by improving the quality of service delivery enhances citizen satisfaction

2.9.4 Asset management

Pauw et al., (2009:129) define an asset as anything which an entity owns and which is durable and has some lasting benefit. It includes fixed assets, intangible assets, investments and current assets. According to Kannemeyer (2002:19) asset management requires the following, namely:

- Policy/procedures: Principles/rules to guide decisions and achieve rational outcomes- what, where, when and how.
- Funding: Financial resources for operation and result implementation.
- People: People make the decisions and the rest are just to support the process.
- Hardware: Road survey equipment and Information Technology.
- Software: Computer-based data analysis and storage tools.
- Data: Knowing what you have, its condition and performance trends.

The above elements are crucial if the Makhado Local Municipality needs to be effective and efficient in managing road infrastructure.

2.10 CONCLUSION

Chapter two discussed the literature review of the study, i.e. road infrastructure on a global and national perspective in order to acquire a deeper understanding of the study topic. Various studies dealing with the same topic have been reviewed in order to find out more about the challenges of maintaining road infrastructure. The chapter also discussed the study area, causes of road collapse, and the effects of poor road infrastructure, the importance of roads, critical factors causing road infrastructure deterioration and factors promoting road infrastructure maintenance. The next chapter focuses on the policy framework regulating road infrastructure in the context of South Africa.

CHAPTER THREE: POLICY AND REGULATORY FRAMEWORK FOR ROAD INFRASTRUCTURE

3.1 INTRODUCTION

Chapter two surveyed the literature regarding road infrastructure maintenance. Chapter three discusses the policy and regulatory framework. According to de Coning and Wissink in Cloete and de Coning (2011:5) policy is defined as a statement of intent or an action plan to transform a perceived problem into a future solution. Policy and regulatory framework is defined as “the existence of the necessary infrastructure which supports the control, direction or implementation of a proposed or adopted course of action, rule, principle or law available at <http://www.caricomstats.org/Justification/Policy/and/Regulatory/Framework:> _Assessed 10/10/2014._ Vulnerabilities and weaknesses within South Africa`s public sector had led to diminished standards of ethics (Pauw et al, 2009:351). This chapter further considers the municipal regulatory framework for road infrastructure development and maintenance and challenges for its implementation. According to Cloete and de Coning (2011:4) policy is defined as a statement of intent or an action plan to transform a perceived problem into a future solution.

3.2 THE MUNICIPAL REGULATORY FRAMEWORK FOR ROAD INFRASTRUCTURE DEVELOPMENT AND MAINTENANCE

The Constitution of the Republic of South Africa 1996 asserts that the local government is responsible for its own development and planning process. The Constitution further empowers local governments to manage, budget and plan in order to deliver the sustainable provision of services, promote social and economic development and a healthy environment, give priority to the basic needs of the communities and encourage community involvement. Various legislative mandates guide the local government in the conduct of procurement processes which will be described separately in this chapter.

3.2.1 The Constitution of the Republic of South Africa, 1996

The Constitution is regarded as the supreme law of the Republic of South Africa and the obligations imposed by it must be fulfilled. Section 217, Procurement, requires that the organ of state in the national, provincial or local spheres of government or any other institution

identified in national legislation, must award contracts for goods or services in a fair, equitable, transparent, competitive and cost-effective manner. Section 152, Objects of local government requires local governments to provide democratic and accountable government for local communities, ensure the provision of services in a sustainable manner, promote social and economic development and a safe and healthy environment and encourage the involvement of communities and community organisations in matters of local government. Section 153, requires that a municipality must structure and manage its administration and budgeting and planning processes to give priority to the basic needs of the community, and to promote the social and economic development of the community and participate in national and provincial development programmes. Section 154 requires that municipalities be in co-operative government, through which the national and provincial governments, by legislative and other measures, must support and strengthen the capacity of municipalities to manage their own affairs, to exercise their powers and perform their functions.

3.2.2 The Municipal Systems Act (Act No. 32 of 2000)

The Municipal Systems Act (Act 32 of 2000) regulates the Integrated Development Planning (IDP). Section 34 of this act requires the Municipal Council to review its IDP annually in accordance with an assessment of its performance in terms of section 41, and where circumstances change, demand that the IDP be amended according to the prescribed process. Section 26 of this Act outlines the core components of IDP. The Municipal Systems Act seeks to boost effective local government by establishing a framework for municipal planning, performance management and use of resources.

3.2.3 The Municipal Finance Management Act (Act No. 56 of 2003)

The Municipal Finance Management Act secures the sound and sustainable management of funds within municipalities and municipal entities. It establishes a regulatory framework for the Supply Chain Management (SCM) which includes procurement processes in municipalities and municipal entities which requires that norms and standards are adhered to. The (SCM) Regulations 7, 30 May 2005 is responsible for all processes which include transparency, accountability and responsibility, demand, acquisition, logistics, borrowing and disposal management. It also attends to bidding processes as well as contract administration and management as well as asset management practices.

3.2.4 The Public Finance Management Act (Act No. 1 of 1999)

The Public Finance Management Act promotes the objective of good financial management in order to maximise delivery through the efficient and effective use of limited resources. The Act enables public sector managers to manage and be accountable, eliminate waste and corruption in the use of public assets, modernise the system of financial management and ensure timely provision of quality information.

3.2.4.1 The Preferential Procurement Policy Framework Act (Act No. 5 of 2000)

The Preferential Procurement Policy Framework Act establishes the manner in which preferential procurement policies are to be implemented. The Act was designed to enable the government to correct the socio-economic imbalances of the past in favour of historically disadvantaged groups. This Act also provides a framework for the implementation of the provisions enshrined in section 217(2) and 217(3) of the Constitution of South Africa, 1996.

3.2.4.2 Broad-Based Black Economic Empowerment Act (Act No. 53 of 2003)

Broad-Based Black Economic Empowerment Act is regarded as a form of economic empowerment initiated by the South African government in order to ensure that the economy is structured and transformed to enable the meaningful participation of the majority of its citizens, thereby creating capacity within the broader economic landscape at all levels through skills development, preferential procurement, enterprise development (small and medium), promoting the entry of black entrepreneurs into the mainstream of economic activity and the advancement of cooperatives. The Act also established a code of good practice to define qualification criteria for the issuing of licences or concessions, the sale of state-owned enterprises and for entering into partnerships with the private sector and the development and implementation of a preferential procurement policy.

3.2.4.3 The Promotion of Equality and the Prevention of Unfair Discrimination Act (Act No. 4 of 2000)

The Promotion of Equality and the Prevention of Unfair Discrimination Act No 4 of 2000, prohibits the state or any person from discriminating unfairly against any person on the grounds of race or gender through the denial of access to contractual opportunities for rendering services or by failing to take steps to reasonably accommodate the needs of such persons.

3.2.4.4 The Construction Industry Development Board Act (Act No. 38 of 2000)

This act establishes the means by which the Board can promote and implement policies, programmes and projects, including those aimed at procurement reform, standardisation and uniformity in procurement documentation, practices and procedures within the framework of the procurement policy of government, through the establishment of:

- A national register of contractors (and if required, consultants and suppliers) to manage public sector procurement risk and facilitate public procurement;
- A register of projects above a certain financial value with data relating to contracts awarded and completed and a best practice project assessment scheme;
- Best practices which establish a code of conduct for the parties engaged in construction procurement.

3.2.4.5 The Prevention and Combating of Corrupt Activities Act (Act No. 12 of 2004)

This act makes the following an offence; the establishment of a register in order to place certain restrictions on persons and enterprises convicted of corrupt activities relating to tenders and contracts. It also places an obligation on persons holding a position of authority to report certain corrupt transactions.

3.2.4.6 The White Paper on Local Government, 1998

The White Paper on Local Government regards the IDP as a mechanism to achieve developmental goals through aligning scarce resources with agreed policy objectives, ensure integration between sectors of local government, enable alignment between provincial and local government and ensure transparent interaction between municipalities and residents, thereby making local government accountable.

3.2.4.7 Performance Management Systems

Armstrong (2015:1) defines performance management as a systematic and continuous process for improving organizational performance by improving the performance of individuals and teams. The Makhado Local Municipality IDP defines the performance management system as a framework that describes and represents how the municipality's cycle and processes of performance, planning, measurement, review, reporting and improvement should be conducted, organised and managed as well as the roles of different role players. It is imperative that it embraces IDP and its implementation for the success of the municipality (Makhado Final IDP 2013/14:13). All municipalities are required by the

Municipal Systems Act to monitor their own performance and must set up a performance management system in line with their resources, priorities and IDPs.

3.3 CHALLENGES FOR THE IMPLEMENTATION OF A REGULATORY FRAMEWORK

3.3.1 Non-compliance with procurement policies and regulations

Pauw et al. (2009:228) define procurement as the acquisition of goods and services for the people by means of commercial transactions to be done with due regard to quality, timeliness and costs, managing risks, accomplishing socio-economic objectives, and upholding integrity. It may involve purchase, rental, leases, hire, licence, tenacity, franchise or any other contractual means of any type of work, services or supplies or any other combination. Ambe and Badenhorst-Weiss (2012:244) define public procurement as the function whereby public sector organisations acquire goods, services and development and construction projects from suppliers in local and international markets, subject to the general principles of fairness, equitability, transparency, competitiveness and cost-effectiveness.

Cloete and de Coning (2011:228) showed that policy failure in South East Asia was caused by poor policy design, bad luck, incompetent policy implementation and negative experience. Brynard (2005:1) holds that the implementation of policy and service delivery in South African public spheres depends on the 5C protocol which is strategically interlinked with content, context, commitment, capacity, clients and coalitions. Brynard (2005:1) further says that it is crucial that policy be redesigned or customised during implementation since the original policy designers did not or could not foresee specific complications at regional and local grass roots level because of a failure to redesign or customise the policy, thus rendering it ineffective.

According to Buthelezi (2011) Levenstein the BEE Consultancy EconoBEE CEO, BEE has made a significant contribution to the development in South Africa. He noted that irregularities such as tender fraud and corruption are the most pressing challenges of the BBBEE Act. Levenstein further noted that “challenges *such as a business being awarded tenders by misrepresentation of their BEE state is one of the problems faced by industry*” and thus prevents tenders from being awarded to deserving parties, thus defeating the objective of the system. Levenstein further indicated that the National Treasury was tasked with amending the Preferential Policy Framework Act (PPPFA) to allow the objectives of the BBEEE to be loosely aligned to those of PPPFA. This allowed people to use loopholes in the tender Act to unfairly tender for contracts from the government. He also sees fronting as another issue within business. Fronting is regarded as anything that misrepresents a BEE score. Businesses

have been given the opportunity to rectify their score cards within a limited time. There is also the need to train officials to acquire advanced knowledge of BBBEE to correctly implement the new requirements. He further stated that more should be done in order to inform people about businesses which were using fraudulent scorecards in order to raise awareness among the consumers, thereby decreasing the occurrence of fraud allegations.

Migiro and Ambe (2008:235) found the following challenges in municipalities regarding compliance with legal obligations,

- Non-compliance with Supply Chain Management (SCM) guidelines and policies is still a major constraint in the provincial departments.
- Ordering small quantities by splitting the orders is a practice used to avoid compliance with the SCM guidelines/regulations.
- Lack of clarity in SCM guidelines is a reason for non-compliance with procurement procedures.
- Lack of supplier's knowledge about SCM regulations and policies prevents them from complaining about irregularities of SCM officials.
- Lack of officials with technical know-how (e.g. Engineering, IT, regulations Etc.) enhance non-compliance with SCM procedures and guidelines.
- SCM officials and suppliers collaborate to defraud the departments.
- Renewing an existing contract is often considered an option instead of awarding a new contract.

Sieber (2014) revealed the tricks used by public officials and private firms to defraud the lucrative road-building sector. The researcher revealed that fraud can occur during the tendering process in many ways, i.e.

- The tender criteria may be distorted in favour of a particular bidder;
- Information may be leaked for the benefit of the bidder;
- Data from a tender evaluation process may be falsified;
- There may be collusion between bidders;
- There may be bribery by bidders of the project owner's representative and/or engineer
- There may be extortion from bidders by the project owner's representative and/or engineer.

Fraud and corruption as well misrepresentation in the form of fronting are found to be the most common challenges for BEE according to Migiro and Ambe, Levenstein and Sieber.

3.3.2 Lack of proper knowledge, skills and capacity

In his argument, Wilson (1887:197) writes;

“...it is getting harder to run a constitution than to frame one”, meaning that the executive activities of the government are so complex that it is impossible for a public official without specific training, equipped with only a lay knowledge of government activities, to cope successfully with this executive functions because “... mere unschooled genius for affairs will not save us from sad blunders in administration”.

Makhinde (2005:63) found that policy implementation depends on knowledge, skills and capacity otherwise it will end in failure. He further argues that the administrative competence of any government should be judged according to how successfully the gap between the intentions of the policy and the actual achievement is bridged. Capacity is defined as the ability of the organisation to fulfil its goals (Bryan 2011:2). It involves six dimensions, namely human resources, financial resources, information technology, expert knowledge, stakeholder commitment and collaboration. Lack of capacity inhibits service delivery (Bryan 2011:2) while lack of requisite technical skills is evident in South African municipalities which are a root cause of poor service delivery (Mdlongwa 2014:1).

According to Khosa (2003:49) in his notes on a project entitled “Closing the gap between policy and implementation in South Africa”, the discrepancies between policy and implementation is caused by unrealistic policies and a lack of managerial expertise. The researcher further found that policy implementation suffered because of a people-driven process and poor coordination which significantly hampered the implementation of policies as well as insufficient staffing and inadequate capacity in all three spheres of government which have an adverse effect on service delivery.

3.3.3 Inadequate measures for monitoring and evaluation of the Supply Chain Management

Monitoring is defined as a continuous function that uses the systematic collection of data to provide management and the main stakeholders with information about the progress and achievement of objectives and the use of allocated funds. The Organisation for Economic Cooperation and Development (OECD) (2002a:27). The purpose of monitoring is to exert control, learn lessons and improve the system over time (Andreski et al., 2006:21). Evaluation is defined as the systematic and objective assessment of an on-going or completed project, programme, or policy, including its design, implementation and results. The aim is to

determine the relevance and fulfilment of objectives, its progress, efficiency, effectiveness, impact and sustainability. Evaluation should provide information which is credible and useful, enabling lessons to be learned for the decision-making process of both recipients and donors (OECD, 2002:21).

According to Acevedo, Rivera, Lima and Hwang (2010:1) effective policy-making requires information on whether governments are doing things correctly and whether they achieve the intended results. An effective monitoring and evaluation system provides the basis for sound governance and accountable public policies. Inadequate monitoring and evaluation makes it difficult for government bodies to implement SCM as required by the policy. According to Stemele (2009:22) the national and provincial governments have noticed irregular, unauthorised, fruitless and wasteful expenditure that contravene laws and regulations. Without evaluation, there can be no accountability. Hanna, Bishop, Nadel, Scheffler and Durlacher (2011:1) found that monitoring and incentives, both financial and non-financial, have the potential to reduce corruption.

3.4 CONCLUSION

This chapter considered legislation regulating the procurement process and its importance. It further discussed the challenges that affect procurement processes within the local government leading to poor service delivery. These regulations were equity, transparency, competitiveness and cost-effectiveness. The effectiveness of this legislation is dependent upon community involvement which promotes social and economic development. The next chapter discusses research design and methodology.

CHAPTER FOUR: RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

The previous chapter discussed the legislative or regulatory framework which deals with road infrastructure. This chapter addresses the research design and methodology used for this study. It discusses research design and methodology, aims of the research design, population of the study, sampling methods and types. Also issues of biographical information, data collection, ethical issues, data processing and analysis and validity and reliability receive attention. According to (Mouton 2008:107) research design is defined as a route planner on how to address the research problem. Babbie (2008:96) defines a research design as a plan for an intended study which includes the determination of what is going to be observed and analysed based on why questions.

4.2 DESCRIPTION OF THE STUDY AREA

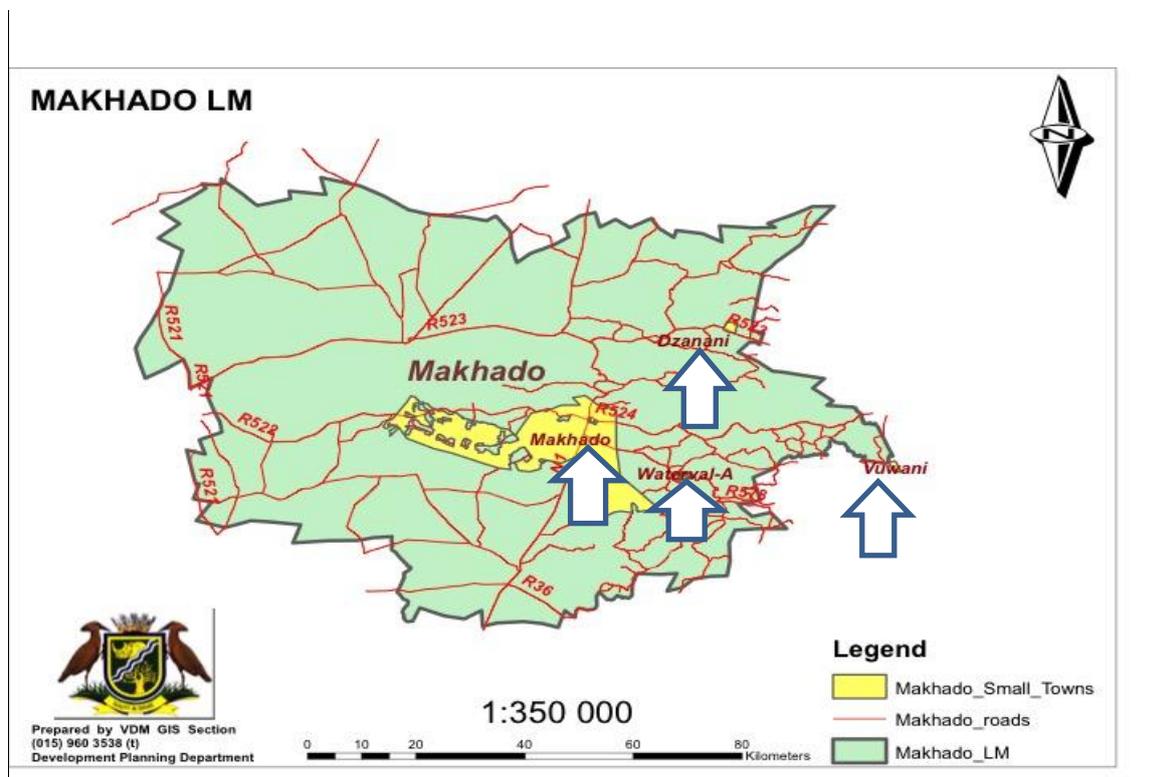
4.2.1 The origin of the Makhado Local Municipality

The Makhado Local Municipality is a Category B Municipality which was established in accordance with the Local Government Municipal Structures Act (Act 117 of 1998). It was formerly known as Louis Trichardt Town Council from 1934. It was also a former white area with intermediate high service levels while former black areas had limited access to services (White Paper on Local Government 1998:13). The vision of the Makhado Local Municipality is to promote peace, harmony and prosperity. The town was merged with three townships namely Dzanani, Vuwani and Waterval together with other rural communities following the promulgation of the Municipal Structures Act 117 of 1998. The population of these towns is increasing at a high rate due to migration from rural areas to urban areas. Most of the people living in these towns are middle class. Almost all households have a car but unfortunately road infrastructure has not kept pace with the ever growing population.

4.2.2 Location and description of the Makhado Local Municipality

The Municipality is located in the north of Limpopo Province (coordinates 23° 00' 00'' S 29° 45' 00'' E) approximately 100km from the Zimbabwean border along the N1 Route. The municipal area is 856 738ha in size and has a population of approximately 516 031 people. It is classified as predominantly rural due to the rural populace (Makhado Municipality Integrated Development Plan 2013/14). See Makhado Local Municipality Map in figure 1 below.

Figure 1: Makhado Local Municipality Map



Source: Vhembe District Municipality: GIS Section

4.2.3 Current road infrastructure conditions in the Makhado Local Municipality

According to the Makhado Local Municipality Integrated Development Plan (IDP) (2012/13-2016/17:24) most of the Makhado Municipal roads are in a bad condition and require upgrading especially in summer during heavy rainfalls. In certain rural areas where there are informal business activities, signs of decay are evident due to roads that have not been maintained and upgraded. This has resulted in a situation where certain properties are not easy to access. The total road and storm water management system backlog is estimated at

approximately 4400 kms. The Makhado Local Municipality is made up of Waterval, Vuwani, Dzanani and Makhado. The Vuwani area has the largest backlog followed by Dzanani.

The Municipality is currently upgrading some of the roads from gravel to tar which involves grading, gravelling, paving or tarring and kerbing. The storm water drainage is an earth-lined open channel and pipe system but most of the roads have no storm water drainage at all. The roads are surrounded by grass and are full of potholes. Some areas such as Makhado, Dzanani and Waterval are too steep for road building because of their mountainous terrain. According to the CSIR (2010:2) potholes are attributed mainly to insufficient routine, periodic or preventative road maintenance before the peak summer, unusually wet conditions over a sustained period, ineffective, delayed or lack of repair of existing potholes and overloaded or excessively heavy vehicular traffic.

The Makhado Local Municipality boasts very beautiful houses, but the streets are without a storm drainage system. People have been forced to install pipes to drain water from their premises while; some have placed stepping stones on the ground to reach their houses to avoid ditches which run through their driveways to their garages. The state of these roads devalues the houses. The municipality has indicated that it has a programme to upgrade and rehabilitate the streets whereby potholes will be fixed with gravel and cement instead of tarmac. Streetlights have been out of order for too long, pavements are damaged and stop signs and street names have been removed in some streets. The community is not safe when using the roads here because they are at risk from colliding of cars trying to dodge the potholes, injuries, handicaps, post-accident traumatic stress and deaths. Furthermore, cars sustain, e.g. tyre bursts and wheel alignment problems due to poor road conditions causing motorists extra financial costs to repair them. At times residents had to fill the potholes with soil and cement because of the seriousness of the road challenge which are not suitable materials as they are easily washed away during rainy seasons.

4.3 RESEARCH DESIGN AND METHODOLOGY

The research used a quantitative research design, chosen to ensure the collection of relevant information of questions asked to enhance reliability and avoidance of bias. Du Plooy (2009: 85) defines research design as a plan of how the research is to be conducted, indicating who or what is involved, and where and when the study will take place.

4.3.1 Quantitative research design

Terre Blanche, et al. (2014:47) defines quantitative data as data which can be expressed numerically for the purposes of statistical analysis. According to Davies (2007:9) a quantitative design is used to obtain answers pertaining to the questions by applying scientific procedures to make these answers relevant to the questions raised.

The quantitative method was chosen because it ensures that data is expressed numerically and may be analysed using standard statistical techniques to test validity (Crowther and Lancaster 2009:75). The research study used the following techniques to collect data, namely, questionnaires, observation and documentary analysis from the Makhado Local Municipality within the four towns of Dzanani, Vuwani, Makhado and Waterval among road users, municipal officials, councillors and ward committee members in order to understand the major challenges of maintaining road infrastructure in the Makhado Local Municipality.

4.4 AIMS OF THE RESEARCH DESIGN

The research was aimed at exploring, describing and explaining the phenomena in question, which is to investigate the critical challenges of maintaining road infrastructure in Limpopo Province with reference to the Makhado Local Municipality.

4.4.1 Exploration

Babbie, Mouton, Vorster and Prozesky (2001:79) aim at exploring the nature of the problem and the key factors. Bink and Woods (1998:283-286) examined the relevant factors in detail to arrive at the appropriate cause of the reality of the existing situation. According to Du Ploy (2009:50) exploratory studies are aimed at unknown areas of research in order to obtain new insights as part of a pre-test or pilot test. They are also used to identify key concepts and key stakeholders, prioritise social needs, identify consequences of communication problems, develop hypotheses, generate new ideas and confirm assumptions and finally address unknown situations, conditions, policies and behaviours. Uys and Basson (1991:38) define the characteristics of an explorative design as follows; it is a flexible research design that provides an opportunity to examine all aspects of the problem being studied; it strives to develop new knowledge and the data may lead to suggestions or hypotheses for future studies.

This study explores the key factors contributing to the collapse of Makhado Municipal roads. It also tries to investigate the full nature of the phenomenon, i.e. the collapse of roads, the

manner in which it occurs and related factors in order to provide a better insight and understanding of why road infrastructure is continually collapsing. The study also aims at exploring the nature of the problem and what other factors are involved.

4.4.2 Descriptive

Babbie et al. (2001:75) is a descriptive study concerned with what happens. Descriptions can either be concrete or abstract. Accurate descriptions play a key role in policy reforms. Through demonstrating the existence of social problems, a competent description can challenge accepted assumptions provoke actions. According to Waltz and Bausell (1981:7) descriptive designs assist in developing theories, justifying current practice, making judgements and determining what others in similar situations are doing. The researchers show that descriptive designs identify problems in natural settings that involve no attempts to introduce something new or to modify or control a phenomenon. According to Burns and Grove (2005:293) descriptive design provides perceptions and views of the phenomena.

The study describes the state of roads in the Makhado Local Municipality and explores how it affects residents. As a descriptive study, the research explores the magnitude of the problem as well as the relationship between road infrastructure and the quality of life by asking those affected relevant questions. The study will also yield more data which will influence policy reform.

4.4.3 Explanatory

According to Polit and Hungler (1993:15), explanatory research is concerned with why questions in order to develop causal explanations. Research design development is affected by whether the research question is descriptive or explanatory. Explanatory research seeks to explain what the underlying cause of the phenomenon is, what does the occurrence of the phenomenon mean and why does the phenomenon exist. Du Ploy (2009:52) indicates that the direction of a cause-and-effect relationship between an independent and a dependent variable can be undertaken as predictive research. The research provides an explanation for the underlying cause of road collapse and its implications for the residents of the Makhado Local Municipality. The study uses questionnaires in order to find out the underlying causes of road collapse from the respondents.

4.5 SELECTION OF SAMPLING METHOD AND RESEARCH AREAS

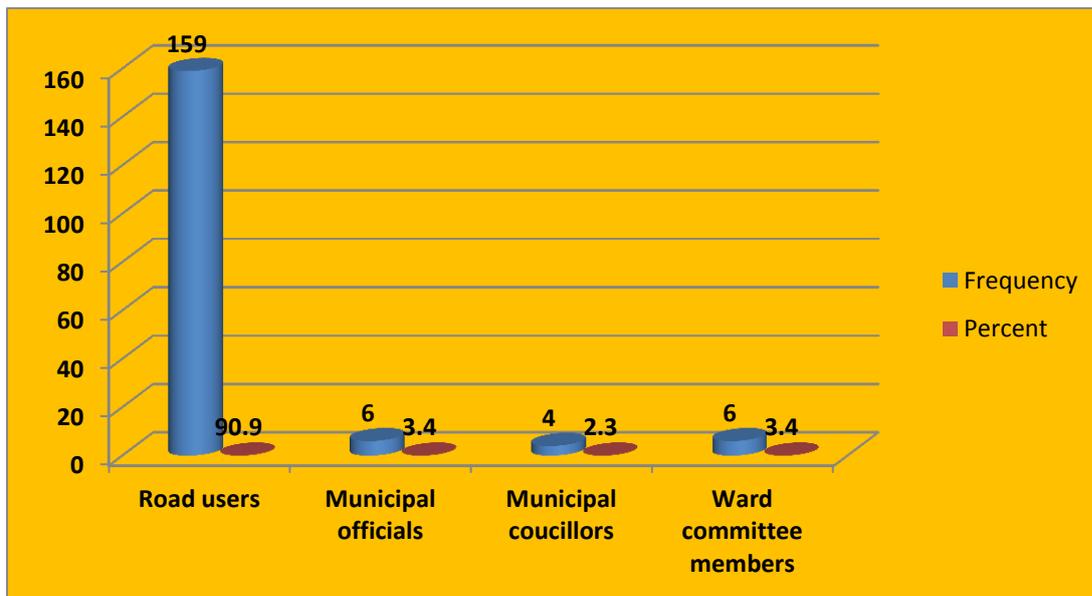
Sampling is regarded as the process of selecting a proportion to represent the entire population. Welman et al. (2005:52) define population as the full set of cases from which a sample is taken. According to Bayat and Fox (2007:52) population is any group, individuals, events or objects that have something in common while representing the whole sum of total cases that are involved in a study. The study focuses on four towns only in the Makhado Local Municipality, namely, Makhado, Dzanani, Vuwani and Waterval with a total population of 27 190 who are the road users. The population of the four towns is as follows, Dzanani (5 673), Vuwani (2 791), Makhado (11 014) and Waterval (7 712) (Stats South Africa 2011). The study also involves Makhado Local Municipality officials, regarded as internal participants, namely those responsible for technical services dealing with road infrastructure as well as procurement staff (finance division), councillors and ward committee members. The unit of analysis is the person (pedestrians and drivers) and tarred roads in those four towns. Due to the vast population, it is impossible to use the entire population as a study group which therefore necessitates that a subset be selected and studied and generalised for the entire population (Melville and Goddard 2001:34).

Sampling is the process of selecting a subset that represents the entire study population. The sample size for the study was 264 individuals to whom questionnaires were handed. 175 participants completed the questionnaires with a confidence level of 95%. This population comprises those living in the four above-mentioned towns only (Stats South Africa 2011). By the 30th September 2012 the entire Makhado Local Municipality had the following number of vehicles, 5689 in Dzanani, 32 254 in Makhado and Waterval, as well as 5 677 in Vuwani. The findings of the study can be generalised for the entire population since the Makhado Local Municipality is responsible for the road infrastructure of the whole area including the gravel roads.

The study is a purposive sample. Polit and Hungler (1993:44) define a purposive or judgemental sampling as a type of non-probability sampling method in which the researcher selects subjects for the study on the basis of personal judgement about which ones will be most representative or productive. Purposive sampling was chosen in order to ensure that groups and/or population parameters found in the target population are represented in the sample in order to clarify or deepen understanding of the critical causes and effects of road infrastructure collapse.

A total number of 175 respondents were sampled, comprised of 159 (90.9%) road users, 6(3.4%) municipal officials, 4(2.3%) municipal councillors and 6 (3.4%) ward committee members. The biographical information of the respondents is given below. For interviews, a total of 11 participants were targeted. 5 road users were targeted of whom 2 were interviewed, 2 municipal officials were targeted of whom 1 was interviewed and 4 ward councillors of whom 2 were interviewed. See figure 2 of sample study below:

Figure 2: Sample study



4.6 DATA COLLECTION

According to Terre Blanche et al. (2012:51) data are basic materials which researchers work with. Crowther and Lancaster (2009:77) outline various research approaches to collecting data, namely, secondary data collection, case studies, experimentation/ethnographic, interviews, observation and surveys. Primary data was collected through self-administration of questionnaires, while secondary data was collected from journals, articles and dissertations. This study used both primary and secondary data through the following data collection methods, namely, questionnaires, observation and documentary analysis. Each method of data collection is discussed separately.

4.6.1 Questionnaires

According to Polit and Hungler (1993:444) a questionnaire is regarded as a document which is used to gather personal information from respondents given in written form by the

respondents themselves. The subjects are asked to respond to exactly the same questions in the same order and given the same set of options for their responses. Multiple choices, known as closed-ended questions or fixed alternative questions are designed by the researcher, and range from simple to complex expressions of opinion. The method of data collection was chosen in order to ensure comparability for responses and to facilitate analysis.

For this study, a total of 264 questionnaires were distributed to respondents as follows, 8 Municipal officials, 8 ward committee members, four ward councillors and 60 road users in each of the four towns Makhado, Vuwani, Waterval and Dzanani. From the 264 distributed, 175 questionnaires were returned from 159 road users, 6 municipal officials, 4 municipal councillors and 6 ward committee members.

4.6.2 Observation

Crowther and Lancaster (2009:110) regard observation as an important and useful way of generating primary data particularly in the social sciences as well as in management and consultancy. Observation ranges from relatively non-participatory techniques which include the recording of events and activities in an organisation. For this study observation was used as a method of collecting data in order to note and record events relating to road infrastructure within the four towns in the Makhado Local Municipality. Observation makes it possible to exercise control in the study.

According to Dahlberg and McCaig (2010:118) observation is defined as recording incidents and looking for certain actions. Direct observation was conducted in the four towns of Makhado, Vuwani, Waterval and Dzanani focusing on the condition and effects and behaviour of the Municipality relating to road infrastructure, the applicability of a legal framework as well as the critical causes of the collapse of the road infrastructure. Some pictures illustrate the state of road infrastructure in Annexure Three of the four towns in the Makhado Local Municipality. Observation as a method of data collection was used in this study in order to generate valid and reliable data with minimal errors. The pictures show that the municipality has poor road infrastructure in the four towns of the Makhado Local Municipality. They show substandard work on road building and no adequate road infrastructure maintenance. In some areas the tarmac has almost worn away and nothing has been done to replace it. The road has a large number of potholes which put the lives of residents in danger of accidents, car damage, and injury with resultant deaths.

4.6.3 Documentary analysis

Dahlberg and McCaig (2010:118) define documentary analysis as an intensive analysis of either 'official' or personal documents. In order to maintain validity various documents were reviewed and analysed relevant to the study. Documentary analysis was crucial in order to view the trend of operations of road infrastructure development and maintenance. The documents included the Integrated Development Plan, the Annual Performance Plan, Audit reports including road infrastructure projects as well as the asset registers for road infrastructure and annual reports from the Makhado Local Municipality.

Documents of various years from 2012-2015 were compared in order to analyse how issues on road infrastructure evolved.

Table 3: Staff establishment of the Makhado Local Municipality road infrastructure

Post	Filled	Vacant
Director Technical	1	0
Manager Civil Engineering	0	1
Secretary	1	0
Operators	3	0
Stormwater drainage	0	1
Assistant Superintendent	0	1
Team leader: Potholes, repair and sidewalks	1	0
Tipper truck drivers	3	0

Source: Makhado Local Municipality: Staff Establishment

The above table shows that there is a very serious problem in the Makhado Local Municipality since critical posts are not filled including those of heads of Civil Engineering and Stormwater drainage and the post of assistant superintendent. This compromises service delivery since important posts are vacant. It also explains the current state of the roads caused by the lack of staff with the necessary skills in the municipality.

Table 4: List of completed road infrastructure projects for 2013/2014 in the Makhado Regional Towns (Makhado, Vuwani, Dzanani and Waterval)

Project Name	Location/ Ward	Budget	Funding Source	Start Date	Completion Date
Rehabilitation of street	20	4,450,665. 24	MIG	01/07/2013	31/03/2014
Refurbishing of Eltivillas CBD streets	20	6,618,091.6 1	MIG	01/07/2013	31/03/2014
Kingfisher N1 intersection	20	5,000,000, 00	MIG	01/07/2013	30/06/2014
Resealing of streets in Makhado Town(Krogh, Jeppe and Kruger	21	6,491,500. 00	MIG	01/07/2013	30/06/2014
Eltivillas extension (3km)	20	5,335,482. 93	MIG	01/07/2013	31/04/2014
Waterval street rehabilitation	16	8,206,221. 15	MIG	01/07/2013	30/09/2013

Source: The Extraction from Makhado Final IDP 2013/14

The above table of road infrastructure planning shows that there are few roads which have been planned for 2013/14. The plan shows that the roads which are to receive attention are in Makhado and Waterval but not in Dzanani and Vuwani towns. The pace of development of road infrastructure projects is very low compared with the influx of people into the towns, leading to road congestion and overload, all of which are further aggravated by delayed maintenance and repair programmes.

4.7 DATA PROCESSING AND ANALYSIS

This study used the Likert scale to process and analyse data collected from respondents. Neuman (2006:207) defines the Likert scale as one often used in surveys in which people express attitudes or other responses in terms of ordinal-level categories, e.g. agree/disagree that are ranked along a continuum. Welman et al. (2005:156) distinguished four different types of attitude scales, which comprise sets of items that measure different degrees of attitudes, namely the summated or Likert scale, the semantic differential, the Guttman scale and the Thunderstone scale.

This research used the summated or Likert scale to measure multidimensional attitudes. Closed-ended questionnaires which had been answered by the respondents using the Likert

scale were analysed with the Statistical Package for Social Sciences (SPSS) in order to measure attitudes and perceptions. The open-ended questionnaires were analysed using content analysis comprised of variables with four categories of responses scored as (4=strongly agree, 3=agree, 2=disagree, 1=strongly disagree). Data was coded and then captured on a computer in order to proceed with the analysis. The data collected was then organised and analysed in order to make sense of it through graphical presentations and narratives. Data collected through questionnaires, documentary analysis and observation were analysed and interpreted as well.

4.7.1 STATISTICAL ANALYSIS

4.7.1.1 Statistical software

This study used SPSS Statistics 17.0 Brief guide as the statistical software for data analysis. SPSS 17.0 is a comprehensive most widely used program for analysing data in social sciences. It is a complete statistical package that is based on a point and click interface. SPSS has almost all statistical features available and is widely used by researchers to perform quantitative analysis.

4.7.1.2 Descriptive statistical analysis

The data was summarised and presented by making use of descriptive statistics. Tables, charts, graphs and percentages were used in the presentation of the findings. The mean, standard deviation, minimum and maximum values for all scaled questions were also computed and used to interpret the findings.

4.7.1.3 Inferential statistical analysis

The T-test and ANOVA were used to assess the strength of relationships between variables and the chi-square to test whether the values differ significantly from a specified population. The interpretation used tables to show specified values, bar charts and multiple bar charts. In addition pie chart and bar charts were used to show proportions. The computed values are attached in the appendices section.

4.8 RELIABILITY AND VALIDITY OF THE STUDY

4.8.1 Validity

Validity refers to the extent to which a test or instrument measures what we actually wish to measure. (Krishnaswamy, Sivakumar and Mathirajan 2009:265). According to Neuman

(2006:196) validity helps researchers to obtain authentic data and ensures objectivity by using different sources of data collection to reach that goal rather than using only one version of the truth. Polit and Hungler (1993:448) define validity as the degree to which an instrument measures what it is intended to measure. Validity ensures that findings are generalizable to other similar situation elsewhere (McNabb 2010:39). In this study validity was attained through an extensive literature review and a variety of different methods of collecting data. For this study the findings are generalisable to other similar situations since all local municipalities are subjected to the same legislation which governs a municipality’s road infrastructure maintenance schedule.

4.8.2 Reliability

Reliability refers to the extent to which a measure indicates the stability and consistency with which the instrument measures the concept (Krishnaswamy et al. 2009:267). According to Smith (1975:58) reliability should lead to the same results when the same methods are used by different researchers. According to Crowther and Lancaster (2009:80) reliability relates to the extent to which a particular data collection approach yields the same results on different occasions. Du Ploy (2009:28) describes reliability as consistently obtaining the same answer when researched at different points in time. This study employed similar questionnaires for different groups of respondents, literature review and observation.

The Cronbach’s alpha indicator that was used to test for reliability indicates the overall reliability of a questionnaire. According to Field (2009:675), the values around 0.7 and 0.8 are good for reliability tests. Reliability tests performed yielded the results that are presented in the chart below.

Table 5: Reliability Statistics

Cronbach's Alpha	Number of Items
0.774	20

As far as the quantitative data is concerned, the questionnaire was subjected to a Cronbach Alpha test resulting in a 0.774 score. The score exceeds the acceptable level of validity which is 0.70.

4.9 ETHICAL CONSIDERATIONS RELATED TO DATA COLLECTION

According to Melville and Goddard (2001:49) ethical considerations are very important since it involves people in collecting data. These people need to be protected from any harm, respected as individuals, need privacy and not be subjected to unnecessary research. A letter was written to the Makhado Local Municipal Manager requesting permission to conduct the research on investigating critical challenges of maintaining road infrastructure in four towns in the Makhado Local Municipality in Limpopo Province. All ethical considerations were taken into account when the information was gathered. Participants were clearly and accurately informed about the purpose of research for so that they would be able to participate and complete the consent form. This consent form, which explains aspects of a study to participants and asks for their voluntary agreement to participate, was provided for all, to be completed before answering the questionnaire. The researcher ensured that participants knew and understood their rights to participate or not and their right to terminate or continue with the research study at a given time without coercion. The participants were assured that their confidentiality as well as anonymity would be guaranteed and no information would be released that might link specific individuals to specific responses.

4.10 CONCLUSION

Chapter four outlined the research method and research design of the study. The chapter showed how the research design and methodology were employed. This study used quantitative research design and analysed the data through standard statistical techniques. The study included the description of the study area, the purpose of the study, selection and sampling method and research areas and their significance. The study employed purposive sampling in order to clarify and increase understanding critical causes of road infrastructure in the Makhado Local Municipality. Various data collection methods were used, such as questionnaires, observation and documentary analysis in order to triangulate the research findings. The study considered ethical aspects through obtaining consent from the respondents so that their rights are not violated. Data analysis was done through statistical software, descriptive and inferential statistical analysis. The next chapter presents the results of the data analysis.

CHAPTER FIVE: PRESENTATION AND INTERPRETATION OF RESEARCH RESULTS

5.1 INTRODUCTION

The previous chapter discussed the research design and methodology of the study. The purpose of this chapter is to present and interpret the empirical findings of this research. In interpretation, the immediate results are translated into integrated and meaningful statistics and findings. During the data collection process mixed methods were utilized to obtain the information, namely, observation, documentary analysis and questionnaire among the four towns in the Makhado Local Municipality. The respondents included road users, municipal officials, municipal councillors as well as ward committee members. This chapter aims to address the objectives of the study namely; to determine the condition and effects of municipal road infrastructure within the Makhado Local Municipality; to examine the legal framework governing the local municipality in the context of road infrastructure provision and maintenance; and to recommend strategies to address the challenges of road infrastructure within the Makhado Local Municipality.

5.2 RESULTS AND DISCUSSIONS

Data obtained from the observations, questionnaires and documentary analysis was analysed and interpreted. The results obtained through survey questions are illustrated using tables, graphs and charts. This chapter reveals the responses on a question-by-question basis. Results from all sections of the questionnaire are also compared to existing empirical evidence to assess consistency. Results collected from the above mentioned data collection methods are presented and discussed separately.

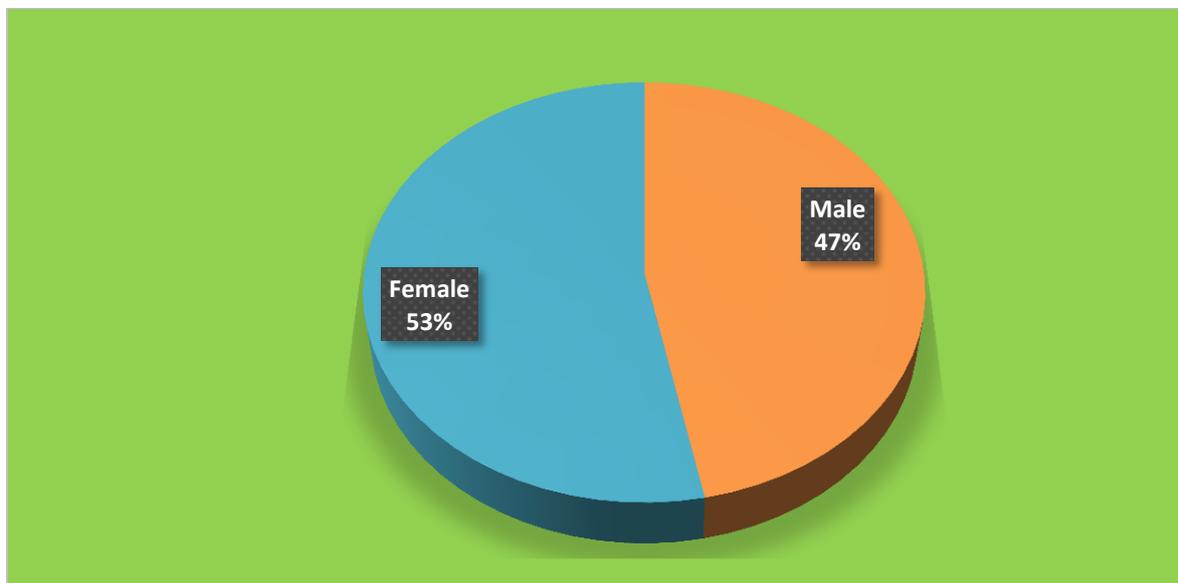
5.3 DATA COLLECTED THROUGH QUESTIONNAIRES

Data collected from questionnaires distributed to road users from the four towns of Makhado Local Municipality, namely, Makhado, Dzanani, Waterval and Vuwani, municipal officials, municipal councillors. The questionnaire was designed to cover the following aspects, namely, biographical information, perception on condition and effects of the road, regulatory framework underpinning road infrastructure maintenance and development and causes of such a state of roads. The SPSS programme was used in order to analyze data.

5.3.1 Biographical information

Biographical information refers to the respondent's personal information, namely age, gender, address, transport type and educational qualification. It distinguishes one individual from another. According to Maswanganyi (2016:54) biographical information outlines the type of people that participated in the research and it can be used to determine and influence the premise on which the conclusions are reached. Biographical information gathered will then be analysed as below.

Figure 3: Gender of respondents



There is a need to determine the gender of respondents in order to enable the researcher to make demographic inferences concerning them. Figure 3, depicts the gender of respondents. Demographic inferences are significant in a research study to counter the risk that perceptions might be gender biased. The pie chart above shows that more females participated 93 (53%) while their male counterparts accounted for the remaining 82 (47%). The findings indicated that women in towns have an interest in the quality of services that affect their daily lives.

Figure 4: Age of respondents

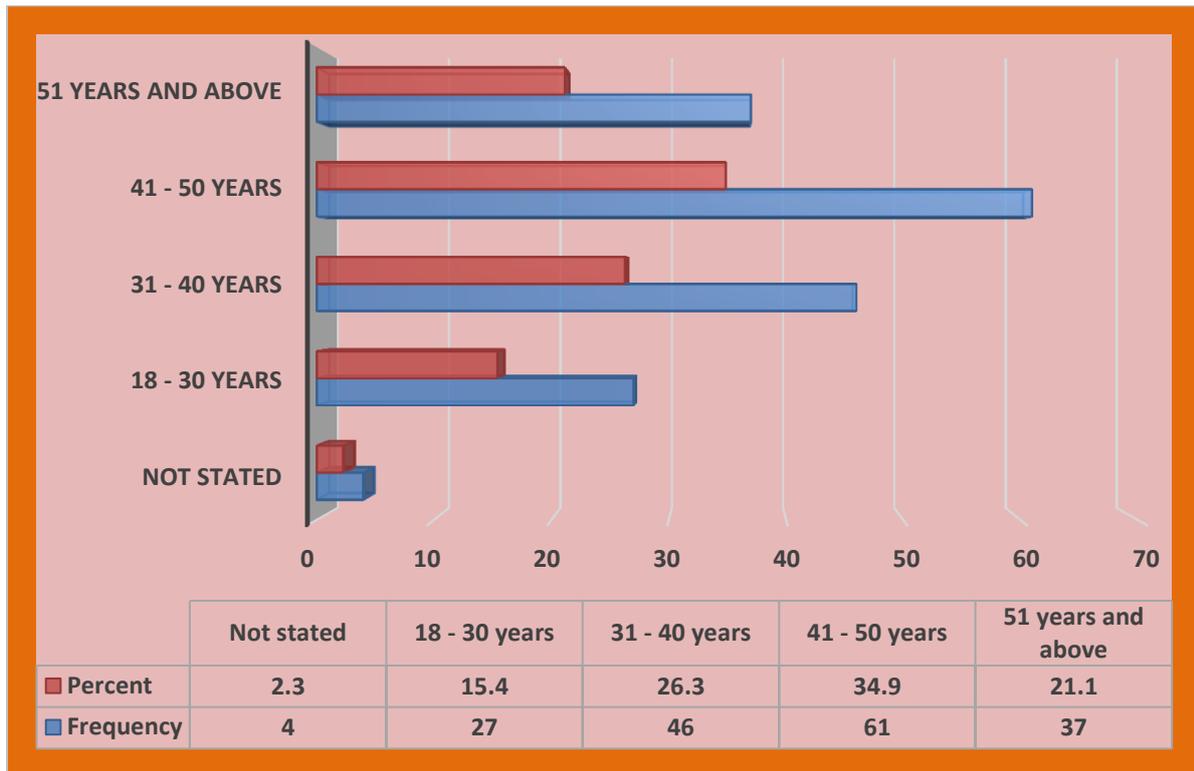
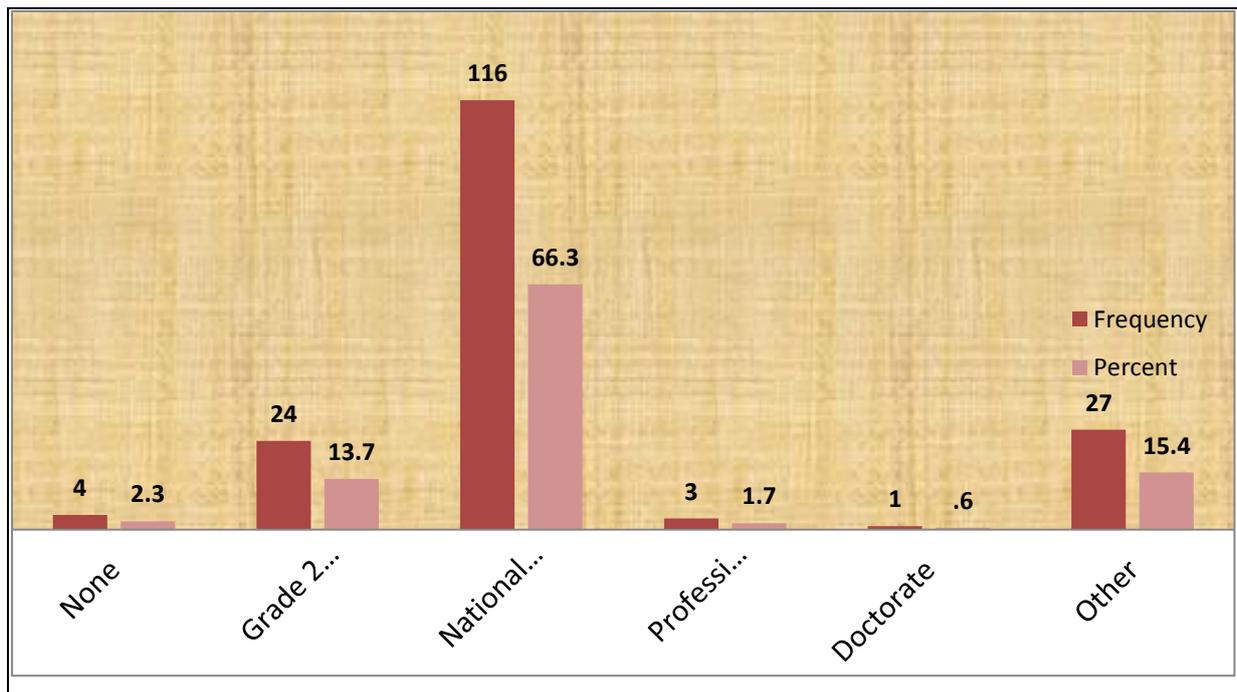


Figure 4 shows the age groups of respondents. The age groups range from 18 to 51 and above. The figure shows that 61 respondents are between the ages 41-50 years(34.9%), 46 between 31-40 years, (26.3%), 37 27 above the age of 51 (21.1%), while 27 (15.4%) respondents are between the ages 18-30 years. 4 (2.3) of the respondents did not state their age. The response shows that the Makhado Local Municipality comprised a youthful to middle aged population between 31-50 years. Age groups are important to assess how far infrastructure issues affect different age groups.

Figure 5: Educational background of respondents



Educational levels reflect the differences in opinion between respondents. The level of education is often associated with income and can be used to indicate the respondents' economic state. Information on educational background was elicited to enable the researcher to analyse the impact of education on job mobility and to determine respondents' literacy level. The above response indicates that the majority of respondents, 116, had attained the National Diploma/ Basic degree (66.3%) while others, 27 in number, accounted for 15, 4%. 24 respondents (13.7%) 2 had achieved grade 2-12 and only 3 (1.7%) had a professional qualification. 4 respondents (2.3%) had no qualification. This shows that the majority of people living in the four towns are fairly educated. The response showed that there was a small number of professional qualifications; they included the holder of a Certificate in the Theory of Accounting (CTA), a Chartered Accountant (CA), an Engineer and the holder of a Doctorate. The importance of these professional qualifications reflecting skills, knowledge and expertise can never be undermined if the Makhado Local Municipality wants to achieve quality road infrastructure.

Table 6: Residence of respondents

Residence	Number	Percent
Not indicated	12	6.9
Makhado	58	33.1
Dzanani	41	23.4
Vuwani	36	20.6
Waterval	28	16.0
Total	175	100.0

The table above gives a breakdown of respondents' residence details in the four suburbs or towns, namely, Makhado, Vuwani, Waterval and Dzanani. 60 questionnaires were distributed in each town. It is also important to know the residence of the respondents since it will also assist the researcher to determine which community is more affected in order to compare and contrast those areas. The study shows the following responses according to residence:

Respondents from Makhado accounted for 58 (33.1%), followed by Dzanani with 41 (23%), Vuwani 36 (20.6%), Waterval 28 (16.0%) while those who did not indicate their residence accounted for 12 (6.9%).

Table 7: Respondents by gender and age

Study population		Age					Total
		Not stated	18 - 30 years	31 - 40 years	41 - 50 years	51 years and above	
Road users	Male	2(2.8%)	13(18.1%)	21(29.2%)	18(25.0%)	18(25.0%)	72(45.3%)
	Female	2(2.3%)	13(14.9%)	23(26.4%)	36(41.4%)	13(14.9%)	87(54.7%)
	Total	4(2.5%)	26(16.4%)	44(27.7%)	54(34.1)	31(19.5%)	159(100%)
Municipal officials	Male	0(0%)	0(0%)	0(0%)	2(40%)	3(60%)	5(83.3%)
	Female	0(0%)	0(0%)	1(100%)	0(0%)	0(0%)	1(16.7%)
	Total	0(0%)	0(0%)	1(16.7%)	2(33.3%)	3(50%)	6(100%)
Municipal councillors	Male	0(0%)	0(0%)	1(50%)	1(50%)	0(0%)	2(50%)
	Female	0(0%)	0(0%)	0(0%)	2(100%)	0(0%)	2(50%)
	Total	0(0%)	0(0%)	1(25%)	3(75%)	0(0%)	4(100%)
Ward committee members	Male	0(0%)	0(0%)	0(0%)	13(33.3%)	2(66.7%)	3(50%)
	Female	0(0%)	1(33.3%)	0(0%)	1(33.3%)	1(33.3%)	3(50%)
	Total	0(0%)	1(16.6%)	0(0%)	2(33.3%)	3(50%)	6(100%)
Total	Male	2(2.4%)	13(15.8%)	22(26.8%)	22(26.8%)	23(28.0%)	82(46.9%)

	Female	2(2.1%)	14(15.0)	24(25.8%)	39(41.9%)	14(15.0%)	93(53.1%)
		4(2.3%)	27(15.4%)	46(26.3%)	61(34.8%)	37(21.1%)	175(100%)

The above table shows a breakdown of the respondents by gender and age i.e. road users, municipal officials, municipal councillors and ward members. The study shows that the road users comprise a majority of the respondents, 87(54.7%) females and 72(45.3%) males, accounting for a total of 159(100%). The majority of respondents are in the age group 41-50, with more females 36(41.4%) than males 18(25.0%). In the age group 31-40 are 44(27.7%), comprising 23(26.4%) females and 21 (29.2%) males, followed by 31(19.5%) in the age group 51 and above, 18(25.0%) males and 13(14.9%) females while those in the age group 18-30 comprise 26(16.4%), 13(18.1%) males and 13(14.9%) females.

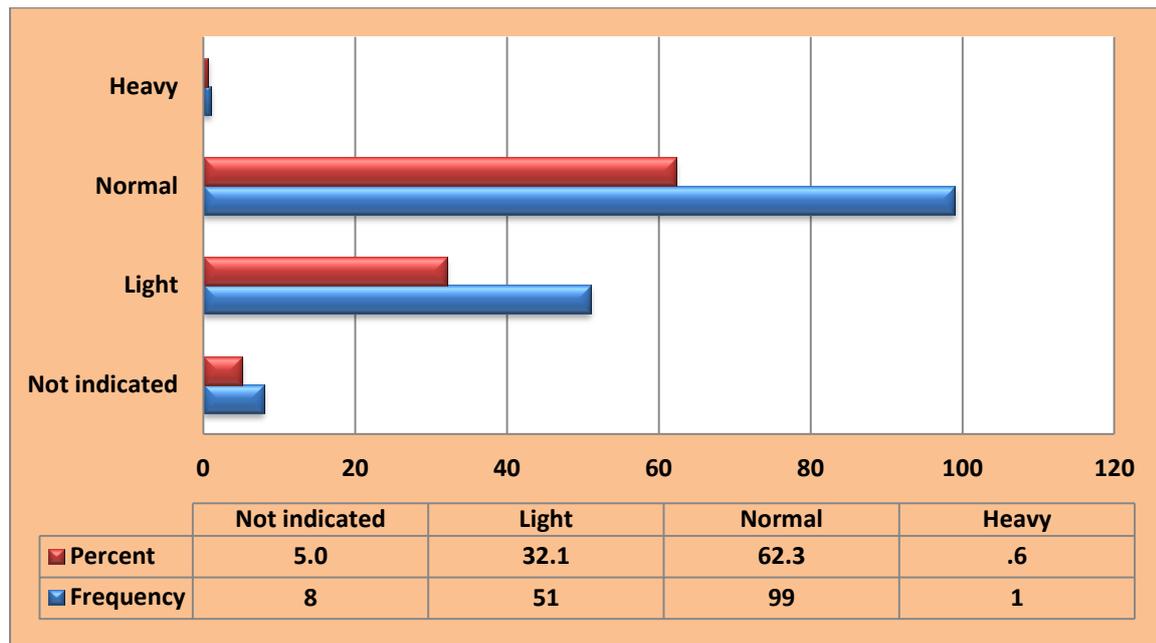
On the other hand municipal officials comprised 5 (83.3%) male and 1(16.7%) female of the eight questionnaires. Those older than 51 years accounted for 3(50%), and those between 41 and 50 accounted for 2(33.3%) while 1(16.7%) was in the 31-40 years age group.

Amongst the four municipal councillors, 2(50%) males and 2(50%) females, 3(75%) of them were in the age group 41-50 and one (25%) was in the age range 31-40.

There were 6 Ward committee members, 3(50%) males and 3(50%) females. 3(50%) were older than 51, two were between ages 41-50, two (33.3%) and one between ages 18-30(16.6%).

In total the study recruited 175(100%) respondents for the questionnaire, 93(53.1%) females and 82(46.9%) males. The majority of the respondents, 61 (34.8%) were between the ages 41-50 years with a higher proportion of women accounting for 39(41.9%) as compared with 22(26.8%) males. 44 (27.7%),were between 31-40 (24 females and 22 males, 27.7% and 25.8% respectively), while 37 (21.1%) were above 51, 23(28.0%) males and 14(15.0%) females. 27 were between 18-30 - 14(15.0) females and 13(15.8%) males, while 4 respondents 2 males (28.0%) males and 2 females (2.1%) did not indicate their age.

Figure 6: Transport type of residents



The above figure indicates the residents’ type of transport. The figure shows that the majority of the respondents used the normal (public) transport, which accounts for 99 (62.3%), followed by light transport (private) at 51 (32.1%), not indicated 8 (5.0%), and heavy transport which accounts for 1 (0.6%). The research shows that most residents own cars. This may lead to congestion and road deterioration.

5.3.2 Perception of effects of the road by road users

Table 8: Road user-effect

Difficulties	Not indicated	Strongly disagree	Disagree	Agree	Strongly agree
Damage to the body of my car	5(3.1%)	11(6.9%)	34(21.4%)	58(36.5%)	51(32.1%)
Puncture of the car tyre	3(1.9%)	10(6.3%)	15(9.4%)	56(35.2%)	75(47.2%)
Delay in movement	2(1.3%)	14(8.8%)	12(7.5%)	68(42.8%)	63(39.6%)
Robbery	4(2.5%)	19(11.9%)	51(32.1%)	40(25.2%)	45(28.3%)
Car accident	3(1.9%)	17(10.7%)	31(19.5%)	55(34.6%)	53(33.3%)

The above table indicates the road user-effect of the respondents with regard to the following aspects:

5.3.2.1 Damage to the body of my car

The majority of the respondents 58 (36.5%) agree and 51(32.1%) strongly agreed that their cars had been damaged while 34 (21, 4%) disagreed and 11 (6.9%) strongly disagreed. The research findings showed that the condition of the road is considered poor as many people are affected by it. The poor condition of the road causes car owners extra expense to repair damage.

5.3.2.2 Tyre Punctures

The findings on this table show that the majority of the respondents strongly agreed that they had a tyre puncture while driving on these roads (75 = 47.2%) and 56 (35.2%) who agreed, while 15(9.4%) disagreed and 10(6.3%) strongly disagreed with the tyre puncture effect.

5.3.2.3 Delay in movement

The above table also shows that the majority of respondents 68(42.8%) agreed and 63(39.6%) strongly agreed with the delay in movement due to poor road conditions, while 14(8.8%) strongly disagreed.

5.3.2.4 Car accidents

The above table also shows that 55(34.6%) agreed and 53(33.3%) strongly agreed that they had experienced a car accident while driving in the Makhado Local Municipality, 31 (19.5%) disagreed and 17 (10.7%) strongly disagreed. According to the above findings, those who agreed and strongly agreed exceeded those who disagreed and strongly disagreed in all four effects. This shows that the condition of the road infrastructure poses considerable problems for road users.

5.3.3 Perception of effects of the road by Municipal officials

Table 9: Municipal official’s effects

Difficulties	Strongly disagree	Disagree	Agree	Strongly agree
Poor road condition increases travel time and high accident rates	2(33.3%)	1(16.7%)	3(50%)	0(0%)

The above table shows how Municipal officials perceive the effects of poor roads as well as how municipal roads can be funded. The data was obtained from six respondents of the eight questionnaires received.

5.3.3.1 Poor road conditions increase travel time and high accident rates.

The above table shows that the majority of respondents 3(50%) agree and 2(33.3%) strongly disagree that increased travel time is due to poor road conditions, while 1(16.7%) disagree.

5.3.4 Perception of the effects of road by Municipal councillors

Table 10: Municipal councillor’s effect

Difficulties	Strongly disagree	Disagree	Agree	Strongly agree
Poor road conditions increase travel time and high accident rates	2(50%)	1(25%)	1(25%)	0(0%)

The above table shows the views of councillors regarding the effects of poor roads and funding suggestions.

5.3.4.1 Poor road conditions increase travel time and high accident rates

The table shows that the majority of respondents 2(50%) strongly disagreed and 1(25%) disagreed that poor road conditions increases travel time and high accident rates, while 1(25%) agreed with the statement above.

5.4 PRESCRIBED REGULATORY FRAMEWORK FOR MUNICIPAL SUPPLY CHAIN MANAGEMENT ADHERENCE IN ROAD INFRASTRUCTURE DEVELOPMENT AND MAINTENANCE

5.4.1 The perception of Municipal officials on regulatory framework

Table 11: Municipal officials and adherence to regulatory framework

	Strongly disagree	Disagree	Agree	Strongly agree
The municipality procures road infrastructure in a fair, equitable, transparent, competitive and cost effective manner.	2(33.3%)	2(33.3%)	1(16.7%)	1(16.7%)
Supply Chain Management is done according to the Municipal Finance Management Act in Makhado Local Municipality.	2(33.3%)	2(33.3%)	2(33.3%)	0(0%)
The municipality adheres to the Broad –Based Black Economic Empowerment Act in bidding processes.	1(16.7%)	3(50%)	0(0%)	2(33.3%)
During the bidding process there is discrimination on the basis of political affiliation.	1(16.7%)	2(33.3%)	1(16.7%)	2(33.3%)
All completed road projects are registered in the asset register in this municipality.	2(33.3%)	1(16.7%)	2(33.3%)	1(16.7%)
The municipality has a register for restrictions on persons and enterprises convicted of corrupt activities in tendering and contracts.	3(50%)	1(16.7%)	2(33.3%)	0(0%)
The municipality complies with Supply Chain Management in procuring road infrastructure projects.	1(16.7%)	1(16.7%)	3(50%)	1(16.7%)
The suppliers lack knowledge of supply chain management regulations and policies.	1(16.7%)	0(0%)	2(33.3%)	3(50%)
The Supply Chain Management officials collaborate with suppliers to defraud the municipality.	0(0%)	0(0%)	3(50%)	3(50%)

Renewing the existing contract is considered an option than issuing a new contract	1(16.7%)	0(0%)	4(66.7%)	1(16.7%)
Political influence affects the quality of road infrastructure.	0(0%)	2(33.3%)	3(50%)	1(16.7%)

The above table is about findings on whether the municipal officials follow the prescribed regulatory framework for municipal supply chain management in road infrastructure development and maintenance.

5.4.1.1 The municipality procures road infrastructure in a fair, equitable, transparent, competitive and cost effective manner

The above table indicates that 2(33.3%) strongly disagreed and 2(33.3%) disagreed that the municipality procures road infrastructure in a fair, equitable, transparent, competitive and cost-effective manner, while 1(16.7%) agreed and 1(16.7%) strongly agreed with the above statement. The findings show that there is non-compliance with to this requirement as enshrined in the Constitution of the Republic of South Africa of 1996 which is mandatory for all spheres of government. This is also visible on the durability of the roads which are worn out within a short space of time, thus compromising the cost -effective aspect.

5.4.1.2 Supply Chain Management is done according to the Municipal Finance Management Act in Makhado Local Municipality

The Municipal Finance Management Act 56 of 2003 stipulates the regulatory framework for SCM, regulation 7 of 30 May 2005. The above table indicates that 2(33.3%) strongly disagreed and 2(33.3%) disagreed that Supply Chain Management is done according to the Municipal Finance Management Act in the Makhado Local Municipality, while 2(33.3%) agreed with the above statement. Similar findings were found by Migiro and Ambe (2008:235) in their research that there is non-compliance due to lack of clarity in the SCM guidelines.

5.4.1.3 The municipality adheres to the Broad-Based Black Economic Empowerment Act in bidding processes

The above table shows that the majority of the respondents 3(50%) strongly disagreed and 1(16.7%) disagreed while 2(33.3%) strongly agreed that the municipality adheres to the broad based black economic empowerment act in bidding process

5.4.1.4 During the bidding process there is discrimination on the basis of political affiliation

The above table shows that 2(33.3%) respondents disagreed and 1(16.7%) strongly disagreed that during the bidding process there is discrimination on the basis of political affiliation, while 2(33.3%) strongly agreed and 1(16.7%) agreed with the statement. The finding shows that there is a divided perception of the bidding process regarding discrimination on the basis of political affiliation. These findings are in contrast to those of Opawole et al. (2013:251), who found that the weight of political executive's opinions in budgeting was seen as a serious matter which needed to be looked into. Incompetent road building professionals are awarded road tenders at the expense of professional skilled contractors, and this leads directly to sub-standard work.

5.4.1.5 All completed road projects are registered in the asset register in this municipality.

The above table also shows that 2 (33.3%) strongly disagreed and 1(16.7%) agreed that all completed road projects are registered in the asset register in this municipality, while 2(33.3%) agreed and 1(16.7%) strongly agreed with the statement. This shows that there is equal balance between those who agreed and those who do not agree with this statement. Wall (2005:51), found that there are some public sectors which are more competent while others are less competent in the management of assets, which then requires the national government to step in by restructuring the regulatory framework, budgets, and skills and by improving monitoring and evaluation to feed the results into an improvement plan. Boschhoff (2009:9) went further to say that it is imperative to know the expected useful life of the asset. Proper management of assets involves knowing the extent, location, condition, criticality and remaining useful lives of the assets.

5.4.1.6 The municipality has a register for restrictions on persons and enterprises convicted of corrupt activities in tendering and contracts

The above table also shows that the majority 3(50%) strongly disagreed and 1 (16.7%) disagreed that the municipality has a register for restrictions on persons and enterprises convicted of corrupt activities in tendering and contracts, while 2(33.3%) agreed with the statement.

5.4.1.7 The suppliers lack knowledge of supply chain management regulations and policies

The above table also shows that the majority of respondents 3(50%) strongly agreed and 2(33.3%) agreed that the suppliers lack knowledge of supply chain management regulations and policies, while 1(16.7%) strongly disagreed with this statement. The findings of the study confirms those by Migiro et al. (2008:325) that lack of knowledge of SCM, regulations and policies prevents suppliers from complaining about the irregularities of SCM.

5.4.1.8 The Supply Chain Management officials collaborate with suppliers to defraud the municipality

The table above shows that 3(50%) strongly agreed and 3(50%) agreed that the Supply chain Management officials collaborate with suppliers to defraud the municipality. The study findings confirm those by Migiro and Ambe (2008:235), which affect compliance with legal obligations.

5.4.1.9 Renewing the existing contract is considered an option than issuing a new contract

The above table shows that the majority of respondents 4(66.7%) agreed and 1(16.7%) strongly agreed while 1 (16.7%) strongly disagreed that renewing the existing contract is considered an option than issuing a new contract. The finding of this study confirms that of Migiro and Ambe (2008:235) who found that this is one of the challenges when complying with legal obligations.

5.4.1.10 Political influence affects the quality of road infrastructure

The above table also shows that the majority of respondents 3(50%) agreed and 1(16.7%) strongly agreed, while 2(33.3%) disagreed that political influence affects the quality of road infrastructure. The finding confirms that of Opawole et al. (2013:251) who found that the weight of political executives' opinions in the budgeting process is seen as a serious cause of poor quality road infrastructure.

5.5 CRITICAL CAUSES OF COLLAPSED ROAD INFRASTRUCTURE WITHIN MAKHADO LOCAL MUNICIPALITY

5.5.1 Perception of critical causes of road collapse by Municipal officials

Table 12: Causes of collapsed road infrastructure

	Strongly disagree	Disagree	Agree	Strongly agree
Integrated Development Plan (IDP) provides strategic guidance for the municipality	1(16.7%)	1(16.7%)	3(50%)	1(16.7%)
IDP takes into account the budget allocated to the municipality	0(0%)	2(33.3%)	2(33.3%)	2(33.3%)
Municipality conducts IDP processes as dictated by the legislation	0(0%)	0(0%)	5(83.3%)	1(16.7%)
IDP processes involve integration of community participation and prioritisation	0(0%)	1(16.7%)	3(50%)	2(33.3%)
Lack of skills is a challenge in service delivery within the municipality	1(16.7%)	0(0%)	4(66.7%)	1(16.7%)
There is a definite need to increase the budget for provision and maintenance, repair and renewal of municipal road infrastructure	0(0%)	1(16.7%)	1(16.7%)	4(66.7%)
Monitoring and incentives have potential to reduce corruption	2(33.3%)	2(33.3%)	1(16.7%)	1(16.7%)
The municipality has public accountability and no corruption	2(33.3%)	2(33.3%)	1(16.7%)	1(16.7%)
Forms of corruption occurring in the municipality include bribes	0(0%)	1(16.7%)	2(33.3%)	3(50%)
In order to ensure quality road infrastructure the government and private sector should combine their efforts	0(0%)	0(0%)	3(50%)	3(50%)

The above table shows the perception of the causes of the collapse of road infrastructure as perceived by Makhado municipal officials. Each item is discussed separately below.

5.5.1.1 The Integrated Development Plan (IDP) provides strategic guidance to the municipality.

According to the above table the majority of respondents 3(50%) agreed and 1(16.7%) strongly agreed that the Integrated Development Plan (IDP) provides strategic guidance to the municipality, while 1(16.7%) strongly disagreed and 1(16.7%) disagreed with the statement. Madzivhandila and Asha (2012:369) found that despite the IDP offering useful strategic guidance, it introduced unprecedented challenges in service delivery. The researchers also indicated that community participation and integration with stakeholders need to be strengthened in order for the IDP to be functional.

5.5.1.2 IDP takes into account the budget allocated to road infrastructure in the municipality

The table above shows that 2(33.3%) strongly agreed and 2(33.3%) agreed, while 2(33.3%) disagreed that the IDP took into account the budget allocated to the municipality. According to Opawell et al. (2013:251) the budget also requires that competent contractors be used with technical know-how.

5.5.1.3 The Municipality does not conduct IDP processes as required by the legislation

The table above indicates that the majority of respondents 5(83.3%) agreed and 1 (16.7%) strongly agreed that the Municipality does not conduct IDP processes as required by the legislation. The research finding is at odds with that of Madzivhandila and Asha (2012:369).

5.5.1.4 IDP processes involve integration of community participation and prioritisation

The above table also shows that the majority of respondents 3(50%) agreed and 2(33.3%) agreed while 1(16.7%) disagreed that IDP processes do not involve integration of community participation and prioritisation.

5.5.1.5 Lack of skills is a challenge in service delivery in the municipality

The table above also shows that the majority of respondents 4(66.7%) agreed and 1(16.7%) strongly agreed while 1(16.7%) strongly disagreed that lack of skills is a challenge in service delivery in the municipality. The research finding confirms those by Gwayi (2010:132) and Makhinde (2005:63) who also found that lack of skills, knowledge and capacity had a negative impact on the implementation of policies and IDP. The educational background table above suggests that there is a serious challenge due to a dearth of professionals such as engineers and accountants in the municipality. This means that the municipality has to depend solely on outsourcing services which in turn is cost-ineffective.

5.5.1.6 There is a definite need to increase the budget to fund the maintenance, repair and renewal of municipal road infrastructure

The above table indicates that the majority 4(66.7%) strongly agreed and 1(16.7%) agreed while 1(16.7%) disagreed that there was a definite need to increase the budget for maintenance, repair and renewal of the municipal road infrastructure. Boschhoff (2009:9) entirely agrees with this view. The municipality should consider not just maintenance but the total life cycle management of an asset and be able to prioritise assets and apply risk-based strategies.

5.5.1.7 Monitoring and incentives have the potential to reduce corruption

The table shows that 2(33.3%) strongly disagreed and 2(33.3%) disagreed while 1(16.7%) agreed and 1(16.7%) agreed with the statement. The research findings of this study disagree with the research findings by Hanna et al. (2011:1). Acevedo et al. who found that effective policy making requires information on whether the governments are following the correct procedures to achieve the intended results. Sound monitoring and evaluation systems provide the basis for sound governance and accountable public policies. Dobbs et al. (2013:57) found that the government exerts influence in various ways in order to ensure that contractors provide the optimum solution through a well-defined stage-gate process, active monitoring and management of the contract as well as a well-defined arbitration agreement between the municipality and contractor in case of dispute.

5.5.1.8 The municipality has public accountability and no corruption

The table shows that 2(33.3%) strongly disagreed and 2(33.3%) disagreed that the municipality has public accountability and no corruption while 1(16.7%) agreed 1(16.7%) strongly agreed with the statement. This shows that the municipality lacks accountability and is considered to have high levels of corruption. Adejuwon (2012:25) indicated that the establishment of a culture of accountability between central government and local government is crucial in order to realise good governance. It is imperative that municipal officials should know that they are accountable to the communities. Stemele (2009:22) found that accountability requires evaluation.

5.5.1.9 Forms of corruption occurring in the municipality include bribes.

The majority of respondents 3(50%) strongly agreed and 2(33.3%) agreed that forms of corruption occurring in the municipality include bribes, while 1(16.7%) disagreed with the

statement. According to Sieber (2012:6) the bigger the project the higher the bribes in road construction. Despite the statutes and ordinances which forbid bribes, the bidders continually offer them. The Municipality is seen as being riddled with bribery.

5.5.1.10 In order to ensure quality road infrastructure the government and private sector should combine their efforts

The table shows that the majority of respondents 3(50%) strongly agreed and 3(50%) agreed that in order to ensure quality road infrastructure the government and private sector should combine their efforts. The findings suggest that government and private sector need each other. This confirms the findings of the study by Zubane (2011:65) and; Rondinelli (2008) who found the same results.

5.6 OBSERVATION

- Potholes are common in the roads in the four towns of the Makhado Local Municipality.
- Most roads are without storm water drainage especially in the newly developed areas of the towns.
- The factors affecting the quality of the roads were not considered when roads were developed and maintained e.g., climate, business, overload, and others.
- There is no turnaround time for repairs to the roads.
- Unsuitable materials are used in the repair of roads instead of tarmac.
- The municipality tends to repair main roads while secondary and minor roads are neglected.
- Poor quality materials are used and unqualified service providers are awarded tenders to repair roads which are root causes of road deterioration.
- The roads lack road markings as well as road signs and lights which affect visibility.

The above observations show that the state of the roads is not up to standard. The quality of life is affected since traffic is interrupted and cars get damaged resulting in costly repairs and wheel alignment. Road users are forced to navigate around the potholes which also lead to accidents since they are forced to change lanes. The safety of road users is at stake.

5.7 DOCUMENTARY ANALYSIS

The following were found under documentary analysis:

5.7.1 Report on road infrastructure report from 2012-2015

Table 13: Infrastructure cluster project (civil)

Project Code	Project Name	State	Location	Responsible agent	2012/13	2013/14	2014/15	Total Budget	Source of Funding	Project Type
R001	Eltivillas Extension 1 of tarring streets	Planning	Eltivillas Extension 1	Makhado Municipality	6000,000.00	-	4000,000.00	-	MIG	Roads
R003	Waterval Street rehabilitation	Planning	Waterval	Makhado Municipality	6000,000.00	800,000.00	4000,000.00		MIG	Roads
R004	Rehabilitation of street, Eltivillas and business area	Planning	Eltivillas Extension 1	Makhado Municipality	2,005,000.00	10,399,000.00	3,000,000.00		MIG	Roads
R017	Rehabilitation of Louis Trichardt streets	Planning	Makhado Town	Makhado Municipality	-	3,000,000.00	3,000,000.00			

An extract from Makhado Municipality Integrated Development Plan 2012/13-2016/17

The above figure is an extract from a document detailing infrastructure cluster projects from the Makhado Municipal Integrated Development Plan 2012/13-2016/17. The plan excluded Vuwani and Dzanani. The projects are very few as compared with the current state of roads in the four towns. If the municipality is concerned about the quality of life of residents from the four municipalities, more money should be allocated on upgrading road infrastructure and provide regular maintenance to ensure effective and efficient service delivery. If the municipality does not expedite the process of road infrastructure and maintenance, in five years' time these towns will be without any paved roads.

Table 14: Development of Municipal Roads

Development of municipal roads as required	Kilometers of municipal roads developed
2012/13	23km
2013/14	25.2km
2014/15	24km

Source: Makhado Municipality Final Annual Report 2014/15

The above figure shows that the development of municipal roads proceeds at a very slow pace in relation to the challenges on the ground. If the municipality is serious about the development of the towns, the budget for road maintenance should be increased and measures to expedite the development and regular maintenance of road infrastructure should be taken.

5.7.2 Makhado Local Municipality Audit reports

This information has been collected from the Auditor General's reports from 2012 to 2015. The Makhado Audit Report 2012-13 LIM344 showed that the municipality received a qualified report. The following were findings by the auditor:

- The municipality did not keep inventories according to the South African Standards of GRAP 12, Inventories. There was also no internal control over recognition of inventories in accounting records.
- The full extent of the non-disclosure of related party transactions was difficult to determine.
- The municipality did not disclose related party transactions in the financial statement as required by the International Public Sector Accounting Standard. IPSAS 20. Related party disclosure.
- Irregular expenditure was noted relating to contravention of the supply chain procurement policy.
- Measures taken to improve performance were not disclosed.
- Reported objectives, indicators and targets were not consistent with planned objectives, indicators and targets. Targets were neither specific nor measurable nor time bound and performance targets were not well defined. Reported performance was not reliable due to lack of frequent, accurate and valid checking of reported achievements against source documentation.

The Auditor General's report for 2013/14 showed that 46% of the required performance targets could not be measured due to lack of proper systems and processes as well as technical indicator descriptions. The material findings lowered the usefulness and reliability of the reported performance information.

The report also showed that the financial statements presented fairly in all material respects. Misstatements due to inadequate internal controls over a wide spectrum of the activities of the municipality and lack of competence within the financial department, were corrected and its financial performance and cash flows for the year then ended in accordance with South African Standards of GRAP (Generally Recognised Accounting Practices) and the requirements of the MFMA and (Divisions of Revenue Act) DoRA.

The Auditor General's report for 2014/15 shows that the Makhado local municipality obtained a qualified audit report. The report findings were based on the following, namely:

The Auditor was unable to determine the impact of the carrying amount of property plant and equipment and surplus for the period as it was impractical to do so. The municipality did not provide sufficient appropriate audit references to assess whether expenditure for the current year had been properly disclosed due to the state of the accounting records. Aggregations of immaterial uncorrected misstatements were also found by the Auditors. One inventory valued a R113 957 871 was overstated by R9 509 865 and while others were understated. The Auditor was unable to determine whether any adjustment to the items were necessary since there was insufficient evidence.

The 2014/15 Auditor's report also showed irregular expenditure amounting to R78 766 187 which had been incurred by the municipality due to contravening the supply chain management policy. The Auditor could not identify material findings on the usefulness and reliability of the reported performance information which also included basic service delivery and infrastructure development. On road transport, the planned targets were not met according to the annual performance report. Material misstatements were also identified in the annual performance report.

5.7.2.1 The strategic planning and performance management

- The 2012/13 Auditor General's report showed that the municipality did not have or maintain effective, efficient and transparent systems of financial risk management and internal control as required by section 62(1) (c) (i) of the MFMA.
- Annual Performance Review did not include measures taken to improve performance.
- Annual Financial Statements, performance and annual reports showed that the uncorrected material misstatements and supporting records were not provided resulting in the financial statement receiving a qualified audit opinion.

The Auditor General's report for 2013/14 revealed that performance management systems and related controls were inadequate since they did not describe or represent the processes of performance planning, monitoring, measurement, review, reporting and improvement as required by section 38 of the Municipal Structure Act and regulation 7 of the Municipal planning and performance management regulations.

The 2014/15 Auditor's report showed the same findings as the 2013/14 report in which the performance management systems and related controls were not maintained as required by section 38 of the Municipal Systems Act, 200 (Act No. 32 of 2000) MSA and regulation 7 of the Municipal planning and performance management regulations. The financial statements, performance and annual reports were not prepared in all material respect in accordance with the requirements of section 122 of the MFMA. The annual performance report for the year under review did not include performance targets and comparison with the previous financial year.

5.7.3 Asset Management

The municipality does not have a system of internal control of assets.

5.7.3.1 Procurement and contract management

- Invitations for competitive bidding had not been advertised for minimum period of days. The committee did not always consist of officials from the departments requiring goods or services. The composition of the bid committee was not in accordance with the SCM regulation 28(2).
- Contracts awarded to bidders based on given criteria differed from those stipulated in the original invitation.

- Awards were made to bidders other than those recommended by the bid evaluation committee without ratification by the accounting officer as required by the SCM regulation 29(5) (b).
- Contracts were awarded to bidders based on preference points that were not calculated in accordance with the requirement of the Preferential Procurement Policy Framework Act 2000 (Act 50 Of 200) and its regulations.
- Contracts were extended or modified without the approval of a properly delegated official as required by the SCM Regulation 5.

Internal control showed significant deficiencies resulting in the basis for a qualified opinion in 2012/13. The Auditor General`s report for 2013/14 also showed significant internal control deficiencies resulting in non-compliance with legislation.

The Auditor General`s report 2013/14 revealed that the municipality had materially underspent its conditional grants by the amount of R48 099 226, although this was due to additional funds of R45 million received in March 2014 for which the municipality put procurement plans in place.

The Auditor General`s report for 2013/14 revealed that a contract had been awarded to a bidder that had not scored the highest points in the evaluation process according to section 62(1)(d)(f) of Preferential Procurement Policy Framework Act. Reasonable steps had not been taken to prevent irregular and fruitless expenditure as required by section 62(1) (d) of MFMA. The same finding was made in the 2014/15 Auditor`s report as well.

The Auditor general`s report for 2014/15 in procurement and contract management showed the following:

- Bids were not always evaluated by bid evaluation committees which were composed at least of one SCM practitioner of the municipality as required by the SCM Regulation 28(2).
- Contracts were awarded to bidders based on points given for criteria that different from those stipulated in the original invitation in contravention of SCM Regulations 21(b) and 28(1)(a) and Preferential Procurement Regulations.
- Bid adjudication was not always done by committees which were selected in accordance with SCM Regulations 29(2).

- Contracts were awarded to bidders based on preference points that were not allocated and calculated in accordance with the requirements of the Preferential Procurement Policy Framework Act, 200 (Act No5 of 2000) (PPPFA) and its regulations.
- Contracts were awarded to bidders that did not score the highest points in the evaluation process, as required by section 2(1) (f) of PPPFA.
- A SCM role player whose partner had a private or business interest in contracts awarded by the municipality participated in the bidding process relating to that contract, in contravention of SCM Regulations 46(2) (f).

5.7.3.2 Leadership

The 2012/13 and the 2013/14 Auditor General`s reports showed that the accounting officer and management did not exercise adequate oversight over the enforcement of the municipality`s SCM policy. Management did not have sufficient monitoring controls to ensure proper implementation of the action and reports from an internal audit. There is no proper plan or training for performance information planning, management and reporting. The municipality did not have key controls to address the systems of collection, collation, verification and storage of performance information.

The 2014/15 Auditor`s report revealed the same shortcomings of the previous year. Management did not in all instances address the recommendations of the internal audit unit and audit committee. An effective system of internal control for revenue was still not in place, as required by section 64(2) (f) of MFA.

5.7.3.3 Governance

The 2012/13 Auditor General`s report showed that the accounting officer and audit committee had not yet found a solution that would ensure that the recommendations of the internal audit committee would be addressed and implemented timeously. The Auditor General`s report recommended that on-going monitoring by the accounting officer, management and the audit committee had to ensure there was an adequately resourced internal audit unit to exercise effective internal control of performance reporting and compliance with legislation.

The 2014/15 Auditor`s report showed that the audit committee had not advised the council and accounting officer on matters relating to the adequacy, reliability and accuracy of financial reporting and information as required by section 166(2) (a) (iv) of the MFMA. The

Auditor`s report further revealed that the activities of the internal audit unit had not prevented the municipality from regressing to a qualified audit opinion, due. The report also showed that SCM processes had not been monitored due to lack to the officials in the finance unit not fully understanding the requirements of the financial reporting framework of understanding and implementation of SCM regulations, resulting in irregular expenditure.

The municipality further requested an independent service provider to conduct an investigation into possible fraudulent payments. This investigation led to the dismissal of two employees and an internal disciplinary hearing against one employee was in progress at the time of reporting in which criminal proceedings have been instituted against both the employee and the service provider.

The report implies that the Makhado Local Municipality has a poor record of leadership, since there is lack of accountability and contraventions of supply chain procurement policy of the Municipal Finance Management Act, 56 of 2003. The Auditor`s reports showed evidence of corrupt practices in the Makhado Local Municipality. The report also confirms the response by the respondents who agree that collaboration exist between the officials and suppliers and that political influence affect the quality of road infrastructure since the contracts are not awarded to the deserving bidders.

The feeling of the respondents in questionnaire with regard to asset register or inventory showed equal feeling for those who agree and those who disagree regarding registration of completed projects (mixed feeling). According to Boschhoff (2009) compilation of inventory of assets is prerequisite in developing care needs, funding requirements, operations and maintenance budget provisions and maintenance. Wall (2009) also found that some public sectors needs comprehensive assistance which include a regulatory framework, budget restructuring, skills, monitoring and evaluation and providing feedback thereto.

According to the respondents the procurement process is not fair, equitable, transparent, competitive and cost effective, which also affirms the findings by the Auditor-General. The respondents also indicated that Supply Chain Management is not done according to the Municipal Finance Management Act. Sieber (2014) found that procurement is not done according to SCM, favour, information leaking, falsification of information, bribery by bidders and extortion from bidders by project owners were seen as challenges during bidding process. Levenstein, BEE Consultancy also found that fraud and corruption are the most challenges of BBBEE Act

The Auditor`s reports about procurement reflect that despite the availability of policies and guidelines in the Municipality compliance to SCM, PPPFA and BBBEE is still a challenge. This finding of the Auditor General was confirmed by the response of the municipal officials. One cannot believe that this is due to lack of knowledge since the people who deal with finance are skilled and guidelines are clear. This practice is seen as a deliberate way of self-enrichment amounting to corruption since contracts are awarded to bidders who did not score the highest points in the evaluation process.

According to Acevedo et al. (2010) effective monitoring and evaluation system provides basis for sound governance and accountable public policies. Inadequate monitoring and evaluation makes it difficult for government bodies to implement Supply Chain Management as required by policy, which lead to unauthorized irregular, fruitless and wasteful expenditure (Stemele: 2001). The above report showed that the municipality lacks leadership, since the accounting officer and management failed to exercise oversight over the enforcement of the municipality`s SCM policy and did not have sufficient monitoring controls.

5.8 CONCLUSION

Chapter five provided presentation and interpretation of results of the research study. This was done in order to answer the research questions of the study. The data was collected from the four towns of Makhado Local Municipality, municipal officials and councillors. The results presented were based on data collected through questionnaires, observation, and documentary analysis of documents such as Makhado Local Municipal IDPs, annual reports, Auditor General`s reports. Results were organised in graphs with values and figures with discussions in order to provide answers to the research questions investigated. Chapter six will present the summary, recommendations and conclusions of the study. The findings showed that the state of the Makhado Local Municipality in the four towns under study is bad and put the life of residents at risk. The data also shows that despite the availability of regulatory framework, compliance remains a challenge due to various factors mentioned above. More money is needed to address the current status of road, these also include filling of critical post, regular training, regular monitoring and evaluation with resultant punishment of wrong doers. Critical posts need to be filled such as engineer, storm water drainage etc. and the use of proper material if the municipality wants to improve the status of road infrastructure.

CHAPTER SIX: FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

6.1 INTRODUCTION

Chapter Five presented an interpretation of the research results of this study. This chapter discusses conclusions and recommendations of the study. The title of the study undertook to investigate the causes and effects of the collapse of road infrastructure in the Makhado Local Municipality. The study was based on four towns, namely, Makhado, Dzanani, Vuwani and Waterval. The research questions, summary, findings, and recommendations of the study are elaborated upon in this chapter. Road infrastructure is affected by many challenges, such as leadership quality, the conduct of political and administrative officials, official policies as well as the degree of community involvement and participation. The researcher believes that the municipality may learn lessons from this study in the management of road infrastructure.

6.2 RESEARCH QUESTIONS OF THE STUDY

The research questions were developed in order to investigate the challenges that cause the deterioration of road infrastructure in the Makhado Local Municipality with regard to the four towns, namely, Makhado, Waterval, Dzanani and Vuwani. The study analysed the following research questions: What is the current condition and effects of road infrastructure within the Makhado Local Municipality? Does the legal framework governing the local municipality contribute to effective and efficient road infrastructure management? What are the strategies for addressing the challenges of road infrastructure within the municipality?

6.3 SUMMARY OF RESEARCH STUDY

The main purpose of this study sought to investigate why roads continually deteriorate or collapse within the Makhado Local Municipality and tried to come up with suggestions to remedy the situation. However the challenges are enormous as they do not affect just the towns only but the entire road infrastructure in the Makhado Local Municipality including the villages and townships. The importance of community involvement cannot be underestimated as they are affected by the quality of service they receive. Based on the findings of the report it is evident that a visionary leader and who has the interests of the people at heart is essential for the municipality to run effectively and efficiently.

The study is confined to the road infrastructure in the Makhado Local Municipality area in which the focus is on the four towns, namely, Makhado, Waterval, Dzanani and Vuwani. However road infrastructure challenges facing this municipality are not confined to this municipality only. Recommendations made in this study might be relevant to other municipalities as well, even to the entire Limpopo Province. The study consists of six chapters which are summarised below.

Chapter one: Introduction and background of the study. The chapter discussed the aim, research problem, research statement, research questions, and the significance of the study. The chapter also introduced a literature review, research design and methodology and ethical considerations of the study. The chapter justified reasons why the study was conducted in the four towns of the Makhado Local Municipality.

Chapter two: Presentation of a literature review on road infrastructure: the chapter further provided the results of a search of the literature regarding the effects of collapsed road infrastructure. The study search tapped various data sources, both primary and secondary including theses, books, journals and dissertations in order to address the causes of poor road infrastructure. A literature review was conducted in order to establish what is known and not known about the topic and about best practice in road infrastructure management so as to be able to suggest possible solutions that may help the Makhado Local Municipality to address its road infrastructure challenges effectively and efficiently.

Chapter three: Discussion of the policy and regulatory framework of road infrastructure. Various items of legislation and the theoretical framework that underpin local municipalities were reviewed in order to determine whether there was compliance with the prescribed legislative mandate. This chapter revealed that there are challenges with regard to policy and legal framework implementation, compliance and enforcement and that the policy shift from the centralised, technocratic approach of the apartheid era is not yet complete (Rossouw and Wiseman. 2004).

Chapter four: Presentation of the research design and methodology for the study. This chapter discussed the research designs that were employed and the reasons why. It also discussed data collection methods, validity and reliability as well as a justification for such methods.

Chapter five: Discussion of presentation and interpretation of research results. The chapter presented the data and interpretation of the results of the study. The perceptions of various stakeholders were reviewed in order to gain insight into their perceptions regarding road infrastructure challenges in the Makhado Local Municipality.

Chapter six: Summary, recommendations and conclusions. This chapter outlined the summary of each chapter, recommendations, further research areas and conclusions

6.4 FINDINGS

The findings were derived from data collected through various methods of collecting data, namely questionnaires, observation and documentary analysis in pursuit to address the research objectives. Findings from each method were outlined, see below:

6.4.1 Questionnaires

Questionnaire covered the condition and effects of the road, regulatory framework and the causes of the status of the road in the Makhado Local Municipality.

6.4.1.1 Road effect to the users

The study revealed that the state of the road affects road users, municipal officials, municipal councillors and ward committees. They are all equally affected and they experience the following; damage to the bodywork of their cars, tyre punctures and car accidents. The study revealed that municipal officials and councillors did not think poor road conditions increased travel time or caused a high rate of accidents, whereas road users said that, on the contrary, their movements were hampered by poor road conditions. Of course the experience might not be the same due to the size of cars they drive because the bigger the car the less time you spend and the less exposure to accidents you experience. The study also showed that there is a divided perception regarding the funding of road maintenance among the municipal officials with 50% disagreeing and 1(25%) strongly disagreeing that that the ideal for funding road is fuel and tax while 1(25%) strongly agreed with the issue. The study showed that poor roads affect residents adversely, especially road users, whereas municipal officials and municipal councillors are less adversely affected.

6.4.1.2 Prescribed regulatory framework for the municipality Supply Chain Management

The study found that road procurement is conducted according to the Municipal Finance Management Act (MFMA) 56 of 2003 which contradicts the finding of the Auditor general. The Local Municipality does not conduct road procurement in a fair, equitable, transparent, competitive and cost-effective manner. The Municipality does not adhere to the Broad-Based Black Economic Empowerment Act (BBBEE) 53 of 2003 in the bidding process. The study also found that there is a divided perception on the bidding process regarding discrimination on the basis of political affiliation and not skills, knowledge and expertise. The perception is evident in the poor durability of roads.

The Makhado Local Municipality has no register for restrictions on persons and enterprises for suppliers who fail to deliver road infrastructure projects to the required standard. This allows the Municipality to award road tenders to incompetent contractors thereby ignoring professionals with the necessary technical know-how. The findings also showed that regulations are available for consultation in the Makhado Local Municipality but they are ignored and this fact encourages corrupt practices on the part of residents and consumers.

6.4.1.3 The critical causes of road collapse

- The Municipality has an inadequate budget to fund road infrastructure maintenance and development projects.
- The Municipality lacks effective mechanisms to report road infrastructure challenges such as potholes, lack of road signs, and road markings and lacks a turn-around-strategy to address those challenges.
- The municipality uses unsuitable materials to repair roads such as soil, gravel and cement instead of tarmac.
- The Municipality contravenes the Supply Chain Management policy and the Municipal Finance Management Act and fails to maintain effective and efficient control measures as required.
- The Municipality lacks professionals such as engineers and land surveyors. This lack means that budgets are unrealistic which in turn means that funds are inadequate to implement road infrastructure projects by contractors with the necessary know-how.
- The Municipality should introduce and monitor a road asset register in order to establish strategies to know which roads require repairs, maintenance or rehabilitation so that estimates for repairs, rehabilitation and maintenance can be budgeted for.

- The Municipality failed to ensure that the IDP process is conducted as directed by the legislation, and also failed to ensure that all people are involved, including women and those who are illiterate well as all other vulnerable groups. The municipality used participation as tokenism to circumvent citizen control so as to rubber stamp and provide an aura of legitimacy to their pre-planned ideas.
- The Municipality did not adhere to an effective, equitable and transparent strategy that would reduce corrupt practices such as bribes in road infrastructure procurement.
- Some Municipal councillors did not have matric, teamwork or communication skills, which made it difficult for them to read and interpret the policies relating to service delivery.
- There was no enquiry about whether the intentions of the policy had been achieved or what it was intended for or even whether the challenge had been addressed. Monitoring and evaluation process did not involve communities and other stakeholders in planning, implementing and evaluating road infrastructure projects.
- The Municipality lacks effective strategy to instil the culture of accountability between the government and the governed in order to promote trust since the ward committees are not effective.
- The Municipality lacks mechanisms to ensure that the contractors who provided a poor service are disqualified since they also gained in awarding such contracts.
- The Municipality has a poor public private partnership leading to difficulty in transferring skills through mentoring and training of employees.

6.5 CONCLUSIONS

The study was conducted in order to investigate the critical challenges of maintaining road infrastructure in Limpopo. This was conducted in order to address the following objectives, namely, to determine the condition and effects of municipal road infrastructure within the Makhado Local Municipality, to examine the legal framework governing the local municipality in the context of road infrastructure provision and maintenance and to recommend strategies to address the challenges of road infrastructure within the Makhado Local Municipality.

The study was able to classify the condition of the Makhado Local Municipality as being bad, since road has extensive defects requiring immediate rehabilitation or reconstruction and unpaved roads needing construction and major drainage works. This shows that the

municipality is failing to observe road maintenance guidelines. The response by the road users, municipal officials and councillors show that the status of the road is not safe and lowers the quality of life of the residents.

The study also found that despite the availability of legal framework governing the road infrastructure, there is a serious non-compliance to legal framework with the resultant acts of fraud and corruption. The study provided recommendations, as stated below to address the challenges of maintaining road infrastructure in the Limpopo Province through the study conducted at Makhado Local Municipality.

6.6 RECOMMENDATIONS

The researcher presents the following recommendations to remedy the collapse of road infrastructure in the Makhado Local Municipality. The recommendations should enable the Municipality to review its road maintenance strategies in order improve and maintain the quality of the roads effectively and efficiently in order to improve the quality of lives of the citizens.

- The Municipality should increase the budget for road infrastructure development and maintenance projects in order to address the backlog of repairs, rehabilitation and maintenance and ensure that a plan for road maintenance is developed and adhered to.
- The municipality should establish a call centre for reporting road infrastructure problems, e.g. potholes and implement turn-around strategies on road infrastructure maintenance, repair and rehabilitation.
- The municipality should use proper materials (tarmac) for road maintenance repairs and not cement gravel or soil.
- The Municipality should ensure that Supply Chain Management policy and Municipal Finance Management Act are not contravened and should develop and maintain effective and efficient control measures and ensure regular training for SCM staff.
- The Municipality should ensure that it recruits professionals with relevant professional qualifications such as engineers, architects etc. who will do the correct budget estimations and ensure that the service rendered is of quality and hence value for money.
- The Municipality should develop and strengthen involvement of people including women and illiterates well as other vulnerable groups as outlined by the IDP process. This will enable the people to own the processes and projects.

- The Municipality should develop strategies to reduce corruption and adhere to effective, equitable and transparent procurement processes. These include whistle blowing through anonymous calls and protection of whistle blowers and prosecuting those suspected of corrupt activities by auditors.
- The Municipality should ensure that the councillors have at least matric and have skills such as teamwork and communication to ensure that they are able to read and interpret policies thereby improving service delivery.
- The Municipality should strengthen the monitoring and evaluation process to assess whether the policy has yielded the desired results.
- The Municipality should develop mechanisms to instil a culture of accountability between the government and the governed and ensure that ward committees are effective through regular meetings.
- The Municipality should develop mechanisms to ensure that contractors are held responsible for poor service.
- The Municipality should strengthen public- private partnerships in order for skills to be transferred in the mentoring and training of public workers.

6.7 FURTHER RESEARCH AREA

The study found that the state of the roads is undesirable. This is of concern to the residents since it undermines the quality of life and security. Various studies have been conducted about the resultant poor road infrastructure. The researcher recommends that more studies be conducted on this topic to address the challenges of road infrastructure. Despite funding allocated for road maintenance and development projects, it is difficult to see any expected results. Further studies need to be done to determine whether the road infrastructure and maintenance should fall within the competency of the local municipality, public-private partnerships or the province.

6.8 CONCLUSION

From the analysis of the study results, it is evident that road infrastructure is not given adequate attention in the Makhado Local Municipality. This is a worrisome state of affairs because the Municipality derives its revenue from its residents. It is essential to raise the level

of accountability among municipal officials, citizens and suppliers so that they too can hold the local municipality as well as service providers responsible for the substandard services provided.

Value for money should be taken into consideration when road tenders are awarded and regular monitoring by both the municipality and the community and a reporting line should be set up and used in order to report corrupt activities. Regular training for the suppliers and procurement staff is essential so that each one knows his/her expectations. Recruit the right people for the right job with the requisite know-how, who will be able to diagnose faults in road construction and apply remedies using the correct materials and not sand or soil or cement. If Makhado officials are serious about road infrastructure development and maintenance, they should develop effective strategies, implement and maintain control and accountability and punish wrongdoers, officials and contractors at all times.

LIST OF REFERENCES

Acevedo, L., Gladys, C., Rivera, K.L., Lima, L. and Hwang, H. 2010. *Challenges in Monitoring and Evaluation: An Opportunity to Institutionalize M & E Systems*. Washington, DC: The World Bank.

Adarkwa, O. and Radovic, M. 2016. *Investing in the Nation's Infrastructure. The Role of Institutional Investors & Public-Private Partnerships*. World Economic Forum: University of Delaware Civil.

Adejuwon, K.D. 2012. The Dilemma of Accountability and Good Governance for Improved Public Service Delivery in Nigeria. *Africa's Public Service Delivery and Performance review*. "Africa's Development Watch", 1(3):25-45.

African Development Bank. 2011. *The Concept of Periodic Maintenance was Actually Dropped in 2,000 and Merged with Rehabilitation*. Footnote 18: 37.

Ambe, I.M. and Badenhorst-Weiss J.A. 2012. Procurement Challenges in the South African Public Sector. Department of Business Management. University of South Africa (UNISA). *Journal of Transport and Supply Chain Management*, 6 (1):242-261.

Andreski, A., Seth, S. and Walker, W. 2006. *How a Road Agency can Transform Force Account- Road Maintenance to Contracting*: Transport Papers; Tp11 Washington DC: World Bank.

Armstrong, M. 2015. *Armstrong's Handbook of Performance Management. An Evidence Based Guide to Delivering High Performance*. 5th edition. London: KoganPage.

Babbie, E. and Mouton, J. 2001. *The Practice of Social Research*: South African edition. Cape Town: Oxford University Press.

Babbie, L. 1992. *The Practice of Social Research*. 6th edition. California: Wadsworth Publishing Company.

Bailey, B.K. 1987. *Methods of Social Research*. United Kingdom: Collier Macmillan

Bayat, M.S, and Fox, W. 2007. *A Guide to Managing Research*. Lansdowne: Juta

- Beauchamp, T. L. and Childress, J. F. 2001. *Principles of Biomedical Ethics*. 5th edition. Oxford University Press, Oxford.
- Beierle, T.C. 1999. *Using Social Goals to Evaluate Public Participation in Environmental Decision*, 16(3-4):75-103.
- Boschoff, L. 2009. *Municipal Infrastructure Asset Care in South Africa: A Reality Check*. Midrand: Development Bank of South Africa.
- Breiner, P. 1996. *Max Weber and Democratic Politics*. New York: Cornell University Press.
- Bryan, T.K. 2011. *Exploring the Dimensions of Organisational Capacity for Local Social Service Delivery Organisation using a Multi-Method Approach*. Unpublished Doctoral Dissertation. Virginia Polytechnic Institute and State University. Virginia.
- Brynard, P.A. 2005. Policy Implementation: Lesson for Service Delivery. *African Association for Public Administration and Management. Journal of Public Administration*, 40(4.1):649-664.
- Burningham, S. and Stankevich, N. 2005. *Why Road Maintenance is Important and How to get it done*. Transport Note N00. TRN-4. June 2005. The World Bank: Washington, D.C.
- Burns, N. and Grove, S.K. 2005. *The Practice of Nursing Research: Conduct, Critique, and Utilization*. 5th ed. St. Louis, MO: Elsevier/Saunders.
- Buthelezi, N. 2011. *Black Economic Empowerment-A Change for the Better*. 02 September 2011. Creamer Media (Pty) Ltd. (accessed 22 January 2014) www.polity.org.za.
- Chiedza, M.J. 2015. *An Exploration of Whistle-blowing in Fighting Corruption in the Public Sector in Africa: A Case of Stellenbosch Municipality*. SUNScholar Thesis (MComm). Stellenbosch University.
- Cloete, F. and de Coning, C. 2011. *Improving Public Policy. Theory, Practice and Results*. 3rd edition. Pretoria: Van Schaik Publishers.
- Cornwall, A. and Gaventa, J. 2001. *Bridging the Gap: Citizenship, Participation and Accountability*. Institute of Development Studies (IDS). UK: University of Sussex.
- Council for Scientific and Industrial Research. 2010. *Potholes: A Non-technical Guide for their Causes and Prevention*. Pretoria: CSIR. CIDB.

Council for Scientific and Industrial Research. 2000. *Guideline for Human Settlement Planning and Design*. Pretoria: CSIR. CIDB.

Council for Scientific and Industrial Research. 2007. *The State of Municipal Infrastructure in South Africa and its Operation and Maintenance, an Overview*. Pretoria: CSIR. CIDB.

Crowther, D. and Lancaster, G. 2009. *Research Methods. A Concise Introduction to Research in Management and Business Consultancy*. 2nd edition. Hungary: MacMillan Company.

Cummings, T.G. and Worley, C.G. 2013. *Organisation Development and Change*. United States: Cengage Learning.

Dahlberg, L. and McCaig, C. 2010. *Practical Research and Evaluation. A Start-to-Finish Guide for Practitioners*. London: SAGE Publications Ltd.

Dannin, E. 2011. Crumbling Infrastructure, Crumbling Democracy: Infrastructure Privatisation Contracts and their Effects on State and Local Governance. *Northwestern Journal of Law and Social Policy*, 6(1):47-105.

Davis, J. 2003. Corruption in Public Service Delivery: Experience from South Asia's Water and Sanitation Sector. *World Development*, 32(1): 53-71.

De Vos, A.S. 2001. *Research at Grass Roots. A Primer for the Caring Profession*. 3rd edition. Pretoria: Van Schaik Publishers.

Department of National Treasury. 2011. *Local Government Budgets and Expenditure Review*. Pretoria: Government Printer.

Department of National Treasury. 2012. *Local Government Budgets and Expenditure Review*. Pretoria: Government Printer.

Department of Provincial and Local Government. *Municipal Planning and Performance Management Regulations, No R. 796. 2001*. Pretoria: Government Printer.

Department of Provincial and Local Government. 2005. *Guideline for the Establishment and Operation of the Municipal Ward Committees. Notice 965 of 2005*. Government Gazette. Pretoria: Government Printers.

Department of Transport. *Annual Report. 2011/12*. Pretoria: Government Printer.

Dipuo, P. 2014. *Speech by the Minister of Transport, Ms Dipuo Peters, MP, on the occasion of the 3rd Africa Road Safety Seminar, 12-13 August, Pretoria: Department of Transport.*

Dlalisa, L. 2013. *Evaluating the Credibility of the Integrated Development Plan as a Service Delivery Instrument in Randfontein Local Municipality.* Unpublished Masters Dissertation. Turfloop: University of Limpopo.

Dobbs, R., Pohl, H., YiLin, D., Mischke, J., Garemo, N, Hexter, J., Matzinger, S., Palter, R. and Navatty, R. 2013. *Road Infrastructure Development and Maintenance.* McKinsey Global Institute: McKinsey and Company.

Du Plooy, G.M. 2009. *Communication Research. Techniques, Methods and Applications.* 2nd edition. South Africa: Juta and Co, Ltd.

Ethekwini Municipality. 2005/6. *Sustainability Best Practice Portfolio.* Special edition. Climate Change. EThekwini Municipality. EThekwini Municipality Printer.

European Commission. 2008. *Road Infrastructure the Backbone of Transport System.* Belgium: Luxembourg.

Fatile, J.A. 2012. Corruption and the Challenges of Good Governance in the Nigerian Public Sector. *Africa`s Public Service Delivery and Performance Review.* “Africa`s Development Watch” Volume 1(3) 2012. Logos State University. Department of Industrial Relations and Public Administration.

Fay, M. and Morrison, M. 2007. *Infrastructure in Latin America and the Caribbean: Recent Developments and Key Challenges. Directions in Development, Infrastructure.* Washington, DC: World Bank.

Fink, A. 2010. *Conducting Research Literature Reviews.* From the Internet to Paper. 3rd edition. United States of America: Sage Publications Ltd.

Grote, D. 2002. *The Performance Appraisal Question and Answer Book: A Survival Guide for Managers.* New York: AMACOM.

Grove, S.K., Gray, J.R. and Burns, N. 2007. *Understanding Nursing Research: Building an Evidence-Based Practice.* 6th edition. China: Saunders.

- Gwayi, M.S. 2010: *Service Delivery Challenge: King Sabata Dalidyebo Local Municipality: Mthatha*. Degree of Master's in Public Administration thesis. Nelson Mandela Metropolitan University (NMMU).
- Harischandra ASPR. 2004. *Identification of Road Defects, Causes of Road Deterioration and Relationship among them for poor Bitumen Penetration Macadam Roads in Sri Lanka*. Department of Civil Engineering.
- Harrison, P. 2001. Genealogy of South Africa's Integrated Development Plan. *Third World Planning Review*, 23:175-193.
- Hecklinger R.E. 2002. *Roundtable on corporate responsibility: Supply Chains and OECD Guidelines for Multinational Enterprises*. France: OECD Organisation, <http://www.oecd.org> (accessed 20 March 2014).
- Heggie, I.G. and Vickers, P. 1998: *Commercial Management and Financing of Roads*. Technical paper 409, World Bank. Washington D.C
- Henning, E., Van Rensburg, W. and Smit, B. 2004. *Finding your Way in Qualitative Research*. Pretoria: Van Schaik Publishers.
- Houghton, D.H. 1976. *The South African Economy*. Cape Town: Oxford University Press.
- International Labour Organisation. 2005. *Situation Analysis of Rural Road Maintenance in Madhya Pradesh*. Bangkok: Thailand.
- [http://www.caricomstas.org/.../Justification Policy and Regulatory Framework definition](http://www.caricomstas.org/.../Justification%20Policy%20and%20Regulatory%20Framework%20definition) (Accessed 10/10/2014).
- International Labour Organisation. 2007. *Rural Road Maintenance. Sustaining the Benefits of Improved Access*. Bangkok: Thailand.
- International Labour Organisation. 2014. *Local Resource- Based Road Maintenance in the Philippines: A Guide by International Labour Organisation*: Manila Office
- Irvin, R.A. and Stansbury J. 2004. Citizens Participation Decision Making: Is it Worth to Effort? *Public Administration Review*, 64 (1)55-65.
- Johnson, G. 2010. *Research Methods for Public Administrators*. 2nd edition. United States of America. M.E Sharpe.

Kannemeyer, L. 2002. The South African National Roads Agency LTD. *Road Condition. RSA.*

Kehagia, F. and Mouratidis, A. 2012. Living in the Shadow of the Motorway: Safety and Maintenance on the “Old” National Road Network. *Procedia-Social and Behavioural Sciences. Elsevier*, 48:2179-2189.

Kekana, R.D. 2006. *An Economic Impact Assessment of Toll Roads, with Specific reference to the Impact on alternative Roads between the Pumulani and Hammanskraal Toll Gates.* Pretoria. University of Pretoria.

Khan, M.A. and Chowdhury, N. 2008. Public Accountability in Differing Governance Situations: Challenges and Options. *The Asia Pacific Journal Administration*, 30 (1):15-28.

Khosa, M.M. 2003. *Towards Effective Delivery.* Synthesis Report on the Project Entitled “Closing the Gap Between Policy and the Implementation in South Africa. Research Report No. 98. Johannesburg: Centre for Policy Study.

Krishnaswamy, K.N., Sivakumar, A.I. and Mathirajan, M. 2009. *Management Research Methodology. Integration of Principles, Methods and Techniques.* India: Baba Barkha

Kumar, R. 2014. *Research Methodology.* 4th edition. London: Sage Publication Ltd.

LIM344 *Makhado Audit Report 2012-13.* Report of the Auditor General to the Limpopo Provincial Legislature and Council on Makhado Municipality.

LIM344 *Makhado Audit Report 2013-14.* Report of the Auditor General to the Limpopo Provincial Legislature and Council on Makhado Municipality.

LIM344 *Makhado Audit Report 2014-15.* Report of the Auditor General to the Limpopo Provincial Legislature and Council on Makhado Municipality.

Limpopo Province. 2009-2014. *Limpopo Growth and Development Strategy. 2009-2014.* Limpopo: Government Printers.

Limpopo Province. 2012. *Infrastructure in Limpopo.* Limpopo: Government Printers.

Limpopo Province. 2012. *Limpopo Roads. Limpopo Province Freight Transport Data Bank.* Safiri South Africa.

Limpopo Province. 2015/16. *Limpopo Provincial Budget Speech 2015/16.* Limpopo: Government Printer.

Madzivhandila T.S and Asha, A.A. 2012. *Integrated Development Planning Process and Service Delivery Challenges for South Africa`s Local Municipalities* 47 (1):369-378.

Makhado Local Municipality Integrated Development Plan. 2011/12. Makhado Printer.

Makhado Local Municipality Integrated Development Plan. 2012/13. Makhado Printer.

Makhado Local Municipality Integrated Development Plan. 2012/13-2017/17. Makhado Printer.

Makhado Final Local Municipality Integrated Development Plan. 2013/14. Makhado Printer.

Makhado Local Municipality. 2013. *Council Resolution A.43.30.05.13. Final Budget Policy.* Makhado Printer.

Makhado Municipality Final Annual Report 2014/15. Chapter 5. *Statement of Financial Performance.* Makhado: Makhado Local Municipality.

Makhinde, T. 2005. *Problems of Policy Implementation in Developing Nations: The Nigerian Experience.* Department of Public Administration, Obafemi Awolowo University, Ile-Ife, Nigeria. *Kamla-Raj. J. Soc. Sci.* 11(1):63-69.

Managa, A. 2012. *Unfulfilled Promises and their Consequences: A Reflection on Local Government Performance and the Critical Issue of Poor Service Delivery in South Africa.* POLICY brief. Africa Institute of South Africa. Briefing No. 76. May 2012.

Maseko, M. 2014. *Analysis of Critical Success Factors for Public-Private Partnerships in Infrastructure Development in South Africa.* The 6th International Platinum Conference, 'Platinum–Metal for the Future'. The Southern African Institute of Mining and Metallurgy.

Maswanganyi, M.J. 2016. *Tourism Contribution to the Limpopo Province`s Economic Growth and Development: A Critical Analysis*. Dissertation for Master of Arts in Political Science. University of Venda.

Mavhivha, E. 2007. *Leadership and Governance Perspective in Local Administration in South Africa*. Limpopo Province. (PhD thesis). Pretoria: University of Pretoria.

McCarthy, N.G. 2006. *Report of the Auditor-General*, Free State: Bloemfontein, 30 June: 1–7.

McNabb, D.E. 2010. *Case Research in Public Management*. New York: M.E Sharpe.

Mdlongwa, E.T. 2014. Local Government at the Heart of Poor Service Delivery: 20 years of Democracy. *PSAM. Rhodes Journalism Review* (accessed 05 August 2015). Volume 2014 Sep, Issue 34, p. 39. www.psam.org.za

Melville, S and Goddard, W. 2001. *Research Methodology: An Introduction*. 2nd Edition. Lansdowne: Juta.

Merriam Webster`s Collegiate Dictionary. 2009. 11th edition, Springfield, MA: Merriam-Webster. (accessed 15 October 2013). www.merriam-webster.com/dictionary/global

Migiyo, S.O and Ambe, I.M. 2008. Evaluation of the Implementation of Public Sector Supply Chain Management and Challenges; A Case Study of the Central District Municipality, North West Province, South Africa. *African Journal of Business Management* 2 (12):230-242.

Miller, J.D. 2013. *Infrastructure. 2013*. Global Priorities, Global Insights. Washington: Ernst and Young.

Mouton, J. 2001. *How to Succeed in Your Master`s and Doctoral Studies: A South African Guide and Resource Book*. Pretoria: Van Schaik.

Munusamy, R. and Marvick, D. 2015. *The ANC (E-tolled) Highway to 2016 Election Hell*. South Africa. 22 May 2015 (accessed 23 May 2015).

Myint, U., 2000. Corruption: Causes, Consequences and Cures. *Asia Pacific Development Journal* 7 (2): 33-58.

- Neuman, W.L. 2006. *Social Research Methods. Qualitative and Quantitative Approaches*. 6th edition. Boston: Pearson Education, Inc.
- O’Flynn, K.A. and Nevile, A. 2010. *Policy Briefs. Implementation Challenges*. Crawford School of Economics and Government ANU College of Asia and the Pacific. The Australian National University.
- Ola, R.O.F and Effiong O.J. 1994. *Public Financial Management in Nigeria*. Lagos: Amfitop Books.
- Omoluabi, P. 2007. *The Psychological Concomitants of Corruption in Nigeria*. In Olurode, L and Anifowose, R. (eds). *Rich but Poor: Corruption and Good Governance in Nigeria*. Lagos: University of Lagos.
- Onwuegbuzie, A.J., Collins, K.M.T., Leech, N.I., Dellinger, A.B. and Jiao, Q.G. 2010. *A Meta-Framework for Conducting Mixed Research Syntheses for Stress and Coping Researchers Beyond*. (accessed 21 June 2016). <http://works.bepress.com/nancy-leech/3>
- Opawole, A. Jagboro, G.O, Babatunde, M.O and Opawole, M.O. 2013. Critical Factors in Road Infrastructure Development in Osun State, South Western Nigeria. *International Journal of Development and Sustainability* 2 (1):240-253.
- Otegbulu, A. 2011. Economic Valuation of Poor Road Infrastructure Lagos: A Focus on Urban Households. *Global Journal of Human Social Science* 11(10) (1.0): 230-239.
- Paradza, G. Mokwena, L. and Richards, R. 2010. *Assessing the Role of Councillors in Service Delivery at Local Government Level in South Africa*. Research Report 125. Johannesburg.
- Patton M.Q. 2002. *Qualitative Research and Methods*. 3rd edition. Thousand Oaks, CA: Sage.
- Pauw, J.C., Woods, G., Van Der Linde, G.J.A., Fourie, D. and Visser, C.B. 2009. *Managing Public Money Systems from the South*. 2nd edition. Johannesburg: Heinemann Publishers (Pty) Ltd.
- Permanent International Association of Road Congresses, 1994. *The International Road Maintenance of Unpaved Roads*. Crowthorne, UK: The Transport Research Laboratory.

Phala, K. 2015. Limpopo Provincial Budget 2015/16. 12 March 2015. <http://gov.za/speeches/mec-kgolane-ph...> (accessed 22 April 2015).

Pienaar, P.A. 2011. *The Gauteng Toll Roads: An Overview of Issues and Perspectives*. Postgraduate Student, Department of Civil Engineering, University of Pretoria

Pierce, R. 2008. *Research Methods in Politics. A Practical Guide*. London: SAGE Publications LTD.

Polit, D.F. and Hungler, B.P. 1993. *Essentials of Nursing Research. Methods, Appraisal, and Utilisation*. 3rd edition. Philadelphia: J.B Lippincott Company.

Ponterotto, J.G. 2005. Qualitative Research in Counselling Psychology: A Primer on Research Paradigms and Philosophy of Science. *Journal of Counselling Psychology*, 52(2):126-136.

President Zuma J. 2015/16. *State of the Nation Address* by His Excellency Jacob G Zuma, President of the Republic of South Africa on the occasion of the Joint Sitting of Parliament Cape Town. 12 February 2015, www.gov.za (accessed 27 March 2015).

Pretorius, D. and Schurink, W. 2007. Enhancing Service Delivery in Local Government: The Case of a District Municipality. *SA Journal Human Resource Management* 5 (3):19-29.

Hanna, R., Bishop, S., Nadel, S., Scheffler, G. and Durlacher, K. 2011. *The Effectiveness of Anti-Corruption Policy. What has worked, what hasn't, and what we don't know. Technical Report*. London: Eppi-Centre. Social Science Research Unit. Institute of Education. University of London.

Queiros, C and Gautam, S. 1992. *Road Infrastructure and Economic Development*. Policy Research Working Papers, World Bank, Washington DC.

Raga, K. and Taylor, D. 2005. Impact of Accountability and Ethics on Public Service Delivery: A South African Perspective. South Africa: Port Elizabeth.

Republic of South Africa 1999. *Public Finance Management Act, 1999 (Act 1 of 1999)*. Pretoria: Government Printer.

Republic of South Africa. 1996. *The Constitution of the Republic of South Africa, 1996*. Pretoria: Government Printer.

Republic of South Africa. 1998. *Local Government Municipal Structures Act, 1998 (Act 117 of 1998)* Pretoria: Government Printer.

Republic of South Africa. 1998. *The South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7 of 1998)* Pretoria: Government Printer.

Republic of South Africa. 1998. *The White Paper on Local Government*. Pretoria: Government Printer.

Republic of South Africa. 2000. Department of Provincial and Local Government. Pretoria: Government Printer.

Republic of South Africa. 2000. *Local Government: Municipal Systems Act, 2000 (Act 32 of 2000)*. Pretoria: Government Printer.

Republic of South Africa. 2000. *Preferential Procurement Policy Framework Act, 2000 (Act 5 of 2000)* Pretoria. Government Printers.

Republic of South Africa. 2000. *The Promotion of Equity and the Prevention of Unfair Discrimination Act, 2000 (No 4 of 2000)*. Pretoria. Government Printer.

Republic of South Africa. 2001. *The Municipal Planning and Performance Management Regulations (R. 796 Of 2001)* Government Gazette. Pretoria: Government Printers.

Republic of South Africa. 2003. *Broad-Based Black Economic Empowerment Act 2003 (Act 53 of 2003)*: Pretoria: Government Printer

Republic of South Africa. 2003. *Local Government Powers and Functions – Definitions, Norms and Standards*. Pretoria: Government Printer.

Republic of South Africa. 2003. *Local Government: Municipal Finance Management Act, 2003 (Act 56 of 2003)*. Pretoria: Government Printer.

Republic of South Africa. 2004. *Construction Industry Development Board Activities Act 200 (38 of 2000)*. Pretoria. Government Printer.

Republic of South Africa. 2004. *Prevention and Combating of Corrupt Activities Act 2004 (Act 12 of 2004)*. Pretoria. Government Printer.

Republic of South Africa. 2005. *Evaluation of Service Standards in the Public Service*. The Public Service Commission (PSC). Pretoria: Communication and Information Service.

Republic of South Africa. 2006. *National Infrastructure Maintenance Strategy: In Support of ASGISA and Government Growth Objectives*. Department of Public Works Construction Industry Development Board Council for Scientific and Industrial Research.

Republic of South Africa. 2006. *Roads Infrastructure Strategic Framework for South Africa*. 2006. Pretoria: Government Printer.

Republic of South Africa. 2007. *Government Immovable Asset Management Act 2007 (Act 19 of 2007)*. Pretoria: Government Printer

Republic of South Africa. 2008. *A Guide for Local Government Officials*. Pretoria: Government Printers.

Republic of South Africa. 2010. *Department of Roads and Transport*. South African National Roads Agency Limited. 2010. Pretoria: Government Printer.

Republic of South Africa. 2011. *Local Government Budgets and Expenditure Review*. Department of National Treasury. Pretoria: Government Printer.

Republic of South Africa. 2011/12. *Maintenance of Roads*. South African National Roads Agency Limited. Pretoria. Government Printers.

Republic of South Africa. *Budget Review*. 2007. National Treasury. Pretoria.

Republic of South Africa. 2003. National Treasury. *Regulations in terms of Public Finance Management Act, 1999: Framework for Supply Chain Management as Published in Gazette No. 25767*. 5 December 2003.

Ringold, D. Holla, A., Koziol M, and Srinivasan, S. 2011. *Citizens and Service Delivery: Assessing the use of Social Accountability Approaches in Human Development Sectors*. Washington DC: World Bank.

Ronald, G. 2017. How many Vehicles Registered on the Roads of South Africa? (accessed 24 July 2017) www.arrivealive.co.za.

Rondinelli, D. 2002. *Public Private Partnerships in Colin Kirkpatrick, Ron Clarke and Charles Polidano Eds. Handbook on Development Policy and Management*. Cheltenham, UK and Northampton, MA: Edward Elgar.

Rourke, D. and Macey, GP. 2003. Community Environmental Policing: Assessing New Strategies of Public Participation in Environmental Regulation. *Journal of Policy Analysis and Management* 22 (3):383- 414.

Sahni, P. and Medury, U. (Eds.). 2004. *Governance for Development: Issues and Strategies*. New Delhi: Prentice-Hall of India Private Limited.

Schweikert, A., Chinowsky, P., Espinet, X. and Tarbert, M. 2014. Climate Change and Infrastructure Impacts: Comparing the Impact on Roads in Ten Countries through 2100. *Procedia Engineering. Science Direct. ELSEVIER* 78:306-316.

Sieber, N. 2014. *Road Corruption Unmasked*. Australian Development Agency: BIRN.

Smith, H.W. 1975. *Strategies of Social Research*. Englewood: Prentice Hall

Soul Buddyz-Four, 1992. *Road Safety. Focus on Perspective of 8-12 children and their Parents*. www.soulcity.org (accessed 5 March 2014)

South African Local Government Association. 2011. *Guideline Document on the Roles and Responsibilities of Councillors, Political Structure and Officials*. SALGA.

South African Local Government. 2006. *A Sustainable Funding Model for Roads Infrastructure at Municipal Level, Especially Rural Areas*. Pretoria: Government Printer.

SPSS Statistics 17.0 Brief Guide. <http://www.spss.com> (accessed 14 July 2016).

Statistics South Africa. 2011. Population Census, Pretoria: *Statistics South Africa* (accessed 10 July 2017. www.statssa.gov.za

Stemele, BM. 2009. *Assessing Good Governance in Procurement at Lejweleputswa District Municipality*. Unpublished dissertation of Masters of Public Administration. Stellenbosch University.

Sultana, M. Rahman, A and Chowdhury, S. 2013. Performance Based Maintenance of Road Infrastructure by Contracting- A Challenge for Developing Countries. *International Journal of Productivity and Performance Management* 62(5):118-123.

Tarawneh, S. and Sarireh, L.M. 2013. *Causes of Cracks and Deterioration of Pavement on Highways in Jordan from Contractors Perspective* 3(10).

African and Francis 2008. Economic Growth in India: The Role of Physical and Social Infrastructure. *Journal of Economic Policy Reform*, 11(4):373-385.

Terre Blanche, M., Durrheim, K. and Painter D. 2014. *Research in Practice. Applied Methods for the Social Sciences*. 2nd edition. UCT Press: Juta and Company Ltd.

The South African National Roads Agency Limited. 2012. Version 1.0. TRH 26. *South African Road Classification and Access Management*. Pretoria: Government Printers.

Transparency International, 2014. *Corruption Perceptions Index 2013: Now is the time for Action*. 3, December 2013.

Transparency International. 2008. *The Global Coalition against Corruption*. 2008. Transparency and Integrity in Service Delivery in Africa (TISDA).

Twerefou, D.K., Adjei-Mantey, K. and Strzepek, N.L. 2014. *The Economic Impact of Climate Change on Road Infrastructure in Sub-Saharan Africa Countries*. ANU-WIDER Working Paper 2014/032. World Institute for Development Economics Research.

Uys H.H.M. and Basson A.A. 1991. *Research Methodology in Nursing*. 10th Impression. Pretoria: Penrose Book Printer.

Van den Dool, L. 2005. *Making the Local Government Work. An Introduction to Public Management for Developing and Emerging Economies*. South Africa. Eburon Delft.

Van der Walt, G. 2004. *Managing Performance in the Public Sector: Concepts, Considerations and Challenges*. Lansdowne: Juta.

Van der Pijl, K. 2009. *A Survey of Global Political Economy (Version 2.1 October 2009)*. Centre for Global Political Economy. University of Sussex.

Van der Westhuizen, L. 2013. Audited Figures after Five Years of Withholding Rates and Taxes SRPA decides to pay over R5 Million to Municipality. *Zoutpansberger Newspaper*. 02 August 2013, www.zoutnet.co.za (accessed 12 December 2013).

Vhembe District Municipality. 2016. Topographic and Orthophoto Map 1:350 000. *Makhado Local Municipality*. GIS Section. Development Planning Department

Walker, L.O. and Vant, K.C. 1998. *Strategies for Theory Construction in Nursing*. Norwalk, CT: Appleton and Lange.

Wall, K. 2009. *Water, Sanitation and Hygiene: Sustainable Development and Multi-sectoral. A National Infrastructure Maintenance Strategy for South Africa*. Reviewed Paper 91. 34th WEDC International Conference, Ethiopia.

Waltz, C.F. and Bausell, R.B. 1981. *Nursing Research: Designs, Statistics and Computer Analysis*. The University of Michigan: F.A Davis Co.

Ward, M.E. and MacPhail-Wilcox, B. 1999. *Delegation and empowerment: leading with and through others*. New York London: Routledge Taylor and Francis Group.

Welman, C., Kruger, F. and Mitchell B. 2005. *Research Methodology*. 3rd edition. Cape Town: Oxford University Press of Southern Africa.

Wentworth, L. and Schoeman, M. 2015. *What can the South African Government and SANRAL Learn from the Implementation of Urban Tolling Systems in other Developing Countries?* South African Institute of International Affairs. Global Media.

Wilson, W. 1887. "The Study of Administration," *Political Science Quarterly* 2(2):197-222. Woodrow Wilson- Wikiquotes.

Zubane, P. 2011. *Alternative Service Delivery Models for the South African Public Service for the year 2020*. Master's Degree thesis: University of Stellenbosch.

Zumrawi, M.M.E. 2015. Investigating Causes of Pavement Deterioration in Khartoum State, Sudan. World Academy of Science, Engineering and Technology. *International Journal of Civil, Environmental, Structural, Construction and Architectural Engineering*, 9 (11):1302-1306.

United Nations. 2015. *Resolution adopted by the Economic and Social Council on 4 March 2015 Membership of the Economic and Social Council in the Organisational Committee of the Peacebuilding Commission*. Global Commitment to National Implementation.

ANNEXURES

ANNEXURE A: INFORMED CONSENT FORM AND RESPONDENTS QUESTIONNAIRE

INFORMED CONSENT FOR PARTICIPATION IN AN ACADEMIC RESEARCH STUDY

UNIVERSITY OF LIMPOPO, TURFLOOP GRADUATE SCHOOL OF LEADERSHIP (TGSL)

Title of the study

Investigating critical challenges of maintaining road infrastructure in the Limpopo Province: A case of Makhado Local Municipality

Researcher:

Mrs. P.M Musitha

Cell: 082 314 3361

Dear Respondent

My name is Pandelani Mumsy Musitha, MPA student, at the University of Limpopo, Turfloop Graduate of Leadership. I hereby invite you to participate in my academic research study. The purpose of the study is to investigate the critical challenges of maintaining road infrastructure in the Limpopo Province using Makhado Local Municipality as my area of focus.

Please note the following:

- This study involves an anonymous survey in which your name will not appear on the questionnaire and the answers you give will be treated strictly confidential. You cannot be identified in person based on the answers you give;
- There are no financial costs directly associated with participants in this project;
- You will not receive any compensation for participating in this study;

- Your participation in this study is very important. You may however, choose not to participate and you may also stop participating at any given time without any negative consequences;
- Please answer the questions in the attached questionnaire as completely and honestly as possible. This should not take more than 30 minutes of your time;
- The results of the study will be used for academic purpose only and may be published in academic journal. We will be able to provide you with a summary of our findings on request;
- Please contact my supervisor, Prof K Phago at phago.kedibone@mut.ac.za 031 907 7423 if you have any questions or comments regarding the study.

Please sign the form to indicate that:

- You have read and understood the information provided above.
- You give your consent to participate in the study on a voluntary basis.

Respondent `signature

Date

**QUESTIONNAIRE FOR THE ROAD USERS, MUNICIPAL OFFICIALS
COUNCILLORS AND WARD COMMITTEE MEMBERS**

MARK OR TICK FROM THE ANSWERS GIVEN BELOW

SECTION A: BIOGRAPHICAL DATA

1.1 Gender of respondents

Male	Female
------	--------

1.2 Age of respondents

18-30	31-40	41-50	51 and above
-------	-------	-------	--------------

1.3 Educational background of respondent

Non e	Grade 2-12	Natio nal Diplo ma/ba sic Degre e	Profes sional qualifi cation (Certi ficate in Theor y of Accou nting, Chart ered Accou ntant Engin eering) etc.	Doc tora te	Other

1.4 Residence of respondents

Makhado	Dzanani	Vuwani	Waterv al
---------	---------	--------	--------------

1.5 Transport type

Light	Normal	Heavy
-------	--------	-------

2. CONDITION OF ROADS

2.1. Please indicate your level of agreement or disagreement with the following statements in relation to your locality:

State	Strongly disagree	Disagree	Agree	Strongly agree
2.1.1 Proper road coverage is not sufficient				
2.1.2 There is a lack pedestal walk				
2.1.3 Main streets do not have potholes at all				
2.1.4 Local streets are not tarred				
2.1.5 There is lack of road markings				
2.1.6 The road system lack drainage system				
2.1.7 There is sufficient street lighting				

3. EFFECTS OF THE ROAD

3.1 I have personally encountered the following when using bad roads in my locality in the past?

Difficulties	Strongly disagree	Disagree	Agree	Strongly agree
3.2.1 A damage to the body of my car				
3.2.2 Puncture of the car tyre				
3.2.3 Delay in movement				

3.2.4 Robbery				
3.2.5 Car accident				

4. PRESCRIBED REGULATORY FRAMEWORK FOR SUPPLY CHAIN MANAGEMENT

4.1 The municipality procures road infrastructure in a fair, equitable, transparent, competitive and cost effective manner.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4.2 Supply Chain Management is done according to the Municipal Finance Management Act in Makhado Local Municipality.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4.3 The municipality adheres to the Broad –Based Black Economic Empowerment Act in bidding processes.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4.4 During bidding process there is discrimination on the basis of political affiliation.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4.5 All completed road projects are registered in the asset register in this municipality.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4.6 The municipality has a register for restrictions on persons and enterprises convicted of corrupt activities in tendering and contracts.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4. THE LEGAL FRAMEWORK GOVERNING THE LOCAL MUNICIPALITY IN THE CONTEXT OF ROAD PROVISION AND MAINTENANCE

4.1 The municipality complies with Supply Chain Management in procuring road infrastructure projects.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4.2 The suppliers lack knowledge about supply chain management regulations and policies.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4.3 The municipality has construction professionals such as engineers, quantity surveyors etc.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4.4 The Supply Chain Management officials collaborate with suppliers to defraud the municipality.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4.5 Renewing the existing contract is considered an option than issuing a new contract.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4.6 Policy challenges include leadership.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4.7 Corruption leads to poor road infrastructure.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4.8 Human resource with skills and capacity is a challenge in the municipality.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

4.9 Political influence affects the quality of road infrastructure.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5. CRITICAL CAUSES OF ROAD INFRASTRUCTURE COLLAPSE (Municipal officials- road infrastructure department)

5.1 Integrated Development Plan (IDP) provides strategic guidance to the municipality.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5.2 IDP takes into account the budget allocated towards the municipality.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5.3 Municipality does not conduct IDP processes as dictated by the legislation

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5.4 IDP processes do not involve integration of community participation and prioritisation.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5.5 Lack of skills is a challenge in service delivery within the municipality.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree.

5.6 There is a definite need for the increase for provision and maintenance, repair and renewal of municipal road infrastructure

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5.7 Governments intervention and assistance is crucial in many authorities especially the local government.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5.8 The municipality do not have infrastructure monitoring systems to track condition of assets overtime.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5.9 Monitoring and incentives-based have potential to reduce corruption.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5.10 The municipality has public accountability and has no corruption.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5.11 The municipality places the people at the centre of all aspects of public governance including audit.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5.12 Forms of corruption occurring in the municipality include bribe.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5.13 The municipality has a challenge of completeness of tender document and is very difficult to verify.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5.14 In order to ensure quality road infrastructure the government and private sector should combine their efforts.

1. Agree 2. Strongly Agree 3. Disagree 4. Strongly Disagree

5.15. In your view what needs to be done in order to improve road infrastructure state within your municipality.

5.16 In your view what is/ are the critical cause/s of the poor state of road infrastructure?

Thank you for your participation in this research

ANNEXURE B: OBSERVED STREET PICTURES IN THE FOUR TOWNS OF MAKHADO

Figure 7.1: Streets in Makhado town



Figure 7.2 Streets in Vuwani Town



Figure 7.3 Street in Dzanani Town



Figure 7.4: Streets in Waterval Town



ANNEXURE C: REQUEST FOR PERMISSION TO CONDUCT RESEARCH:

TGSL

**University of Limpopo
Turfloop Graduate School of Leadership
Master of Public Administration
P.O. Box 756, Fauna Park, 0787, South Africa
Tel: (015) 268 4179, Email:sebanki.moeketsi@ul.ac.za**

To : To Whom It May Concern
From : Pauline Moeketsi
MPA: Programme Assistant
Date : 28/06/2016
Subject: Permission Letter to Collect Data

Dear Sir/Madam,

This is to confirm that **Ms. Musitha PM (19972188)** is a registered Public Administration Masters student with the Turfloop Graduate School of Leadership needs to collect data as part of the requirement to complete her mini-dissertation. The topic of her research is **“Investigating Critical Challenges of Maintaining Road Infrastructure in Limpopo Province: A Case Study of Makhado Local Municipality”**. We therefore request permission from your institution for her to collect data.

Hope you will find this well.

Best Regards

Pauline Moeketsi

**ANNEXURE D: REQUEST FOR PERMISSION TO CONDUCT RESEARCH:
RESEARCHER**

Musitha P.M
9 Waterbessie Street
MAKHADO
0920

The Makhado Municipal Manager
P/Bag X2596
MAKHADO
0920

Date: 11.03.16

Subject: Request for permission to conduct research

Sir

The above matter has reference:

- That I Pandelani Mumsy Musitha is a student of Masters of Public Administration at the University of the North for 2013/14; request for permission to conduct research in the Makhado Local Municipality.
- That my proposed topic is “**Investigating Critical Challenges of Maintaining Road Infrastructure in the Limpopo Province. A Case of Makhado Local Municipality.**”
- My focus is local tar roads within the four small towns, namely, Makhado, Dzanani, Vuwani and Waterval only.
- That I also request to have access to municipal leadership, technical director, and other managers who will be for assistance in my study research as well as relevant documents in the sections under study, and other members who would provide relevant information within your municipality;

My supervisor is Prof. K. Phago, and can be reached at phagokedibone5@gmail.com (082 099 7257)

Thanking you in advance.

Yours Sincerely

Musitha P.M (mumsyp16@gmail.com)
082 314 3361

ANNEXURE E: PERMISSION TO UNDERTAKE RESEARCH STUDY: MAKHADO LOCAL MUNICIPALITY



MAKHADO MUNICIPALITY

Vision : "A Dynamic Hub For Socio - Economic Development By 2025"
Mission : "To ensure effective utilization of economic resources to address socio-economic imperatives through mining, tourism and agriculture"

Ref : 5/3/1 & 5/4/2
Enq : N C Kharidzha
Date : 28 June 2016

Mrs P M Musitha
9 Waterhessie Street
MAKHADO
0920

Madam

PERSONNEL: PERMISSION: RESEARCH ON INVESTIGATING CRITICAL CHALLENGES OF MAINTAINING ROAD INFRASTRUCTURE IN THE LIMPOPO PROVINCE: A CASE OF MAKHADO LOCAL MUNICIPALITY: PM MUSITHA

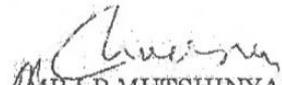
I have great pleasure in informing you that your letter dated 11 March 2016 on the above matter is approved, subject to the Municipality's best practice and conventions for students that undertake research on Council's records viz.

1. Research activities will not disrupt the normal operation of the Municipality.
2. Prompt and timeous arrangements must be made with the Departmental Head concern when assistance is required.
3. Copy of the research finding / thesis must be submitted to the Municipality.
4. The Municipality has no power over research conducted with community members and this part will be performed with the community at their own free will.
5. Research will be for a period of six months which can be extended for a further period determined by the Municipal Manager.
6. Confidential records / information must not be reflected in thesis documents.
7. The collection of data for research on investigating critical challenges of maintaining road infrastructure in the Limpopo Province: A case of Makhado Local Municipality will be conducted based on prior arrangements to be made before the meeting with the Director Technical Services.
8. The Municipality is indemnified against any claims for damages by the applicant which may result directly or indirectly from the research activity.
9. Research information may not be used for any form of publication media other than the applicant's studies except with permission of the Municipality.

10. The Authorization is granted in line with provisions of the Municipality Access to Information Manual read with the Promotion to Access of Information Act, and the National Archives Act and approved by the relevant Head of Department (HOD) with regards to the classification of information.

You are therefore kindly requested to visit the Municipality at corner of Erasmus and Krogh Street, Civic Centre, Corporate Services Department, Human Resource Division, office number A002, basement floor, on or before 31 July 2016 to complete the necessary forms.

Yours faithfully


M. P. MUTSHINYALI
MUNICIPAL MANAGER

I, PANDELANI MUMSY MUSITHA by my signature herein below confirm that I have read and understood the contents of this letter and accept the conditions set out and undertake to abide by the conditions as outlined.

SIGNED AT MAKHABO ON 08 07 2016



Cognisance taken by student

ANNEXURE F: LANGUAGE EDITING LETTER

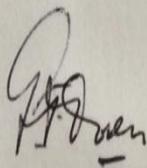
Academic Language Editing Service

Date of editing: November 2017

TO WHOM IT MAY CONCERN

I hereby certify that I have language -edited the thesis prepared by Pandelani Mumsy Musitha entitled: *Investigating Critical Challenges of Maintaining Road Infrastructure in the Limpopo Province: A Case of Makhado Local Municipality*, and that I am satisfied that, provided the changes I have made are effected to the text, the language is of an acceptable standard, and is fit for publication.

Signature: _____



G T Owen M.Ed (Exeter). Certificate in Rewriting and Editing, Publishing Training
Centre, London, UK.

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Walmer Heights,
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