SOCIAL IMPACT ASSESSMENT

As part of the

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

for the

PROPOSED TSHWANE STRENGTHENING PROJECT

DRAFT SCOPING REPORT

VOLUME 2:

KWAGGA-PHOEBUS 400kV TRANSMISSION POWER LINE
EXTENSIONS AT KWAGGA SUBSTATION
ESTABLISHMENT OF PHOEBUS SUBSTATION

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EXPERIENCE RECORD

This report was compiled by **Ms Nonka Byker** of ***MasterQ Research***.

Ms Byker holds a B.Psych (Adult Mental Health) from the University of Pretoria and is a social impact assessment specialist with approximately 3 years experience in this field. She specialises in the assessment of potential social impacts, which includes the collection and analysis of data and superimposing a proposed project on a baseline social profile to determine the potential social impacts from which mitigation measures can be developed. In total she has approximately 10 years experience in the social development field, of which 7 years were spent as a public participation consultant. Ms Byker is registered with the Health Professions Council of South Africa (HPCSA) and is a member of the International Association for Impact Assessment South African Affiliate (IAIAsa).

Some of the linear Social Impact Assessments that Ms Byker has conducted on behalf of MasterQ Research included, amongst others, the following projects:

- Social Impact Assessment for the proposed Thyspunt Integration Project (Client: Eskom Generation/Transmission, Project Manager: SiVEST).
- Social Impact Assessment for the proposed Mokopane Integration Project (Client: Eskom Generation/Transmission, Project Manager: Savannah Environmental).
- Social Impact Assessment for the proposed Steelpoort Integration Project (Client: Eskom Generation/Transmission, Project Manager: Savannah Environmental)
- Social Impact Assessment for the proposed Mercury-Ferrum transmission power line (Client: Eskom Transmission, Project Manager: Bohlweki Environmental)
- Social Impact Assessment for the proposed Ferrum-Garona transmission power line (Client: Eskom Transmission, Project Manager: Bohlweki Environmental)

DECLARATION OF INDEPENDENCE

The EIA regulations (1182 and 1183, as amended) states, amongst other, that an independent consultant must be appointed to act on behalf of the client and to ensure that the public participation process is managed properly. In this regard MasterQ Research submits that it has:

- The necessary required expertise to conduct social impact assessments, including the required knowledge and understanding of any guidelines or policies that are relevant to the proposed activity;
- Undertaken all the work and associated studies in an objective and independent manner, even if the findings of these studies are not favourable to the project proponent;
- No vested financial interest in the proposed project or the outcome thereof, apart from remuneration for the work undertaken under the auspices of the above-mentioned regulations;
- No vested interest, including any conflicts of interest, in either the proposed project or the studies conducted in respect of the proposed project, other than complying with the required regulations; and
- Disclosed any material factors that may have the potential to influence the competent authority's decision and/or objectivity in terms of any reports, plans or documents related to the proposed project as required by the regulations.

EXECUTIVE SUMMARY

Eskom has been mandated by the South African Government to provide reliable and affordable electricity to the country. As generated electricity cannot be stored, the supply should be used as it is generated, resulting in a stringent supply-demand situation. It is believed that a reliable electricity supply is vital to support sustainable development in South Africa.

The proposed Tshwane Strengthening Project involves a complex scope of works and for this reason the project reporting process has been divided as follows:

- **Volume 1:** Contains the assessment of the proposed extensions at the existing Verwoerdburg substation as well as the 2 (two) 400kV loop-in power lines from the Apollo-Pluto transmission power line to the new extensions at the Verwoerdburg substation.
- **Volume 2** (this report)**:** Contains the assessment of the construction and operation of the proposed new Phoebus substation, extensions at the existing Kwagga substation, including a new 257 kV feeder bay for Kwagga substation, as well as the proposed construction and operation of a new 400kV transmission power line from the existing Kwagga substation to the new Phoebus substation over a distance of approximately 30km.

This particular report only focuses on the applications under **Volume 2** and details the results of the Scoping Study as part of the Social Impact Assessment (SIA) specialist study undertaken by MasterQ Research as part of the overall Environmental Impact Assessment (EIA) process that is being undertaken by Savannah Environmental. A separate Social Impact Assessment (SIA) Scoping Report has been compiled for the Volume 1 applications. In terms of the Volume 2 applications, one (1) site has been identified for the proposed new Phoebus substation (adjacent to the existing Hangklip substation), one (1) site for the proposed extensions at the existing Kwagga substation, and three (3) route alternatives for the proposed 275kV transmission power line between the existing Kwagga substation and the new Phoebus substation.

Vanclay (2002) defines a **social impact assessment** as:

".. the process of analyzing (predicting, evaluating and reflecting) and managing the intended and unintended consequences on the human environment of planned interventions (policies, programmes, plans and projects) and any social change processes invoked by those interventions so as to bring about a more sustainable and equitable biophysical and human environment."

In order to do a theoretically sound analysis of social impacts with high levels of confidence, a thorough baseline assessment and projection is therefore necessary. The social team made a clear distinction between change processes and impacts. **Social**

impacts refer to the impacts that are actually experienced by humans on physical and/or cognitive level. **An impact variable** is a change process and leads to impacts, e.g. an increase in population or the presence of strangers are not regarded as impacts, but rather change processes that lead to impacts such as a change in the perception about the nature of the community.

The following change processes have been identified and discussed in this report:

- **Geographical processes**: land use patterns;
- **Demographic processes**: the number and composition of people;
- **Economic processes**: the way in which people make a living and the economic activities in society;
- **Institutional and Empowerment processes**: the ability of people to be involved and influence decision making processes; and the role, efficiency and operation of governments and other organisations; and
- **Socio-cultural processes**: the way in which humans behave, interact and relate to each other and their environment and the belief and value systems which guide these interactions.

Geographical Processes

Geographical processes relate to land use patterns and infrastructure in the area. This section therefore describes the land use in the study area from a social perspective, specifically in terms of settlement patterns and land use developments.

A general assessment of the land uses in the study area indicated the following trends:

- Residential;
- Agricultural Holdings;
- Commercial/Industries; and
- Energy generation.

As most cities and towns within South Africa, the City of Tshwane's urban pattern was shaped by apartheid policies that was based on racial segregation. In addition, the IDP (2007/08 review) states that market forces and prominent natural features more than urban planning, structured the urban environment pattern of the city. This resulted in a city that has a formal, well developed core that co-exists alongside an extensive, low income and poorly developed periphery that is dependant on the city's core.

The City of Tshwane Metropolitan Municipality (CTMM) has developed a spatial development strategy to guide its Spatial Development Framework (SDF). It is believed that the CTMM should not be viewed as a single city, but rather as a polycentric (multi-nodal) metropolitan region. Currently the CTMM experiences development pressure in the central, eastern and southern parts of the city. Furthermore, the continued outward

urban sprawl hampers the delivery of effective municipal services to these areas, even in cases where such developments are located within existing urban areas. The main aim of the Tshwane Spatial Development Strategy (TSDS) is therefore to integrate the municipal areas to enable an efficient, equitable, liveable and sustainable urban environment.

Geographical change processes refer to land use change as a result of the actual or perceived changes in land use, whether it be on a temporary or permanent basis. The extension and/or construction and maintenance of the proposed substations, transmission power line, and associated infrastructure might lead to a change in the land use within the local area. The assessment of a land use change process from a social perspective takes into account how the proposed transmission power lines might affect the behaviour/lives of land owners and/or land users. The following geographical change processes are expected:

- Change in access to resources that sustain livelihoods; and
- Land acquisition and disposal, including availability of land.

Demographical Processes

Demographic processes relate to the number of people and composition of a community and include an overview of the population size and the educational profile of the affected communities.

The City of Tshwane Metropolitan Municipality (CTMM) covers an area of 2 175km^2. In 2001, the CTMM had a total population of 1 982 228 people (with a population density of approximately 911.8 people per km^2), which increased at an average rate of 60 612 persons per annum to a total population of 2 345 907 people in 2007. This increase in the population size also affected the population density in the area, which grew at an average of 27.9 persons per km^2 to a population density of approximately 1 079.1 persons per km^2 in 2007.

In the CTMM the number of households increased between the years 2001 and 2007, by approximately 26 379 additional households per annum. The total number of households in the CTMM therefore stood at 686 641 in 2007. It seems that the number of households developed more or less on par with the population growth rate so that there has been an average increase of 0.1 persons per household over the 6-year period between 2001 and 2007.

The construction and maintenance of the proposed substations, transmission power lines, and associated infrastructure could lead to a change in the number and composition of the population within the affected local areas, which in turn could lead to economic, land use, and socio-cultural change processes. The following demographical change processes are expected:

- Population change;
- In-migration of unemployed work seekers; and
- Relocation or displacement of individuals or families.

Economical Processes

Economic processes relate to the way in which people make a living and the economic activities within that society. The employment status within any given area gives an indication of the economic stability of such an area and also serves as an indicator of such an area's general well-being.

The study area is characterised by a fairly high employment rate where, on average, close just over two thirds of the working age population (excluding the not economically active population) within the study area is formally employed.

In 2001, a total of 16.5% (or 98 403 households out of 597 514 households) in the City of Tshwane had no annual household income. In addition, close on a third of the households (30.0%) lived below the acceptable minimum standard, which is nationally defined as an annual household income of at least R20 000 per annum. However, more than half (53.4%) of all households lived above the acceptable minimum standard (more than R 20 000 per annum per household).

Economic change processes relate to the changes brought about to the employment and general economic profile of an area as a result of the introduction of any development. For example, job opportunities might be created as a result of the construction and maintenance of the proposed substations, transmission power lines, and associated infrastructure. Employment creates a source of income, which in turn enables the employed individual to access services and a support mechanism for his/her family. The following economical change processes are expected:

- Enhanced/reinforced economic equities;
- Change in the commercial/industrial focus of the community;
- Change in employment equity of vulnerable groups; and
- Change in occupational opportunities.

Institutional and Empowerment Processes

Institutional and Empowerment processes relate to the role, efficiency and operation of government sectors and other organisations within the area in terms of service delivery. It also investigates the ability of people to engage in decision-making processes to such an extent that they have an impact on the way in which decisions are made that would concern them.

The years between 2001 and 2007 saw a steady increase in the delivery of municipal services to the households within the CTMM. Municipal infrastructure backlogs are mostly confined to the previously disadvantaged township areas, and, as could be expected, in informal settlement areas. In terms of water services, RDP standard is defined as piped water either within a dwelling or within 200m of such a dwelling. Sanitation services on par or above RDP standard is defined as any waterborne sanitation services that are connected to a municipal sewerage system or a ventilated pit latrine (VIP) system.

Institutional and Empowerment Change Processes relate to way in which the proposed project might change the face of service delivery in the area and how this change might affect the quality of life of local residents. It furthermore assesses local residents' ability to negotiate such changes in a way that is mutually beneficial to both the project proponent as well as the affected landowners. The following institutional and empowerment change processes are expected:

- Change in/disruption of power relationships;
- Change in community infrastructure; and
- Change in housing needs/demands.

Socio-Cultural Processes

Socio-cultural processes relate to the way in which humans behave, interact and relate to each other and their environment, as well as the belief and value systems which guide these interactions.

The proposed Phoebus substation will be located within Soshanguve, which is a township situated approximately 45km north-west of Pretoria. Soshanguve was established in 1974 on land that was supposed to be incorporated into a Bantustan bordering on Mabopane in the then Bophuthatswana. The name Soshanguve was derived from the **So**tho, **Sha**ngaan, **Ngu**ni and **Ve**nda people who were resettled from Atteridgeville and Mamelodi. Soshanguve was incorporated into the CTMM and in January 2006 was the scene of riots due to poor service delivery.

At the time of the study, not enough information was available to determine the level of cultural and place attachment that residents have to the areas along the transmission power line route alternatives.

Socio-cultural change processes that are associated with the construction and operation of the proposed project include changes such as health and safety aspects and sense of place. The concept of 'health' is not only limited to physical health (i.e. the absence of ailments or illness), but also includes mental and social health. The following socio-cultural change processes are expected:

- Disruption in daily living and movement patterns;

- Dissimilarity in social practices;
- Alteration in family structure;
- Conflict;
- Safety and crime impacts; and
- Change in sense of place.

Conclusions

It is expected that both **Routes 1** and **3** would yield impacts that would range from low to medium negative, whereas **Route 2** would be characterised by mostly medium negative impacts. However, it should be noted that Route 1 spans the entire 30km distance between Kwagga and Phoebus. It follows that Route 1 would therefore pose more impacts as it is much longer than the other two route alternatives. As such, the negative impact as a result of relocation or sense of impact is also confined to certain *sections* of Route 1 and not the whole length of the route per se. A preferred route alternative could not be determined based on the results of the scoping study due to the fact that negative impacts are expected on all the route alternatives, albeit on different change processes, e.g. the fact that Route 1 mostly follows existing servitudes and infrastructure minimises the negative impact on sense of place to some degree, but it does to some extent, increase the probability of relocation. The inverse is true for Routes 2 and 3.

During the scoping study, no issues emerged that can be considered as fatal flaws from a social perspective. However, there are areas of concern as outlined in this report and therefore careful consideration should be given to the enhancement and/or mitigation measures (that will be proposed during the next phase of the project), both during the construction as well as the operation phases of the project.

1. INTRODUCTION

Eskom has been mandated by the South African Government to provide reliable and affordable electricity to the country. As generated electricity cannot be stored, the supply should be used as it is generated, resulting in a stringent supply-demand situation. It is believed that a reliable electricity supply is vital to support sustainable development in South Africa.

The Eskom transmission network as it currently stands supply the Tshwane Metropolitan Municipality area at three points, namely at the Kwagga, Njala and Verwoerdburg substations. The reserve capacity at each of these access points are reviewed on an annual basis and the latest results showed that Kwagga's reserved capacity is 840MVA, Njala is 650MVA and Verwoerdburg is 200MVA. Meter measurements taken during 2007 indicated that the maximum loading reached 920MVA at Kwagga, 700MVA at Njala and 208MVA at Verwoerdburg.

In addition, the Tshwane Metropolitan Municipality applied to Eskom Transmission and Distribution for new supply points and a step load increase. These three parties agreed on the 20-year load forecast for the City of Tshwane and concluded that the Eskom transmission networks supplying the municipal area needs to be strengthened.

The proposed Tshwane Strengthening Project involves a complex scope of works and for this reason the project reporting process has been divided as follows:

- **Volume 1:** Contains the assessment of the proposed extensions at the existing Verwoerdburg substation as well as the 2 (two) 400kV loop-in power lines from the Apollo-Pluto transmission power line to the new extensions at the Verwoerdburg substation.

- **Volume 2** (this report)**:** Contains the assessment of the construction and operation of the proposed new Phoebus substation, extensions at the existing Kwagga substation, including a 275kV feeder bay into Kwagga substation as well as the proposed construction and operation of a new 400kV transmission power line from the existing Kwagga substation, to the new Phoebus substation over a distance of approximately 30km.

This particular report only focuses on the applications under **Volume 2** and details the results of the Scoping Study as part of the Social Impact Assessment (SIA) specialist study undertaken by MasterQ Research as part of the overall Environmental Impact Assessment (EIA) process that is being undertaken by Savannah Environmental. A separate Social Impact Assessment (SIA) Scoping Report has been compiled for the Volume 1 applications. In terms of the Volume 2 applications, one (1) site has been identified for the proposed new Phoebus substation, one (1) site for the proposed extensions at the existing Kwagga substation, and three (3) route alternatives for the

proposed 400kV transmission power line between the existing Kwagga substation and the new Phoebus substation.

The proposed construction and operation of the substations as well as the transmission power line as detailed above will be considered within the EIA studies. In this instance, the EIA process consists of three phases, namely:

- Environmental Scoping Study (current phase);
- Environmental Impact Assessment; and
- Environmental Management Plan.

The first subsection below gives a definition of a SIA, followed by the objectives of the study. The third subsection details the approach and methodology that were followed to meet these objectives. This section is concluded with the assumptions and limitations of the study.

1.1 Definition of a Social Impact Assessment

Vanclay (2002) defines a **social impact assessment** as:

".. the process of analyzing (predicting, evaluating and reflecting) and managing the intended and unintended consequences on the human environment of planned interventions (policies, programmes, plans and projects) and any social change processes invoked by those interventions so as to bring about a more sustainable and equitable biophysical and human environment."

In order to do a theoretically sound analysis of social impacts with high levels of confidence, a thorough baseline assessment and projection is therefore necessary. The social team made a clear distinction between change processes and impacts. **Social impacts** refer to the impacts that are actually experienced by humans on physical and/or cognitive level. **An impact variable** is a change process and leads to impacts, e.g. an increase in population or the presence of strangers are not regarded as impacts, but rather change processes that lead to impacts such as a change in the perception about the nature of the community. Vanclay (2002) defines **social impacts** as:

"The consequences to human populations of any public or private actions (these include policies, programmes, plans and/or projects) that alter the ways in which people live, work, play, relate to one another, organise to meet their needs and generally live and cope as members of society. These impacts are felt at various levels, including individual level, family or household level, community, organisation or society level. Some social impacts are felt by the body as physical reality, while other social impacts are perceptual or emotional."

Impacts are therefore the difference between the current and future development of the affected human environment *with* vis-à-vis *without* the project.

1.2 Objectives of the Study

The overall business objective of the Scoping Phase is to identify issues and concerns in order to focus the detailed assessment to follow in the EIA Phase, and to provide a framework within which the assessment is to be undertaken. A number of secondary objectives have been derived from the overall business objective and includes the following:

- Gain an understanding of the proposed project, including the nature and timeframe of the proposed activities;
- Assess the affected local area (settlements and institutions) in terms of:
    * **Geographic Processes:** the land use pattern within the (affected) area;
    * **Demographic Processes:** the number and composition of the local population;
    * **Economic Processes:** the way in which people make a living and the economic activities within a specific (affected) area;
    * **Institutional and Empowerment Processes:** people's ability to become actively involved and influence the decision making process, and also the efficiency and operation of local authorities and other significant organisations; and
    * **Socio-Cultural Processes:** the way in which humans interact and relate to each other within the context of their environment, and how this interaction is guided by value systems.
- Identify how these processes might change as a result of the proposed project;
- Identify all the potential impacts that may occur as a result of the change processes brought about by the proposed project;
- Identify key issues and impacts of significance that would have to be addressed during the EIA phase, which includes the identification of information gaps;
- Identify the alternative site location(s) for the proposed substations as well as the alternative route corridor(s) for the transmission power lines that would create change processes with the least significant impacts, and which would then have to be assessed in more detail during the EIA phase; and
- Describe the proposed studies for the Impact Assessment Phase that would ultimately fill the identified information gaps and result in a detailed assessment of the potential impacts.

The approach and methodology that were followed to fulfil the objectives of the Scoping Phase are listed in section 1.3 below.

1.3 Approach and Methodology

The following procedures were implemented to meet the objectives of the study.

1.3.1 Data Collection

To obtain baseline information on the social conditions characterising the study area on individual, community, institutional and organisational level in terms of current and predicted future changes with and without the project, data collection methods took on the following forms:

- An orientation site visit with the Eskom surveyor and Eskom Project Manager on 12 and 13 May 2009;
- A desktop study of Census 2001 and Community Survey 2007 data to determine any significant social trends in the area;
- A desktop aerial study of the affected area through the use of Google Earth (2007);
- A desktop study of the Integrated Development Plan (IDP) of the affected Local Municipality (Tshwane); and
- Relevant sections from the Spatial Development Frameworks (SDF) as summarised in the IDP.

Information that was relevant to the project was identified and assessed from these sources, and within the context of the pre-construction, construction, operational, and decommissioning phases of the proposed project.

In order to determine the potential impacts on the various route corridor alternatives, a distinction was made between the following impacts:

- **Category 1**: Impacts that are not expected to differ between the proposed alternatives, e.g. the number of employment opportunities that might be created by the proposed project are expected to remain the same, irrespective of the chosen alternative (except in the case of the 'no go' option); and

- **Category 2**: Impacts that are expected to cause significant changes between the proposed alternatives, e.g. the need to resettle certain households increases proportionately if the development comes in close proximity to densely populated areas as opposed to skirting sparsely populated areas.

1.4 Limitations and Assumptions

- This study was carried out with the information available to the specialist at the time of executing the study, within the available time frames and budget. The sources consulted are not exhaustive and additional information which might strengthen arguments or contradict information in this report and/or might exist.

- The specialists did endeavour to take an evidence-based approach in the compilation of this report and did not intentionally exclude scientific information relevant to the assessment.

- It was assumed that the motivation for, and the ensuing planning and feasibility studies of the project were done with integrity, and that the information provided to date by the project proponent, the independent environmental assessment practitioner and the public participation consultant was accurate.

- Social sensitive areas have been identified through a desktop study making use of *Google Earth*. The areas that have been marked are the social sensitive areas visible to the social specialists at the time of the study, which are in proximity to the substation site and the transmission power line route alternatives. It is possible that more social sensitive areas might be found during the Environmental Impact Assessment Phase.

- The statistics that informed this report were primarily taken from Census 2001 and the more recent Community Survey 2007 (CS). The comparative analyses of these sets of data should only be regarded as an indication of broad trends in the area, because of the South African Statistics Council's (SASC) concerns about data integrity in CS. The SASC was concerned about the following regarding CS:

    * Institutional population is merely and approximation to 2001 numbers and not new data;
    * Unemployment in the Community Survey is higher and less reliable because of questions that were asked differently;
    * Grants do not match the (SASSA) data and should be interpreted with great care;
    * Income includes unreasonably high income for children – presumably misinterpretation of the question, listing parents' income for the child; and
    * Distribution of households by province has very little congruence with the General Household Survey or last census.

- A number of systematic errors were observed in the statistical data, which included:

    * An underestimate of men relative to women;
    * An underestimate of children younger than 10 years;

* An excess of those aged 85+, in particular among men;
* Missing women aged 20–34 from the Coloured population;
* Misdistribution of the population by province;
* Excess of people aged 10–24 in Western Cape and Gauteng;
* A shortfall of women aged 20–34 in Free State, KwaZulu-Natal and Limpopo.

The SASC states (2008): *"In the absence of a comprehensive sampling frame, it is difficult to determine whether the differences are due to sampling error, biases or the reality that has changed beyond our expectations. There may be other variables that will require similar warnings after further interrogation."*

The following section describes the project and study area and then proceeds to address the objectives of the Scoping Phase.

2. PROJECT BACKGROUND

This section briefly assesses the information relevant to the study area and the project. The first subsection provides a brief description of the proposed project and the route corridor alternative sites, followed by a general overview of the study (a more detailed baseline profile of the study area in terms of the identified social processes follows in Section 3).

This section intends to address the following objective:

- Gain an understanding of the proposed project, including the nature and timeframe of the proposed activities.

2.1 Project Overview

Eskom is proposing the construction and operation of a number of new substations and transmission power lines under their **City of Tshwane Electricity Supply Plan Scheme (CTESPS)** with the aim to reinforce the existing electricity supply to primarily the Tshwane municipal area.

Under the CTESPS it is proposed that four new substations be constructed of which three will be constructed by Eskom Generation and one by the City of Tshwane Metropolitan Municipality. It is believed that these four new substations would meet Tshwane's electricity requirements and at the same time it would alleviate the pressure on the existing Minerva and Apollo substations.

Phase 1 of the CTESPS includes the following infrastructural developments:

- The construction and operation of one (1) 400kV transmission power line between the existing Kwagga substation and the new Phoebus substation over a distance of approximately 30km;
- The construction and operation of the Phoebus substation and extensions at the existing Kwagga substation, including a 275kV feeder bay into Kwagga substation; and
- The construction and operation of the Verwoerdburg substation as well as the construction and operation of two (2) 400kV loop-in transmission lines from the Apollo-Pluto transmission power line to the new Verwoerdburg substation.

This report (Volume 2) will focus on the infrastructural developments associated with the Kwagga-Phoebus developments, which include the construction and operation of the proposed Phoebus substation, extensions at the existing Kwagga substation, as well the construction and operation of the required 400kV transmission power line between the existing Kwagga substation and the new Phoebus substation. The infrastructural developments associated with the Verwoerdburg substation have been addressed in Volume 1.

2.2 Substation Sites

2.2.1 Kwagga Extension

The Kwagga substation is located to the west of Kwaggasrand in Pretoria West. At this stage the proposed extensions at the Kwagga substation will take place to the south and adjacent to the substation. The proposed extension site and the surrounding study area for the proposed extension are reflected in figure 1 below.

Figure 1: *Proposed extensions at the Kwagga substation*

2.2.2 Phoebus Substation

One site has been identified for the proposed new Phoebus substation. The site is located to the north and adjacent to the existing Hangklip substation in the Soshanguve area. This means that existing servitudes and infrastructure service the area, which could be utilised for the proposed new 400kV transmission power line. The proposed site and the surrounding study area for the proposed Phoebus substation is reflected in figure 2 below.

Figure 2: *Proposed Phoebus substation location*

The land use surrounding the proposed substation site include a borrow pit approximately 450m southeast of the site, a residential area (Soshanguve WW) approximately 720m north of the site, provincial road R80 approximately 670m east of the site, and a new residential (RDP) development known as Soshanguve YY approximately 775m west of the site. It is possible that this development might encroach upon the new transmission power line's servitude.

2.3 Transmission Power Line Route Alternatives

A total of three route alternatives have been identified for the proposed 400kV transmission power line between the existing Kwagga substation and the proposed new Phoebus substation. A 400kV transmission power line (initially to be operated at 275kV) transmission power line is operated within a servitude of 55m in width (27.5m on either side of the central line). Figure 3 below provides an overview of the transmission power line route alternatives in relation to the surrounding area.

Figure 3: *Overview of the Transmission Power Lines Route Alternatives*

The **Kwagga-Phoebus Route 1** exits the Kwagga substation to the north and continues in a northerly direction up to Hornsnek Road in the Andeon Agricultural Holdings area. The alignment then follows an existing servitude for a short distance along Hornsnek Road before turning in a north-westerly direction along Kenneth Street. The route then turns northwards again and runs parallel to Hornsnek Road up to the R566. The alignment continues in a northerly direction until it meets up with an existing servitude. From there the alignment follows an existing transmission power line within the servitude as it passes through residential areas Itumuleng and Soshanguve SS. The route will enter the Phoebus substation from the southwest. Route 1 traverses both the Waterberg as well as the Magaliesberg.

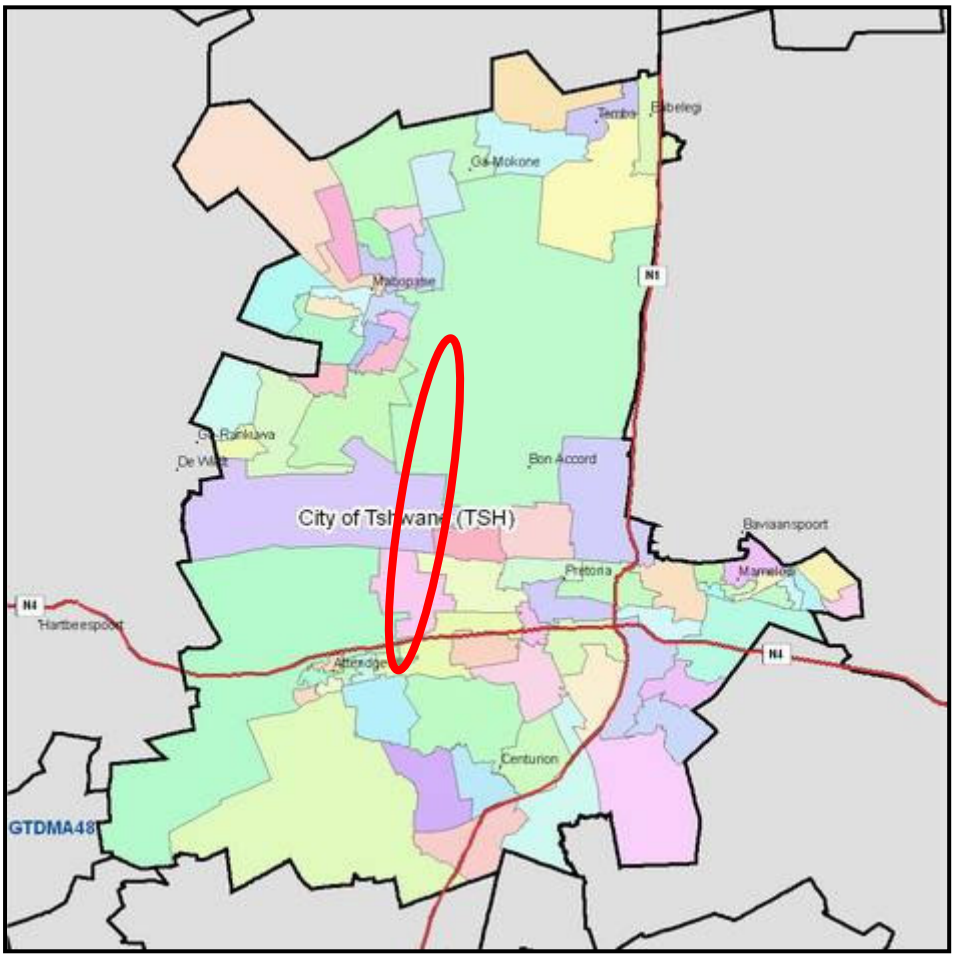
The **Kwagga-Phoebus Route 2** deviates from Route 1 south of the R566. Where Route 1 continues north, Route 2 turns in a north-easterly direction and passes west of the industrial area Rosslyn. Route 2 meets up with Route 1 just south of Itumuleng and from there follows the same alignment as Route 1 within the existing servitude.

Kwagga-Phoebus Route 3 only deviates from Route 1 for a short distance. Where Route 1 is on the western side of Hornsnek Road, Route 3 is on the eastern side through the agricultural holdings area of Fundus. Route 3 traverses the Magaliesberg.

2.4 General Overview of the Study Area

The infrastructure development associated with the Tshwane Strengthening Volume 2 is in its entirety located within the City of Tshwane of the Gauteng Province. The transmission power line starts out at the Kwagga substation which is located in Kwaggasrand (Pretoria West) and terminates at the new Phoebus substation which would be located in Soshanguve (City of Tshwane Rural). An indication of the study area is reflected in figure 4 below.

Figure 4: *Approximation of the Tshwane Strengthening Volume 2 Study Area*



Source: Municipal Demarcation Board

The Gauteng Province (GP) covers an area of approximately 16 927km^2, and is the smallest province in South Africa. The province consists of three (3) District Municipalities and three (3) Metropolitan Municipalities. The District Municipalities are Metsweding, West Rand and Sedibeng, and the Metropolitan Municipalities are the City of Tshwane, City of Johannesburg and Ekurhuleni Metropolitan Municipality.

Despite the fact that the GP covers such a small area, census 2001 indicated that the GP had an estimated total population of 9 178 873 people. The population has grown steadily at a rate of approximately 13.9% between 2001 and 2007 and now stands at a

total population of approximately 10 451 713 people[1]. This means that the population density within the GP has increased from 542.3 people per km^2 in 2001 to 617.5 people per km^2 in 2007, which represents an average growth of 12.5 people per km^2 per annum. Of all the provinces, Gauteng has a significantly higher population growth rate compared to the overall South African growth rate, which slowed down to 6.4% since 2001[2].

An increase in population size and density pose challenges for the integrated management of the natural, built and human environment. An increase in population will put pressure on the conservation of the remaining biodiversity, ecosystems and natural open spaces; the conservation of the cultural and historical heritage buildings, sustaining open spaces and buildings in an aesthetically pleasing manner based on ecological principals; and the maintenance of a healthy and safe environment for people which promote individual and community well-being.

The Gauteng population density is indicative of the fact that the province is by and large urbanised. According to Statistics South Africa (StatsSA) (2006), the urbanisation level in Gauteng is estimated at around 96% (based on 2001 census data). In 2007 there were approximately 3 175 579 households within Gauteng, which represents an increase of 16.1% from 2001's total of 2 735 168 households. The number of households have increased (at an average rate of 73 402 households per annum between 2001 and 2007), whilst at the same time the average household size within the province has decreased by approximately 8.3% from 3.6 persons per household in 2001 to 3.3 persons per household in 2007. However, there are still large numbers of households in the province living in either informal settlements, or living in "back yards" or traditional housing, and supplying adequate housing to these people remains a challenge[3]. It was estimated that the additional need for housing up to 2014-2015 amounted to 1.9 million units[4].

Migration contributes to the decrease in household size and the increase in household numbers, as only members of families tend to migrate to cities, as opposed to whole families. Households already resident in the cities are also splitting. The increase in households is reason for concern, and the South African Cities Network estimated that by 2015, the GP could become a continuous urban extension, amounting to a population of almost 15 million people[5].

The Gauteng province as a whole has experienced a steady increase in the delivery of municipal services between the years 2001 to 2007. The number of households that make use of electricity for cooking, heating and lighting increased on average between 3-6%, so that by far the majority of households in Gauteng make use of electricity as their

[1] Census 2001 and Community Survey 2007, StatsSA.

[2] Community Survey 2007, StatsSA.

[3] Gauteng Province Growth and Development Strategy (GPGDS), 2005.

[4] Landsberg, C (2005). City Case Study Report: City of Johannesburg.

[5] Landsberg, C (2005). City Case Study Report: City of Johannesburg.

primary source of energy. In terms of other municipal services, such as refuse removal, sanitation, and water services, again the majority of households in Gauteng enjoy such services that are on par or above the minimum RDP standard.

In terms of racial composition, the predominant population group in Gauteng is represented by Black Africans (74.6% in 2001, which increased to 75.2% in 2007). This increase represents a growth of approximately 12 580 additional Black African people per annum within the province. This is followed by the White population group (19.9% in 2001, which decreased to 18.4% in 2007). It is not clear what lead to the respective increases and decreases in the different population groups, but in general an increase in a population size might be ascribed to factors such as urbanisation, a high birth rate and a low mortality rate and a push/pull factor (e.g. people move away from rural areas in search of better opportunities within urban areas). A decrease in a population size can generally be ascribed to a low birth rate and high mortality rate and other factors such as migration and emigration.

Close on three quarters (70.0%) of the total population within GP falls within the working age group (which is defined as the ages between 15 and 64). This represents a decrease of approximately 1.4% in the working age population of 2001. The population is young (30.1% falls in the 20-34 age group) which has implications for housing needs. The majority of this age group is unable to afford high cost housing, and do not necessarily have jobs mainly due to lack of skills, education and job opportunities.

Gauteng is generally perceived as the 'economic hub' of South Africa. According to the Gauteng Provincial Growth and Development Strategy 2005 (GPGDS), the Gauteng Province account for 33% of South Africa's Gross Domestic Product (GDP) and is the largest sub-national African economy. Gauteng is also responsible for 49.6% of all employee remuneration in the country and 52% of all turn-over of institutions. However, the GPGDS (2005) states that there is an ever-increasing divide between the rich and poor in the Province. The opportunities created to engage meaningfully in the economic activities and growth of the Province have largely benefited those sectors of the society that are generally financially secure and stable and who have the necessary skills, means and resources to participate in the economy. There are still high levels of unemployment with a resultant high level of poverty evident in the Province[6]. In this regard the GPGDS (2005) lists basic literacy education of the segment of the population who has had no education as one of the key issues that the province has to address. A rising in education levels will contribute towards an increase in employment rates and a decrease in poverty levels.

The baseline profiles for the local municipal areas have been discussed in detail in the various subsections under Section 3.

[6] Gauteng Provincial Government, http://www.gpg.gov.za/docs/misc/gds/chap2.pdf

3. CHANGE PROCESSES AND POTENTIAL IMPACTS

In order to address the overall objective of this study, it was necessary to compile a detailed description of the study area. Each subsection first presents the baseline profile (status quo) of the receiving environment in terms of the various social processes (i.e. geographical, demographical, economical, institutional/empowerment, and socio-cultural). It is believed that the baseline profile would be maintained to a large extent (not taking into account variables outside of the project) in the event that a 'no go' option was implemented. Each subsection concludes with a table summarising how the project is likely to change these baseline profiles, and the related impacts that could be expected as a result of the project. This is followed by suggestions on how the assessment of the potential impacts should be undertaken within the EIA Phase.

This section intends to address the following objectives:

- Assess the affected local area (settlements and institutions) in terms of:
  - **Geographic Processes:** the land use pattern within the (affected) area;
  - **Demographic Processes:** the number and composition of the local population;
  - **Economic Processes:** the way in which people make a living and the economic activities within a specific (affected) area;
  - **Institutional and Empowerment Processes:** people's ability to become actively involved and influence the decision making process, and also the efficiency and operation of local authorities and other significant organisations; and
  - **Socio-Cultural Processes:** the way in which humans interact and relate to each other within the context of their environment, and how this interaction is guided by value systems.
- Identify how these processes might change as a result of the proposed project;
- Identify all the potential impacts that may occur as a result of the change processes brought about by the proposed project;
- Identify key issues and impacts of significance that would have to be addressed during the EIA phase, which includes the identification of information gaps;
- Identify the alternative route corridor(s) that would create change processes with the least significant impacts, and which would then have to be assessed in more detail during the EIA phase; and
- Describe the proposed studies for the Impact Assessment Phase that would ultimately address the identified information gaps and result in a detailed assessment of the potential impacts.

For the purposes of this scoping study the impact variables were categorised in terms of change processes, as previously mentioned. A **change process** can be defined as change that takes place within the receiving environment as a result of a direct or indirect intervention. A potential **impact** follows as a result of the change process.

However, a change process can only result in an impact once it is experienced as such by an individual/community on a physical and/or cognitive level.

Figure 5 below provides an overview of the preliminary social sensitivity of the **Kwagga substation site** in relation to the surrounding area, whereas Figure 6 depicts the preliminary social sensitivity of the **Phoebus substation site**. Figure 7 provides a general overview of the preliminary social sensitivity of the proposed **transmission power line route alternatives** in relation to the surrounding areas. These social sensitivity maps was developed based on a desktop study through the use of *Google Earth*, where the social specialist endeavoured to identify social sensitive areas such as residential areas (human settlement), commercial/industrial areas and nature reserves. However, it should be noted that these were the areas visible to the social specialist at the time of the study and therefore it is entirely possible that more areas of a social sensitive nature might be found during the Impact Assessment phase.

Following on the respective social sensitivity maps, the various subsections discuss the respective change processes and the potential impacts that could be experienced by the receiving environment as a result of the construction and operation of the proposed substation as well as the transmission power line. The categories of processes are as follows:

- **Demographic Processes**: the number and composition of the local population;
- **Geographic Processes**: the land use pattern within the (affected) area;
- **Economic Processes**: the way in which people make a living and the economic activities within a specific (affected) area;
- **Institutional and Empowerment Processes**: people's ability to become actively involved and influence the decision making process, and also the efficiency and operation of local authorities and other significant organisations); and
- **Socio-Cultural Processes**: the way in which humans interact and relate to each other within the context of their environment, and how this interaction is guided by value systems.

Figure 5: *Preliminary Social Sensitivity Map for the Proposed Kwagga substation extensions*

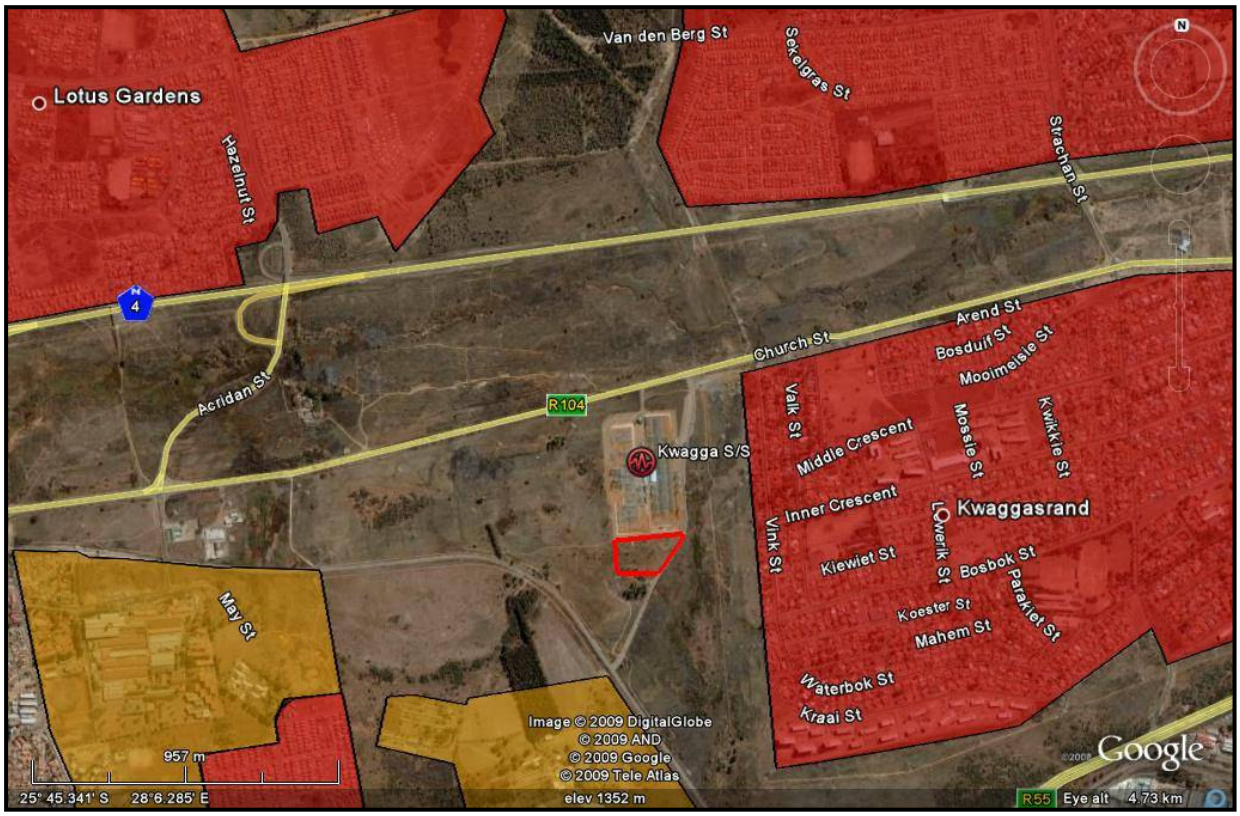


Figure 6: *Preliminary Social Sensitivity Map for the Proposed Phoebus substation*

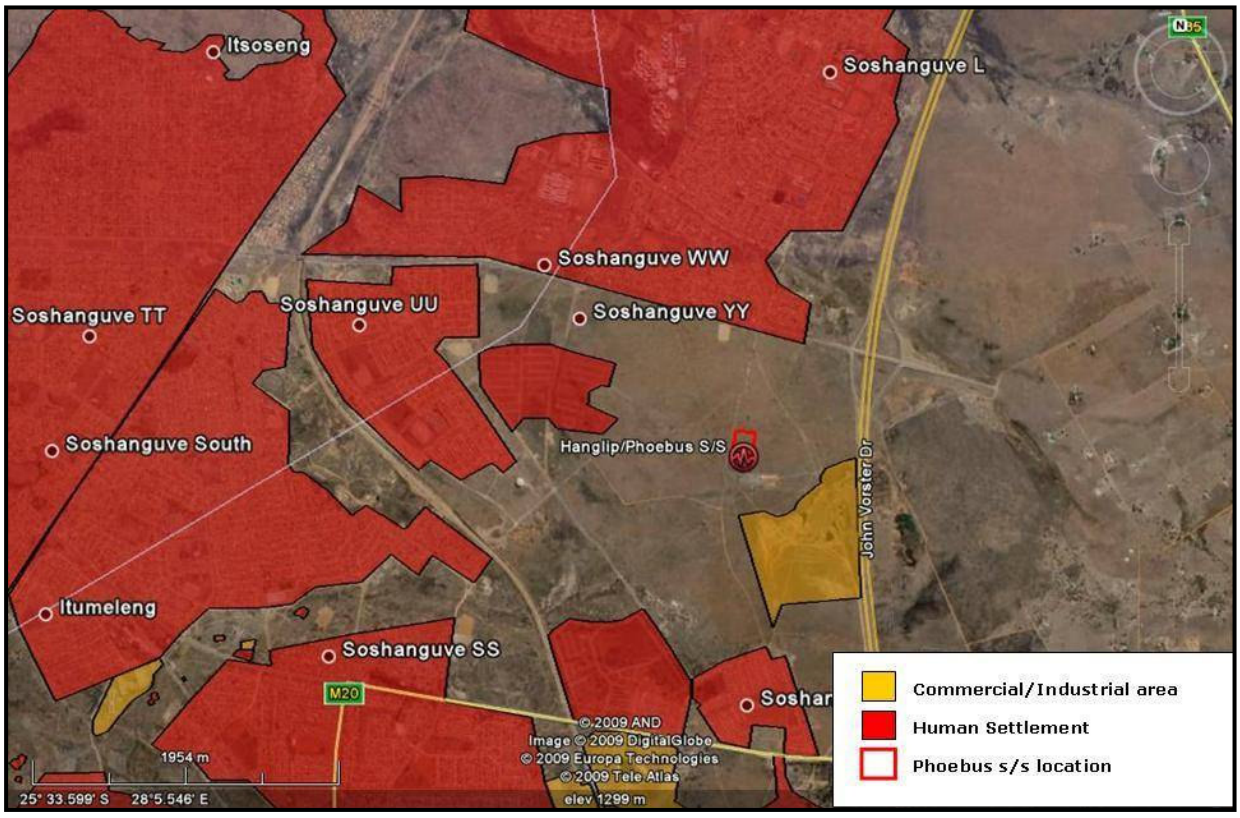
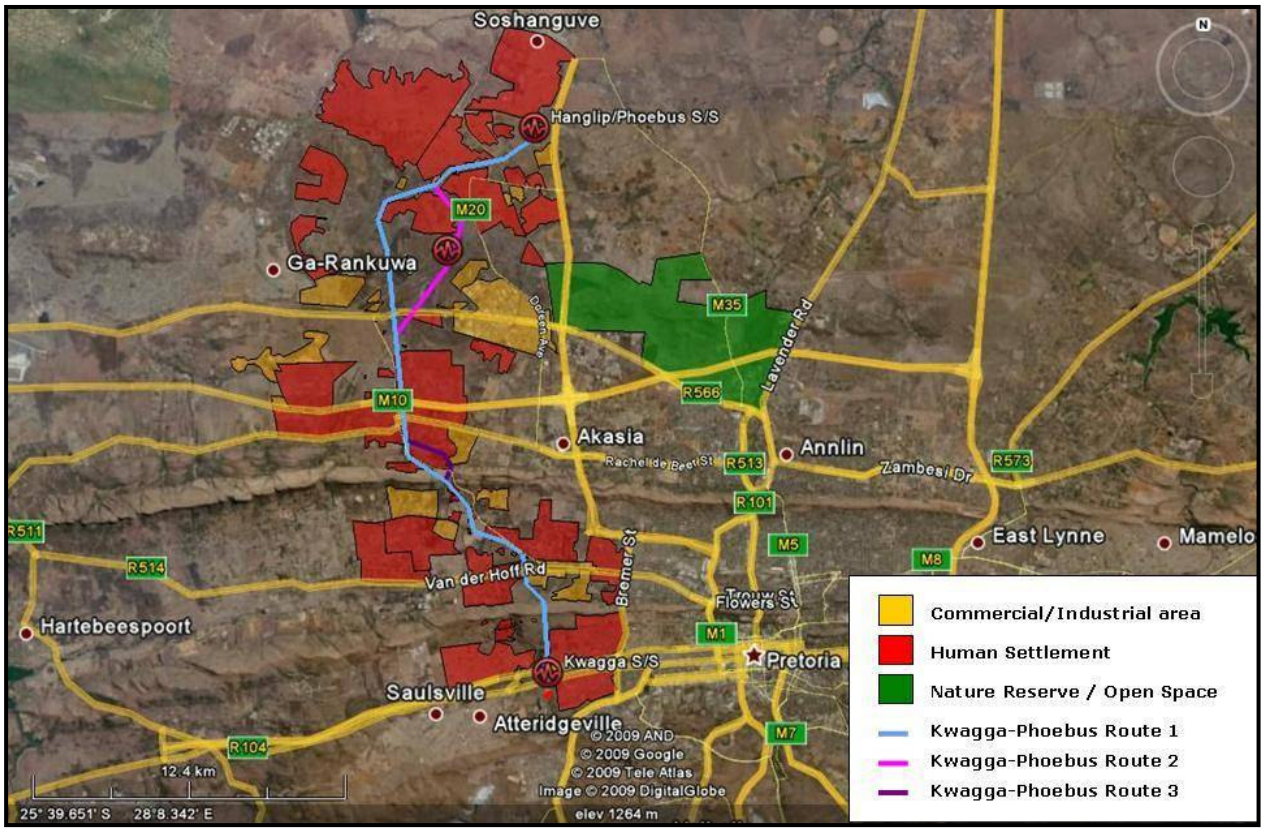


Figure 7: *Preliminary Social Sensitivity Map for the Proposed Transmission Power Line Route Alternatives*



3.1 Baseline Geographical Processes

Geographical processes relate to land use patterns and infrastructure in the area. This section therefore describes the land use in the study area from a social perspective, specifically in terms of settlement patterns and land use developments.

Land use is defined as "the way land is developed and used in terms of the types of activities allowed (agriculture, residences, industries, etc.) and the size of buildings and structures permitted. Certain types of pollution problems are often associated with particular land uses, such as sedimentation from construction activities".[7]

Another definition of land use is as follows: "Patterns of land use arise naturally in a culture through customs and practices, but land use may also be formally regulated by zoning, other laws or private agreements such as restrictive covenants".[8]

A general assessment of the land uses in the study area indicated the following trends:

- Residential;
- Agricultural Holdings;
- Commercial/Industries; and
- Energy generation.

3.1.1 Current Land Use

As most cities and towns within South Africa, the City of Tshwane's urban pattern was shaped by apartheid policies that was based on racial segregation. In addition, the IDP (2007/08 review) states that market forces and prominent natural features more than urban planning, structured the urban environment pattern of the city. This resulted in a city that has a formal, well developed core that co-exists alongside an extensive, low income and poorly developed periphery that is dependant on the city's core.

Natural features that influenced the city's development pattern are prominent mountain ranges and ridges that follow and east-west alignment through the city of Tshwane. These natural features created valleys that channelled development in an east-west growth path and limited north-south development due to limited accessibility to these areas. The City of Tshwane is also the Administrative Capital of South Africa and as such has many monumental and historic buildings as well as large public spaces within the inner city. In addition, urban expanse has been curbed by large tracts of government and parastatal owned land allocated to the National Defence Force, land that is totally under utilised amidst areas of infill and economic development.

[7] www.soil.ncsu.edu/publications/BMPs/glossary.html

[8] www.wikipedia.org/wiki/Land_use.html

As most South African cities, the settlement pattern within Tshwane is characterised by the location of low-income residential areas on the periphery, away from economic opportunities and other social amenities. This pattern is most dominant in the north (areas such as GaRankuwa, Soshanguve, Temba and Hammanskraal), followed by the west (areas such as Atteridgeville and Lotus Gardens). The pattern is also found to a lesser extent in the south (Olievenhoutbosch) and the east (Mamelodi, Mahube Valley and Nellmapius).

3.1.2 Future Land Use

The City of Tshwane Metropolitan Municipality (CTMM) has developed a spatial development strategy to guide its Spatial Development Framework (SDF). It is believed that the CTMM should not be viewed as a single city, but rather as a polycentric (multi-nodal) metropolitan region. Currently the CTMM experiences development pressure in the central, eastern and southern parts of the city. Furthermore, the continued outward urban sprawl hampers the delivery of effective municipal services to these areas, even in cases where such developments are located within existing urban areas. The main aim of the Tshwane Spatial Development Strategy (TSDS) is therefore to integrate the municipal areas to enable an efficient, equitable, liveable and sustainable urban environment. In support of this aim, the following objectives have been identified:

- Residential areas should be integrated with areas of economic and social opportunity;
- Those segments of the population who are living in poverty should be integrated in to the mainstream functioning of the city;
- Increase the density in strategic areas within the CTMM;
- Areas that are suitable to economic development should be identified;
- Movement networks within the CTMM should be identified;
- Direct infrastructure investment should take place within strategic focus areas;
- Human settlements should be sustainable and foster healthy communities;
- The CTMM should play a unique roll within the GP; and
- A sustainable metropolitan area should be created in terms of environmental, social and economic aspects.

Furthermore, the CTMM has identified the metropolitan open space network as an important structuring element and therefore the presence of such open spaces has a decisive influence on where development would be allowed. Open spaces include rivers, mountains, protected areas, dams, nature reserves, wetlands, etc. These areas are excluded from any future developments to ensure that the ecological integrity of the city is protected. This might become a problem where the transmission power line route passes over the Magaliesberg Nature Reserve.

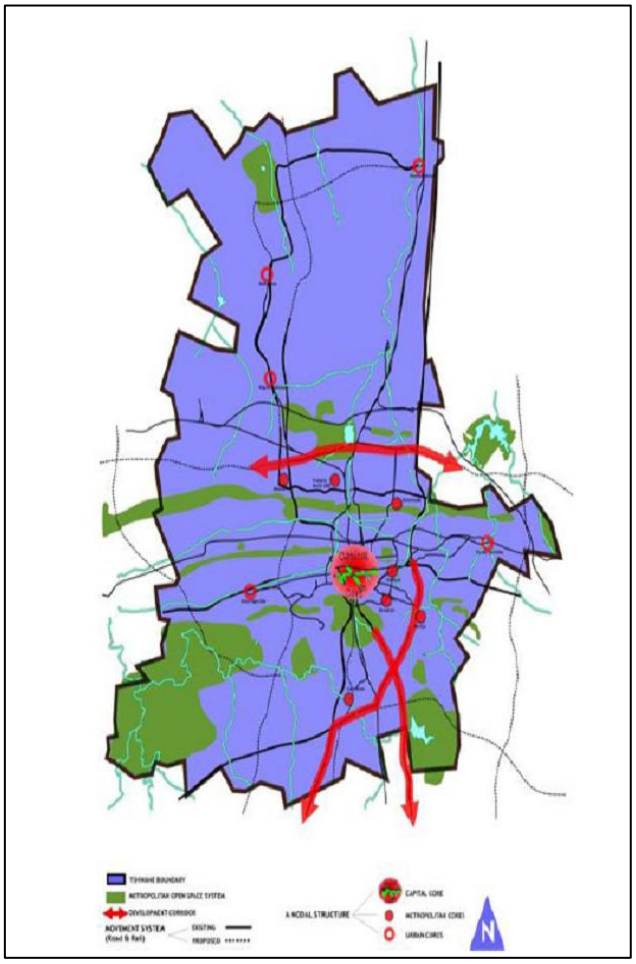
The CTMM have also identified potential movement corridors and encourages development in relation to these movement corridors. Currently four existing and/or potential corridors have been identified:

- The N1/Ben Schoeman Highway link between Johannesburg/Midrand and Tshwane;
- The R21 link between Tshwane and the O.R. Tambo International Airport;
- The Bakwena-Platinum Highway Corridor (Zone of Choice); and
- The Mabopane-Centurion Corridor around the proposed western bypass.

Apart from the protection of open spaces and the enhancement of developments along movement corridors, certain specialised activity areas have also been identified. A specialised activity area is an area that makes provision for specialised development such as industrial areas, educational areas, high-tech areas, etc. These specialised activity areas are mostly closely interlinked with the development corridors described above. The majority of these specialised activity areas are located within the quadrant between the PWV9, the N1 and the PWV2.

Figure 8 below was taken from the City of Tshwane's IDP and provides an overview of the city's spatial development framework by indicating the city core, the development corridors and the protected open space areas that forms part of the City's Biodiversity and Open Space Strategy.

Figure 8: *Overview of the City of Tshwane's SDF*



Source: City of Tshwane IDP (2008/09 Review)

3.2 Geographical *Change* Processes

Geographical change processes refer to land use changes as a result of the actual or perceived changes in land use, whether it be on a temporary or permanent basis. The construction and maintenance of the proposed substation, transmission power line and associated infrastructure could lead to a change in the land use within the local area, most notably along the servitude. The assessment of a land use change process from a social perspective takes into account how the proposed substation and transmission power line might affect the behaviour/lives of land owners and/or land users.

3.2.1 Potential Impacts

Table 1 below provides an overview of the expected change processes as well as the expected impacts that might occur as a result of the change processes taking place. These potential impacts will be assessed in detail during the Impact Assessment phase.

In the event of a potential impact being identified as a category 2 impact (see section 1.3); a brief assessment was conducted to determine which transmission power line route alternative would create change processes with the least amount of significant impacts, in order to determine a preliminary indication for a preferred transmission power line route alternative. In such an instance, the potential impact has only been briefly assessed *prior* to the implementation of mitigation measures. Therefore, for the purposes of this study, no mitigation measures have been identified, nor any cumulative and/or residual impacts. As site alternatives have not been put forward for the proposed extensions at the Kwagga substation or for the proposed new Phoebus substation, this process was only followed for the transmission power line route alternatives.

***Table 1**: Overview of Expected Geographical Change Processes and Potential Impacts*

GEOGRAPHICAL CHANGE PROCESSES							
Expected Change Process		**Yes**	**No**	**Expected Impact**	**Project Phase**	**Type of Impact**	**Status**
Access to environmental resources	Will the development impact on people's access to environmental resources, such as water, wood, medicinal plants etc?		X	No impact foreseen.	n/a	n/a	n/a
Change in access to resources that sustain livelihoods	Will the development impact on people's (legal or illegal, formal or informal) access to environmental resources that help to sustain their livelihoods, e.g. grazing land for their cattle; wood for heat/cooking/selling, etc.?	Unsure		Temporary and permanent loss of agricultural land through the land acquisition process. However, although the route alternatives cross agricultural holding areas, it's not clear if any of these holdings are still used for agricultural purposes and if so, if it is the only source of income for the landowner.	Construction and Operation	Category 2[9]	Negative
Land acquisition and disposal, including availability of land	Will the development contribute to or directly impact on the ability of local residents to keep or acquire property/land?	X		Permanent servitude of 55m on a 400kV transmission power line will restrict access to that portion of land, although certain land uses will still be permitted within the servitude.	Operation	Category 1	Negative
	Will the development set a precedent for change in land use in the area?		X	No impact foreseen.	n/a	n/a	n/a
	Are there any potential land-claims for the area?	Unsure		It is not foreseen that a change in ownership would bring about significant changes in land use. Its only implication is that servitude negotiation would have to take place with the new landowner.	Construction	Category 2[10]	Neutral
	Will the development affect the claims process?						

[9] Not assessed, as the social specialist was unsure at the time of the study whether any agricultural holdings in the area are still used for agricultural purposes. No cattle or crop farming was observed during the site visit, but this does not exclude the possibility that areas are used for these farming purposes.

[10] Not assessed, as the social specialist was unsure whether or not any land claims existed in the study area at the time of the study.

3.2.2 Information Gaps

To fully assess the potential impacts as a result of geographical change processes, more information is needed on the following aspects:

- The land use along the route alternatives, i.e. whether any agricultural activities take place in the agricultural holding areas;
- The size and number of expected construction and operational vehicles as well as which route(s) will be used to gain access to the various construction sites;
- Planned developments for the study area; and
- Whether or not any land claims exist on any of the land along the route alternatives.

3.3 Baseline Demographical Processes

Demographical processes relate to the number of people and the composition of a community and include an overview of the population size, the race, age, gender and educational profile of a population as well as household compositions.

Unless otherwise stated, the baseline social profile was compiled based on data obtained from Census 2001 and the Community Survey (CS) 2007. It is important for readers to note that CS data does not replace Census data, but that the CS is merely an attempt to adjust measurements to a best estimate. In this regard, Statistics South Africa has stated the following: *"Any adjustment done* [in CS 2007] *has maintained the profiling of the community in terms of the people and households while compensating and correcting the undercounted bias by different projections on national, provincial and municipalities level."*[11] Therefore, please bear in mind that the following data should only be viewed as indicative of the broad demographical trends within the area and not as a rigid representation of the area.

3.3.1 Population

The City of Tshwane Metropolitan Municipality (CTMM) covers an area of 2 175km^2. In 2001, the CTMM had a total population of 1 982 228 people (with a population density of approximately 911.8 people per km^2), which increased at an average rate of 60 612 persons per annum to a total population of 2 345 907 people in 2007. This increase in the population size also affected the population density in the area, which grew at an average of 27.9 persons per km^2 to a population density of approximately 1 079.1 persons per km^2 in 2007.

[11] Statistics South Africa: Community Survey 2007: Key Municipal Data: ix.

3.3.2 Race, Age and Gender

The predominant population group within the City of Tshwane remained the same between 2001 and 2007 and are therefore still Black African (74.6%), followed by White (22.1%). The female population group was only slightly bigger than that of their male counterparts at 50.1%. In 2007, it was estimated that more than two thirds (68.3%) of the total population in the City of Tshwane fall within the working age category, which is defined by Statistics South Africa as the ages between 15 and 64.

3.3.3 Households

A household is defined as: *"One or more people occupying a housing unit as their usual place of residence. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated people who share living arrangements"*.[12]

In the CTMM the number of households increased between the years 2001 and 2007, by approximately 26 379 additional households per annum. The total number of households in the CTMM therefore stood at 686 641 in 2007. It seems that the number of households developed more ore less on par with the population growth rate so that there has been an average increase of 0.1 persons per household over the 6-year period between 2001 and 2007.

3.3.4 Summary

Table 2 below provides an overview summary of the population demographics of the study area in relation to South Africa as a whole, as well as the province.

Table 2: *Summary of Population Characteristics*

	South Africa	**GP**	**CTMM**	
	2007		**2001**	**2007**
Area size (km^2)	1 219 912	16 927	2 175	
Total population	48 502 063	10 451 713	1 982 233	2 345 907
			Average increase of 60 612 persons per annum	
Population density (people per km^2)	39.8	617.5	911.8	1 079.1
			Average increase of 27.9 persons per km^2 per annum	
Total households	12 500 610	3 175 579	597 515	686 641

[12] irhr.ua.edu/blackbelt/glossary.html

	South Africa	GP	CTMM	
	2007		2001	2007
			Average increase of 14 854 households per annum	
Avg. persons per household	3.9	3.3	3.3	3.4
Predominant Population Groups	Black African (79.5%)[13]	Black African (75.2%) White (18.4%)	Black African (72.6%) Whites (23.9%)	Black African (74.6%) Whites (22.1%)
			Black African population increased by approximately 2.0%, whereas White population decreased by approximately 1.8%.	
Predominant Gender	Female (50.8%)[9]	Male (50.3%)	Female (50.7%)	Female (50.1%)
Predominant Age Group	Working age (% unknown)	Working age (70.0%)	Working age (71.0%)	Working age (70.6%)

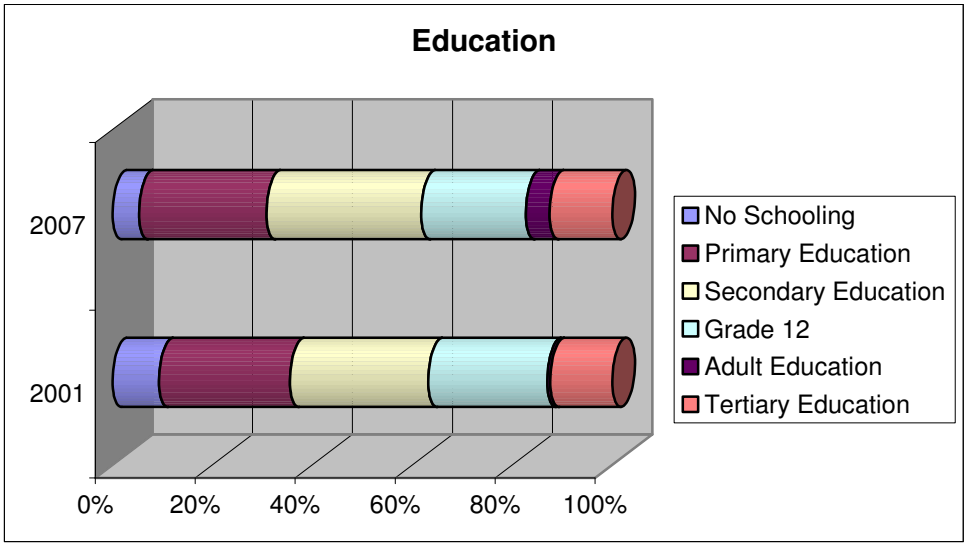
3.3.5 Education

One of the driving forces behind social change is educational attainment, which in turn is linked to poverty levels as there appears to be a correlation between the level of educational attainment and income levels. People with higher educational levels tend to be economically better off, and therefore contribute more to the reduction of the unemployment rate. Educational attainment is also linked to poverty in the sense that funds are required to further studies, therefore people living in less favourable economic conditions tend to be unable to further their education, which in turn holds them in a downward poverty spiral.

An overview of the educational profile for the CTMM is provided in Figure 9. Overall it would appear as if the area is characterised by a semi-skilled to skilled population, which is reflected in the fact that, in 2007, only a small minority (less than one in every 10 persons) of the total population has had no form of formal education.

[9] Census 2001 data

Figure 9: *Overview of the Education Profile of the CTMM (2001 and 2007 compared)*



3.4 Demographical *Change* Processes

The construction and maintenance of the proposed substation, transmission power line and associated infrastructure could lead to a change in the number and composition of the population within the affected local area, which in turn could lead to economic, land use, and socio-cultural change processes.

3.4.1 Potential Impacts

Table 3 below provides an overview of the expected change processes to occur as well as the expected impacts that might occur as a result of these change processes taking place. The potential impact(s) that follow from a particular change process taking place will be assessed in detail during the Impact Assessment phase.

In the event of a potential impact being identified as a category 2 impact (see section 1.3); a brief assessment was conducted to determine which transmission power line route alternative would create change processes with the least amount of significant impacts, in order to determine a preliminary indication for a preferred transmission power line route alternative. In such an instance, the potential impact has only been briefly assessed *prior* to the implementation of mitigation measures. Therefore, for the purposes of this study, no mitigation measures have been identified, nor any cumulative and/or residual impacts. As site alternatives have not been put forward for the proposed extensions at the Kwagga substation or for the proposed new Phoebus substation, this process was only followed for the transmission power line route alternatives.

***Table 3**: Overview of Expected Demographic Change Processes and Potential Impacts*

DEMOGRAPHIC CHANGE PROCESSES							
Expected Change Process		**Yes**	**No**	**Expected Impact**	**Project Phase**	**Type of Impact**	**Status**
Population change	Will the development lead to an increase in numbers of a certain section of the population, e.g. migratory workers?	X		Influx of construction workers that will lead to a change in the number and composition of the local community, and impact on economy, health, safety and social well-being.	Construction	Category 1	Negative to Neutral
				Influx of maintenance workers that will lead to a change in the number and composition of the local community, and impact on economy, health, safety and social well-being.	Operation	Category 1	Negative to Neutral
In-migration of unemployed work seekers	Will the development intentionally or unintentionally contribute to the in-migration of work seekers into the area?	X		Influx of job seekers that will lead to a change in the number and composition of the local community, and impact on economy, health, safety and social well-being.	Construction	Category 1	Negative
Relocation or displacement of individuals or families	Will the development at this or future stages lead to the relocation of residents?	Possible		Relocation of households would have an impact on their way of life and the standard of life they have grown accustomed to.	Construction and Operation	Category 2 – refer to Table 3.1	Negative

***Table 3.1**: Brief Assessment: Relocation of Households*

SUBSTATIONS: RELOCATION OF HOUSEHOLDS			
Category 2 Impact	The relocation of households would have an impact on the affected residents' way of life and the standard of life they have grown accustomed to.		
	Kwagga – Phoebus		
	Route 1	***Route 2***	***Route 3***
Extent	Site	Site	Site
Duration	Long term	Long term	Very short term
Magnitude	Moderate	High	Small
Probability	Highly probable	Highly probable	Very improbable
Significance	Medium	Medium	Low
Status	Negative	Negative	Negative

Explanatory notes:

This brief assessment was based on a desktop identification of social sensitive areas through the use of *Google Earth* (refer to Figure 3.2). Social sensitive areas have been marked that are in proximity to the transmission power line route alternatives - these were the social sensitive areas visible to the social specialists at the time of the study, although it is possible that more social sensitive areas might be found during the Impact Assessment Phase.

Space constraints that are expected on **Route 1**, includes but is not limited to (refer to Figure 10):

- Just north of the R514 (Van der Hoff Road), the route passes 14m east of a household [A], which would be in the 55m servitude area;
- At the corner of Kenneth and Cornelia Streets in Loeka Villa, the route directly affects at least one household [B], with a further one household located within the proposed servitude [C];
- At the foot of the Magaliesberg heading north, this route directly affects approximately 5 households [D, E, G, H, I] and one communal property that appears to be a school [F];
- On top of the Magaliesberg just west of Hornsnek Road, one house is directly affected [J];
- East of the R513/M17 junction, the route directly affects what appears to be a residential property [K];
- North of Mallow Street, the route directly affects a residential property [L];
- South of Itumuleng, the route directly affects two (scattered) residential households [M, N];
- It appears that one household settled within the existing servitude between the areas of Itumuleng and Soshanguve SS [O];
- The route passes close (approximately 20m) to what appears to be an existing

household next to what appears to be an abandoned household [P]; ;

- Route passes close (approximately 17m) to the far southern corner of Itumuleng [Q]; and
- An underground gas pipeline runs west of Elandspoort and is located approximately 50m east and parallel to the proposed transmission power line. It is unclear where the pipeline originates or terminates.

Space constraints that are expected on **Route 2**, includes but is not limited to (refer to Figure 11):

- South of and adjacent to the R566, the route directly affects one household [A] and passes approximately 26.5m from other households [B] in what appears to be a low cost housing development; and
- The route directly affects approximately 7 households on the north-eastern corner of the residential area west of Soshanguve SS [C].

Route 3 crosses the southern corner of a nursery (Malan Seuns) [A] and then traverses the Magaliesberg Nature Reserve [B]. Refer to figure 12. The route traverses a sensitive area, but no relocation is foreseen at this stage.

Figure 10: *Route 1 Affected Points*

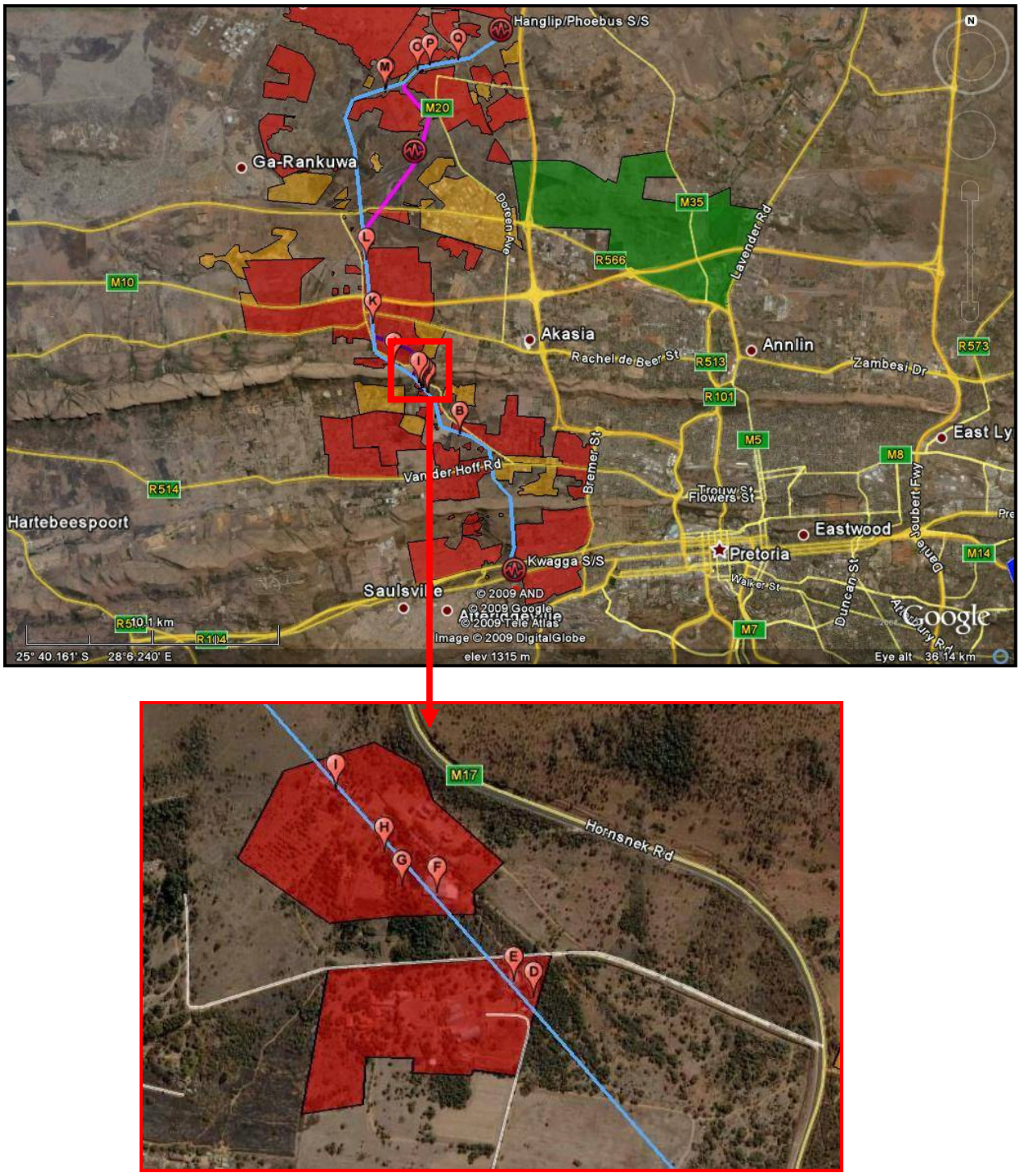


Figure 11: *Route 2 Affected Points*

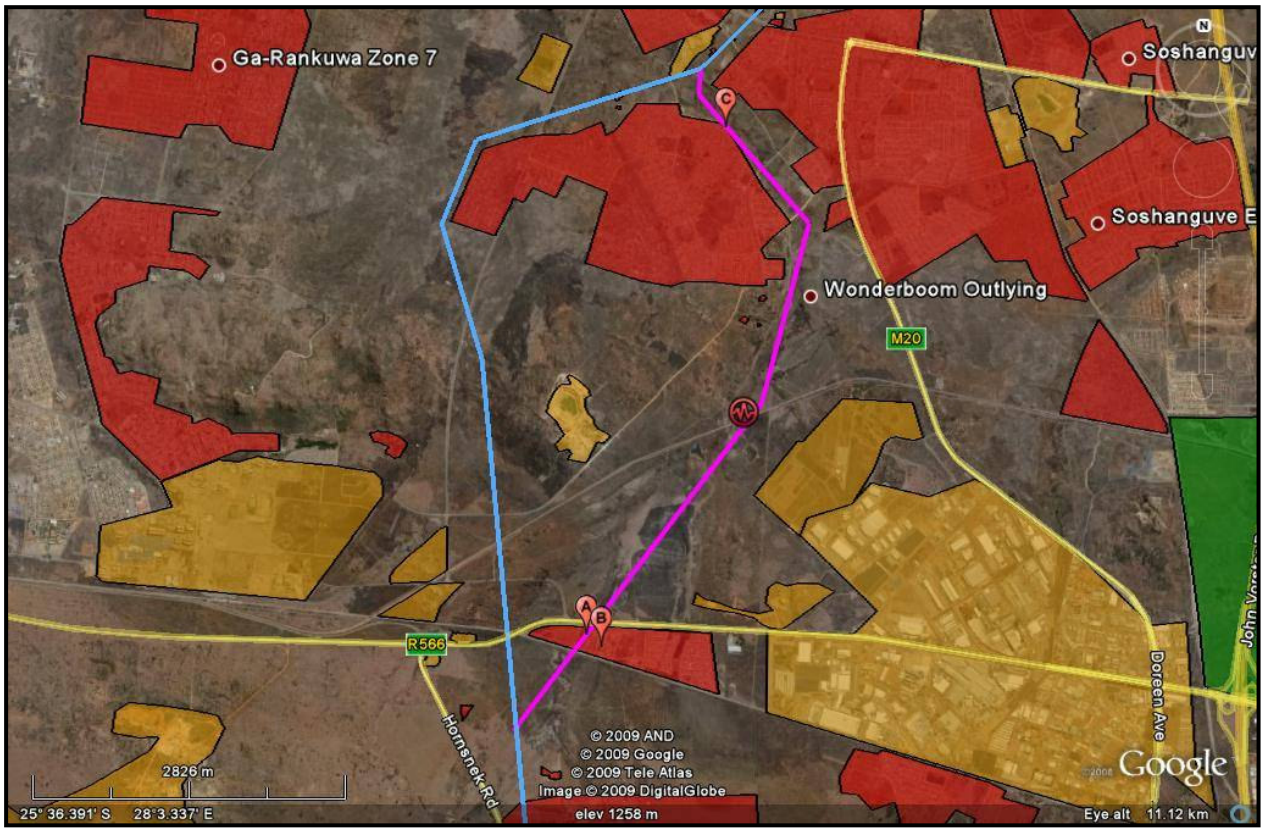
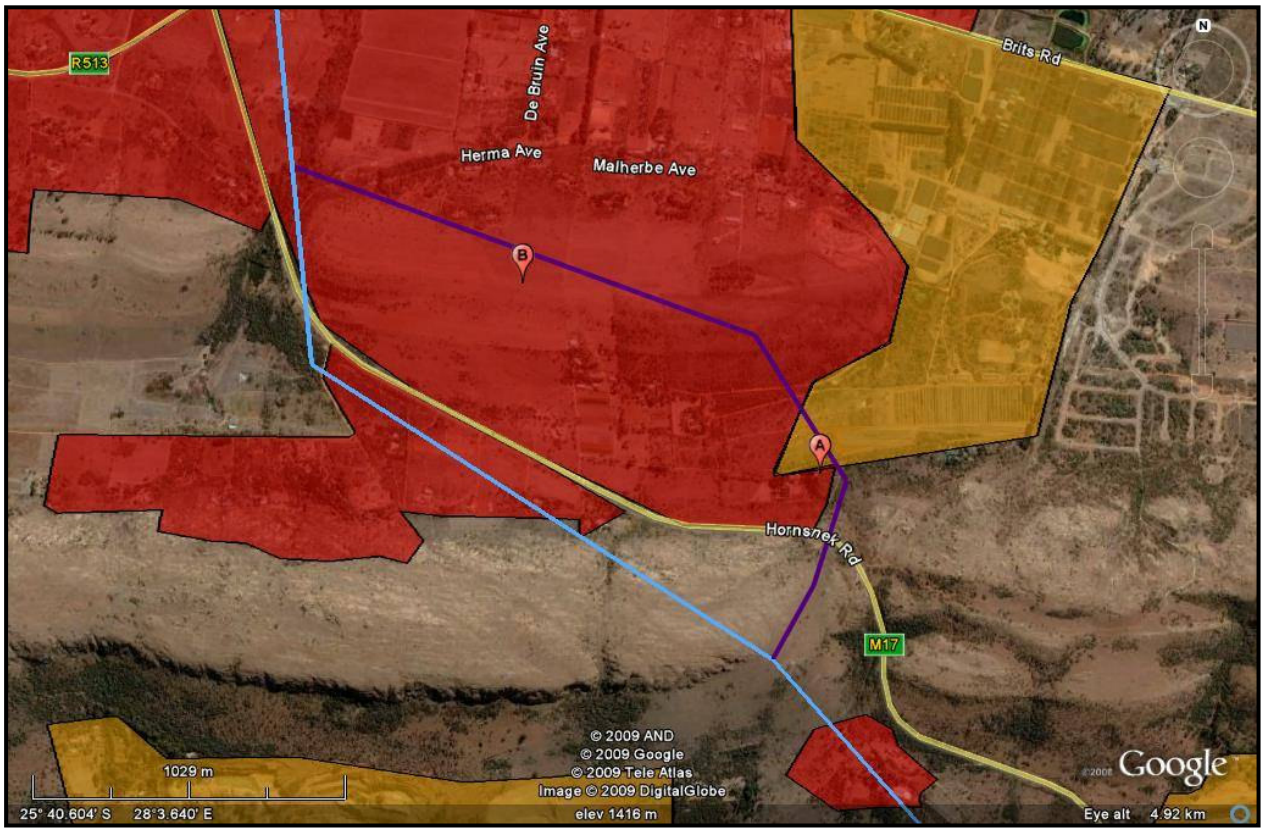


Figure 12: *Route 3 Affected Points*



3.4.2 Information Gaps

To fully assess the potential impacts as a result of demographical change processes, more information is needed on the following aspects:

- The expected population growth within the study area as a result of the HIV infection rate;
- The construction processes and associated timeframes;
- The composition of the construction workforces in terms of size, skills levels, and origin;
- The composition of the maintenance workforce and their activities;
- The number of local employment opportunities;
- The size(s) of the existing transmission power lines within portions of servitudes to gain a better understanding of the space constraints and the resultant potential for relocation of households and/or infrastructure; and
- The expectations of the local communities in terms of employment opportunities.

3.5 Baseline Economical Processes

Economical processes relate to the way in which people make a living and the economic activities within that society. The employment status within any given area gives an indication of the economic stability of such an area and also serves as an indicator of such an area's general well-being.

3.5.1 Employment and Economic Sectors

Table 4 below provides an overview of the employment and economic sectors of the study area in relation to South Africa as a whole, and the affected province (Gauteng). From this table it is clear that the study area is characterised by a fairly high employment rate where, on average, close just over two thirds of the working age population (excluding the not economically active population) within the study area is formally employed.

Table 4: *Overview of Employment and Economic Sectors*

	South Africa	**GP**	**CTMM**	
	2001	**2007**	**2001**	**2007**
Employed*	33.7%	52.2%	46.2%	52.0%
Unemployed*	24.0%	21.6%	21.5%	17.1%
Not economically active	42.3%	26.3%	32.3%	25.9%
Employment rate**	58.4%	70.7%	68.2%	75.3%
Predominant industry	Community services	Manufacturing	Unspecified	Unspecified

	South Africa	GP	CTMM	
	2001	2007	2001	2007
	(29.1%)	(16.7%)	(68.8%)	(19.1%)

* This is the percentage employed/unemployed of the entire working age population and should not be read as the unemployment rate, i.e. the not economically active population is included in this segment.
** In order to reflect a more accurate employment rate, the not economically active population has been excluded from this segment.

Despite the creation of job opportunities, there is a widening wage gap between the higher income groups and lower income groups. It is therefore crucial for an economy to grow at a pace faster than the rate at which the population is growing so that there will be more resources available for each person. In addition, it creates new jobs at a rate that will significantly reduce unemployment over time. Permanent employment in the formal sector is probably the most important factor for sustainable improvement in the standard of living, given the benefits associated with a permanent formal job.

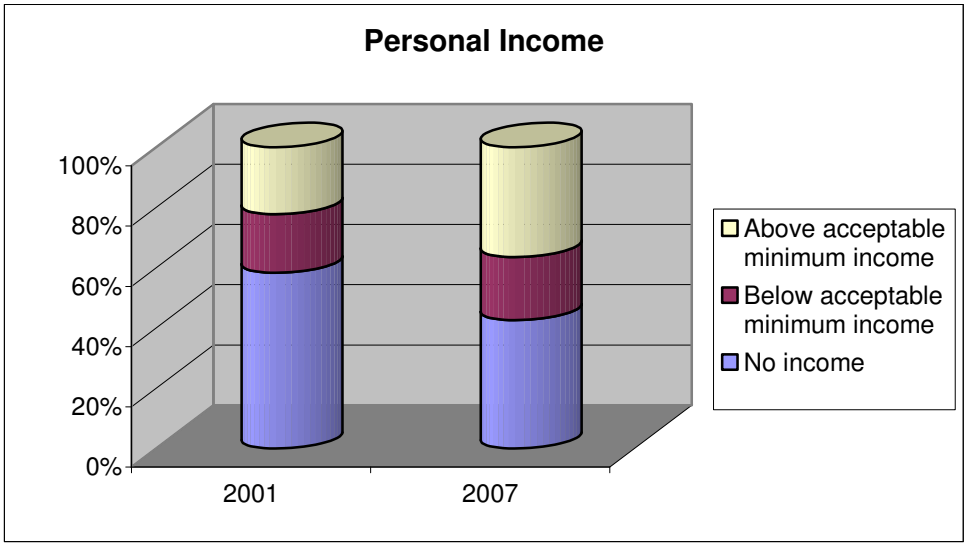
3.5.2 Household and Personal Income

In 2001, a total of 16.5% (or 98 403 households out of 597 514 households) in the City of Tshwane had no annual household income. In addition, close on a third of the households (30.0%) lived below the acceptable minimum standard, which is nationally defined as an annual household income of at least R20 000 per annum. However, more than half (53.4%) of all households lived above the acceptable minimum standard (more than R 20 000 per annum per household).

Unfortunately Community Survey 2007 did not include data on household incomes and therefore this report also includes an overview on personal income (which was covered in CS 2007) in an attempt to provide an overview of the baseline economic conditions of individuals in the area.

The graph below (Figure 13) provides a comparative overview of the personal income levels of individuals within the working age category (15-65) in the study area between 2001 and 2007. However, it should be noted that the 'no income' category also includes persons from the 'not economically active' population, who are therefore not only unemployed, but who are also not actively seeking employment and therefore also would not earn an income.

Figure 13: *Overview of Personal Income (2001 and 2007 compared)*



3.6 Economical *Change* Processes

Economic change processes relate to the changes brought about to the employment and general economic profile of an area as a result of the introduction of any development. For example, job opportunities might be created as a result of the construction and maintenance of the proposed substation, transmission power lines, and associated infrastructure. Employment creates a source of income, which in turn enables the employed individual to access services and a support mechanism for his/her family.

3.6.1 Potential Impacts

Table 5 below provides an overview of the expected economical change processes to occur as well as the expected impacts that might occur as a result of the change processes taking place. These potential impacts will be assessed in detail during the Impact Assessment phase.

In the event of a potential impact being identified as a category 2 impact (see section 1.3); a brief assessment was conducted to determine which transmission power line route alternative would create change processes with the least amount of significant impacts, in order to determine a preliminary indication for a preferred transmission power line route alternative. In such an instance, the potential impact has only been briefly assessed *prior* to the implementation of mitigation measures. Therefore, for the purposes of this study, no mitigation measures have been identified, nor any cumulative and/or residual impacts. As site alternatives have not been put forward for the proposed extensions at the Kwagga substation or for the proposed new Phoebus substation, this process was only followed for the transmission power line route alternatives.

***Table 5**: Overview of Expected Economical Change Processes and Potential Impacts*

ECONOMICAL CHANGE PROCESSES							
Expected Change Process		**Yes**	**No**	**Expected Impact**	**Project Phase**	**Type of Impact**	**Status**
Increase in division between rich and poor	Will the development exacerbate class equalities?		X	No impact foreseen.	n/a	n/a	n/a
Enhanced / reinforced economic equities	Will the development enhance or enforce class inequality?		X	No impact foreseen.	n/a	n/a	n/a
	Will the development deny or enhance economic opportunities for vulnerable communities?	X		Unskilled labour, such as bush clearance, might be sourced from the local area thereby creating job and income opportunities.	Construction	Category 1	Positive
	Will the project create different levels of economic opportunity?	X		Depending on the skills levels required, it is believed that different skills levels will have differently structured salary packages, thereby creating lower income to higher income opportunities.	Construction and Operation	Category 1	Positive
	Will the employment opportunities created by the development be sustainable?		X	It is believed that most of the employment opportunities would be restricted to the construction phase.	Construction	Category 1	Negative to Neutral
Change in the commercial / industrial focus of the community	Will the development change the income generating focus of the community?		X	No impact foreseen.	n/a	n/a	n/a
	Do residents have the required skills, life experience and contextual understanding to benefit from the proposed development?	n/a	n/a	No impact foreseen.	n/a	n/a	n/a
	Will a change in economic focus associated with the development have repercussions for social		X	No impact foreseen.	n/a	n/a	n/a

ECONOMICAL CHANGE PROCESSES							
Expected Change Process		**Yes**	**No**	**Expected Impact**	**Project Phase**	**Type of Impact**	**Status**
	cohesion?						
Change in employment equity of vulnerable groups	Are vulnerable groups able to take advantage of changed employment opportunities associated with the development?	X		Where possible, job opportunities will be provided to local community members, which would include vulnerable groups such as women.	Construction and Operation	Category 1	Positive
	Will vulnerable groups have to compete with more appropriately qualified applicants from elsewhere?	X		The required skills might not be available in the local area, which means that the appropriate skills might have to be 'imported', thereby causing a reduction in the job and income opportunities available to local residents.	Construction	Category 1	Negative
Change in occupational opportunities	Will the development lead to an increase or decrease in employment opportunities?	X		An increase in employment opportunities is expected.	Construction	Category 1	Positive
	Will the development create different levels and types of employment?	X		Employment opportunities will range from unskilled to highly skilled positions.	Construction	Category 1	Neutral
	What types of skills will the development require?			Mostly skilled workers would be required, but some unskilled work would also be required.	Construction	Category 1	Neutral
Land acquisition and disposal, including cost of land	Will the development lead to a significant increase in the cost of land/property in the area?		X	No impact foreseen.	n/a	n/a	n/a
	Will the development result in an increase of land/property prices?		X	No impact foreseen.	n/a	n/a	n/a

ECONOMICAL CHANGE PROCESSES							
Expected Change Process		**Yes**	**No**	**Expected Impact**	**Project Phase**	**Type of Impact**	**Status**
	Will the increase in land/property prices exacerbate class and race inequity?	n/a	n/a	No impact foreseen	n/a	n/a	n/a

3.6.2 Information Gaps

To fully assess the potential impacts as a result of economical change processes, more information is needed on the following aspects:

- The negotiation process with private landowners in terms of land acquisition, e.g. how compensation is calculated, when the process will take place, etc.;
- The local employment opportunities that will be created, both direct and indirect formal and informal job opportunities;
- The expectations of the local communities in terms of employment opportunities; and
- If available, the average period of employment and an outline of a typical salary package for unskilled labour.

3.7 Baseline Institutional and Empowerment Processes

Institutional and Empowerment processes relate to the role, efficiency and operation of government sectors and other organisations within the area in terms of service delivery. It also investigates the ability of people to engage in decision-making processes to such an extent that they have an impact on the way in which decisions are made that would concern them.

3.7.1 Municipal Services

Table 6 below provides an overview of the municipal services of the CTMM in relation to the Gauteng Province. No data could be obtained for the overall municipal service delivery in South Africa.

The years between 2001 and 2007 saw a steady increase in the delivery of municipal services to the households within the CTMM. Municipal infrastructure backlogs are mostly confined to the previously disadvantaged township areas, and, as could be expected, in informal settlement areas. In terms of water services, RDP standard is defined as piped water either within a dwelling or within 200m of such a dwelling. Sanitation services on par or above RDP standard is defined as any waterborne sanitation services that are connected to a municipal sewerage system or a ventilated pit latrine (VIP) system.

***Table 6**: Overview of Municipal Service Delivery*

	South Africa	**GP**	**CTMM**	
	2001	**2007**	**2001**	**2007**
Energy Cooking	Not available	Electricity (81.3%)	Electricity (71.3%)	Electricity (74.1%)
Energy Heating	Not available	Electricity (76.7%)	Electricity (70.2%)	Electricity (70.2%)

	South Africa	GP	CTMM	
	2001	2007	2001	2007
Energy Lighting	Not available	Electricity (83.3%)	Electricity (79.9%)	Electricity (77.4%)
Refuse	Not available	Removed once a week (84.8%)	Removed once a week (77.6%)	Removed once a week (75.5%)
Sanitation	Not available	RDP standard or above (86.1%)	RDP standard or above (74.9%)	RDP standard or above (76.3%)
Water	Not available	RDP standard or above (97.9%)	RDP standard or above (94.0%)	RDP standard or above (97.3%)

It would appear that, in general within the CTMM, municipal services are sufficient and that the municipal network would be able to sustain additional connections to the network.

3.7.2 Empowerment and Participation

In terms of baseline empowerment processes, the hierarchy of needs as set out by Maslow, offers an insightful backdrop in terms of people's potential level of involvement in the EIA process and the issues that might be pertinent to them in a development of this nature. Maslow argued that the type of need that a person experiences is dependent on the fulfilment of other needs. The various categories of needs are organised in a hierarchy, which indicates which level of need has to be fulfilled before the next level of need would be experienced (refer to Figure 14).

The assumption is therefore that, in order for people to fully participate in a process that might affect their future, they would have to function on a higher level within the hierarchy of needs (the need for self esteem, characterised by knowledge and understanding needs as well as the need for an environment that is aesthetically appealing, as indicated by the dashed red arrow). This means that their basic needs had to be met first (as indicated by the solid red arrow). In practice this means that people, who live in poverty as a result of high unemployment rates, low income levels and a poor education, struggle to survive on a daily basis and are therefore more focused on their more basic needs.

***Figure 14**: Maslow's Hierarchy of Needs*

Source: www.arrod.co.uk

In general, according to Maslow's hierarchy of needs, this means that people who live in poverty as a result of high unemployment rates, low income levels and a poor education struggle to survive on a daily basis and are therefore more focused on their more basic needs. This group of people would typically be found in informal settlements or RDP housing developments and it could be expected that their issues would mostly centre on job creation irrespective of the potential environmental impact that a development of this nature could have on their natural and human environment. On the other side of the spectrum are people who are employed and who are more affluent and who have the required resources available to claim their rights in terms of the process. Such people are less concerned with potential positive spin-offs such as job creation and more focused on how such a development would negatively impact on their environment. This last group of people would typically be, for example, farm owners and it could be expected that their issues would centre on how such a development would negatively impact on their livelihood.

People who are more focused on their basic needs are therefore in a sense disempowered to fully participate in the process. The issue here is not that these communities are misinformed or lack information as such, but rather that these communities are ignorant about their rights and responsibilities as participants in the process. In such an instance it can very well be expected that such community members' expectation of the project mostly relates to employment opportunities. However, due to the fact that such residents mostly function on a very basic needs level, they might fail to comprehend the "bigger picture" or in other words, the associated impacts (both negative and positive) that the proposed project would bring to their area. Their lack of understanding has bearing on future generations that will inhabit the area.

3.8 Institutional and Empowerment *Change* Process

Institutional and Empowerment Change Processes relate to way in which the proposed project might change the face of service delivery in the area and how this change might affect the quality of life of local residents. It furthermore assesses local residents' ability to negotiate such changes in a way that is mutually beneficial to both the project proponent as well as the affected landowners.

3.8.1 Potential Impacts

Table 7 below provides an overview of the expected institutional and empowerment change processes to occur as well as the expected impacts that might occur as a result of the change processes taking place. These potential impacts will be assessed in detail during the Impact Assessment phase.

In the event of a potential impact being identified as a category 2 impact (see section 1.3); a brief assessment was conducted to determine which transmission power line route alternative would create change processes with the least amount of significant impacts, in order to determine a preliminary indication for a preferred transmission power line route alternative. In such an instance, the potential impact has only been briefly assessed *prior* to the implementation of mitigation measures. Therefore, for the purposes of this study, no mitigation measures have been identified, nor any cumulative and/or residual impacts. As site alternatives have not been put forward for the proposed extensions at the Kwagga substation or for the proposed new Phoebus substation, this process was only followed for the transmission power line route alternatives.

***Table 7**: Overview of Expected Institutional and Empowerment Change Processes and Potential Impacts*

INSTITUTIONAL AND EMPOWERMENT CHANGE PROCESSES							
Expected Change Process		**Yes**	**No**	**Expected Impact**	**Project Phase**	**Type of Impact**	**Status**
Change in / disruption of power relationships	Will the development impact on the levels of power, opportunity and access of individuals or sections of the community, e.g. during the negotiation process?	X		It can be expected that some individuals would never have been through the negotiation process. A breakdown in the negotiation process in terms of land acquisition could severely delay the project and result in an economic impact on both the landowner as well as on Eskom.	Pre-construction and construction	Category 1	Negative
	Is the development being used for the political gain of a section of the community, and what are the implications for the larger social environment?		X	No impact foreseen.	n/a	n/a	n/a
Exclusivity	Will the development contribute to the culture of exclusivity?		X	The development would create economic growth through the availability of services such as electricity.	Operation	Category 1	Positive
Inequality	Will the development increase unequal access to opportunities or resources?		X	The development will enhance more equal opportunities to resources as additional services become available.	Operation	Category 1	Positive
Change in community infrastructure	Will the development change any aspect of community infrastructure, such as crèches, clinics, schools, churches, formal or informal sports fields, open areas, dumping grounds etc?		X	No impact foreseen.	n/a	n/a	n/a
	Will the development create increased demand for basic services, e.g. water, electricity, sewerage, roads?	X		Additional demand on municipal services, such as water, sewerage and roads could impact on health and safety if such services are not available.	Construction	Category 1	Negative to Neutral

INSTITUTIONAL AND EMPOWERMENT CHANGE PROCESSES							
Expected Change Process		**Yes**	**No**	**Expected Impact**	**Project Phase**	**Type of Impact**	**Status**
	Will the existing access of the community to free basic services be impacted by the development?		X	No impact foreseen.	n/a	n/a	n/a
Change in housing needs / demands	Will the development create a housing need, e.g. due to the in-migration of construction workers?	X		It is possible that the majority of the construction workforce would be sourced from outside the area due to the skills levels required. The construction workforce would then most probably be housed within a construction village, which could lead to socio-cultural change processes taking place with a resultant impact on health and safety.	Construction	Category 1	Negative
	Has the need for more housing been addressed by the development and or the authorities?	Unsure		It is possible that the construction workforce would be housed in a construction village.	Construction	n/a	n/a

3.8.2 Information Gaps

To fully assess the potential impacts as a result of empowerment and institutional change processes, more information is needed on the following aspects:

- The risk for attitude formation against the project (social mobilisation);
- The negotiation process with private landowners in terms of land acquisition, e.g. how compensation is calculated, when and how the process will take place, etc.; and
- Whether a construction village will be used, and if so, the most likely location for such a construction village, how many workers would be housed within the construction village, and the housing conditions.

3.9 Baseline Socio-Cultural Processes

Socio-cultural processes relate to the way in which humans behave, interact and relate to each other and their environment, as well as the belief and value systems which guide these interactions.

The proposed Phoebus substation will be located within Soshanguve, which is a township situated approximately 45km north of Pretoria. Soshanguve was established in 1974 on land that was supposed to be incorporated into a Bantustan bordering on Mabopane in the then Bophuthatswana. The name Soshanguve was derived from the **So**tho, **Sha**ngaan, **Ngu**ni and **Ve**nda people who were resettled from Atteridgeville and Mamelodi. Soshanguve was incorporated into the CTMM and in January 2006 was the scene of riots due to poor service delivery.

At the time of the study, not enough information was available to determine the level of cultural and place attachment that residents have to the areas along the transmission power line route alternatives.

In terms of socio-cultural processes it should be noted that sense of place goes hand in hand with place attachment, which is the sense of connectedness a person/community feels towards certain places. Place attachment may be evident at different geographic levels, i.e. site specific (e.g. a house, burial site, or tree where religious gatherings take place), area specific (e.g. a residential area), and/or physiographic specific (e.g. an attachment to the look and feel of an area). The concept of sense of place therefore attempts to integrate the character of a particular setting with the personal emotions, memories and cultural activities associated with such a setting.

3.10 Socio-Cultural *Change* Processes

Socio-cultural change processes that are associated with the construction and operation of the proposed project include changes such as health and safety aspects and sense of place. The concept of 'health' is not only limited to physical health (i.e. the absence of

ailments or illness), but also includes mental and social health. The expected changes that can occur in relation to health and safety aspects can be as a result of the presence of the proposed substation and transmission power line during operation, as well as the presence of construction workers and/or job seekers during construction.

3.10.1 Potential Impacts

Table 8 below provides an overview of the expected change processes as well as the expected impacts that might occur as a result of the change processes taking place. These potential impacts will be assessed in detail during the Impact Assessment phase.

In the event of a potential impact being identified as a category 2 impact (see section 1.3); a brief assessment was conducted to determine which transmission power line route alternative would create change processes with the least amount of significant impacts, in order to determine a preliminary indication for a preferred transmission power line route alternative. In such an instance, the potential impact has only been briefly assessed *prior* to the implementation of mitigation measures. Therefore, for the purposes of this study, no mitigation measures have been identified, nor any cumulative and/or residual impacts. As site alternatives have not been put forward for the proposed extensions at the Kwagga substation or for the proposed new Phoebus substation, this process was only followed for the transmission power line route alternatives.

***Table 8**: Overview of Expected Socio-Cultural Change Processes and Potential Impacts*

SOCIO-CULTURAL CHANGE PROCESSES							
Expected Change Process		**Yes**	**No**	**Expected Impact**	**Project Phase**	**Type of Impact**	**Status**
Disruption of social networks	Will the development impact on existing social networks?		X	No impact foreseen.	n/a	n/a	n/a
Disruption in daily living and movement patterns	Will the development change the lifestyle of residents?		X	No impact foreseen.	n/a	n/a	n/a
	Will the development impact on access to facilities and resources, such as schools, hospitals, fields, forests, etc?		X	No impact foreseen.	n/a	n/a	n/a
	Will it impact on movement patterns, such as pedestrians crossing roads?	X		Impact of construction activities on movement patterns of local communities, potentially impacting on safety and ease of movement.	Construction	Category 1	Negative to Neutral
	Will it divide communities physically (e.g. through the building of a highway)?		X	No impact foreseen.	n/a	n/a	n/a
Dissimilarity in social practices	Do new residents have dissimilar social practices to current residents?	Unsure		If construction workers have dissimilar social practices than local residents, conflict can be expected.	Construction	Category 1	Negative
	Do the new residents have different values, religious practices, social standard, etc?						
Alteration in family structure	Could the development threaten family cohesiveness?	X		Socially acceptable integration, including the risk of spreading STIs and HIV/AIDS with an impact on health. The spread of STI and HIV is a matter of great concern, also in view of the	Construction	Category 1	Negative
	Could it impact on immediate or extended family networks?	X					

SOCIO-CULTURAL CHANGE PROCESSES							
Expected Change Process		**Yes**	**No**	**Expected Impact**	**Project Phase**	**Type of Impact**	**Status**
	Could it impact on the traditional roles played by members of the family?	X		light that construction workers move out of the area into another area where the spread of these STI and HIV continues. Apart from the obvious health implications, HIV infection in particular also has an economic impact.			
Conflict	Will the development lead to conflict between sectors of the social environment?	Unsure		If social integration between newcomers and residents is hindered, it can lead to conflict, which in turn delays the construction process and has economic implications for the developer.	Construction	Category 1	Negative
	Is there conflict between the developer and the public?	Unsure		Where conflict exists, it increases the risk for social mobilisation, with resultant delays on the project and an economic impact on both the project proponent and project opponent.	Pre-construction and construction	Category 2[14]	Negative
	Is this conflict being addressed?						
Safety and crime impacts	Will the development impact on existing crime and safety patterns?	X		Presence of construction workers and job seekers leads people to believe that there will be an increase in crime, which impacts on surrounding landowners' sense of safety and security.	Construction	Category 1	Negative
Change in sense of place	Will the development impact on people's "sense of place", e.g. through the large scale development of a rural community?	X		As the substation and transmission power line might impact on people's perception of safety, these people might now feel unsafe in the area knowing that such infrastructure is in close proximity to their houses. The presence of such a line also has a	Operation	Category 2 – refer to Table 8.1	Negative
	Will the change "in sense of						

[14] Not assessed, as the social specialist was unsure what the risk for social mobilisation was at the time of the study, and if such a risk existed, which route alternative(s) had a higher risk for social mobilisation and which had a lower risk. This will be assessed in detail during the Impact Assessment phase, based on the outcome of the public participation process.

SOCIO-CULTURAL CHANGE PROCESSES							
Expected Change Process		**Yes**	**No**	**Expected Impact**	**Project Phase**	**Type of Impact**	**Status**
	place" impact on people's relationship to the environment?			visual impact, changing the landscape from unspoilt to 'spoilt'.			
Implications for social history	Does the development have any implications for the social history of affected communities?		X	No impact foreseen.	n/a	n/a	n/a

***Table 8.1**: Brief Assessment: Sense of Place*

SENSE OF PLACE			
Category 2 Impact	The presence of the proposed transmission power lines might impact on sense of place of inhabitants as some areas go from unspoilt to 'spoilt', affecting residents' sense of safety and what they have previously valued in the area, i.e. their interaction with and attachment to the area.		
	Kwagga – Phoebus		
	Route 1	***Route 2***	***Route 3***
Extent	Local	Local	Local
Duration	Short term	Long term	Long term
Intensity	Low to Moderate	Moderate to High	High
Probability	Probable	Highly probable	Highly probable
Significance	Low	Medium	Medium
Status	Negative	Negative	Negative

Explanatory notes:

This brief assessment was based on a desktop identification of social sensitive areas through the use of *Google Earth* (refer to Figure 3.2). Social sensitive areas have been marked that are in proximity to the transmission power line route alternatives - these were the social sensitive areas visible to the social specialists at the time of the study, although it is possible that more social sensitive areas might be found during the Impact Assessment Phase.

- Where **route 1** passes the residential area of Elandspoort, it is located next to an existing transmission power line. Residents of Elandspoort might therefore be used to the presence of a transmission power line. Through the agricultural holdings area of Loeka Vila, the route deviates from the existing transmission power line. Even though it follows property boundaries, it still traverses an area that would be regarded as 'unspoilt' up to Hornsnek Road where the route meets up with an existing transmission power line again. At Kenneth Road in Hornsoord, the route deviates from the existing transmission power line and cuts through agricultural holdings and crosses over the Magaliesberg, which are all 'unspoilt' areas. North of the Magaliesberg it again doesn't follow any existing infrastructure such as an existing power line or the road alignment. It continues in this fashion up to just north of the residential area in Wonderboom Outlying where it meets up with and follows an existing transmission power line until it terminates at the proposed new Phoebus substation.
- It would appear as if **Route 2** does not follow any existing infrastructure such as an existing transmission line or a road. This route is therefore mostly located within 'unspoilt' areas. In addition it cuts through a new residential development west of Strydfontein along the R566. It's also located on the border of the residential area in Wonderboom Outlying and as such there is encroachment on the proposed servitude.
- **Route 3** does not follow any existing infrastructure and cuts straight through a part of the Magaliesberg Nature Reserve.

3.10.2 Information Gaps

To fully assess the potential impacts as a result of socio-cultural change processes, more information is needed on the following aspects:

- The cultural dynamics of the existing settlements and their ability to accommodate and/or integrate workers from outside their community;
- Measures that are normally implemented at a construction site of this nature (substation and transmission power line) to secure and control access to the area;
- The daily activities of surrounding residents and their cultural attachment to the area; and
- The activities of maintenance workers and where these maintenance workers will be sourced from.

4. CONCLUSIONS AND RECOMMENDATIONS

This report fulfilled the objectives of the Scoping Phase, which was to complete a broad assessment of the project from a social perspective to enable a more focussed study in the Impact Assessment Phase.

A preliminary comparison among the route alternatives was conducted by briefly assessing all of the category 2 impacts identified with a certain change process. A summary of the outcome of this brief assessment is as per table 9, where:

High	Sensitive area, not recommended from a social perspective.
Medium	Acceptable area, neither ideal nor flawed from a social perspective.
Low/No impact	Ideal area from a social perspective.

Please note that even though a 'red area' does not constitute a fatal flaw, it is preferable that such areas be avoided. If this is not possible, careful consideration should be given to the development and implementation of mitigation measures in the event that such a site and/or route alternative is selected.

Also note that category 1 impacts have not been included in this table, as it is believed that these impacts would occur regardless of which route alternative is selected in the end. Again, as there are currently no site alternatives for the substation developments, a comparative assessment has not been done.

***Table 9**: Summary of Brief Assessments (category 2 impacts)*

Change Process	***Route 1***	***Route 2***	***Route 3***
Relocation of households	Medium	Medium	Low
Sense of Place	Low	Medium	Medium

It is expected that both **Routes 1** and **3** would yield impacts that would range from low to medium negative, whereas **Route 2** would be characterised by mostly medium negative impacts. However, it should be noted that Route 1 spans the entire 30km distance between Kwagga and Phoebus. It follows that Route 1 would therefore pose more impacts as it is much longer than the other two route alternatives. As such, the negative impact as a result of relocation or sense of impact is also confined to certain *sections* of Route 1 and not the whole length of the route per se. A preferred route alternative could not be determined based on the results of the scoping study due to the fact that negative impacts are expected on all the route alternatives, albeit on different change processes, e.g. the fact that Route 1 mostly follows existing servitudes and

infrastructure minimises the negative impact on sense of place to some degree, but it does to some extent, increase the probability of relocation. The inverse is true for Routes 2 and 3.

During the scoping study, no issues emerged that can be considered as fatal flaws from a social perspective. However, there are areas of concern as outlined in this report and therefore careful consideration should be given to the enhancement and/or mitigation measures (that will be proposed during the next phase of the project), both during the construction as well as the operation phases of the project.

This recommendation was based on the specialist's:

- Understanding of the proposed project, including the alternative route alignments and the nature and timeframe of the proposed activities;

- Assessment of the affected communities, settlements and institutions in terms of:

    * **Demographic Processes**: the number and composition of the local population;
    * **Geographic Processes**: the land use pattern within the (affected) area; and
    * **Economic Processes**: the way in which people make a living and the economic activities within a specific (affected) area;
    * **Empowerment and Institutional Processes**: people's ability to become actively involved and influence the decision making process, and also the efficiency and operation of local authorities and other significant organisations); and
    * **Socio-Cultural Processes**: the way in which humans interact and relate to each other within the context of their environment, and how this interaction is guided by value systems.

- Assessment of potential change processes that might occur as a result of the project.

5. TERMS OF REFERENCE FOR THE EIA PHASE/ PLAN OF STUDY FOR EIA

This section aims to address the following objective:

- Describe the proposed studies for the Impact Assessment Phase that would ultimately fill the identified information gaps and result in a detailed assessment of the potential impacts.

5.1 Geographical Change Processes

- Obtain landowner information from the public participation consultant to determine if any of the landowners raised issues and/or concerns with regard to agricultural land;
- Revisit agricultural holding areas along the route to determine the land use of these areas;
- Obtain and analyse information from the project proponent on the size and number of the construction and operational vehicles. Also obtain information from the relevant specialist conducting the traffic impact assessment, if any;
- Scrutinise the IDP and SDF of the CTMM in terms of future developments. If additional information is required other than that contained in the IDP/SDF, conduct interview(s) with relevant town planners; and
- Obtain information from the public participation consultants on land claims in the area, if any.

5.2 Demographical Change Processes

- Conduct a desktop study to try and determine what the expected population growth rate is and how this would be influenced by the HIV infection rate in order to establish how the population would have expanded without the influx of construction workers and/or job seekers;
- Obtain and analyse information from the project proponent on the construction process, the associated timeframes as well as the size and composition of the construction team for both the construction of the substation, transmission power line and associated infrastructure;
- Obtain and analyse information from the public participation consultants on the local residents' expectations in terms of the proposed project within the social realm, in order to better understand local residents' viewpoint on the proposed project and the potential risk for conflict and other forms of active and passive social mobilisation;
- Obtain information from the project proponent on the size(s) of the existing transmission power lines within existing servitudes; and
- Obtain and analyse information from the project proponent on the maintenance process of the substation, transmission power line as well as associated infrastructure, as well as the size, composition and origin of the maintenance team (e.g. determine whether the maintenance team forms part of the permanent workforce at a substation).

5.3 Economical Change Processes

- Obtain and analyse information from the project proponent on the negotiation process and how compensation is calculated;
- Obtain and analyse information from the project proponent on the construction process, the associated timeframes as well as the size and composition of the construction team for both the construction of the substations, transmission power lines as well as the turn-in lines and associated infrastructure (to determine the number of job opportunities that would be created); and
- Obtain and analyse information from the project proponent on an average salary package for an unskilled labourer to determine the extent and timeframe of economic impacts on local residents as a result of employment.

5.4 Institutional and Empowerment Change Processes

- Obtain the issues register or issues report from the public participation consultants to determine the recurrent issues raised from the public's side and how these issues were addressed throughout the process. An analysis of these issues would indicate the risk for social mobilisation;
- Obtain and analyse information from the project proponent on the negotiation process; and
- Obtain and analyse information on the size, composition and location of a construction village.

5.5 Socio-Cultural Change Processes

- Focus group meetings with community leaders and/or an observational study to determine the cultural dynamics and movement patterns of local residents within the various affected residential areas;
- Obtain and analyse information, if any, from the project proponent on the mechanisms implemented at a construction site to enhance the safety of both the construction worker as well as that of local residents passing through the area;
- Obtain information from the public participation consultants on the surrounding landowners. Either attend or organise a focus group meeting with these landowners or a landowner representative body such as a residents association to determine their attachment to the area; and
- Obtain and analyse information from the project proponent on the activities of maintenance workers and where these workers are sourced from.

6. SOURCES CONSULTED

6.1 Municipal Documentation

- City of Tshwane (2007). Spatial Development Strategy: 2010 and beyond.
- City of Tshwane (2008/09). Integrated Development Plan Review.

6.2 Project Documentation

- Project generated maps indicating the various route alternatives.

6.3 Other Documentation

- Slootweg R, Vanclay F, van Schooten M. Function evaluation as a framework for the integration of social and environmental impact assessment. Impact Assess Project Appraisal 2001; 19(1):19–28.
- Statistics South Africa. Community Survey 2007: Key Municipal Data. Report No: 03-01-22 (2007)
- Vanclay, F. 2002. Environmental Impact Assessment Review 22:183–211

6.4 Websites

- Municipal Demarcation Board (http://www.demarcation.org.za) - accessed April 2009.
- Community Survey Interactive Data (http://www.statssa.gov.za/community_new/content.asp?link=interactivedata.asp) – accessed April 2009.
- Wikipedia (www.wikipedia.org/wiki/Land_use.html)
- www.soil.ncsu.edu/publications/BMPs/glossary.html