

The contribution of infrastructure maintenance in the development of Mahikeng



V Seekaro



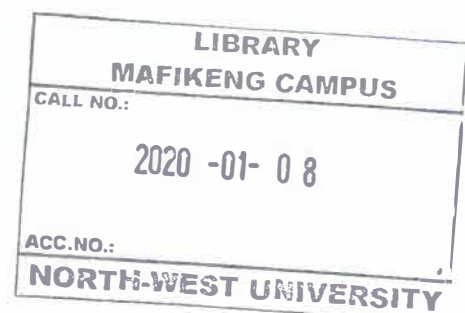
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Dissertation submitted in fulfilment of the requirements for the degree **Master of Administration in Public Administration** at the North West University

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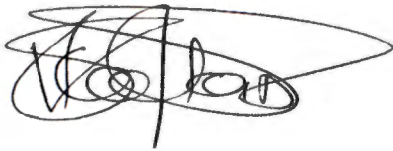
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DECLARATION

I, the undersigned Vuyelwa Seekaro, hereby declare that the contents of this masters research paper for the requirements of the degree of Master of Administration in in Public Administration at the North West University: Mahikeng Campus is entirely my work and has not been submitted to this university or any other, and all the materials used have been duly acknowledged.



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DATE: 23/11/2018

ABSTRACT

The main aim of this research project was to study the contribution of infrastructure maintenance in the development of Mahikeng. The researcher explored the contribution of water and road infrastructure maintenance in developing Mahikeng under the Mahikeng Local Municipality. Well maintained infrastructure contributes positively towards the health of communities and in turn leading to a significant increase in economic activities. Mahikeng is currently stuck in one place with regard to development and growth. The roads have been in terrible conditions for many years and the water pipes are really old. This means that these pipes constantly burst and residents do not have water to clean, bath or even cook. When these residents do not have water to bath, they will not be able to go to work and this slows down productions. The researcher decided on the topic of study after looking at the problem and the problems it has caused in the process of developing Mahikeng.

The researcher chose to undertake a qualitative research approach in conducting this study. This allows the researcher to have detailed interviews with participants who are in a position to give their opinions on behalf of communities and the municipality. A number of Acts that form part of the legislative framework for the establishment of local government municipalities are entitled to generate revenue through charging property rates along with surcharges. In place there is a legislative framework for collecting revenue at municipal level.

There are two groups for infrastructure namely: social and economic infrastructure. These groups or types of infrastructure impacts the lives of residents and how the government can help improve or develop the lives of residents. This specific paper focuses on road and water infrastructure and how it being maintained can contribute towards developing the capital city. Over the years the road and water infrastructure has deteriorated. In delivering services, municipalities experience some challenges like inadequate budgets and deaths of key personnel. The contribution of infrastructure maintenance was further backed up by Agenor's theory of infrastructure-led development which proposes infrastructure as an engine of growth.

Infrastructure contributes towards developing tourism, creating employment and being used as a strategic tool in building confidence in the communities. On one hand, constantly maintaining the infrastructure keeps road and water network operating for a longer period. On the other hand postponing infrastructure maintenance or not maintaining it at all, leads to

increased costs that could easily be avoided by the municipality. This paper explored the economic benefits of road maintenance and water infrastructure. After looking at and studying the impacts of not maintaining these infrastructures through conducting interviews with ward councilors and municipal officials, the researcher was able to understand that residents have contributed to the current state of roads and they are also discouraged and show this by not paying rates. The municipality has had the same infrastructure for over twenty years and this means it has exceeded its lifespan. This is the case, the municipality can only focus on maintenance and not reconstructing the roads and water infrastructure. The findings and recommendations are also discussed in this paper in the concluding chapter.

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There are few people like you on earth.

DEDICATION

I would like to dedicate this master's thesis to the following people:

My family (Joyce Seekaro, Zanexolo Seekaro and Keabetswe Seekaro) for your unfailing support.



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CHAPTER 1: GENERAL INTRODUCTION

1. Introduction

Infrastructure development in a developing country is of great importance. Developing the infrastructure can lead to a number of economic benefits, which will result in great provincial development. It is important to not only focus on developing the infrastructure, but also on maintaining it. This ensures that the infrastructure has a longer life cycle. The responsibility of infrastructure maintenance in Mahikeng lies with the Mahikeng Local Municipality. One of the roles of municipalities is to ensure infrastructure is well maintained. This is as a result of municipalities being a government that is close to the people. Residents are required to pay different rates to the municipality according to the different properties that they own. The municipality will then employ these financial resources in various areas. Infrastructure in Mahikeng is not in the best condition, a lot of the infrastructure is not well maintained. Residents pay rates to the Mahikeng Local Municipality, yet the condition of the infrastructure deteriorates as the years go by. This is why Mahikeng is in the position that it is in economically. This paper will cover the background to the study, problem statement, paradigmatic perspective, research aim and objectives, research methodology, Rigour/ Validity and Reliability, ethical considerations and lastly an executive summary. This study will focus on the contribution of infrastructure in the development of Mahikeng.

1.1 Background to study

South Africa has nine provinces and every province has a capital city. In the case of the North West Province, Mahikeng is the capital city and for that reason, this study will be conducted in the Mahikeng Local Municipality area. Municipalities exist to offer basic services to the community, and are given power by the Constitution of the Republic of South Africa Act 108 1996. Municipalities are given power to govern over their own local government affairs. As mentioned earlier, Mahikeng is a capital city. A capital city is expected to be a well performing economic progressive area. It is also expected that a capital city should show that it is a capital city by looking at it. Business activity must be at an all-times high performance, and infrastructure quality should also be of the best quality. This includes schools, hospitals, roads and sanitation, just to mention a few. Mahikeng does not perform or look like a capital city. Amongst other problems, Mahikeng is also experiencing a problem of poor infrastructure. Most of the infrastructure, if not a majority of it is in terrible conditions. The

existing road and water infrastructure is not well maintained by the local Municipality. The limited maintenance in the province is alarming. Municipalities collect money from residents to ensure that they receive services. Over the past few years the situation has worsened and this has resulted in Mahikeng being in the position it is in economically.

Well maintained infrastructure contributes to the economic position of every province. If the infrastructure is not in good shape, it poses a problem for the development and growth of the province. This has led to an urgent need for this problem to be addressed head on. The unresolved continuous problem has led to residents voicing their concerns, and they voice their concerns through their actions. A lot of community members show their actions by not attending meetings called by their councillors and through striking or demonstrations by chanting and burning the existing infrastructure. The community can only communicate with councillors that they have voted in, but in most cases community members do not even know their ward councillors. Community members cannot approach the municipal council with their concerns, protocol allows them to voice their concerns with the ward councillors. Community members do not partake in the decisions that affect their lives because they are discouraged by the limited actions the municipality takes to address the existing problems. The community decisions are then be made by the Municipal Council, which means that the council only discuss and focus on problems that they see as a priority over community desires, hence the community concerns are not addressed.

Dilapidated roads have led to numerous accidents and people have gone days without clean water, yet the steps to maintaining this infrastructure is a rather slow process and there is a serious water crisis in the region, as parts of it can go without water for some time. The study does acknowledge that not all the infrastructure is in terrible condition, some of it is well developed and maintained to this day, which poses the question as to why it is not the same for most of the infrastructure. Infrastructure has major effects on the economic and social activities of a region. It is one of the leading causes in the state of Mahikeng today.

1.2 Definition of key concepts

- Infrastructure is a broad term used to describe different types of physical structure that are included in the production of goods and services. Infrastructure can therefore be seen as an input in the production process (Chan, Forwood, Roper and Sayers, 2009: 5).

- Economic infrastructure refers to energy, water, transport, digital communications, and waste disposal facilities and are vital in achieving economic growth. This reliable infrastructure leads to a competitive and growing industry. It also encourages economic growth through contributing to an increase in the private and public sectors productivity, reducing the costs of operating a business and finding new ways of diversifying the means of production and leads to job creation (Stewart, 2010: 29).
- Social infrastructure is more focused on offering services to the public than producing goods. It refers to schools and hospitals (Chan, 2009:5).
- Maintenance- according to the Department of Public Works (2017:5), maintenance refers to all the steps followed to make sure that an asset continually performs a pre-determined function to a set performance standard. This asset is to be kept as near as practicable to its initial condition, which includes ongoing activities, to keep the asset functioning but specifically excluding renewal.
- A local municipality is a municipality which shares municipal legislative and executive authority with a district municipality within whose area it falls under and is described in Section 155(1) of the Constitution as a Category B municipality (Local Government: municipal structures Act 117 of 1998).
- Methodology- it refers to how the research was done, how the researcher went about obtaining group and analysing data. It includes designing, setting, sampling, methodological limitations and data collecting, it also includes techniques applied for analysing data (Mamabolo, 2009:40).

1.3 Historical overview of the problem

South Africa during the Apartheid era was racially divided. White people were at the receiving end of multiple benefits and had preference over black people. Black people dominated rural areas and received little to no benefits. This included health care facilities, electricity, water, sanitation, schools and roads. The villages did not have proper roads, water was fetched from boreholes, most used candles as a source of light during the night, they did not have access to proper health facilities, and the schools were not in good conditions. Then transitioning the leadership from all white to an inclusive democratic leadership brought about radical change. This change was spear headed by the African National Congress. This change also brought about a need for the government to

balance the economic conditions of both black and whites, and this was to be achieved through a number of policies to correct imbalances of the past.

The link between investing in infrastructure and locally developing an area is undisputed. So when the new government came into power, it recognized the importance of infrastructure in economic development and uplifting people's lives. While whites had access to all the good infrastructure, blacks lived in poverty, with little to no infrastructure. The post-apartheid government in South Africa came up with policies and programmes to try and balance the economic conditions of all races. Policies like Black Economic Empowerment (BEE), and the Reconstruction Development Programme (RDP), were birthed as a way to involve blacks in economic activities. Blacks had to be uplifted and equipped with the necessary skills to survive. This meant creating job opportunities, and offering them training. The government was tasked with building and providing infrastructure to the previously disadvantaged. This meant building new schools, finding ways to provide affordable electricity to every household, providing clean water, building new hospitals and constructing roads. The government then formed municipalities and tasked them with delivering basic services to their communities. Municipalities have a list of objectives and responsibilities towards their community as provided for by the Constitution of the Republic of South Africa 1996.

The Constitution also distributes certain powers to the municipalities under the leadership of the National and Provincial government. Infrastructure development and maintenance is one of the municipality's responsibilities. Local government should strive towards socio-economic development. The process entails taking necessary steps to develop its region. Mahikeng Local Municipality is supposed to work towards building the community and offering community member's capital infrastructure. Capital infrastructure can be used in the production of goods, services and creating new employment opportunities.

Now more than 23 years after democracy, Mahikeng in the North West Province is still facing the same problems as during apartheid. The problem of infrastructure development and maintenance in the capital city has been ongoing for years. Over the years black people have been able to actively participate in economic activities. A lot of them went to school, started working and were able to make money to meet their basic needs. This

means, most of them have moved from villages to urban areas. This has led to overcrowding and more and more people requiring infrastructure to survive and to be part of the corporate world. More and more people were built houses, and the number of people who need housing increases every year. This meant more households are now demanding electricity, water, sanitation, proper health facilities and transportation systems from the local government. Since the local government has not been able to meet the needs of the community, people started protesting to show their dissatisfaction. The infrastructure has not gotten better over the years, despite these protests. The local municipality is yet to actively start fixing this problem. The roads have become worse, some parts are facing the water crisis, while the provincial hospital is affected by the limited resources. Well developed and maintained infrastructure leads to improvement in the economic performance of any area. This paper will prove that good infrastructure can improve the productiveness of Mahikeng.

1.4 Preliminary literature review

Literature review provides the researcher with an opportunity to read past material on the research problem. This material should be similar and the researcher is presented with an opportunity to consider variables that should be taken into consideration to do justice to the topic. It also enables the researcher to identify room for their research.

The Constitution of the Republic of South African Act 108 of 1996 Section 151(1) instructs that municipalities should be established across the whole territory of the republic. This is an attempt to make sure that government is able to deliver basic services to communities at close range. It also gives municipalities rights to administer on their own accord the local government affairs of the various communities under the legislation of both national and provincial government. This is because municipalities know the needs of their communities' best. Municipalities are within the communities, so they are able to prioritise what is a more urgent expenditure, unlike at provincial and national level where the laws and priorities would be generalized and not focused on each community's individual needs. National and Provincial government do not interfere unless a municipality is unable to run its own administration. Municipalities also have a number of objectives. One of these objectives states that municipalities make certain that they

distribute services to communities in a sustainable manner. Sustainability, meaning the municipality must be able to maintain public services like water and road infrastructure maintenance. These services must be made available to the community on a continual bases, as, for example, without water a lot of people would die, so clean water is a priority (Constitution of the Republic of South Africa Act 108 of 1996, s.152(a)).

The seventh Chapter of the Constitution also lists out an objective of municipalities, which is to promote social and economic development. This means contributing the necessary capital to push social and economic development forward. The capital can be in the form of infrastructure. Infrastructure can be regarded as an input in the production process. Take for example, road transport systems can help with moving goods from one place to another. A good transportation system can ensure that this process becomes faster without delays and money wasted. Firms will not face the struggle of having to constantly repair the trucks due to bad roads, time will not be wasted when moving goods from one place to the other. The constitution does not list these objectives without realistically stating that municipality within its administrative and financial capacity must work towards achieving all five objectives.

The constitution gives the municipality power to collect money in the form of rates from community members. Residents pay rates based on the type of property they own. This money should then be used to deliver basic services such as infrastructure. It is important to take care of the community's their wellbeing and the environment they live in. It is the community's right to access proper health facilities without being turned away because of limited resources, or the hospital being understaffed. When travelling around Mahikeng to work or for pleasure, residents have a right to proper road infrastructure that will not damage their cars or cause accidents when trying to avoid potholes. Residents also have a right to clean water and not to wake up and get brown water or have their water turned off for a whole day without being informed beforehand. Water is a need for drinking, cooking, cleaning, and so on, now residents are forced to buy purified water just to survive while paying services to the municipality.

1.5 Problem statement

The problem that will be addressed by the study is the limited infrastructure maintenance in Mahikeng.

1.5.1 Sub-problems

A lot of scholars have explored the impacts of infrastructure development and not a lot of them have explored the topic of infrastructure maintenance. A number of problems can arise as a result of not maintaining the existing infrastructure. The limited infrastructure maintenance experienced can be as a result of political interference in the awarding of tenders. Infrastructure maintenance tenders are awarded based on political connections and not on merit. This has led to low quality infrastructure that is damaged like water pipes that burst every now and then which in turn leads to water shortages. Burst pipes leads to water wasted and that contributes to the water crisis already experienced in the country. Regular infrastructure maintenance ensures that the infrastructure performs its duties for a long period of time unlike when it's the opposite. It is important to explore the topic and the benefits on the economic activity of any region.

1.6 Aim and objectives of the study

A research aim is the central reason why research is being conducted in the first place. It is seen as the foundation of the whole research project and without it a research study is practically useless as it does not have an end goal. A research project usually has only one purpose or aim (Thomas and Hodges, 2010: 39). Research objectives on the other hand refers to a list of precise statements that stipulates primary matters to be focused on when embarking on a research project. It is common for research projects to have a number of research set and determined objectives (Thomas and Hodges, 2010:39). The listed objectives give the research a guide and lists out what a researcher plans on doing with the research and the findings of the study will be based on the extent to which each and every objective has been met. The research questions in this section are questions related to each objective.

1.6.1 Research aim

The aim of the study is to explore the contribution of infrastructure maintenance in the development of Mahikeng.

1.6.2 Research objectives

- Explore municipal infrastructure maintenance methods,

- Encourage communication between the municipality, ward counsellors and the community without violence,
- Explore infrastructure maintenance and its contribution towards regional development,
- Explore the benefits of infrastructure development and maintenance,
- Highlight the importance of community participation in preserving infrastructure.

1.7 Research questions related to the objectives

- Which methods are used to maintain the infrastructure?
- How can communication improve between the municipality, ward counsellors and the community without resulting in violence?
- How does infrastructure maintenance contribute to regional development?
- What are the benefits of infrastructure development and maintenance?
- What is the importance of community participation in preserving infrastructure?

1.8 Significance of the study

This research project focuses on the Contribution of Infrastructure Maintenance in the development of Mahikeng. It seeks to answer the questions posed by the study, hopefully to answer some of the questions by the community as to why the municipality is slow in fixing the problem. It also seeks to highlight the importance of a well-developed and maintained infrastructure focusing on the economic benefits. The study will link investment in infrastructure with new employment and business opportunities. It will show how the community is affected by the current state of infrastructure, how this infrastructure affects their day to day lives, and how it impacts their firms or possible firms moving to Mahikeng.

It is important that the community understands how the municipality makes its money and how important it is for them to pay their rates. The study will educate the community on the importance of paying rates in return for services. It will also show the community how not paying rates has left the whole region in this state, and that the state Mahikeng is in is not only caused by the municipality's inability to render services, but also the community's part of not paying rates. The community cannot expect the municipality to render services if they do not pay rates. It is close to impossible for the municipality to do anything without these rates and the cash injection from national government will never be enough. The study will

highlight the importance of the community's participation in decision making, thus working with the municipality to improve the community. The community must attend meetings with ward councillors instead of staying home and not addressing the problem head on. The only way ward councillors can know the community's problems is if there are open lines of communication, and for that reason, this study will include the importance of productive communication between the community, ward councillors and the municipality. Communicating through the right channels is more effective and this study will highlight how to do that, what proper channels the community can use.

The municipality has its own struggles and so does the community. This study will enlighten everyone on the challenges faced by the residents due to the infrastructure. It will also highlight the challenges faced by the municipality due to the limited community participation and the limited resources. The study may come up with different ways that the municipality can employ to encourage community participation. It is vital to educate residents on how to help preserve the existing infrastructure instead of burning it and finding ways that are just as effective to communicate but less damaging. It is important that the study does not lean towards one side, but remains unbiased, showing both community and residents' participation in growing or delaying the growth of the community.

1.9 Research design and methodology

1.9.1 Qualitative research method

The research method utilized in this research project on the contribution of infrastructure maintenance in the development of Mahikeng is qualitative research. It focuses on selecting a number of participants who know enough about the topic to be able to represent their groups. It is mainly descriptive research used to receive a better understanding of underlying reasons, opinions and motivations. The primary aim of a descriptive research is to ensure provision of precise and authentic representation of factors of different variables that are suitable to the research questions (Nassaji, 2015:129). The researcher is able to understand why the community is behaving the way it does and why the municipality is experiencing delays with fixing the problem. Qualitative research method is descriptive in nature, and use a language which seeks to decode and describe the meaning of naturally occurring phenomena in the social world. Qualitative researchers seek to obtain an insider's perspective, in other words, they try to understand events or actions the way respondents have experienced them (Govender, 2012:21). This approach generates results in two ways: In a non-quantitative form

or in a form which means it is subject to meticulous quantitative analysis. In general, these techniques are used in in-depth interviews, focus group interviews and projective techniques.

1.9.2 Qualitative research design

Ethnographic research is commonly used within a given community or organisation. It is a descriptive research design that can be used in investigations with communities, groups or organisations (Gobo, 2011: 15). The research will take place within the Mahikeng community. The researcher will interview a representative from the Mahikeng Local Municipality and ward councillors from areas within Mahikeng. The researcher will be able to study the participants' attitude and opinions towards the problem, if from both sides they are committed to contributing to preserving the existing infrastructure and finding new ways to communicate without using violence. The research requires one to actively interview participants.

1.10 Sampling

1.10.1 Sampling design

According to (Trotter II, 2012:298), a qualitative research sampling is less structured, less about numbers and less strict, unlike quantitative research sampling. That is highly dependent on the data collection method used. Researchers undergoing qualitative research are not focused on getting many people to take part in interviews. It is about how the selected numbers of people respond to the interviews. There are no strict rules with regard to the sample size in a qualitative enquiry. The sample size is dependent on what the study is about, the main purpose behind enquiring is what is considered to be valuable, what will be trustworthy and what can be done within a limited time frame with limited resources. Data sampling takes place after the researcher has investigated.

The study is about the Contribution of Infrastructure Maintenance in the Development of Mahikeng. The sample size will not include a lot of people. It may include seven ward councillors under the Mahikeng Local Municipality and a municipal representative in charge of the infrastructure department. Ward councillors are able to speak on behalf of the communities that elected them. They are able to elaborate on how the community feels and what actions has the community taken to make the municipality aware of the problem. The municipal representative will be able to bring the municipality's point of view to complete the study. With qualitative research it is not about getting the views of a lot of people, it is

about selecting people who have more than enough knowledge and these people are able to represent their groups.

1.10.2 Sampling technique

The researcher will use purposive sampling/ judgemental sampling technique in this study. Using it ensures that the researcher chooses what is considered to be typical units. Purposive sampling means that a set criteria is used in choosing respondents who would be able to provide the needed data for the investigation (Govender, 2015:23). According to Oppong (2013: 203) with purposive sampling, it may take two different approaches. The first approach is the maximum variation approach, with this approach the researcher is able to spot varied characteristics of the target population and selects a representation of subjects that corresponds with characteristics that have been identified. The second approach is the snowball sampling type. This type of technique enables the researcher to gather information from carefully chosen participants, whose opinions are pertinent enough to be included in the study. It is reliant on the researcher's capabilities to single out components that may lead to a subjective response to questions that are posed and making use of the knowledge of the knowledge of the appropriate variables in selecting the sample of study.

These variables are reliant on the extent of knowledge a researcher has on the topic that forms the foundation of the study, information collected from all appropriate accurate literature and clues that emerge during the process of conducting the research (Oppong, 2013:203). For that reason, the researcher found the snowball sampling approach to be the best one for the study. The researcher selects people from the overall population, these people are considered to have extensive knowledge about the research topic. Participants are selected on the basis of what they know about the topic and these people are able to represent the group to which they belong (Van Manen, 2014: 353).

According to Patton (2015: 264) the real power of purposive sampling is found or identified in carefully choosing cases that are full of information, to enable the researcher to conduct an in-depth study. These cases that are full of information can assist researchers to learn a lot or gather a lot of data about the issues that are primarily important in the decision to undertake the study. Taking time to study these cases offers a deeper detailed understanding. Purposive sampling is applicable categorically to qualitative research. It is important for the researcher to select people who have extensive knowledge about the research topic, so that they can offer their opinions to represent their groups best. In this study, the researcher will interview

ward councillors and a municipal representative. Ward councillors represent their communities and this means they are able to bring their opinions based on the needs of their communities. They know best what their communities are complaining about most and need most. The municipal representative will be able to bring the views of the municipality and shed light on why it seems like the municipality is not doing anything about the state of infrastructure in Mahikeng.

1.11 Data collection

This stage of the research comes after proper planning and taking time out to follow proper protocol by going through ethical clearance and obtaining permission from all participants to engage in the study. The researcher will actively search and collect information in line with the study. This process allows the researcher to take time to answer the questions raised by the study. It takes a number of different small units such as participants and their interviews to bring the study to life.

1.11.1 Data collection method

The data will be collected using a qualitative research method, and the researcher will collect data using interviews. Interviews are the most common method of collecting data in qualitative research. The researcher will use semi-structured in-depth interviews. These are interviews that are guided by written down questions, but those are not the final and only questions that will arise during the interview. Semi-structured interviews are more flexible and less rigid (Edwards and Holland, 2013:3). These interviews will not be group interviews rather one on one interviews. Interviews save time and get the necessary information from participants. This means the researcher will have questions written down, these questions will guide the interview. As respondents answer these questions, some questions may arise during the interview that the researcher had not planned on, this is as a result of feeding off from the respondents. Open-ended questions allows the researcher to understand the participants' real feelings about the problem. The researcher will interview ward councillors and the municipality about the state of infrastructure in Mahikeng today. Participants will be free to elaborate on the topic of the study to the best of their abilities, and will be able to relate their own experiences. Ward councillors will be able to represent their different communities, because if a problem arises in their community, they would be in the best position to speak up on their behalf. These participants will remain anonymous and these interviews will be done

over the phone or face to face. The researcher will also be the interviewer and will record this using a phone.

1.12 Qualitative data analysis

According to Flick (2013:5), it is a process of aligning and interpreting linguistics and visual material to reach a concluding statement about constant and non-constant proportions and structure of making meaning of what was gathered from the material and what been presented in it. Qualitative data analysis seeks to understand rather than explain social actions. It seeks to understand why the community responds the way they do to the inactions or limited actions of the municipality. It also seeks to understand why the municipality is yet to do anything about the problem at hand, or why it is taking longer for the municipality to act. During the data evaluation process, investigative and rational reasoning are used to study each part of data provided. After the data has been collected a thorough process of analysing data starts. This process includes filtering data with the intention of eliminating irrelevant data (Flick, 2013:5). The researcher will analyse data based on similar variables from the interviews.

The researcher will use the content analyses type to analyse data. Content analysis is descriptive in nature and includes categorizing verbal and behavioural data with the aim of classifying, summarizing and tabulating data. This is done to confirm the trends and patterns of the words used by participants. This method can be employed on written, audio or visual documents (Gordon, 2016: 169). This type can be used in both qualitative and quantitative research. In qualitative analysis, it involves identifying themes that occur in the data collected. It allows the researcher to investigate a topic and see which themes arise in interviews (Gordon, 2016:171). Content analysis in qualitative research usually uses semi structured interviews. In these interviews, researchers use consistent questions to help in gathering similar data from the entire sample, but that does not mean it is not open to new themes that may arise.

1.13 Scope of the study

The scope refers to the geographical limitations of the study and boundaries under which the study will be operating (Simon and Goes, 2013:1). This means where the study will take place, the information collected and analyzed will be relevant to only one that geographical area because it is where the study was conducted. It also states that the recommendations can

be implemented in departments, areas or regions of the place where the study was conducted. As a result of the research being done in one area, the problem being from one area, interviewing participants from one area, it means the study's findings will only be applicable to that one area.

This research will take place at the Mafikeng Local Municipality. The research will be done based on the contribution of infrastructure maintenance in the development of Mahikeng. The research will be limited to the North West province only. The final results in the study may not be applicable to other municipalities in other areas of the province or any other province. The recommendations are purely based on the interviews conducted at the Mafikeng Local Municipality based on problems experienced by the community of Mahikeng.

1.14 Ethics

The term refers to moral principle or rules of conduct. This refers to how a person should conduct activities. In terms of research, the researcher should at all times conduct themselves in a good and upright manner. In research, ethics can be defined as methods, processes or perspectives for making a decision on how to act and for carefully analyzing difficult problems and issues (Resnik, 2013:1). The researcher should be honest and transparent with all participants. Even during the interviews, the researcher should be open with the participants on what the study is about and the researcher must at all times protect the names of the participants. If participants agreed to be part of the research because of the promise that their identity will be withheld, the researcher should uphold this principle. The researcher will follow all proper channels in obtaining permission from all participants. All ethical measures will be observed. This means obtaining the ethical clearance form from the North West University and permission from the participants. The study will be based on genuine information from those affected by the problem and the municipal representative.

1.15 Organization of the study

Chapter 1- introduction

The chapter introduces the topic while covering the background to the study, definitions of key concepts, historical overview of the problem, preliminary literature study, problem statement, aim and objectives of the study, objective related questions, significance of the study, research methodology, scope of study, ethics, organisation of study and conclude on the whole chapter.

Chapter 2- Literature Review

The researcher will review existing literature on the topic or a related topic.

Chapter 3- research design and methodology

The researcher explains how the research was done, which steps were taken in the process of acquiring data, analysing data and the type of study undertaken.

Chapter 4- Data presentation and analysis

The summary of the whole study will be provided here the following chapters will be summarized chapter one: introduction, chapter two: literature review chapter three: research design and methods and chapter five is about the findings, conclusions and the recommendations.

1.16 Conclusion

The study will focus on the Contribution of Infrastructure Maintenance in the development of Mahikeng. It is a qualitative research study, which means it will not focus on a lot of statistics. The need for better infrastructure did not start today, it started right after the apartheid era in South Africa ended. When the new leadership took over after the democratic elections under the leadership of the African National Congress, it was clear how majority of the people were affected by the economic imbalance. The new government then set out to create an equal South Africa for all. This meant investing resources in uplifting black communities. One way the government planned on doing this was through infrastructure development, making sure that black communities had good health facilities, transportation systems, water and electricity, housing and sanitation. The national government then decided on establishing municipalities, this way they can meet the needs of communities faster at close range. Municipalities have a right to administer affairs of local communities out of their own will under the leadership of the provincial and national government. Qualitative research method is used to receive a better understanding of

people's actions, inactions and naturally occurring events. Using Ethnographic research design to enhance this study. This information usually comes from communities or organizations to give a better understanding from people experiencing the problem. The data collected will be sampled under the qualitative sampling method. This method is less structured and rigid, but yields the best results. The data will be sampled using purposive sampling. It allows the researcher to choose people who have more knowledge on the topic and can offer their opinions in the best interest of their groups, instead of choosing a lot of people to offer different opinions. The sample size will not be a large number, a selected number of people will represent their different groups. The researcher will collect data using interviews, they are the best ways to obtain the necessary information, working with limited resources and little time. Finally the data will be analysed using qualitative data analysis. It is focused on understanding the reason behind a group's actions or inaction. Both sides of the affected groups will be presented, thus being unbiased. This means allowing the municipality to answer some of the questions posed by the community and sharing their own problems with the community.

CHAPTER TWO: LITERATURE REVIEW

2. Introduction

It is imperative not only to develop, but to also maintain the infrastructure, in order to contribute towards the economic and social development of regions. One cannot ignore the link between infrastructure maintenance and regional development. Over the years, many scholars delved deeper into the relationship between developing the infrastructure and economic growth after the seminal work produced by Aschauer in 1989. He is considered the primary contributor in this topic, as he argued that public sector spending on infrastructure was fruitful and that the reasons behind the United States of Americas' downswing in economic activity was related to the limited investment in capital public infrastructure.

Many scholars have explored the topic of public infrastructure development, but have over the years, like the South African government, not invested in writing or exploring infrastructure maintenance and its contribution in the economy. Developing the infrastructure has been the driving force behind economic growth, and for that reason, it is imperative to ensure that growth and development happen in a maintainable manner (Jafta, 2017:6). Government focused on developing the infrastructure and not so much on maintaining it. This has led to backlogs in terms of infrastructure maintenance.

This chapter focuses on exploring past literature on the topic or related topics of study. It will elaborate on the link between infrastructure maintenance and development, taking into account its advantages and disadvantages. According to McNabb (2013:411), literature review is a set, clearly detailed and able to be duplicated method, used to classify, evaluate and clarifying the existing body of preserved evidence that researcher, practitioners and many scholars produced. This process of reviewing the literature is important in a research process as it helps to familiarize the researcher with new developments in the set area of study. The researcher is awarded a chance to identify and attempt to close a gap that exists. The main motive of the second chapter is to critically assess literature that is already existing on the topic of study through exploring various sources which includes books, journals, Acts and official reports.

2.1 Definition of key concepts

Social development is concerned with human rights, informal and formal relations of power, inequality and opportunities for establishing a vast amount of equality among individuals and groups within societies (Browne and Millington, 2015:2). It includes a number of procedures considered to be non-economic and the development outcomes including: inclusion; wellbeing; people focus approaches, reduced vulnerability, freedom from violence and accountability.

Economic development refers to a continuous escalation of the per capita income. It also weighs how income and wealth is distributed while increasing quality of life indicators. It relies heavily on the functioning of social and economic institutions, and on the cooperation between public and private sector (Feldman, Hadjimichael, Lanahan and Kemeny, 2016:8).

Economic growth is centered on increasing the production and consumption of goods and services. It is focused on increasing the aggregate output, and is a fundamental tool in the process of poverty reduction and improving people's standard of living. It is indicated by increasing the Real Gross Domestic Product or real National Product (Feldman, Hadjimichal, Kemeny, Lanahan, Partridge, Poole, Seidman, Stern, Storper, Wial and Wolfe, 2014:1).

Theory - a logically connected system made up of general propositions that establish relationships between two or more variables. Theories are made without assumptions, but is based on reasoning and is open for further investigation (Abend, 2008:177).

Taxes - is a levy that is charged on services, goods, wealth and income by the government. It is a definite revenue source for expenditure by the government. It is the main route that government uses to generate extra revenue. This money is then used by the government in order to benefit every citizen in the state (Edogbanya and Sule, 2013:3).

Revenue - funds generated by the government to meet the financial needs of the state's activities. It can further be defined as income for the state that is derived from tax and other sources. The state may generate revenue internally or externally, to meet all of its expenses for the fiscal year. A state has different revenue sources, but the primary source for revenue in South Africa is through tax (Edogbanya and Sule, 2013: 3).

Act - a law enacted by parliament and has undergone a number of required legislative steps, which has finally been passed as a law in the state (Government of Western Australia Department of the Attorney General, 2011:2).

Maintenance - all necessary actions or steps that are mandatory for an asset to realize its foreseeable useful life (Boshoff, Childs and Roberts, 2009:19).

2.2 Legislative framework

2.2.1 The Constitution of the Republic of South Africa of 1996

Post-apartheid South African government started a major infrastructure construction program that was aimed at dealing with the existing backlogs and capacity constraints in terms of the physical infrastructure. The government also aimed at creating a solid foundation for the private sector's fixed investment, to increase its production capacity. The three spheres of government and functional areas are outlined in the Constitution. The legislative and executive authority of local government is found in the municipal council.

The status of municipalities are outlined in Section 151 of this Act. Municipalities make up the local sphere of government and these municipalities are to be found in the whole of territory of the Republic. These municipalities will of their own accord, govern common activities of its community, and this is under the leadership of national and provincial legislations as provided for by the constitution (The Constitution of the Republic of South Africa Act 108, 1996:85). The objectives of municipalities are to provide a democratic and accountable government for local communities, to work towards promoting social and economic development and to encourage the involvement of communities and promote community organization in the affairs of local government (The Constitution of the Republic of South Africa Act 108 of 1996, s.151).

2.2.2 Local Government: Demarcation Act 27 of 1998

The first step in altering and shaping local government was the enactment of this Act, as it shaped the supporting structure for re-demarcating municipal boundaries by the Demarcation Board. The board was primarily driven by the need to establish municipal boundaries in line with this Act (Gaedie, 2015:18). It advocates for the establishment of municipal boundaries to list the roles and responsibilities of each and every municipality and to what extent or areas are covered by these municipal responsibilities. The Demarcation Board sets municipal boundaries, to give a clear picture of to what extent is the area covered by the municipality, making it easier for municipalities to perform all duties (Gaedie, 2015:18).

2.2.3 The White Paper on Local Government of 1998

The vision of developmental local government is submitted by Section two of the White Paper on Developmental Local Government. This local government focuses on collaborating and cooperating with local communities in a continuous manner, to meet their needs and improve or uplift their standard of living. Improving or uplifting the community is one of government's main objectives. Municipalities are encouraged to build local democracy by developing strategies best suited for the different municipalities and mechanism to engage citizens, firms and community based organizations on a continual basis (Gaedie, 2015:21).

2.2.4 Local Government: Municipal Structures Act of 1998

The Act creates municipalities and municipal internal structures. It was enacted mainly for the purpose of dividing the authority and functions of district and local municipalities as instructed by the Constitution of the Republic of South Africa. It includes the criteria for determining the different municipal categories. Municipalities fall under three different categories; namely Category A, B and C (Gaedie, 2015:18). Metropolitans, with a sub-council or a ward participatory system, are considered Category A municipalities, while local municipalities, with an executive committee or an executive Mayor, who is obligated to report annually on community participation and organization, with a ward participatory system, is considered to be Category C municipalities. Lastly district municipalities with its executive and legislature powers in areas with more than one municipality are Category C municipalities. This Act regulates local and district municipalities to make by-laws (Gaedie, 2015:18).

2.3 **Municipal revenue**

Municipalities are allocated authority to generate their own revenue by the Constitution of RSA of 1996 in Section 229. These municipalities are permitted to establish a system of charging different rates on properties along with surcharges. Surcharges are fees or taxes added to the cost of goods or service; they appear as additional charges on a utility bill like water, sanitation, electricity and using municipality facilities such as parks or sports grounds (Larkins and associates, 2012: 3). However in terms of generating revenue, municipalities are not given the authority to charge income tax, value-added tax, general sales tax or custom duty tax. Municipalities are only responsible for charging and collecting money that is meant for local government affairs. Municipalities also assume, sustain and execute credit control

and debt collection policy. Municipalities can only impose a fee for municipal services provided by a municipality (Larkin and associates, 2012:3).

The affairs of municipalities must be in line with rates and tariff policies that are in Section 95 and 96 of the Municipal Systems Act 32 of 2000 (Oosthuizen and Thornhill, 2017:4). Municipalities are in a place where they can generate revenue, so that they can finance functions allocated to each and every municipality. These functions differ across municipalities. Municipalities that are unable to generate revenue or a lot of revenue, receive most of it in the form of grants through the Division of Revenue Act (DORA) annually. Municipalities that are more urban raise most of its revenue from their own sources (Oosthuizen and Thornhill, 2017: 4). Government divide revenue and allocates a reasonably larger portion that is available through the DORA annually, to municipalities that are rural and poor, as they are heavily reliant on government grants for survival. These poor and rural municipalities have a lower tax base and need financial help from the government. Municipalities that are urban, are encouraged to make their own revenue and use these resources to increase investment in infrastructure (Oosthuizen and Thornhill, 2017:4).

According to Mahabir and Mabena (2015:1), a gap in available funds is to be expected as a result of the demands and needs of communities exceeding the amount of money the municipality has generated. The gap is primarily the reason behind inter-governmental transfers. These transfers are done through giving grants to municipalities. One primary aim of allocating these two grants is to address financial weaknesses of each and every municipality. Another reason is to support premeditated priorities of government, to eliminate service delivery backlogs, and acts as an addition to the economic development of local regions in the country.

2.4 Legislative framework for revenue collection and sharing

Government is in place to ensure that people receive services, and this meant finding ways to generate revenue. Revenue that will be generated will be used in maintaining the country and delivering services to the people. According to Pieters (2015:12) the legislative framework for collecting and distributing revenue involves different laws and policies of the public sector that directly stipulates who can collect revenue, how they will collect it, where they can collect it and when it can be collected and also on how this revenue will be allocated to the three spheres and structures of government. This is done with the aim of delivering efficient and effective services. Some of these legislative frameworks are discussed below:

2.4.1 The Constitution of the Republic of South Africa Act 108 of 1996

Managing finances for all government spheres is a requirement according to the constitution. All entities that are formed and established by government spheres are also required to manage their finances. The financial law of South Africa is provided for in Section 215 and 216 of this constitution. Managing finances in these spheres occur, but in a less structured manner. Financial officials who are employed are sometimes inexperienced, which then leads to a greater need for superior structuring of financial management (Pieters, 2015: 12). The Constitution makes provision for collecting and dividing money that is generated in Section 195(1) of the principles of Public Financial Management and Administration, Section 213 being the National Revenue Fund and Section 24 which is Equitable Shares and Allocation of Revenue.

2.4.2 Intergovernmental Fiscal Relations Act 97 of 1997

It was enacted to encourage collaboration among the three government spheres namely: national, provincial and local government. This means collaborating on financial and budget related matters and also to sets out the procedure for determining a reasonable sharable amount to be allocated from the money generated by the state. Revenue sharing process of money that was raised by the state in terms of Section 214 from 1(a) to 1(c) of the South African constitution must be effected in accordance with this Act (Pieters, 2015:13). Local government has a stake in the revenue that is generated nationally and this is done through the legislation that permits cooperation among all the spheres of government on terms revenue allocation (Moeti, 2014:156).

2.4.3 Division of Revenue Act 5 of 2012 (DORA)

According to Moeti (2015:156), this Act is implemented at the opening of each financial year for the government to help in terms of deciding on how to distribute money raised by the state to every government entity along with local government. The Act states how much money will be spent for that financial year, also, how much will be given to government entities per category and this Act is adopted through the Finance Ministers budget speech to parliament. According to Pieters (2015:14) this Act is used as a method for dividing funds into equitable shares and gives effect to Section 283 (1) of the RSA Constitution.

The Constitution calls for this Act to distribute revenue raised nationally and this is to be done fairly. Revenue is divided between national government, over 270 municipalities and the nine provinces. In line with intergovernmental Fiscal Relations Act 97 of 1997, the

Division of Revenue Bill must be introduced by the Finance Minister every year in the National Assembly for the upcoming financial year during the time when the budget speech is delivered and is to be voted upon (Pieters, 2015:14). The Bill must be specific in breaking down how the revenue that is raised nationally will be distributed amongst the spheres of government. Revenue is broken down fairly to each province.

2.4.4 Municipal Finance Management Act 56 of 2003 (MFMA)

The Public Finance Management Act was passed by parliament in 1999. This Act is made up of a thorough set of processes that are very convincing government officials to make financial information available and to also be held accountable for their actions. This law is applicable to all provinces and the national government. It recognizes that transparency is more of an important factor especially at national government than the sub national level and seeks to make sure that local government follow suit. The Act was formally enacted in 2003 (Khagram, Fung and De Renzio, 2013:54).

There is a framework that allows municipalities to borrow and also determines the terms and conditions for municipalities borrowing. This is provided for in the Municipal Finance Management Act 56 of 2003. Municipal Property Rates Act 6 of 2004 formed a constant property rating system in the whole of South Africa. It applies to municipalities as a whole, all entities that are owned by municipalities and state organs of national and provincial spheres to the level of the financial dealings between these organs and municipalities (Pieters, 2015:13).

2.4.5 Local Government Municipal Property Rates Act 6 of 2004

This Act was passed as a way of legalizing the authority of municipalities to charge rates on properties for generating revenue. Properties that are set aside for national interests are excluded from these rates. Transparency is required from municipalities when they implement the provisions for this Act. Municipalities are also required to implement an impartial system of exemptions, discounts and repayments through their rating policies. Property owners may make submissions for objection and appeal procedure when making further provision for this Act (Moeti, 2014: 156).

According to Pieters (2015:17), Section 229 of the RSA Constitution of 1996 makes provision for the fiscal powers and functions of municipalities. This constitution is considered a national legislation that sets municipal powers to charge rates on property, surcharges on municipal fees or on municipal entities or other taxes, levies or duties.

According to this Act, municipalities cannot impose tax at the local government sphere that would negatively affect its tax-reducing financial conservative strategy. In line with the finance minister, the minister of local and provincial government can set a maximum limit on the percentage by which the property rates may be increased.

2.4.6 Municipal Systems Act 32 of 2000

It was passed to confer authority to municipalities and is important in managing municipal finances. These powers include developing its own policies, strategies and programs that regulate provisions of all services offered by the municipality. Every municipality is different, so are the needs and structures of communities. So, every municipality has power to draft policies, plans and programs of service delivery. This Act was also enacted to impose recovering rates, levies, fees and taxes. These, power are given effect through Integrated Development Plans. All the policies, plans and programs are supposed to contribute towards the social and economic development of the various municipalities (Pieters, 2015:17).

2.4.7 Municipal Fiscal Powers and Functions Act 12 of 2007

Section 229 provides the fiscal powers and functions of municipalities and they came into effect in 2007. It focuses on regulating municipal taxes besides rates charged on property and was enacted with the aim of encouraging a pattern of transparency, confidence and a set method of municipal fiscal powers and functions. This Act was also enacted to make certain that the fiscal powers and functions of municipalities are applied as provided for, by the RSA Constitution in Section 229. According to Moeti (2015:157), it authorizes different levies, duties and taxes of municipalities under Section 229(1) (b). This Act focuses on three extensive issues that are in the constitution and these are: execution of new taxes (Section five), National norms and municipal surcharges (Section eight) and corroboration of municipal taxes that have been in existence preceding this Act (Section twelve) (Pieters, 2015:15). These broad issues are to be discussed in detail below.

2.4.7.1 Application for a new municipal tax

According to Pieters (2015:16) the Municipal Fiscal Powers and Functions Act under Section five is responsible for a group of municipalities, a municipality or organized local governments' ability to put in a request for new municipal taxes. The only time municipalities can enforce a tax is after the Minister of Finance authorizes it according to Section five. When formally requesting for a new tax, it must be accompanied by the

rationale for suggested tax, and the different ways in which this revenue generated through this new tax will be used.

2.4.7.2 Regulation of surcharges

According to Pieters (2015:16), the Municipal Fiscal Powers and Function Act 12 of 2007 in Section eight focuses on the benchmark and the set criteria for enforcing surcharges on services by the municipality. The day the Minister of Finance gazettes the regulations that will be the day the surcharges take effect. This Section of the Act has not been activated yet, as a result, surcharges are included in tariffs and the regulations of Section eight are introduced; the two will be separated. The interdependence between surcharges and tariffs has led to the two regulations being aligned.

The National Treasury has seen the importance of aligning its regulatory procedures with regard to surcharges with the regulatory procedures of department sectors with regard to municipal tariffs. A lot of different sector have implemented some forms of regulations and put them in place, supervision of the roles of municipal regulations have been limited and as a result, largely successful. A lot of sector departments like the Department of Water, and Environmental Affairs have introduced procedures to enhance their regulatory supervisory responsibilities and this is done directly, or using a regulator, for example the National Energy Regulator of South Africa (Pieters, 2015:16).

2.4.7.3 Authorization of municipal taxes that existed previous to the Act

An application to the Minister of Finance had to be logged by the seventh of September 2009 by a municipality for tax authorization that has existed before the Act was enacted in line with Section twelve of the Municipal Fiscal Powers and Functions Act 12 of 2007. Prior to commencing the Act, municipalities had to provide the National Treasury with the probable taxes levied, and all applications were thoroughly assessed. Introductory steps of determining how to address or deal with each and every application were accepted by the Minister, printed and circulated in government notices for public input and lastly submitted to Parliament. The comments are then written down on introductory determinations by the Finance Minister that are circulated as is in the Government Gazette and are received by a number of stakeholders. The Minister of Finance then gazette the final rulings in 2012 after a thorough consultation process. These rulings are to be reviewed by the Finance Minister after every five years and this is according to Section 10(2) of the Municipal Fiscal Powers and Functions Act 12 of 2007 (Pieters, 2015:17).

2.4.8 Public Finance Management Act 1 of 1999

This Act was validated and authorized by the first democratic post-apartheid government in South Africa. It advocates for the objective of good management of finances. This is done to maximize service delivery using the limited resources effectively and efficiently. This act was put in place to ensure successful and cost-effective management of the revenue that has been generated, to provide for the responsibilities of people in positions that manage the finances of these spheres and to provide for matters connected to the finances, assets and liabilities of all government spheres (Pieters, 2015:17).

2.5 Types of infrastructure

Infrastructure refers to goods that are used as capital goods used in activities by many industries. Good quality should be stressed over quantity in infrastructure. Infrastructure has direct impacts on a country's ability to grow the economy, as well as the ability of firms to partake effectively in economic activities. These services are put in place to expedite development in the economy. Socio-economic development can be aided and expedited by the presence of socio-economic infrastructure. If regions do not have these facilities or properly functioning facilities, then regional development is hard to attain. There are mainly two types of infrastructure, namely; economic infrastructure and social infrastructure (Hussain, 2015:2).

2.5.1 Economic Infrastructure

According to Hussain (2015:2), it is a grouping of facilities considered to be basic, which contribute and act beneficial in the development of economic activities for both firms and households. It includes transport, telecommunications, water and sanitation facilities. These are facilities and services that contribute towards firms and their production as well as people's lives.

2.5.2 Social infrastructure

It refers to a grouping for facilities that are important for developing humans. This incorporates housing, health facilities such as hospital, education in schools, colleges and universities. These types of infrastructure work hand in hand, and are essential for the complete development of an economic system (Hussain, 2015:2).

2.6 Role of municipalities in service delivery

According to Ndzelu (2016:18) municipalities across the globe are faced with challenges of the increased demand for service delivery and South African municipalities are not exempt from these challenges, as this is seen through the protests across the nation. These protest have taken a turn for the worst, hence the need to improve service delivery by municipalities to an extent that these municipalities engage in public-private partnerships (PPPs). According to Matibane (2010:46), this approach involves the understanding, investing and facility management of the private sector that contributes toward developing and improving infrastructure for inhabitants. However, other government sectors have not taken to the approach, because they believe it can primarily lead to job loss as a result of privatization.

In the context of South Africa as an attempt to improve service delivery, all imbalances of the past must be taken into account, and services delivery as a corrective measure. This is done through improving the lives of all races that were previously disadvantaged in South Africa, and this can happen when equal opportunities that include sufficient and significant infrastructure services by the municipality exist, including facilities that are of excellent quality are supplied in a maintainable manner (Ndzelu, 2016:18). Local government must priorities providing necessary services and developing local environment. Local governments are obligated to provide sustainable services to communities. These communities have legislative power to hold the government accountable, should local government not fulfill its responsibilities. Services which should be easily accessible to residents are roads and water and it is the responsibility of local government to ensure the provision of these basic services (Ndzelu, 2016:19). These services are discussed below.

2.6.1 Water infrastructure

The Water Services Act (No 108 of 1997) specifies elemental water supply as the littlest measure provision of water supply that is necessary for consistent distribution of a satisfactory quality and amount of water to inhabitants. This is done in order to maintain life and personal hygiene as instructed in Section one of the Water and Services, Act 108 of 1997. According to the Department of Water Affairs and Forestry (2007:5) there are two levels of water supply: at Reconstruction and Developmental Programme level (RDP), which means a minimum of twenty five litres of clean and drinkable water has to be provided to one person a day. In terms of public water points, the water supply has to be within two hundred metres of every household, with a minimal flow of ten litres per minute. For every formal connection,

6000 litres of clean and drinkable water should be supplied to every house connection (White Paper on Water Supply and Sanitation Policy, 1994:15).

The second level in the Reconstruction Development Program, state that every household must have equal access to infrastructure like a standpipe that is 200 metres from household (White Paper on Water Supply and Sanitation Policy, 1994:15). If inhabitants are dependent on water supply from a river, a dam or trucking project, it is concluded that infrastructure is not present. According to Ndzelu (2015:20), water quality is an important factor in service delivery. Local government has to ensure that they supply communities with clean and drinkable water to prevent sickness which can lead to labour decrease. Local government is tasked with supplying good quality infrastructure to citizens. Without substantial financial assistance from the national government, it will be close to impossible for municipalities to effectively provide services to less developed and poor communities.

2.6.2 Roads infrastructure

Road infrastructure is important for developing an area. On the one hand, numerous road systems have crumbled and degraded, on the other hand, costs of improving or fixing the damage that occurs as a result of heavy congested traffic in some areas and neglected routine maintenance, have caused the repair costs to sky rocket. The longer it takes a municipality to repair road damage, the greater the cost (Ndlezu, 2016:22). According to CIDB (2007:8) delaying road maintenance of three to five years increases the costs of fixing between six to eighteen time. Due to the decrease in the road quality in terms of riding on it, costs that are attached to operating vehicles can easily double as a result of roads that are not maintained. Road maintenance is the responsibility of local government and taking longer periods to fix the damaged roads will lead to an increase in costs.

2.7 Challenges in municipal infrastructure service delivery

A number of municipalities especially those which fall under Category B, have a twofold challenge of wanting to increase the delivery of services in poverty-stricken areas that are rural and were previously disadvantaged, while there is a need for these municipalities to enhance informal settlements, by making sure that elemental services to communities at RDP level is sufficient. Administrative decentralization procedures which affect Category B municipalities more than other municipalities also cause big backlog in service delivery (Ndlezu, 2016:23). Municipalities face more and more challenges daily and some of them are discussed below:

2.7.1 Inadequate Budgets

According to (Ndlezu, 2016:23) numerous municipalities are either in financial distress, or the budgets that they are allocated for maintaining infrastructure are not sufficient, and this hardens things for municipalities to implement a major turnaround strategy in terms of maintaining infrastructure. When the budgets are allocated, they are allocated in terms of the size of the municipality and the responsibilities of each municipality. This budget makes it difficult for municipalities to implement a big change for maintaining the infrastructure, their budget is constraining municipalities from being able to implement new strategies. Operational debts are short-term liabilities that incur in exchange for providing goods and services which includes employment or laws that are temporary, that are enforced by the government or any regulator (KPMG, 2016:3). These operational debts are the reason why many municipalities face backlogs and are unable to refurbish sustainable operations.

A third challenge with fiscal implications incorporate instances where municipalities are obligated to handle the generated revenue loss during the process of providing elemental services for free, have to deal with residents who do not pay, as well as experiencing a loss of excess electricity supply (Ndlezu, 2016:23). Such situations have placed municipalities in a serious dilemma with regard to delivering services. The inability for government to increase a municipality's budget could lead to service standards being of low quality or having to experience extreme expenditure to enhance or replace machinery and infrastructure. According to Ndlezu (2016:23) one cannot stress the importance of preventive infrastructure maintenance, and this means taking active steps to prevent the infrastructure from deteriorating further. Failing to do this will lead municipalities to experience an increase in costs to change infrastructure that is not well maintained, in the future.

Municipalities at this point do not realize the importance of saving money or setting aside money allocated in the budget and using it for infrastructure maintenance. Municipalities have a pattern of focusing on the construction and the authorization of the production of new infrastructure, at the same time neglecting infrastructure that is already existing, that needs to undergo a process of maintenance on a regular basis (Ndlezu, 2016:24). Municipal representatives who do not recognize the contribution or possible contribution on infrastructure in development are the ones who at times choose to build without maintaining.

2.7.2 Death of key Personnel

In every organization, human resource that is made up of people who are skilled and qualified, is important. According to Ndlezu (2016:24), losing human resource in municipality causes problems in maintaining infrastructure. In the field of infrastructure technical disciplines there, is a depletion of skills and resource ageing. Local distributors are experiencing a high percent of stag shortages. Finding labourers who comply with Occupational Health and safety requirements has proven to become more difficult over the years. Recruiters are experiencing difficulties in acquiring and keeping qualified engineers, technicians and artisans that are competent.

According to Ndlezu (2016:24) skilled employees who have experience are now being replaced by labourers who are more qualified, but qualifications do not mean one is skilled to perform the required duty. Skills shortage has been a crisis in this country for years and this leads to a break down in delivering services. This crisis has led to appointing non-technical personnel to management posts at higher level in organizations, and these position require technical experience. These people will not be able to perform these tasks to a level considered satisfactory in turn, they pose a negative effect on the procedures of delivering services.

Municipalities may need to implement training and development programs that can be beneficial in equipping employees that are under-skilled to capacitate them in skills development (Ndlezu, 2016:25). With the aim of achieving goals, municipalities should try to keep the already skilled worker that are also experienced, and avoid high employee turnover. Municipalities can retain employees through guaranteeing that employees work under good working conditions and possibilities for moving up or benefits and a good salary scale that is appropriate with each employee's contribution to the organization.

2.7.3 Inadequate Legislation

Numerous legislations that act as a benchmark for municipalities in their dealings towards the route of good governance were established. Even with these legislations, some municipalities have not comprehended the importance and need for good proper maintenance of infrastructure. The legislations in place seem inadequate when it comes to governing a number of municipal actions, or, legislations that are adequate seem at times not to be implemented to a level that it is satisfactory. It does not help that some municipalities choose to not to adhere legislations. In such cases, it is essential to employ realistic, proper

authoritative standards and guidelines to enhance the performances of municipalities (Ndzelu, 2016:26).

The integrated Development Plan procedures (IDP) consists of the integrated infrastructure plans legislative constitution and capital investment frameworks (Matatiele Local Municipality, 2014/2015:25). Municipalities must enforce and comply with the legislation so that effective planning procedures take place. A destructive shortfall of the legislation is found in providing financial resources for maintaining infrastructure over a long term period. The National Treasury needs to tighten up the ropes when allocating funds to municipalities, by integrating the terms and conditions for how the money should be used. This will force municipalities to keep some financial resources, in order to aid continuous operations and maintaining the infrastructure (Ndzelu, 2016:26).

According to Stanton (2009:203), when it comes to strategic planning, managing assets and generally providing finances towards improving the infrastructure, South African municipalities are not up to international standards. South Africa is a developing country, and for that reason, when looking at different municipal factors and characteristic, it does not match up to international standards that is dominated by more developed countries. The legislation in South Africa does not satisfactorily address a number of important issues in sustainably managing infrastructure assets. Infrastructure asset management includes records of assets, defining value, depreciation practice, budgeting and monitoring strategic maintenance spending, but is not limited to that only (Stanton, 2009:203). One of the Generally Accepted Municipal Accounting Practices requirement is that even without a depreciation model, municipalities should depreciate its assets because this procedure can help with financing future liabilities for infrastructure renewal. South Africa legislation could consider adopting the same strategy as it would be easier to manage, if it was compulsory for all state owned organization to have a proper multi-year infrastructure asset management plan in place (Stanton, 2009:203).

2.7.4 Death of proper Guidelines

According to Disoloane (2012:48), guidelines are the foundation of successfully accomplishing work to be undertaken without fitting and appropriate benchmarks in place tasks, are executed without a specific aim. During, this process essential variables could be easily missed. The municipal sphere experience lack of proper practice guidelines to successfully maintain municipal infrastructure. The lack of these guidelines is witnessed by

the lack of publicized norms, with regard to all needed resources to aid sustainably maintained infrastructure. The government at local level should establish guidelines that clearly allocates a budget for the role of maintenance. This budget has to be fully detailed and consists of nature and type of infrastructure that will be maintained and the maintenance history of that infrastructure.

The magnitude of expertise should also be included in the guidelines, including the skills and qualifications needed to perform the tasks. According to Disoloane (2012:48), arranged and prepared maintenance, renovating, recondition, repairing and renewing are all different maintenance types. All skills and expenses associated with each form of maintenance can be different, and the budget should clearly indicate the amounts reserved for each form. The need for guidelines cannot be stressed enough and these guideline should list what is considered appropriate and inappropriate practices. It is important to ensure that information is available and accessible to municipalities to constantly go back for reference. When it comes to municipalities that are more developed and are experiencing good maintenance practices, then the information should rather be passed on to municipalities that are not performing to the best of their abilities (Disoloane, 2012:48).

2.8. Theories

2.8.1 Theory of infrastructure-led development

With regard to boosting economic activity in a country, it is imperative to consider the role that infrastructure plays in that process. Limited or lack of infrastructure hinders the growth and development of many countries. This study focuses on the maintenance of roads and water infrastructure. According to Venktees (2018), more than a third of South African water is lost before reaching communities and is lost due to aged and leaking infrastructure. This means that on average, around 37% of the South African water supply was lost before it could be used by communities. The infrastructure in large metropolitan areas is suitable for supply, unlike with rural areas where the infrastructure is very close to failing, as it has not been renovated or upgraded in years. When a country experiences water disruptions or outages, one of the primary reason is not as a result of less water in dams but as a result of failing pipes or pumps (Ventkees 2018).

Poor quality public infrastructure has a negative influence on the economy and people in communities (Agenor, 2010:933). To alleviate poverty and other constraints to growth, a number of researchers over the years have been in favour of the public sector increasing

investment in infrastructure. A collective reason is that infrastructure services promote growth through impacting the costs of production, private inputs productivity and the return on capital rates. Maintaining the infrastructure facilities like roads and water pipes contribute for firms to be able to perform their production process. Firms are able to transport goods from one place to another without thinking about possible damages to trucks that could occur as a result of bad roads with potholes. These changes will have a major impact on growth, particularly when the capital infrastructure quality is low and not maintained (Agenor, 2010:933).

According to Agenor (2010:933), Infrastructure - led development theory proposes public infrastructure as the primary engine of growth. The government can invest in public infrastructure through constructing new infrastructure or maintaining the existing infrastructure, and this leads to an opportunity for a high level of growth being seized. During the process of infrastructure maintenance, employment opportunities are created, agglomeration of economies occurs and firms will be in a position to produce more and hire more people, which in turn will lead to an increase in economic activities.

Indirectly infrastructure can impact growth through a number of channels, for example, through impacting the community's health. When the infrastructure is maintained, it allows households to receive better services and not fall sick as a result of the lack of infrastructure maintenance; for example, well maintained water infrastructure ensures households have access to clean water for cooking and other activities such as cleaning and drinking (Agenor, 2010:933). Access to clean water means less chances of people becoming sick, this allows these people to work and execute their duties to the best of their physical ability and contribute positively to the production of goods. Thus leading to growth and development (Agenor, 2010:933).

According to CIDB (2008:2), the South African cabinet recognized the importance of maintaining public infrastructure and the role that effective maintenance plays in supporting Accelerated and Shared Growth Initiative for South Africa (ASGISA). The cabinet or executive then approved the National Infrastructure Maintenance Strategy (NIMS), and the vision adopted was of infrastructure that should be acceptable or appropriately maintained and operation that will have an outcome of ongoing continuous service delivery, creation of employment opportunities and growth which in turn will contribute to the goals of ASGISA (CIDB, 2008:2).

According to Rioja (2013: 347), it is important to take into account the quantity of public infrastructure a country, has but also the quality of that infrastructure. That means the current condition of that infrastructure, if it is in good condition, because it is of no economic benefit and development of having a lot of infrastructure that is in bad condition. Infrastructure changes over time and if it is not maintained, it wears out with continuous use, so it is important to have it periodically properly and timely maintained. Neglecting proper infrastructure maintenance leads to a decrease in its conditions: pothole-filled roads and loss of irrigation water. According to Rioja (2013:348) infrastructure in bad condition imposes certain costs on users in the short run. In the long run, failing to maintain infrastructure in a timely manner leads to greater costs of having to rebuild it from scratch.

Maintaining infrastructure contributes to expanding its life cycle. This means using it over and over for longer period of time, unlike in cases where it is not maintained. If communities have access to clean water, then one never has to worry about them inhaling smoke from trying to cook or boil water using wood. In turn this improves the health of communities allowing them to be productive be it at work or in the community (Agenor, 2010:933).

According to Younis (2014:5) public governance should be adequate and only then start diverting state funds from activities that are non-productive to investing in infrastructure capital will lead to a shifting in the economy from a low growth to a high growth constant reliable country that is characterized by increased productivity and savings. According to Faridi, Maliki and Bashir (2011:45), a well-oiled transportation system is a contributory factor in economic growth through decreasing domestic production costs by ensuring that raw materials are delivered on time, improve economies of scale during the production process, links markets, create new opportunities for economic activity and links of communication between people. Infrastructure promotes production competition in the economy which leads to improving trade. A capable transportation system also boosts tourism and investment from foreign companies. The transportation system creates a number of employment opportunities.

2.8.1.1 Direct investment in infrastructure development

According to Sahoo, Dash and Nataraj (2010:3) a direct investment in infrastructure development leads to:

- A creation of production facilities by the government and these fuel economic activities - these facilities act as primary direct input in the production process

allowing firms to focus on producing more and more (Sahoo, Dash and Nataraj, 2010:3).

- It leads to a reduction in both the transactional and trade cost, which improves competitiveness - this is as a result of firms moving closer together, cutting transportation costs and other costs. When firms move closer together and produce more, it creates a competitive environment for all firms in the same area of field (Sahoo, Dash and Nataraj, 2010:3).
- Creates employment opportunities for the poor- this is during construction phases and also during production processes. When firms produce more, they need more employees, meaning they will employ more people, and these people are also considered as consumers of goods and service (Sahoo, Dash and Nataraj, 2010:3).

2.8.1.2 Critical role of infrastructure in the following

Jafta (2017:4), also in support of the theory of infrastructure - led development, outlined how critical infrastructure is in the following:

- Promoting a balanced economic development; extending the economic geographical area and in turn increasing the growth potential of that area.
- Unlocking economic opportunities
- Addressing the socio-economic needs and challenges
- Promoting mineral extraction and beneficiation
- Lastly in promoting employment creation.

2.8.1.3 Benefits of a dependable infrastructure network

A dependable infrastructure network is well maintained and kept in good condition. Jafta (2017:4) outlines the benefits of a dependable and consistent good quality infrastructure network as follows:

- Competitiveness - is important in any industry dealing with the provision of goods and services. Infrastructure development ensures that a strong foundation for future economic activities is present, efficient and gains competitiveness globally (Jafta, 2017:4). Developing the infrastructure means improving transportation systems, water, sanitation and energy supply, which will have a positive impact on firms and their ability to produce. These regions, where infrastructure is being developed can experience an increase in the economic activity as a result of firms producing more, hiring more people who will receive remuneration, then buying and save money.

- Easy access to markets - transportation systems include air, road, rail and water. If the transportation systems are linked and efficient, it could lead to growth. It is important for reliable communication networks to be in place so that information can be shared with people who need it, as it makes running a business easier (Jafta, 2017:4). Transportation makes it easier for participants in markets to move the factors of production being raw materials, people in labour, remuneration and capital around. It is also easier for communities to access goods.
- Promotion of industrial development - investing in infrastructure has a serious catalytic impact in developing industrial development. This is possible if the state decides to focus on improving infrastructure development which can potentially lead to removing bottleneck problems, which slow down production and increasing production costs. These bottleneck problems hinder the economy from developing and growing (Jafta, 2017:4).

2.8.2 The economic roles of infrastructure

This study focuses on two types of infrastructure maintenance being water and transport infrastructure. Below are the economic roles of these two types of infrastructure that the study focuses on.

2.8.2.1 Transport infrastructure

It makes it easier to move people, resources, goods and services, in turn lowering the cost of transportation and thereby alleviating the constraints of lower factor endowments. This makes economic development more reliant on spatial structures (Carlsson, Otto and Hall, 2013:266). On the one hand, a well-developed and maintained transport system allows for agglomeration and this means brings agents together to form a larger cluster. This cluster is not always bad because agents will be able to access larger markets and this includes the labour market for buying and selling goods. According to Lakshmanan (2011:2), this will increase competition and cause price convergence. On the other hand if the supply of transport infrastructure is limited, problems buying intermediate inputs for the production process and problems with distributing the final products will be experienced by firms. Households will experience limitations when trying to access the labour market and in the end, constraints of transportation infrastructure will limit the potential for growth accumulation.

2.8.2.2 Water infrastructure

Water infrastructure provides a source of water for economic agents. It is used by both households and firms. Households use water for cleaning, cooking and for hygiene purposes while firms use water for the same reasons and production processes. If an area has a secure supply of water, it allows households and firms to operate in areas where the local supply sources of water are relatively scarce. This ensures agglomeration of both firms and households (Carlsson, Otto and Hall, 2013:266).

A secure water supply causes firms and households to move to the same area. When firms and households move to the same area, it means more creation of employment opportunities, more households being able to meet their basic needs and a region that will witness an increase in economic activities. When the infrastructure is not maintained, it means the supply is constrained and this can lead to higher costs for firms and households and in a worst-case scenario they might have to relocate (Carlsson, Otto and Hall, 2013:266). When firms and households experience constraints in terms of the water supply, they will have to buy water from private entrepreneurs who are in it for personal gain. This means firms and households will spend more money on top of the rates that they are already paying to municipalities. Firms and households may ultimately decide to relocate to areas that they will not experience water constraints.

According to Carlsson, Otto and Hall (2013:267), temporary water shortages can disrupt the production processes and in turn reduce productivity and efficiency. When the water is cut during the day, especially without informing firms and households in advance, this will disrupt production processes. People that live in affected areas will not be able to go to work as they will wake up and find that their water has been temporarily cut and they did not receive warning in advance to prepare. If employees are not able to make it to work, it means delays or disruptions in production. This leads to firms losing out on possible profits.

2.8.3 Infrastructure and tourism development

Investing in public infrastructure by the public sector is a requirement for developing infrastructure necessary in the tourism industry. Infrastructure that is a direct contributor in the tourism industry includes means of accessing regions, maintaining natural resources including constructing parts of the environment, providing tourism and recreational facilities, as well as providing basic infrastructure (Lehtolainen, 2003:3). Infrastructure as an economic overhead capital means it is part of production and can affect it as well as how efficiently

firms function in regions. Infrastructure that is well developed contributes positively by increasing productivity in private investment as well as regional output. According to Abdullah, Razak and Jaafar (2014:3), developing and providing infrastructure that is dedicated for the tourism industry is a standard requirement for turning a region into a well-known destination for tourists.

An attractive destination that is meant to draw in tourists does not rely on history and natural resources but also on the quality and quantity of infrastructure facilities that are available. These facilities are the primary factors taken into consideration when choosing a destination. The role that infrastructure plays in the tourism industry is important because it affects the level at which tourists experience satisfaction, satisfactory and good infrastructure condition reduces numerous negative responses from tourists during their reviews (Abdullah, Razak and Jaafar, 2014:3). If the infrastructure is well developed and is kept in good condition through regular maintenance, the region or area will look attractive to tourist. These tourist spend money in the region that they are visiting during that time, which will contribute to the economic activities of that area. This will in turn lead to receiving good reports form these tourists. If the infrastructure is not well maintained it means people will avoid these areas, leading to a decrease in economic activities if these regions receive negative responses.

According to Abdullah, Razak and Jaafar (2014:3), the only way consistent growth can be achieved in the tourism industry is through the public sector investing by providing infrastructure that is related to this industry. It is imperative to constantly maintain the infrastructure when it comes to preserving its functionality to run or be used for a longer period of time still in good condition. This is to ensure that infrastructure is kept intact or in the best possible condition, by keeping it as a high valued asset of the public sector. If the infrastructure is not maintained it will result in more cost for government having to construct from the start, the tourism industry will not bring in a lot of money or will be non-existent. This means more and more people will remain unemployed, they will rely on government to meet their basic needs, which will affect tax payers the most. According to Rani, Afifuddin and Akbar (2017:070001-2), populations from developed countries make up the largest number of tourists and they are accustomed to using modern transportation infrastructure. Tourists prefer to enjoy the same tourism infrastructure facilities when they are travelling, and they choose destinations based on the infrastructure quality.

According to Moore (2015:1) tourism relies heavily on water that is clean and good enough for residents and tourist to drink in that destination. Water resources are needed in support of the various activities and services that this industry depends on. These tourists will book accommodation and clean drinkable water should be accessible to them. Tourists use water for drinking, bathing and flushing the toilet. They should be able to use the sanitation facilities. In situations where the region experiences a limited supply of water, it means they will not be able to support residents and tourists with regard to their water needs.

2.8.4 Infrastructure maintenance in employment creation

Investing in infrastructure can lead to the creation of new jobs and can lead to a long-term economic growth and employment (Freund and Ianchovichina, 2012:1). Public investment in infrastructure will lead to regions experiencing an increase in economic activity in the turn leading to employment creation. The construction sector includes using labour intensive methods. This means employing people to undertake construction projects. Maintaining the infrastructure is great for maintaining growth and job creation. According to McCutcheon (2017:1), construction and maintenance of public infrastructure provides opportunities for generating local skills and employment. The benefits of using labor-intensive methods for construction and maintenance results in a significant increase in employment unlike when using conventional equipment intensive methods. This type of investment requires less skills-intensive and this leads to sourcing skills from the local economy or the surrounding economy (McCutcheon, 2017:1).

When regions focus only on developing new infrastructure and not on also maintaining the infrastructure, these job created will only be temporary (Ollis 2011). The construction of new road and water infrastructure happens over a set period of time South Africa uses outsourcing in terms of infrastructure construction any awarding tenders to community members. These construction companies hire people, and once the construction period is over, it means they will be out of jobs. This can be changed if the government also focuses on maintaining the infrastructure. Maintenance will always be a requirement where infrastructure is concerned (Ollis 2011). With South Africa facing a maintenance crisis it is important to start looking at maintaining the infrastructure as a source of creating employment opportunities that are ongoing. These jobs will be more permanent as maintenance will be ongoing and this means more and more households are guaranteed an income.

According to Ollis (2011), before companies relocate, they look at two factors being: labour laws and reliable infrastructure. This means that the condition of the infrastructure contributes when businesses consider relocating to a different region. In order to look attractive and fertile to possible firms or businesses, municipalities must always maintain the infrastructure and ensure or limit the number of breakdowns that occur. Regular maintenance of the infrastructure will create a number of permanent maintenance jobs. According to Business Day (2017) the development and maintenance of infrastructure is paramount for economic growth and leads to job creation and alleviating poverty.

2.9 Infrastructure maintenance as a strategic tool

According to Boshoff (2009:9), enhanced service delivery for citizens lies in infrastructure maintenance. Every citizen is affected when municipal infrastructure is not properly cared for (Boshoff, 2009:6). The impacts of not maintaining municipal infrastructure are political, social, financial, economic and environmental in nature. When service delivery failures become widespread, citizens tend to lose confidence in the government's ability to provide constitutional guaranteed services. This will then lead to protest all over the province and these protest tend to result in a lot of violence from the community. This means the infrastructure that is in place stands to be vandalized just to get the point across, another form of protesting is through the community refusing to pay their rates to the municipality (Boshoff, 2009:6).

Maintenance is an imperative component of successful infrastructure assets lifecycle management. According to Rioja (2013:350) infrastructure that is not maintained in the long-term will result in a high cost in terms of reconstructing the infrastructure. It can also lead to the infrastructure deteriorating which will lead to the problem resurfacing in a period of five years. It incorporates activities that ensure that the system is kept operating in good condition. Infrastructure that is well maintained serves the needs of consumers and supports production for economic purposes, taxes, rates and employment (Dietrich 2017). Over the years government has openly taken into account how the provision of infrastructure supports socio-economic growth. However, government has put infrastructure maintenance to the back without acknowledging the growth potential that could result from it. Infrastructure maintenance can be a powerful tool for economic growth.

According to Wall (2008:70), infrastructure maintenance should be considered a strategic tool for improving service delivery, unlocking funding to spread infrastructure to groups that

are considered to be previously disadvantaged and lastly in supporting the economy of the nation. Maintaining the infrastructure should not be regarded as secondarily important, compared to building or constructing new infrastructure, because infrastructure that is properly maintained creates employment. When it comes to maintaining infrastructure, one needs to take into account that this is an ongoing process. Maintenance needs to be done every year and human labour will be needed. This is not for limited construction periods, but for the whole premeditated life of the infrastructure. A lot of infrastructure maintenance can only be done through labor-intensive methods to ensure that it has been well maintained. It is paramount for the government to plan and budget for infrastructure maintenance (Wall, 2008:70).

2.9.1 Economic benefits in road infrastructure maintenance

Ensuring that roads are maintained contributes to a significant reduction in vehicle operating costs, in turn, expanding the life cycle of these vehicles and saving the region money in terms of having to constantly rebuild new roads (Abdulkareem and Adeoti, 2004:8). Below are more economic benefits of road maintenance:

- Employment creation - road maintenances require labor-intensive methods, and this means employing people from local communities, in turn, eradicating poverty (Abdulkareem and Adeoti, 2004:8).
- Agricultural Production - this process will create links between rural and urban areas, enabling firms to move goods and services freely (Abdulkareem and Adeoti, 2004:8).
- Industrial Development - road networks contributes to the level of industrialization in any economy. Developing and maintaining roads is considered a catalyst for industrial growth.

2.9.2 Economic benefits of water infrastructure maintenance

- Direct economic and employment impacts - during the maintenance phases, a lot of physical human labour is required and the rate of unemployment decreases. One of the advantages of maintenance is that these employment opportunities are stable, meaning, more households will be able to sustain themselves without fully depending on the government for grants (The Value of Water.org, 2017:7).
- Indirect and induced economic impacts - investing in water infrastructure creates extra benefits by the public sector spending directly on water facilities, thus, impacting residents who are employed by construction firms in repairing and

replacing water infrastructure. These firms will need primary material which they will need to purchase them from manufacturers, which need primary materials from other suppliers and it benefit the region and economic activity, if these firms are in the same region. Employees who are also residents of the community will earn remuneration in exchange for their services, and will use this money to buy goods and services from firms in the region. This primary investment in water infrastructure has a ripple effect in the economy as a result of the spending by interrelated industries (The Value of Water.org, 2017:7).

2.9.3 Reasons for infrastructure deterioration

These reasons are according to Uddin, Hudson and Haas (2013:29). Infrastructure problems have worsened over the past few years for a number of reasons:

- The public sector underinvests in public works programs - the government does not invest a lot of money into maintaining or building infrastructure. The government tends to not invest an exact needed amount for public works programs, but invest a smaller amount than the amount needed (Uddin, Hudson and Haas, 2013:29).
- A lack of excellent infrastructure management systems - the infrastructure management system is not properly managed by the government spheres (Uddin, Hudson and Haas, 2013:29).
- Failure to recognize how imperative maintaining a good physical infrastructure is for future economic purposes - all spheres of government officials fail to recognize the importance of constructing the infrastructure and starting maintenance almost immediately, so that it can be used for many years to come, because it is still in good condition (Uddin, Hudson and Haas, 2013:29).
- Cuts in the public sectors budget - the budget changes and is reduced every year (Uddin, Hudson and Haas, 2013:29).
- Failure to realize that not having physical infrastructure gravely affects the level and type of services that a government can provide to citizens - if the infrastructure is kept in good condition, it enables the government to produce and offer citizens the best services of good quality, unlike when the infrastructure is deteriorating. Deteriorated infrastructure limits the government's ability to offer citizens the best services (Uddin, Hudson and Haas, 2013:29).
- An inclination of all spheres of government being national, provincial and local officials to postpone maintaining public infrastructure - maintenance of infrastructure

is often deferred by government officials for a later stage, but if they start as soon as possible they have a better chance of keeping the infrastructure intact for a very long time (Uddin, Hudson and Haas, 2013:29).

- Increased costs to taxpayers to repair and rebuild public infrastructure that has exceeded its lifespan and it is out-of-date - taxpayers have to pay more money for the government to be able to repair and rebuild infrastructure that has exceeded its lifespan. This is more expensive for the taxpayer than if the government maintains the infrastructure (Uddin, Hudson and Haas, 2013:29).

2.9.4 Impacts of poor maintenance of public infrastructure

According to Dietrich (2013) a number of these impacts can:

- Shorten an assets life cycle - it can cause deterioration and cutting an assets life cycle in as little as five years (Rioja, 2013:350).
- Precipitate faults - road accidents can occur as a result of these bad roads. Water infrastructure that is not well maintained may lead to health issues as a result of consuming or using the water for chores (Dietrich 2013).
- Hasten breakdowns - water pipes are more likely to break down over and over as a result of not being well maintained. This in turn leads to household and firms not having water or proper roads. Lack of proper roads leads to damaged trucks and cars and this means more expenses for both firms and households (Dietrich 2013).
- Undermine service delivery - lack or limited infrastructure maintenance undermines the goal of government which is to deliver services to communities. If these infrastructures are not working, or not properly working, then people will not be able to receive services in the end undermining service delivery (Dietrich 2013).
- Increase service-delivery backlogs - people expect municipalities to provide them with services and the demand for these services increase constantly. Poor existing backlogs are growing with demand for these services. The number of people left unsatisfied with the services they are yet to receive, increase in turn, increasing service-delivery backlogs (Dietrich 2013).
- Increased costs - these costs are both for households and firms. If the water infrastructure is not maintained, it means it will breakdown. Once it breaks down every now and then, households and firms will be forced to buy water while paying municipal rates. They need water for daily activities, which include drinking and

production (The value of water.org, 2017:1). These costs include costs of self-supply or costs of relocating to areas with better service delivery.

2.9.5 Types of infrastructure maintenance methods

These types of infrastructure maintenance can be used by municipalities in providing competent asset care and are according to Dietrich (2013).

2.9.5.1 Corrective Maintenance/ Reactive maintenance

The process of this type of maintenance takes place after someone recognizes fault in the infrastructure with the sole purpose of maintaining an asset in an attempt to return it to its original state, so it can perform its primary function for its existence. This includes unplanned urgent repairs, and sometimes this means unscheduled repairs of the infrastructure based on the inspection process or based on consumer complaints. The municipality can implement corrective maintenance based on the complaints of the community. However, this type of maintenance is costly, as it can cost the municipality three times more than doing the repairs under preventive and planned maintenance (Dietrich 2013). According to Uddin, Hudson and Haas (2013:277), it is also known as reactive maintenance, and this means it is carried out for reinstating or fixing physical infrastructure that is in terrible condition for the sole purpose of fulfilling operations or functions after the infrastructure has failed.

2.9.5.2 Preventative Maintenance/ proactive maintenance

The process of preventive maintenance includes replacing constituents of assets at determined time periods. The main aim of this maintenance type is to limit and prevent unnecessary repairing and remedial activities that result from untimely equipment damages and failures. This can result in an unscheduled breakdown (Dietrich 2013). This type of maintenance is proactive, and is performed before the problem occurs, because it is planned and is put in place to prevent a problem from occurring. It is done to restrict constituents from deteriorating in the first place (Uddin, Hudson and Hass, 2013:277).

2.9.5.3 Critical maintenance

This type of maintenance is done in cases of emergency or when the infrastructure demands urgent attention in critical cases. It is done immediately to avoid collapse of functional failure that is close to occurring (Uddin, Hudson and Hass, 2013:277).

2.9.5.4 On-condition Maintenance

In this process, asset inspection is imperative. It is important to test and monitor the area where the problem has occurred so as to determine the all maintenance needs and

requirements (Dietrich 2013). It is undertaken as a result of identifying a problem after monitoring the condition to avoid further deterioration or failure (Uddin, Hudson and Haas, 2013:277). However, even with the benefits of long sustained employment opportunities, infrastructure maintenance comes with extended spending. This method of delivering such services through outsourcing or tenders is one of the root causes of the state of infrastructure today. The government started awarding tenders in order to uplift communities while building entrepreneurs. These same tender entrepreneurs are the reason a lot of the roads in Mahikeng are in the dilapidated state. Many have been awarded an opportunity to build proper roads, but all these contractors do is to use material that will be damaged a few months down the line. If governments is to maintain roads and water infrastructure periodically, revenue generation has to take a different turn. Municipalities will have to find ways of generating more revenue, and this is close to impossible if people do not pay their rates. Another factor which is a stumbling block is political interference in the tender awarding process which may lead to outsiders getting contracts for maintenance, thus community members are not guaranteed to be employed. It will depend on the contractors who they employ and they ca bring people from outside the city of province. Maintaining water and road infrastructure can also lead to projects occurring at set times and this may also delay production, for example, when water pipes are maintained, water has to be turned off for that period. This means most people will not be able to go to work and the production process that includes water will also suffer. Maintenance periods can be very slow, impacting the lives of communities. Looking at the benefits only will not help but one should also be realistic when looking at what could occur as a result of maintaining the infrastructure. The focus should be on developing the infrastructure by the people of Mahikeng for the development of Mahikeng.

2.10 Conclusion

The study focuses on the contribution of infrastructure maintenance in the development of Mahikeng. Many scholars focused on infrastructure developments contribution in the economy after the seminal work of Aschaeur in 1989 following the downswing in America's economic activity. A number of Acts advocating for the establishment of municipalities, as well as Acts in support of revenue collection at local government level has been discussed. There are two types of infrastructure groups, which are economic and social. The researcher then goes on to discuss the roles of municipalities in service delivery, focusing only on water

and roads infrastructure. Municipalities face challenges when it comes to infrastructure service delivery such as the death of key personnel who are skilled and qualified and such challenges set the municipality back in terms of service delivery. The researcher then discussed the theory of infrastructure-led development. This theory by Agenor looks at public infrastructure as the primary engine of growth by. He proposed looking at public infrastructure as a direct investment in economic growth and indirectly impacting growth through people's health. Municipalities investing in water infrastructure, for example, ensure that inhabitants are able to access clean drinkable water and this means people don't have to prepare water for drinking or cooking by boiling it outside first. This means time saved for households and no chances of them inhaling smoke from using wood. Once households are healthy, they are able to work and a more productive. This investment will lead to an increase in production, profit and economic activity. The researcher discussed the role that infrastructure plays in developing the tourism, infrastructure maintenance in employment creation and also looked at infrastructure maintenance as a strategic tool. There are a number of economic benefits that can emerge as a result of road infrastructure maintenance and water infrastructure. The researcher then discussed the impacts of not maintaining the public infrastructure and lastly looks at the different types of maintenance municipalities can use. However, even looking at all those benefits one is not guaranteed that poverty will be eradicated all together or that people from local communities will benefit from these maintenance phases.

CHAPTER THREE: RESEARCH METHODOLOGY AND DESIGN

3.1 Introduction

The third chapter of the study focuses on the research design and methodology. It presents information with regard to how the research will be conducted and which methods will be used. The chapter includes the different phases of research which includes selecting participants, how data will be collected and analyzed. The role of the researcher which is important will be discussed in relation to reflexivity. Finally, the chapter will elaborate on the trustworthiness of the research including validity and reliability in qualitative research and how these two requirements were met in this study. The study will explore the contribution of infrastructure maintenance in developing Mahikeng.

3.2 Research approach

According to (Ritchie, Lewis, Nicholls and Ormston, 2013:27) trying to define the term qualitative research is challenging as it does not have its own methods or theory. The term involves a number of methods and approaches within the various research subjects and for that reason a number of writers have provided different definitions distinctively. According to Rahman (2016:103), qualitative research refers to researches that are about people, how these people live, their experiences, behaviors, emotions, feelings and how organizations function, nation to nation relations and cultural occurrences. It is a type of research that produces results and it does not employ statistical procedures or other means of quantification. Qualitative research allows the research to focus on analyzing the influence that produces social issues, practices by gathering data that is not standardized and analyzing texts not numbers or for statistical purposes (Flick, 2014:542).

3.2.1 Advantages of qualitative research approach

These advantages are according to Rahman (2016:104)

3.2.1.1 It produces thick descriptions

It produces detailed descriptions of how the participants feel about the topic, their opinions on it and experiences. It also helps researchers understand why participants act the way they do towards the problem. This approach achieves a deeper insight into the participant's thoughts, attitudes and actions (Rahman, 2016:104).

3.2.1.2 It understands human experiences in specific settings

This approach to research recruits participants that have a deeper understanding on the topic, people affected by the topic and the reasons behind their actions. This research approach understands how human beings experience life or problems in their specific settings, this allows the researcher to sometimes experience the problems or understand human experiences in various settings (Rahman, 2016:104).

3.2.1.3 Commonly used for data collection

The methods such as participation observation, unstructured or semi-structured interview, direct observation and describing records are generally used in the data collection process. During this process, the research interacts with participants directly as it happens while collecting through interviews. These interviews can be conducted over the phone or face to face (Rahman, 2016:104).

3.2.2 Disadvantages of qualitative research approach

These disadvantages are according to Rahman (2016:104)

3.2.2.1 Leaves information that is related out

Qualitative research sometimes leaves out related sensitive information and focuses more on the meaning and experiences. This approach attempts to uncover, interpret and understand the participants' experiences (Rahman, 2016:104).

3.2.2.2 Generalizability

In qualitative research a smaller sample leads to issues of generalizability to the whole population. The researcher selects participants who have a deeper understanding of the problem posed by the study and these participants offer their opinions representing a larger number. This means taking the participants opinions as those of the overall public (Rahman, 2016:105).

3.2.2.3 Analysis may be time consuming

The analyses of the data collected may take a long time and this may allow the researcher to generalize the result of the large population in a limited manner. When it comes to language analyses, it is time consuming to go over it and find similarities (Rahman, 2016:105).

3.3 Research design and method

It is essential for the researcher to choose a research approach that is relevant and well suited to provide a lot of important information. This will help in the contribution of the study after identifying a gap. The research design should be based on scientific facts and reliable trustworthy sources (Cooper and Schindler, 2011:138).

3.3.1 Research Design

According to Mafuwane (2011:68), research design refers to a strategy for the study and it provides the whole framework for data collection. The research design includes strategizing on selecting subjects, research sites, how the data will be collected so as to answer the research questions. Vosloo (2014:316) stated that a research design focuses on the final product and comprises of the steps taken during the research process to ultimately reach a certain result. All these steps are linked together to bring forth a valuable and reliable body of work. The researcher is then guided by this because it presents a clear research framework; methods, decisions and sets the foundation for interpreting data.

Research design is described best as the complete strategy or plan which includes participants of a proposed study are pre-selected, including the main instruments to be used for collecting data (Welman, Kruger and Mitchell, 2009:46). Research design must have a plan on tackling the topic in terms of how data will be collected or analyzed and also in the selection of participants. The fundamental task of a research design as part of the study is to empower the researcher to be able to predict what fitting decisions for the research are most likely to emerge.

The researcher is then able to capitalize on the weight or validity of events that took place (Vosloo, 2014:317). According to Zikmund, Babin, Carr and Griffin (2010:66), a research design implies choosing from various alternatives and possibilities and to make sure that the primary research purpose and perspective are illuminated and achieved. The methods, procedures, data collection, sampling and analysis is determined by the research problem.

3.3.2 Research Methodology

According to Mafuwane (2011:68), is a theory of how the process of inquiry should proceed. This process of inquiry includes analyzing assumptions, principles and procedures in a specific inquiry approach. Methodologies clarify and take time to define problems that are worthy of a thorough investigation; what establishes a researchable problem; hypotheses that

is testable; how to structure a problem in a manner that it can be explored using set designs and processes; lastly assists in selecting and developing appropriate resources of data collection.

3.5 Sample

The sample of the study will be from the different ward counsellors and municipal representatives under the Mahikeng Local Municipality.

3.5.1 Sample Selection

The process of data collection is very important in research, because it contributes to a deeper comprehension of the theoretical framework. It is paramount to select the best method suited for research data collection and from whom will this data be collected founded on the type of study to be undertaken. This is to be done without any judgment, mainly since no amount of data can compensate for data that was unsuitably collected. The researcher has chosen purposive sampling technique also known as judgmental sampling. This is based on the qualities participants possess. The technique is not random and does not need unrevealed theories or numerous participants (Etikan, Musa and Alkassim, 2016:2). The researcher makes the decision on what needs to be known for public consumption and actively searches for people who are in a position to partake in the study and are willing to partake through sharing information based on their understanding and experiences. The researcher must first identify and then select the individuals that are proficient and well informed on occurrences of interest to the study. The participants must be available and willing to participate (Etikan, Musa and Alkassim, 2016:2).

According to (Palinkas, Horwitz, Green, Wisdom, Duan and Hoagwood, 2015:2), participants should not only be available and willing, but they should also be able to articulate, express and reflect their experiences and opinions in an excellent manner. The researcher will work with ward counsellors as they are elected by the different communities that they lead. This means they are able to speak on behalf of the different communities that they represent. They have the knowledge and experience and are all available and willing to partake in this study. The researcher will also speak to the municipal representatives to balance the study out. The municipal representatives have an extensive knowledge and are experience din their different fields.

3.6 Research process

The researcher will inform participants of the topic, the goals of the study and what is it all about ahead of time. This will give participants enough time to prepare, familiarize themselves with the topic and set a time that they available to meet. The researcher will employ interviews to collect data from participants. This is after being granted permission by the participants. The researcher will be the main data collector this means the researcher will also be the interviewer. The researcher will also inform the participants of what their role is or will be in the study and how they can contribute immensely to it. The participants are more than willing to participate in the study, offering their knowledge to the best of their understanding and willing to reflect on some of their experiences.

The municipality has granted the researcher permission to conduct the stud with two of their representatives. Participants will be informed that the research will be in the form of interviews. The researcher will ask for permission to record these interviews and if participants agree then the researcher will record the interviews. If the participants do not agree to being recorded the researcher will bring along a note pad to note down the important information the participants have offered. After interviews the researcher will then translate the recordings and notes onto paper.

3.7 Data collection and tools

The data collection process is all about actively gathering information to address the important evaluation questions that the author has identified earlier in the valuation process (Athukorala, 2001:46). It is a process of strategizing on how to obtain useful information on the key quality characteristic produced by the study. Data can be collected in a number of ways and in this research he tool selected in data collection is interviews.

3.7.1 Interviews

Interviews play a vital role in qualitative research and also allows participants to speak in their own voice to express how they feel or their thoughts on the topic. An interview is a conversation that is used for the purpose of gathering descriptions of the participants, this is with respect to interpreting meanings of the described occurrences. Interviews are extendable conversations between two people aimed at detailed thorough conversations based on a set topic. During this process of having these conversation, occurrences are interpreted based on

the meanings brought about by participants. This study will explore two types of interviews but one-on-one face to face interviews are the most common (Alshenqeeti, 2014:40).

3.7.1.1 Interview types

- Structured interviews - it is generally organized on a determined preset questions that are direct and they need or require an instant and prompt yes or no type of response. During these interviews, participants and the interviewer have limited freedom. Structured interviews are very akin to self-carried out quantitative questionnaires in its both design and hidden suppositions (Alshenqeeti, 2014:40).
- Open-ended (unstructured) interviews - this kind of interview is flexible and open-ended. The researcher and participants experience freedom during the interview and in terms of their planning, implementing and organizing content and question to be covered during the interview. This freedom and flexibility makes researchers more interested in following up developments and to let the participants elaborate on different issues (Alshenqeeti, 2014: 40).
- Semi-structured interviews - it allows depth to be achieved by the interviewer an opportunity to investigate and increase on the participants' responses. When undertaking these types of interviews, researchers can use a checklist so they can cover all the relevant areas without forgetting any. The checklist is an advantage as it allows the researcher to probe, while allowing the interviewer to stay within the research parameter (Alshenqeeti, 2014:40). The researcher will employ this interview type as it is best suited to produce the best results for this study.

In this study, the researcher will conduct face to face interviews and phone interviews. Below are the advantages and disadvantages of these interviews

3.7.1.2 Advantages of interviews

3.7.1.2.1 *Face to face interviews*

- High return rate - interviews can offer thick answers, this allows the interview to get more information from participants (Alshenqeeti, 2014:43).
- Relatively flexible - the interviewer is able to ask questions on the spot based on the previous answer offered by the participants (Alshenqeeti, 2014:43).
- Fewer incomplete answers - the interviewer and participants talk and this process offers an opportunity to get all the answers to the questions asked during the interviews (Alshenqeeti, 2014:43).

- First-hand experience - interviews include participants who have first-hand experience and this means their answers involve reality, what they know and what they have experienced (Alshenqeeti, 2014:43).

3.7.1.2.2 *Phone interviews*

- Decreased cost - these interviews are done in different settings so the interviewer does not need to travel to meet participants. These means decreased costs to be used in other areas of the study (Novick, 2008: 4). It is a convenient and a cost-effective way of communicating with participants who are geographically dispersed (Bolderston, 2012:72).
- Familiar surroundings - the researcher interviews participants over the phone, therefore, participants are not in an environment that they are unfamiliar with and this means they can be comfortable (Novick, 2008:4). When they are comfortable they are able to elaborate on the topic of study (Bolderston, 2012:72).
- Saves time - the researcher and participants don't have to waste time by trying to find a time where they are both available for a sit down. Phone interviews get the work done in a shorter time frame than with face to face interviews (Bolderston, 2012:72).

3.7.1.3 Disadvantages of interviews

3.7.1.3.1 *Face to face interviews*

- Time consuming - face to face interviews can consume a lot of time. The interviewer and participants must agree on a time and place to meet. Trying to find a date and time that both the interviewer and participants are available to sit down face to face (Alshenqeeti, 2014:43).
- Never 100% anonymous - the participants will never be a 100% anonymous. The interviewer seeks the participants and this means the interviewer knows which participant said what (Alshenqeeti, 2014:43).
- Small scale study - the study does not include a large number of participants but it includes a small number of participants representing the views, beliefs and experiences of a larger group (Alshenqeeti, 2014:43).

3.7.1.3.2 *Phone interviews*

- Familiar surroundings may lead to comfort and distractions. Unlike in a set environment where the researcher can ensure it is quiet without any distractions (Novick, 2008:4).

- The researcher may miss visual cues because the researcher will be unable to see the participants (Novick, 2008:4). .

3.7.1.4 Sample Questions

Sample questions are not final because new questions will emerge as the interview progresses. Sample question are referred to as leading question as. Research questions are attached below as Annexure B

3.7.2 The Researcher as the main data collection tool

The interviewer will be the main data collection instrument. This means the interviewer will formulate the interview questions, find participants and selects them for the data collection process. In this study, the researcher and interviewer will be the same person. This ensures that no information is lost during interviews and the researcher/ interviewer will be able to ask the questions he/she would like to ask. The role of the interviewee is to answer the questions as they are in a position to offer informed opinions from their personal experiences. The interviewer will conduct interviews without any assistance from anyone. The interviews will be recorded using the interviewer's phone or tape recorder. The telephone conversation will also be recorded using one of those two instruments. The interviewer will have the information from all the tape or phone recordings. This will enable the researcher to analyze the data later and convert them to meaningful responses.

3.8 The target population

A population can be defined as a group of individuals with at least one common characteristic which differentiates that group from other individuals (Govender, 2016:44). A research population is made up of all people and objects with whom the researcher is concerned (Lavrakas, 2008:23). The target population alludes to units for which final discoveries or findings of the study are meant to generalize. The researcher chooses the population based on the problem of study. This paper is aimed at the people under Mahikeng Local Municipality. It will focus on residents who pay rates in exchange for services from the local municipality. These residents expect to receive high quality infrastructure with all the money they pay monthly to the municipality. The target population is the different communities in Mahikeng. The researcher will interview seven ward counsellors and two municipality representatives.

The first municipal representative will be from the road infrastructure division, while the second will be from the water infrastructure.

3.8.1 Key participant selections principles

These principles are according to Clearly, Horsfull and Hayter (2014:473).

Participants are chosen based on their personal experiences and understanding on the topic of study

- Small digits are thoroughly studied vigorously (Clearly, Horsfull and Hayter, 2014:473).
- All participants are chosen for a purpose (Clearly, Horsfull and Hayter, 2014:473).
- Selection is conceptually driven by a theoretic framework (Clearly, Horsfull and Hayter, 2014:473).
- It is generally sequential instead of being pre-determined (Clearly, Horsfull and Hayter, 2014:473).
- A rationale for selection is essential (Clearly, Horsfull and Hayter, 2014:473).

3.9 Qualitative analysis of data

Vosloo (2014:358) defines it as a procedure of breaking down and making sense of how participants view, feel about events, reciprocal sequence, themes and everyday similitudes in research.

3.9.1 Process of qualitative data analysis

According to Watling, James and Briggs (2012:385) the process of qualitative data analysis includes six steps and they will be listed below:

- Defining and identifying data - it is important to thoroughly comprehend what data really is and which data is appropriate and is in line with research questions and goal.
- Collection and storing data - it is important to record data on recorders or on paper so the researcher can go back and listen or read it form a better opinion (Watling, James and Briggs, 2012:385).
- Data reduction and sampling - after collecting the data the researcher needs to choose which data is relevant and which isn't relevant. The researcher then needs to get rid of what is not important or what is not in line the study and keep what is in line with the study (Watling, James and Briggs, 2012:385)

- Structuring and coding data - these two procedures signify a logical procedure of presenting data in detail, for instance, data that was collected using semi-structured interviews can be structured in the form of themes, under different codes that will make it easier to draw up a framework that is understandable (Watling, James and Briggs, 2012:385)
- Theory building and testing -is a paramount aspect of conducting a research study through bringing about new detailed understanding (Watling, James and Briggs, 2012:385)
- Reporting and writing research - it entails translating words onto paper, establishing an argument founded on the concluding findings of the research and the process the researcher has undertaken allows the researcher to hear and witness from all the participants that were interviewed and also writing the information that emerged during the. The conclusions should ultimately be deduced from the data collected and is bound to add onto the body of knowledge (Watling, James and Briggs, 2012:385)

3.9.2 Type of Qualitative data analysis

The researcher will use content analysis to analyse the data collected form interviews.

3.9.2.1 Content analysis

According to Schreir (2012:1), it is a method that full explains the meaning of collected qualitative material in a systematic manner. It works or incorporates verbal data, data that is visual and artefacts which allows the researcher enough room to be able to interpret. Using this method for analyzing data means the researcher will be using questions that allows one to explore the meaning behind actions or attitudes of participants, events that occur and experiences of participants, events and norms (Schreier, 2012:1). According to Welman, Kauger and Mitchell (2010:221), it is quantitative analysis of data that was collecting using qualitative methods. It includes identifying reoccurring themes and frequencies and word sequences, phrases. The researcher will analyze the data using these themes that reoccur in participants responses more than once.

3.9.3 Qualitative data analysis method

3.9.3.1 The researcher will prepare field notes and transcripts

These are detailed notes made by hand, recordings and through observations. These notes, recordings and the observations are compiled during interviews. The researcher must convert

them into write-ups. The tape recordings and dictation should be translated to text before being processed (Tessier, 2012:447). The method of writing down notes during interviews was used before technology came into the picture and besides its simplicity it proved to be a method that helps the researcher not to forget anything when processing data (Tessier, 2012:448). The researcher can use a notepad and a pen or pencil. The advancement of technology birthed tape recorder which are always good methods for analyzing data after the interviews (Tessier, 2012:448).

3.10 Approval of conduction interviews

The researcher submitted a letter requesting permission from the local Municipality. The researcher has been granted permission to conduct interviews at the Mahikeng Local Municipality in the form of a letter. The researcher then asked the ward counsellors to participate in the study and all eight of them agreed. The researcher will set dates to interview participants over the phone and face to face.

3.11 Trustworthiness

Two important concepts when conducting research are validity and reliability. These two contribute towards the objectivity and credibility of the research are found in them. Researchers should take alternative methods of collecting data, analyzing and interpreting data so they can produce valid and reliable information. It is difficult to measure reliability because human behavior is never static (Govender, 2016:49). Reliability is founded on the supposition that one single reality exists and learning it over and over will produce similar results. The researcher seeks to explain the world through the eyes of those who have experienced it (Merriam, 2009: 209). Validity asses if the data that has been collected is correctly measured and it refers to the truth of prepositions generated by research. Validation is dependent on the transparency with which the data collected and analyses procedures are presented (Bailey, 2008:127). The trustworthiness of the research process can be determined by the extent to which the research provides information and processes by which the end product has been research. Govender (2016:50) supported the statement that validity is concerned with the extent to which research findings accurately represent the phenomenon under investigation and to which they applied to other situations.

3.12 Ethical considerations

Infrastructure maintenance affects people in communities and the representative of these people will be involved in the study. The researcher is responsible for protecting the rights and welfare of the participants (Govender, 2016:50). Ethics in research is a predetermined principles that lists how the researcher or organization of research are meant to conduct themselves during the research process and in dealing with participants, fellow researchers, colleagues, end users of that research and society as a whole (Mbambo, 2009:44).

3.12.1 Permission to conduct the study

For this study, the researcher submitted an application for ethical clearance to the North West University Mahikeng Campus and it was approved. This allowed the researcher to start the data collection process. When talking about infrastructure maintenance one cannot disregard and not acknowledge the municipality. The researcher sent a letter to the municipality requesting permission to conduct this study with two of their representatives. The municipality granted the researcher permission to conduct it. The researcher also asked for permission from ward counsellors to be able to speak on behalf of the various communities that they represent. The researcher was also granted permission to conduct interviews with the ward counsellors.

- The researcher will make participants aware of the goals of the study
- No names will be used and the researchers will be kept anonymous
- The researcher and research possess no harm (physically or mental discomfort to the participants)
- The researcher will make sure the findings are available to all participants
- The study is in line with the ethical considerations of the North West University.

3.12.2 Principles of research ethics

The principle of beneficence will be observed when collecting data. It includes freedom from harm and exploitation. No physical, mental or emotional harm will result from these interviews (Mbambo, 2009:45). The principle of respect for human dignity will also be observed and that incorporates the right to self-determination and to accurate full disclosure. The right to self-determination were honoured because they were given a chance to reject an opportunity to be part of this study (Mbambo, 2009:45). The researcher will take the right to full disclosure into considerations and respect it because the researcher will explain in full

detail the nature of study and participant's right to take part or refuse to take part in the study (Mbambo, 2009:46).

3.13 Conclusion

Research design and methodology focuses on the process of research, how it will be conducted, which tools will be used and which data analyses methods were used. The researcher will use the qualitative research approach in both the process of collecting data and analyzing it. The researcher will be able to interview people who were elected to represent the different communities under the Mahikeng Local Municipality. The researcher will also interview two municipal representatives, one from the road infrastructure department and another from the water infrastructure maintenance. The researcher has been granted permission to conduct interviews and will keep all participants anonymous. The researcher has also listed questions to ask participants in this chapter. It is imperative for the researcher to observe all ethical considerations and uphold them in line with the university standard. The researcher will also be the interviewer and will also be the main data collection tool. The researcher will list the interview questions, conduct interviews and compile this paper without any assistance. The target population will be made up of different communities under the leadership of Mahikeng Local Municipality. The researcher will not be bias and will work with both the municipality and community. The researcher has received confirmation from participants to help out with this research playing their different roles. The above methods have been selected to elaborate on the problem and will ultimately lead to new findings by the researcher.

CHAPTER 4: DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter discusses analyzing data and findings from nine interviews with ward councilors and municipal representatives. The purpose of this study was about looking into the contribution of infrastructure maintenance in the development of Mahikeng. The researcher collected data from both ward councilors and municipal representatives. The findings presented in this section illustrates the dissimilarities and similarities between how all councilors see the problem and its impacts. Quotations are used to illuminate the findings. Each quotation is symbolized by P which represents participants, followed by a number for example P1. The P symbolizes a quotation rendered verbatim.

The previous chapter focused on explaining in detail the methods and techniques that will were used in collecting and analyzing data. This chapter focuses on presenting and interpreting data that has been collected by the researcher. The researcher collected data from nine participants namely: seven ward councilors and two municipal officials in the infrastructure division. The study undertakes a qualitative research approach to conduct ethnographic research. This allowed the researcher to talk to participants who represent different communities affected by the problem posed by the study and the municipality. This was done to ensure that people who have a better understanding of the problem and are in position to speak on behalf of communities get the chance to do so. Qualitative research is focused on using in-depth methods.

In-depth methods present a clear understanding of the problem while gathering information on people's thoughts, feelings, knowledge and how they act towards the problem. In the case of this study, the researcher chose to collect data using semi-structured interviews through the phone and face to face. For the researcher to be able to assess the contribution of infrastructure maintenance in the development of Mahikeng the researcher has to first know how residents and the municipality think, feel, act and know about municipal road maintenance in Mahikeng. The researcher took the qualitative approach and was able to analyze and interpret the data collected, all of that is based on the results of the interviews.

4.2 Presentation of data

The researcher chose the ethnographic research design as it is focused the day to day behavior of people while centering on norm patterns, beliefs, structured social and other contributing factors. One of its aim is to collect data from participants through interviews. In this interviews only a number of people are asked to participate. These people were asked to participate, based on their knowledge on the topic and are allowed to speak on behalf of the communities they represent. The research conducted face to face interviews and telephone interviews and this was based on what the participants were comfortable with. In this study content analysis was used to analyze data that was collected. The research design looks at relationships between individuals and attitudes. One can see these behaviors expressed as pattern, roles and language.

The chosen method of analysis for this study is content analysis. The researcher chose the qualitative approach and used interviews to collect data from different participants. Content analysis is best suited as the researcher will identify reoccurring words as themes. These themes will come from the semi-structured interviews. Content analysis can be used on audio, visual and written documents. It will be used analyze the audio and written down interviews. The researcher who was also the interviewer allowed the interviewees to freely express their opinions on the topic after asking a few questions as guides. The data was collected from Mahikeng Local Municipality using the qualitative methods using the interview technique. These interviews were recorded using a phone recorder and writing down the answers from all participants.

4.3 Interview responses and analysis

The researcher sent a formal permission request letter to the Mahikeng Local Municipality. The researcher then requested a ward councilor list from the municipality and called them to ask for permission to interview them. The researcher then sent out emails to participants and followed up on them, to set a date and time for the interview based on the availability of the participants. Interviews were conducted face to face and over the phone. All interviews were written down using pen and paper as per the request of all participants. The researcher was

the interviewer and the main data collection tool. Five interviews were conducted face to face while four were over the phone. Data analysis of interview responses is done from five ward councilor participants and two municipal representatives in the study.

4.3.1 Biographical Information

Race	Age	Gender
Black	25- 50	4(F) 5(M)

4.3.1.1 Thematic Analysis

Themes	Frequency
Poor infrastructure quality	4
Potholes	6
Limited or lack of development	5
Buying water	5
Unemployment	3
Poorly maintained	5

4.3.2 Councilor questions, responses and analysis

According to you:

Question 1	Who is responsible for maintaining and preserving infrastructure?
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P1 response: The municipality is responsible for maintaining and preserving infrastructure but the community can also assist by contributing to preserving roads by not burning on tar roads during protest.

P2 response: The municipality and residents are responsible for maintaining and preserving infrastructure.

P3 response: The municipality is responsible for maintaining infrastructure because as residents we pay rates.

P4 response: It is the responsibility of the municipality to maintain and preserve the infrastructure.

P5 response: It is one of the duties of the municipality to maintain and preserve roads.

Question 2	Do you think you are receiving the best quality water and roads infrastructure?
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P1 response: No, the infrastructure quality is very poor. The water pipes are very old and the roads are thin and small.

P2 response: No, infrastructure pipes are old and rusty hence they burst all the time and we go without water for long periods of time.

P3 response: No, our roads are dilapidated and the pipes are very old hence they burst every now and then.

P4 response: Honestly no, the roads are really in bad conditions with the quality of our roads being very poor. I don't want to mention the old pipes from during the days of Mr Mangope.

P5 response: No and this is because of the tender process. Tenders are awarded on based on political association and corruption. They are given these tenders without experience in road and water infrastructure construction so they produce low quality roads, using cheap material hence the problem is reoccurring.

Question 3	The current water and road infrastructure, how has it affected the development of Mahikeng?
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P1 response: It has affected development negatively because firms have problems transporting goods and services and when they do transport these goods it results in added transport costs having to constantly service the cars. This has caused unemployment of youth especially. Residents don't have water at times when pipes burst and water is switched off and this means they cannot bath, cook or clean.

P2 response: Negatively, the few businesses we have constantly have to service their trucks as a result of the bad roads and potholes. Without water we cannot take care of ourselves and bath meaning we cannot go to work. We will never be productive and development will slow down with the limited development that we are already experiencing.

P3 response: In terms of businesses their trucks and cars are in constant need of service. This means more money leaving businesses. A lot of business people play far away from Mahikeng and this means we don't grow as a community, we don't develop. The community does not have clean bathing and cleaning water and this means people are missing work. Some people are sick as a result of the unclean dangerous water and so they are forced to buy water using money from their pockets.

P4 response: Residents of Mahikeng are not happy at all because they can wake up in the morning to find that their water has been switched off or maybe only brown or really white water. You cannot drink or bath in dirty water and community members fall sick as a result. In terms of roads as a community we are not growing and we are not developing as a community we are stuck in one place.

P5 response: People with cars and trucks refuse to use these roads because they are avoiding the damage that could occur to their cars. Many years ago it was announced that South Africa will have a water crisis now municipalities should have planned on how they will provide residents with water. With the growing population we cannot afford to have businesses running away from our community as a result of the roads or constant water interruptions.

Question 4	Is the current water supply sufficient?
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P1 response: No it is not enough. We have a problem of going for hours without water. Sometimes you wake up and you get dirty water tasting like Jik Bleach Perfume. This is very unhealthy.

P2 response: No, the whole of South Africa is facing a drought but in Mahikeng the situation is worse. This is because of the old pipes and this means water is wasted. Residents have to purchase water from shops and that is expensive for both households and firms.

P3 response: I cannot say that because we can go for a long time without water. You find that when you are moving around in your community you see a burst pipe with water running without being attended to. Now because of these old pipes residents have to take money out

of their own pockets to buy water just so they can cook and bath. This is added expenses to the household in turn affecting businesses.

P4 response: No, we don't have enough water and this is hard because residents are struggling to get water. Now, in order for them not to fall sick and to be able to do certain activities in the house they are forced to buy water.

P5 response: No, the water is not enough and this affects the community's health because they have resulted to buying water or buying water tanks. We are not sure of the direct source of this water and grandmothers are subjected to travelling long distance just to get water.

Question 5	Are the roads maintained up to standard?
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P1 response: No, the roads are in very bad conditions, there are potholes all over the place and this has been an ongoing problem for many years. The municipality keeps making new unpainted speed humps and not dealing with the issue of accident causing potholes. The quality of roads is very poor because the roads are not maintained.

P2 response: No, our roads are dilapidated and you cannot go anywhere without seeing potholes in the same spots every few months. This is because the roads are not well maintained.

P3 response: No as we can see potholes at every turn. Potholes from back in 2014 still in the same spots but the municipality claims to be trying their level best.

P4 response: No, our roads are very bad and speed humps are forced on us even though they are not painted and potholes on the other side. It's just a disaster.

P5 response: No, our roads are not maintained up to standard and as a city we are at an economic standstill. These roads lead to increased costs which will influence the decision of firms to relocate out of the town. Residents and firms have to constantly service their trucks and cars while buying new tires.

Question 6	Does the municipality engage with communities with regard to infrastructure maintenance?
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P1 response: Yes, they sometimes do communicate but due to political interference we get limited information after a long time.

P2 response: Sometimes the municipality communicates with us on different occasions they don't and all we see is construction taking place.

P3 response: I would not say that because a lot of times we see construction taking place.

P4 response: Yes, during meetings as councilors but the only negative factor is that it happens after some time.

P5 response: Yes, the municipality does try to communicate but the feedback is not enough and it happens after a long time.

Final regards from communities?

P1 response: The municipality needs to plan on replacing the water pipes all together in the next coming two years or the situation will get worse and worse.

P2 response: The municipality needs to sustain its capital city in line with the constitution before we take it to the streets.

P3 response: To the municipality of Mahikeng please be more proactive when it comes to road maintenance and please replace the water pipes.

P4 response: As the municipality, your reactionary methods are not working, start properly planning. The development of the town is dependent on you

P5 response: The municipality needs to stop making excuses and stop giving their friends contracts for road construction.

4.3.4 Road infrastructure maintenance municipal representative questions, responses and analysis

Question 1	What is causing the delay in road infrastructure maintenance?
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- Budget and material procurement

The municipal official explained that there are two factors that cause the delay of maintaining roads in Mahikeng being the strict budget and procuring material. The infrastructure maintenance division representative explained that procuring maintenance material is a challenge. It takes a long time for them to receive this material, hence, they take time to attend to the roads. The official explained that they use patching material is always available unlike reconstruction material. They cannot maintain roads without it and because it is not always available it causes delay.

Another factor that delays the maintenance of roads is that every year budgets are drawn up, and these budget dictates how many and which roads are to be maintained in that year. If their division is only allocated a certain amount of money their actions are limited and they cannot attend to all the roads that need the attention of the municipality in one year. If the division runs out of money, they have to wait for the next financial year. The budget is very limited and they can only stretch it to a certain extent. However, the official also pointed out that in some cases they have attended to roads that are not in the budget. This is only in urgent cases where the roads pose a serious threat to the life of residents.

Question 2	What are some of the steps that the municipality has taken towards dealing with road infrastructure in the past year?
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- Patched roads

The municipal official explained that in the past year they have patched roads in different areas. The team went for site inspection to identify roads that are in a dire conditions. Once they identified these roads they went ahead and maintained some of them. They maintained these roads through patching the potholes. The officials made an example of one road called Zobo road. According to him, they patched that road and now is in a condition to be used by people.

Question 3	Which method is the municipality using to maintain roads?
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- Rehabilitation and Reconstruction

There are two methods of maintaining roads that the municipality uses. The municipality can rehabilitate or reconstruct roads. When they rehabilitate they identify the problem and work

on it while on the other hand reconstruction has financial implications as it means having to construct the roads from scratch. The municipality only has patching materials for potholes and so they attend to potholes. Reconstruction would mean more money being taken out of the budget to fix problems one road. The municipality finds patching more suitable as it means they can fix more than one road in a year with the money they are allocated. The researcher then asked how do they get to learn about these roads and the official said residents usually visit the premises to complain or when they are doing their site inspections.

Question 4	What are some of the advantages of road infrastructure maintenance?
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- Employment creation and skills development

The municipal official stated that through road maintenance the municipality would be able to create more jobs and equip people in the community with skills. Through the EPWP, the municipalities would be able to recruit a lot of youth to work and learn how roads are maintained. In turn, this will lead to a highly skilled group with more opportunities available to them beyond the city. Since maintenance is ongoing it means most of the trained youth will be retained to offer these services over and over. Another advantage if the roads are maintained regularly, it will also contribute towards the image of the capital city.

Question 5	How has the limited maintenance of roads infrastructure affected development in Mahikeng?
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It has affected development in a really bad way, said the municipal official. He further said if you look at Mahikeng today, with all its rich history and the fact that it is a capital city, it should be more developed than Rustenburg. Roads contribute towards the economic success of any region and now if the roads remain to be the way they are then there will never be progress. Trucks and cars will never be able to move freely now this impacts the development of the individual in the city. Businesses have decided to stay far away from Mahikeng and this means the youth remains unemployed. The municipal official further stated that the reason behind the limited development is the condition of roads in the city.

Question 6	What are some of the challenges the municipality is experiencing in terms of infrastructure maintenance?
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- Limited resources

The municipal official expressed that they have a problem of limited resources in terms of budget and material for maintaining roads. As the municipal official explained, getting material to maintain roads does take some time and when it comes to budgets they can only perform maintenance on projects included in the budget.

- Destruction to roads

Another challenge experienced by the municipality is physical distraction to roads by community members. According to the municipal official, residents always dig up roads during their protests. This is a problem as the municipality will then have to fix that same road that was not damaged by heavy traffic but by people.

- Burning on tar roads

During community protests we witness a lot of community members burning tires on the tar road now one can imagine the damage. The official further elaborated by saying it seems their efforts are in vain because they maintain roads only for community members to burn tires and other things on that very same road that has just been maintained. As a result, it seems the efforts of the municipality are not seen. These same residents will come at a later stage to complain about the state of roads in their communities when they are to blame. This is a challenge to the municipality because it means more money will have to be paid for maintaining the same roads. The municipality cannot move onto maintaining other roads if they constantly have to work on the same roads.

- Water on the road

According to the municipal official, residents tend to start car washes right next to the road. This means cars are being washed the whole and without proper drainage system this water will remain on top of the road for a very long time. It is not good for water to be on top of the road for a long time as it can cause more damage to the tar roads.

Final regards

The municipal official from road maintenance concluded by stating that the municipality is doing the best that they can with the limited resources they have. Community members should also contribute by preserving through burning on the soil and not the road, paying their rate and not physically digging up roads as this leads to more costs for the municipality and no real progress being made by the community. The community should learn to work together with the municipality and help preserving the little infrastructure we have left.

4.3.5 Water infrastructure maintenance municipal representative questions, responses and analysis

According to you:

Question 1	Why is it important for firms and communities to have clean water?
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- Community health and production

The water infrastructure maintenance ward councilor expressed that it is important for firms and communities to have clean for health reasons and for production purposes. If the community drinks or comes into contact with unclean water they will fall sick and that means that they will not go to work for a long time. The official acknowledged the contribution of water in production and how community member staying home will impact firms negatively. People who are sick as a result of water will not be able to go to work and even if they do they will not really be productive. So it is very important for both the firms and communities to have clean water.

Question 2	How does the limited water infrastructure maintenance affect communities and firms?
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- Water disruptions

According to the municipal official, the community experiences a lot of water disruptions as a result of the state of the current water infrastructure. The official further explained that this water infrastructure dates back to the days of Bophuthatswana and that is more than twenty years ago. Due to the condition of these pipes they burst constantly and this means the municipality will have to switch off the water regularly. The pipes burst regularly because the

infrastructure is really old and the municipality cannot install new pipes in the whole town. This means that communities will not have water to bath or eat and that in turn means they will not be able to go to work.

Question 3	How does this limited maintenance of water infrastructure affect development?
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According to the municipal official, it has affected development negatively. As mentioned before, when pipes burst constantly it means residents will not have water to clean, bath or cook. If they do not have water to bath then they cannot go to work and that means the production of firms will suffer. The municipal official made an example of houses in one street having the same water pipe connection and once one pipe bursts it means the municipality will have to shut down water for the whole street trying to repair the damage. This infrastructure can affect more than one household negatively. The official then said: “Imagine how many people stay away from work as a result of this maintenance process that is unplanned”. Another factor is that when these firms start experiencing constant water disruptions as the result of the infrastructure they are more than likely to relocate their business to places where they will not experience it. This means more and more people will lose their jobs. With regard to communities, they are affected by the unclean water in terms of their health. If they are not well they cannot be productive. This means production will slow down impacting development in a negative manner.

Question 4	Which maintenance method is the municipality using for water infrastructure?
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- Reactionary versus planned maintenance

The municipal official stated that the municipality currently deal with reactive maintenance and not planned maintenance. The reason for that is financial limitations. The municipality cannot afford to install new water pipes in the whole town and now it is very difficult for the municipality to plan maintenance routines as these pipes burst randomly. When the municipality is alerted that a pipe has burst, the team rushes to maintain it and that means the municipality maintains the infrastructure by reacting to the problem.

Question 5	Why does the municipality not inform residents beforehand when their water will be turned off?
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According to the municipal official the municipality cannot inform residents beforehand because they never know when a pipe will burst and when it will need their urgent attention. Repairing takes place unexpectedly in a reactionary manner as stated in the previous answer. However, the water infrastructure maintenance team has started working with the municipal communication department. Once they are alerted about a burst pipe in need of maintenance and they attend to it, they inform the communications department so they can inform residents through social networks.

Question 6	What is the cause behind residents receiving brown or really white water from their taps?
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According to the municipal official, during the maintenance phase water is turned off and when the municipality switches on the municipality it will clean the pipes from within. Since the pipe bursts dust in the reserve can enter into the pipes and when the water is turned on, the water will flood the pipes full force, cleaning the dust, so once residents try to get water from taps that is the first water they will receive. In terms of white water, it is the substance that is produced each time water stays in one place for a long time just like when you boil water in a kettle after a long time you will see that white powder. Residents are advised to allow the pipes to clean themselves before consuming the water.

Final regards

The municipality is working on increasing revenue collection to enable them to properly maintain the infrastructure. Moving forward the infrastructure maintenance division is planning on planning the infrastructure maintenance instead of being reactionary.

4.4 Conclusion

The researcher collected data to conduct this research. The researcher conducted interviews with municipal officials in the infrastructure department and ward councilors. The first set of

interviews were conducted with ward councilors as they were voted for by residents in the local communities. A total of nine interviews were conducted and the participants were all willing to take part in the study. Some of the ward councilors acknowledged the roles that the community can play in preserving the infrastructure while all of them see the municipality as a responsible for maintaining the infrastructure. The participants mentioned the limited development and unemployment is a result of the state of the infrastructure in Mahikeng. The municipality did acknowledge their roles in maintaining the infrastructure but also ask community members to take part in infrastructure preservation by not burning on tar roads. The researcher conducted some of these interviews face to face while other it was over the phone and had to use a pen and paper to write down the answers of participants. This was based on the requests of the participants.

CHAPTER 5: FINDINGS AND RECOMMENDATIONS

5.1 Introduction

The previous study chapter was about analyzing the collected data from seven out of nine participants. Five interviews were from ward councilors and two from municipal officials. This data was collected using interviews in Mahikeng Local Municipality. The data was gathered, presented, interpreted and analyzed. The researcher conducted a qualitative research method.

The focal point of this chapter is on accentuating the tools and techniques used in the research process in this paper, using qualitative research method. The study was based on the contribution of infrastructure maintenance in the development of Mahikeng. This chapter of the study presents the findings of the study and offer recommendations in relation to the study and also explores the current state of road and water infrastructure in Mahikeng and the implications they have on the community.

5.2 Synthesis

Chapter one of this study provided the base and consisted of the research overview, which includes the background to the study, definition of key concepts, the historical overview of the problem, preliminary literature study, problem statement, aim and objectives of the study, questions related to the objectives, significance of the study, research design and methodology, scope of study, ethics, and the outline of the study was chapters was presented. It also guided the questions posed by the study which contributed towards the planning and organizing of the study.

In chapter two, the researcher explored literature on the topic related to the study. The researcher discussed the legislative framework that was enacted for local government, municipal revenue and the legislative framework for revenue collection and sharing. The researcher then, elaborated on the two types of infrastructure being economic and social infrastructure. The role of municipalities in service delivery and delved deeper into water and road infrastructure as the focal point of this study. The researcher also included the challenges that are experienced in infrastructure service delivery. The theory of

infrastructure-led development was used to support the topic of the study, looking at the impacts of infrastructure development. The theory infrastructure-led development which focuses on infrastructure as the engine of growth. Under this theory, the researcher explored the impacts of maintaining the water and road infrastructure. The researcher explored impact of water and road infrastructure on the development of the tourism industry, community health and infrastructure maintenance in employment creation as a strategic tool. In this part of the study, the economic benefits of road and water infrastructure maintenance were included and the impact of poor maintenance of public infrastructure. The researcher concluded this chapter by including the different maintenance method municipalities can use.

Chapter three of the study discussed the research design and methodology. Qualitative method was used to conduct this study and this part of the chapter elaborates on it and the techniques used in this study. This part of the study highlighted how data would be collected, sampled and analyzed. The researcher elaborated on two types of interviews being face to face and over the phone interview, and the different advantages and disadvantages of each. The study further explained the target population, type of qualitative data analysis, approval for conducting interviews, reliability and the ethical considerations.

In chapter four of the study data was presented, interpreted and analysed. The researcher identified and selected people who can contribute extensively to the study. These people know a lot about the problem posed by the study and these people represented different communities under the Mahikeng Local Municipality. The researcher presented the work under different themes and counted them; each of these themes were mentioned. This chapter was conducted using semi-structured interviews with the participants. The main objective of this chapter was to identify community leaders under the municipality, who have more knowledge about the problem and the impacts it has on the community and the region.

Chapter five being the last and concluding chapter, consists of a summary of the whole research paper from the first to the last chapter. It also includes the finding and recommendations of the study, with regard to the topic of the study.

5.3 Findings

- Old infrastructure

The researcher discovered that the infrastructure in Mahikeng is really old, dating back to the days of Bophuthatswana, almost twenty years ago. All municipal officials highlighted how

they can only maintain the old infrastructure even though it has exceeded its lifespan. For over twenty years residents have been using the same infrastructure, and the municipality does not have money to construct new roads or install new pipes in the whole town. All the municipality can do at this point is to patch potholes and try fixing pipes. All of these are temporary measures to fixing the problem, meaning it will reoccur in a few months.

- Resident's contribution

The residents complain about the infrastructure, yet when they protest, they are the first people to destroy it. One of the municipal officials complained about residents digging up the road during protests, and that this act only sets the municipality back. Residents also burn tires and other things on the road and this damages that exact spot where the tire is burned. In a few months, that is the spot where people start seeing potholes and complain to the municipality. This makes it seem like the municipality is not working or not progressing, whereas residents contribute towards the damage. Another factor is residents starting local car washes without the drainage systems, near the road and the water used to wash cars stays on top of the road for long periods of time and this damages tar roads.

- Budget constraints

The municipality finds itself in a very difficult position in terms of revenue. Some residents protest by not paying their rates because they feel the municipality is not using revenue correctly. As a result, the municipality cannot make use of revenue that they do not have, to maintain the infrastructure. The maintenance division can only use the money allocated to them and cannot demand or ask for more. The divisions are allocated budgets yearly and they have to stick to the budget.

- Limited development

The researcher found out that maintaining the infrastructure plays an important role in the development of any region. The lack or limited infrastructure maintenance has contributed to how Mahikeng is currently performing economically. If the infrastructure was maintained regularly, it would mean employing more people, in turn contributing towards people's skills development. This means a lot of people would be employed and be able to meet their basic needs without having to depend on government grants. It is important that the municipality starts actively planning maintenance projects and plan how to replace the existing infrastructure that is in terrible condition.

- Material procurement

The municipality only has material for patching and not for constructing new roads. This infrastructure has passed its lifespan and it is very old, it needs to be replaced. Replacing the infrastructure in the whole capital city is proving to be very expensive. It is the role of the municipality to maintain the infrastructure. There are ways in which roads can be maintained, and that is through rehabilitation and reconstruction. Through rehabilitation, the municipality can fix small problems for a short period of time, and through reconstruction the municipality has to build all these roads from scratch. The infrastructure has exceeded its lifespan and needs reconstruction, but getting reconstruction material is difficult due to the budget.

- Communication

Communication between municipality and the residents has over the years improved over. The municipality has found an alternative way of communicating with residents and that is through social media. If something happens, like a pipe burst, then the municipality informs residents through Facebook and tells them how long will this disruption will take place.

- Maintenance planning

The municipality does not plan maintenance, rather the municipality reacts to the problem after it has happened by working instead of preventing the problem from happening. The water infrastructure division fixes pipes that burst at that time and not working towards preventing the problem from happening in the first place. The road infrastructure division do go on-site inspections and also fix potholes that are already there. The municipality does not really plan maintenance, they react to the problem by patching up the problem, in a way, closing it up. These are temporary solutions to the problems as they reoccur in the months following the patching up.

The municipality needs to start looking into planned maintenance instead of reactive maintenance. The municipality is aware of the condition of both the road and water infrastructure in Mahikeng. The municipality needs to plan maintenance projects before pipes start bursting and road conditions deteriorate further. In this manner the municipality will plan and budget correctly, instead of having to spend more money for fixing the problems. It is said that prevention is better than cure. If the municipality can prevent the problem form happening in the first place by replacing pipes before they burst and by reconstructing roads

before they deteriorate further, it will save the municipality money and build trust with community members.

5.4 Recommendations

The main aim of the study was to look at the contribution of infrastructure maintenance in the development of Mahikeng. A qualitative study was undertaken to ensure fulfilment of the aim of the study. Below are the recommendations after conducting a study and looking at its findings after the research was conducted.

The municipality should plan on reconstructing roads and installing new pipes. This way, the municipality will avoid having to react to the problem, the municipality will prevent problems from happening in the first place and build the trust of residents in the municipality

Residents are encouraged to pay their rates as the municipality cannot use revenue they do not have to maintain the infrastructure. The municipality should find new strategies to motivate the community to pay their rates.

During service delivery, protests residents should refrain from burning tires on the roads

Residents should guard against starting car washes close to the road, as having water on tar roads for a long time damages it.

Ward councilors should talk to their communities and inform them of the damage they are causing when they dig up roads.

The municipality needs to priorities both water and infrastructure maintenance as a step in the development of Mahikeng.

5.5 Suggestion for further research

The researcher suggest that further research be conducted to thoroughly explore the contribution of infrastructure maintenance in the development of Mahikeng. The researcher may include ward committees, ward councilors and municipal officials and that can include the municipal manager and the head of infrastructure department. Further study may bring to light a different perspective that may be an appropriate welcome addition to the Mahikeng Local Municipality.

5.6 Conclusion

The researcher papers' main aim was to look at the contribution of infrastructure maintenance in the development of Mahikeng. This chapter presented the findings and also offered a few recommendations. The study was conducted at the Mahikeng Local Municipality and this means that the findings and recommendations are only applicable to that specific municipality and no other municipality. The researcher suggests further research on the topic, in order to gather more information and add to the existing body of knowledge. It is important to take the recommendations into considerations and to implement them to improve the relationship between the municipality and its community. The municipality needs to inform the community of decisions that they have taken and the impacts these decisions will have on these communities.

REFERENCE LIST

- Abdulkareem, Y.A. and Adeoti, K.A., 2004. *Road Maintenance and National Development*. In National Engineering Conference, Federal Polytechnic Offa, Kwara State.
- Abdulla, S., Razak, A.A. and Jaafar, M., 2014. *Public Tourism Infrastructure: Challenges in the Development and Maintenance Activities*. In SHS Web of Conferences (Vol. 12, p. 01096). EDP Sciences.
- Abend, G., 2008. *The meaning of 'theory'*. *Sociological Theory*, 26(2), pp.173-199.
- Agénor, P.R., 2010. *A Theory of Infrastructure-led Development*. *Journal of Economics Dynamics and Control* 34(5), pp.932-950.
- Alshenqeeti, H., 2014. *Interviewing as a Data Collection Method: A Critical Review*. *English Linguistics Research* 3(1), p.39.
- Aschauer, D. A., 1989. *Is Public Expenditure Productive?* *Journal of Monetary Economics* 23, pp177-200.
- Athukorala, N.A., 2011. *An Empirical Study of the Critical Success Factors for Business Process re-engineering (BPR) in the employees's Provident Fund*.
- Bailey, J., 2008. *First Steps in Qualitative Data Analysis: Transcribing*. *Family Practice*, 25(2), pp.127-131.
- Balfour, T., 2013. *Municipal Health Services in South Africa, opportunities and challenges*.
- Bolderston, A., 2012. *Conducting a Research Interview*. *Journal of Medical Imaging and Radiation Sciences*, 43 (1), pp.66-76.
- Boshoff, L., 2009. *Municipal Infrastructure Asset Care in South Africa: A Reality Check*. Unpublished Paper.
- Boshoff, L., Childs, R. and Roberts, L., 2009. *Guidelines for infrastructure Asset Management in Local Government 2006-2009*. Department of Provincial and Local Government, Republic of South Africa, Pretoria.

Browne, E. & Millington, K. A. (2015). *Social development and human development: Topic guide*. Birmingham Oxford: GSDRC, University of Birmingham / HEART.

Business Day., 2017. Lack of Infrastructure Maintenance ‘A Serious Problem’. Date accessed: 19 October 2018 viewed from: <https://www.pressreader.com/south-africa/business-day/20170825/281754154447819>

Carlsson, R., Otto, A. and Hall, J.W., 2013. *The Role of Infrastructure in Macroeconomic Growth Theories*. Civil Engineering and Environmental Systems, 30 (3-4), pp.263-273.

Chan, C., Forwood, D., H. Roper, and C. Sayers., 2009. *Public Infrastructure Financing: An International Perspective-Productivity Commission Staff Working Paper*.

Cidb.org.za 2007. The national infrastructure maintenance strategy. Cidb July 2007.

Clearly, M., Horsfall, J. and Hayter, M., 2014. *Data Collection and Sampling in Qualitative Research: Does Size Matter?*. Journal of Advanced Nursing, 70(3), pp.473-475.

Constitution of the Republic of South Africa Act 108 of 1996.

Construction Industry Development Board, 2008. *Update on the National Infrastructure Maintenance Strategy: Key Government Initiatives in Support of Improving Infrastructure Maintenance*. Viewed from <file:///F:/Files/Key%20Government%20Initiatives%20in%20Support%20of%20Improving%20Infrastructure%20Maintenance.pdf> date 05/05/2018.

Cooper, D.R. and Schindler, P.S., 2011. *Business Research Methods*, pp.142-155.

Department of water affairs and forestry, 2007. Free basic water implementation strategy 2007: consolidating and maintaining

Department of Water Affairs and Forestry., 2005. *Nationwide sustainability audit of sanitation facilities implemented by secotr departments from 1994 to 2003*. Final report Consultants PULA and Matingi, March 2005.

Dietrich, N., 2017. *The Difference between Corrective and Preventive Infrastructure Maintenance*. Viewed from <https://www.imqs.co.za/news-articles/the-difference-between-corrective-and-preventative-infrastructure-maintenance/> on: 18 July 2018

Disoloane, V., 2012. *Reception of a code of conduct at the Capricorn District Municipality in the Limpopo Province*. PHD Thesis. Pretoria: University of South Africa.

- Edogbanya, A. and Sule, M.J.A.G., 2013. *Revenue Generation: It's impact on Government Developmental Effort (A Study of Selected Local Council in Kogi East Senatorial District)*.
- Edwards, R. and Holland, J., 2013. *What is qualitative interviewing?*. A & C Black.
- Eskom., 2010. *Climate Change and Sustainability Department, Eskom's 6 point plan*. Viewed from http://www.eskom.co.za/content/GI0004_6_POINT_PLAN~2~1.pdf date accessed 23 June 2018.
- Etikan, I., Musa, S.A. and Alkassim, R.S., 2016. *Comparison of Convenience Sampling and Purposive Sampling*. American Journal of Theoretical and Applied Statistics, 5(1), pp.1-4.
- Faridi, M.Z., Malik, M.S. and Bashir, F., 2011. *Transportation, Telecommunication and Economic Development in Pakistan*. Interdisciplinary Journal Research in Business 1(7), pp.45-52.
- Feldman, M., Hadjimichael, T., Kemeny, T., Lanahan, L., Partridge, M., Poole, K., Seidman, K., Stern, S., Stroper, M., Wial, H. and Wolfe, D., 2014. *Economic Development: A definition and model for investment*.
- Feldman, M., Hadjimichael, T., Lanahan, L. and Kemeny, T., 2016. *The logic of economic development: A definition and model for investment*. Environment and Planning C: Government and Plucky, 34(1), pp.5-21.
- Flick, U. ed., 2013. *The SAGE handbook of qualitative data analysis*. Sage.
- Flick, U., 2014. *An Introduction to Qualitative Research*. (5) London: Sage Publications Ltd.
- Freund, C. and Ianchovichina, E., 2012. *Infrastructure and Employment Creation in the Middle East and North Africa*.
- Gaedicke, I.J., 2015. *Assessment of Basic Service Delivery in Mafikeng Local Municipality (Doctoral Dissertation)*.
- Gentles, S.J., Charles, C., Ploeg, J. and McKibbin, K., 2015. *Sampling in Qualitative Research: Insights from an Overview of the Methods Literature*. The Qualitative Report, 20(11), pp.1772-1789.
- Gobo, G. and Marciniak, L.T., 2011. *Ethnography. Qualitative research*, 3, pp.15-34.
- Gordon, L.E., 2016. *Real Research Methods Sociology Students can Use*. SAGE Publications.

Govender, B., 2012. *The experiences of school leaders regarding action research as a tool to enhance school functioning (Doctoral dissertation)*. Nelson Mandela Metropolitan University).

Govender, O.V., 2017. *An Investigation into the Challenges Faced by a Mobile Service Provider in Meeting Customer Needs (Doctoral Dissertation)*.

Government of Western Australia Department of the Attorney General., 2011. *How to read legislation, a beginner's guide*. State of Western Australia

Hussain, K., 2015. *The Role of Infrastructure in Economic Development*. Economy and Finance.

Jafta, X., 2017. *Infrastructure-led Growth as a Tool for Economic Transformation*. BMF Gauteng Policy Conference. Viewed from: <https://bmfonline.co.za/speeches/2017/IDC%20presentation%20-%20BMF%20Gauteng%20Policy%20Conference%2019%20May%202017.pdf> date accessed: 07 May 2018

Khagram, S., Fung, A. and De Renzio, P., 2013. *Open Budgets: The Political Economy of Transparency, Participation and Accountability*. Brookings Institution Press.

KPMG., 2016. *Insolvency and Bankruptcy code May 2016* viewed on <https://assets.kpmg.com/content/dam/kpmg/pdf/2016/05/Insolvency-Bankruptcy-Code-2016-Overview.pdf> date accessed: 25 June 2018.

Lakshmanan, T.R., 2011. *The Broader Economic Consequences of Transport Infrastructure Investments*. Journal of Transport Geography 19(1), pp.1-12.

Langkos, S., 2014. *Athens as an International Tourism Destination: An Empirical Investigation to the City's Imagery and Role of Local DMO's*. MSc in Marketing Management, University of Derby.

Langkos, S., 2014. *Research methodology: Data collection method and research tools*. University of Derby

Larkins and Associates., 2012. *Increasing use of surcharge on consumer utility bills*. AARP Utilities fee report. AARP 601 Street, NW Washington, DC 20049.

Lavrakas, P.J., 2008. *Encyclopedia of Survey Research Methods*. Sage Publications.

- Lehtolainen, M., 2003. *Public Infrastructure Investments and Their Role in Tourism Development in the Finnish Lake Region*. In Proceedings of Lake Tourism Conference 2003.
- Lekalakala-Mokgele, E. and Caka, E.M., 2015. *Facilitative and obstructive factors in the clinical learning environment: Experiences of pupil enrolled nurses*. *Curationis*, 38(1), pp.1-7.
- Local government: municipal structures Act 117 of 1998.
- Mafuwane, B.M., 2011. *The Contribution of Instructional Leadership to Learner Performance* (Doctoral Dissertation, University of Pretoria).
- Mahabir, J. and Mabena, N., 2015. *Identifying the funding constraints in municipal capital investments*. Viewed at www.ffc.co.za accessed (14 June 2018).
- Maluleke, S.M., 2011. *Managing the implementation of the assessment policy in the senior certificate band* (Doctoral dissertation). University of Pretoria).
- Mamabolo, L.R.C., 2009. *The experiences of registered nurses involved in termination or pregnancy at Soshanguve Community Health Centre* (Doctoral Dissertation).
- Matatiele Local Municipality. 2014. *2014/2015 IDP Review*. Matatiele
- Matibane, L., 2010. *Improving Service Delivery through Partnerships between Local Government, Civil Society and the Private Sector: A case study of Imizamo Yethu*. Master's Thesis. Western Cape: Stellenbosch University.
- Mbambo, M.S., 2009. *The Role of Teachers' Resource Centres from the Perspective of School Managers and Teachers* (Doctoral Dissertation, Rhodes University).
- McCutcheon, R., 2017. *Modern Labour-intensive Construction Techniques Offer Major Potential for Skills Development and Employment Creation During the Construction and Maintenance of High-Quality Public Infrastructure, Where the Consulting Engineer Has an Essential Role to Play. Past Examples in Africa Prove the Point*.
- McNabb, D.E., 2013. *Research Methods in Public Administration and Nonprofit Management: Quantitative and Qualitative Approaches*. London: M.E. Sharpe.
- Merriam, S.B., 2009. *Dealing with Validity, Reliability and Ethics. Qualitative Research: A Guide to Design and implementation*, pp.209-235.

Moore, S., 2015. *Why is water important to tourism?* Visitor Economy Bulletin viewed from https://pata.org/store/wp-content/uploads/dlm_uploads/2015/12/PATA-VE-Bulletin-November-2015-compressed.pdf date accessed 10/08/2018

Nassaji, H., 2015. *Qualitative and descriptive research: Data type versus data analysis*.

Ndlezu, L., 2016. *The Effect of Legislative Compliance on Infrastructure Service Delivery: The Case of Matatiele Local Municipality. Master's Thesis*. Stellenbosch University.

Nkonoki, E., 2010. *What are the factor limiting the success and /or growth of small business in Tanzania?- An empirical study on small business growth*.

Novick, G., 2008. *Is There a Bias Against Telephone Interviews in Qualitative Research?*

Ollis I., 2011. *Fixing Infrastructure Maintenance Problems Would Help Solve Jobs Crisis*. Date accessed 19 October 2018 from <https://www.dailymaverick.co.za/opinionista/2011-04-28-fixing-infrastructure-maintenance-problems-would-help-solve-jobs-crisis/>

Oosthuizen, M. and Thornhill, C., 2017. *The Grant System of financing the South Africa local government sphere: Can sustainable local government be promoted?*. Local Economy, 32(5), pp.433-450.

Opping, S.H., 2013. *The problem of sampling in qualitative research*. Asian journal of management sciences and education, 2(2), pp.202-210.

Palinkas, L.A., Horwitz, S.M., Green, C.A., Wisdom, J.P., Duan, N. and Hoagwood, K., 2015. *Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research*. Administration and Policy in Mental Health and Mental Health Services Research, 42(5), pp.533-544.

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice (4th ed.)*. Thousand Oaks, CA: Sage.

Pieters, N.N. 2015, *Evaluating revenue collection and allocation challenges faced by Ndlambe Local Municipality (Eastern Cape Province)*. University of Fort Hare.

Rahman, S., 2016. *The Advantages and Disadvantages of Using Qualitative and Quantitative Approaches and Methods in Language "Testing and Assessment" Research: A Literature Review*

Rani, H.A., Afifuddin, M. and Akbar, H., 2017, November. *Tourism Infrastructure Development Prioritization in Sabang Island using Analytic Network Process Methods*. In AIP Conference Proceedings (Vol. 1903, No1, p.070001). AIP Publishing.

REFERENCE LIST

Republic of South Africa Department of public works., 2017. *Maintenance Management Standard for immovable assets view from* <http://www.cidb.org.za/publications/Documents/1.%20NIAMM%20Maintenance%20Management%20Standard.pdf>

Resnik, D.B., 2015. *What is Ethics in Research & why is it important*. In ideas.

Rioja, F., 2013. What is the Value of Infrastructure Maintenance? A Survey

Rioja, F., 2013. What is the Value of Infrastructure Maintenance? A Survey. *Infrastructure and Land Policies*, 13, pp.347-365.

Ritchie, J., Lewis, J., Nicholls, C.M., and Ormston, R. (2013). *Qualitative Research Practice: A Guide for Social Science Students and Researcher*. London: Sage

Sahoo, P., Dash, R.K. and Nataraj, G., 2010. *Infrastructure Development and Economic Growth in China*. Institute of Developing Economies Discussion paper, 261.

Sahoo, P., Dash, R.K. and Nataraj, G., 2010. *Infrastructure Development and Economic Growth in China*. Institute of Developing Economies Discussion Paper, 261.

Schreier, M., 2012. *Qualitative Content Analysis in Practice*. Sage Publication.

Simon, M.K. and Goes, J., 2013. *Scope, Limitations and delimitations*. Diss. Sch. Res. Recipe Success.

Stanton, A., 2009. *Decentralisation and municipalities in South Africa: an analysis of the mandate to deliver basic services (Doctoral dissertation, University of KwaZulu-Natal, (Pietermaritzburg)*.

Stanton, A., 2010. *Survey on Access to Basic Services in the Msunduzi Municipality*. Unpublished Report.

Stewart, J., 2010. *The UK National Infrastructure Plan 2010*. European Investment Bank Papers 15, 15(2), pp.28-32.

Tessier, S., 2012. *From Field Notes, to Transcripts, to Tape Recordings: Evolution or Combination?* *International Journal of Qualitative Methods*, 11(4), pp.446-460.

The Value of Water.org. 2017. *The Economic Benefits of Investing In Water Infrastructure*. Date accessed: 15 October 2018 viewed from www.thevalueofwater.org/thevalueofwater

The Water Services Act no 108 of 1997 date accessed: 20 June 2018 from <http://www.dwaf.gov.za/Documents/Legislature/a108-97.pdf>.

Thomas, D.R. and Hodges, I.D., 2010. *Designing and managing your research projects: core skills for social and health research*. Sage Publications.

Trotter II, R.T., 2012. *Qualitative research sample design and sample size: Resolving and unresolved issues and inferential imperatives*. *Preventive medicine*, 55(5), pp.298-400).

Uddin, W., Hudson, W.R. and Haas, R.C., 2013. *Public Infrastructure Asset Management*. McGraw Hill Professional.

Van Manen, M., 2014. *Phenomenology of practice: Meaning-giving methods in phenomenological research and writing (Developing qualitative inquiry)*. Walnut Creek: Left Coast Press.

Venktees, K., 2018. *Over a third of SA water supply lost through poor infrastructure*. Date accessed 19 October 2018 from <https://m.fin24.com/Economy/South-Africa/over-a-third-of-sa-water-supply-lost-through-poor-infrastructure-2018316>

Vosloo, J.J., 2014. *A Sport Management Programme for Educator Training in Accordance with the Diverse Needs of South African Schools *Doctoral Dissertation*.

Waitling, R. and James, V., with Briggs, ARJ (2012), *Qualitative Data Analysis: using Nvivo*". *Research Methods in Educational Leadership & Management*. London: Sage

Wall, K., 2008. Progress with the *National Infrastructure Maintenance Strategy*. Southern African Transport Conference (SATC).

Water and Services Act, 108 of 1997 <http://www.dwaf.gov.za/Documents/Legislature/a108-97.pdf>

Welman, C., Kruger, F. and Mitchell, B., 2009. *Research Methodology*. Cape Town.

Welman, J.C. and Kruger, S.J., Mitchell. 2010. *Research Methodology Third Edition*: Oxford University Press Southern Africa (Pty) Ltd.

White Paper on Water Supply and Sanitation Policy of 1994

White Paper on Water Supply and Sanitation Policy 1994 from
<http://www.dwaf.gov.za/Documents/Policies/WSSP.pdf>

Younis, F., 2014. *Significance of Infrastructure Investment for Economic Growth*.

Zikmund, W., Babin, B.J., Carr, J.C., and Griffin, M. (2010). *Business Research Methods*.

ANNEXURE A

ACRONYMS AND ABBREVIATIONS

RSA- Republic of South Africa

NIMS- National Infrastructure Maintenance Strategy

ASGISA- Accelerated and Shared Growth for South Africa

CIBD- Construction Industry Development Board

ANNEXURE B (INTERVIEW QUESTIONS)

(Ward councilor interviews)

According to you:

Who is responsible for maintaining and preserving infrastructure?

Do you think you are receiving the best quality water and roads infrastructure?

The current water and road infrastructure how has it affected the development of Mahikeng?

Is the current water supply sufficient?

Are the roads maintained up to standard?

Does the municipality engage with communities with regard to infrastructure maintenance?

Final regards from communities?

MUNICIPAL OFFICIALS INTERVIEWS

Road infrastructure maintenance official

What is causing the delay in road infrastructure maintenance?

What are some of the steps that the municipality has taken towards dealing with road infrastructure in the past year?

Which method is the municipality using to maintain roads?

What are some of the advantages of road infrastructure maintenance?

How has the limited maintenance of roads infrastructure affected development in Mahikeng?

Final regards?

Water infrastructure maintenance official interviews

According to you:

Why is it important for firms and communities to have clean water?

How does the limited water infrastructure maintenance affect communities and firms?

How does this limited maintenance of water infrastructure affect development?

Which maintenance method is the municipality using for water infrastructure?

Why doesn't the municipality inform residents beforehand when their water will be turned off?

What is the cause behind residents receiving brown or really white water from their taps?

Final regards?



MAHIKENG LOCAL MUNICIPALITY

Municipal Manager and other Departments

Private Bag X63
MMABATHO
2735

Cnr University Drive &
Hector Peterson Road
Mmabatho, 2735

Tel. No. (018) 389-0111
Fax No. (018) 384-4830

Ref. No. : 16/08/2018
Contact : 018389 0111 ext 2046
Your Ref : Mr S Malongwa

25 October 2018

Ms Vuyelwa Seekaro
North West University
Private Bag X2046
Mmabatho
2735

Dear Sir/Madam

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

Your letter received on the 25th October 2018 with regard to the above matter has reference.

We have the pleasure to inform you that your application to conduct a research involving Contribution of Infrastructure Maintenance in the Development of Mahikeng with in North West Province has been approved. You are advised to contact Infrastructure Directorate for any assistance.

We will appreciate if you could share your findings and recommendations with the municipality.

Kind Regards

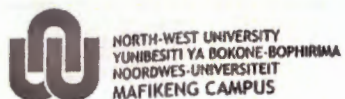


MR M. J. MOLAMU
ACTING MUNICIPAL MANAGER

Date: _____

PLEASE ADDRESS ALL CORRESPONDANCE TO THE MUNICIPAL MANAGER

ANNEXURE D



Department of Academic Literacy

Private Bag X2046

Mmabatho

2735

22 November 2018

CERTIFICATE OF EDITING A DISSERTATION

TO WHOM IT MAY CONCERN

This serves to confirm that I have read and edited **Vuyelwa Seekaro (25388002)** dissertation titled: **The contribution of infrastructure maintenance in the development of Mahikeng.**

The candidate corrected the language errors identified. The document is of an acceptable linguistic standard.

Thank you

Yours Faithfully


.....

Matsetela S.

ANNEXURE E

25388002:five_chapters.docx

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