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The information contained in this report has been compiled with the utmost care and accuracy within the parameters specified in this document. Any decision based on the contents of this report is, however, the sole responsibility of the decision maker.
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SECTION 1: INTRODUCTION

Urban-Econ Development Economists was commissioned by TOWB TRADING CC to undertake a detailed market research analysis to investigate the viability of a truck stop and filling station development, also known as Meerkat Truck Stop, near Volksrust in the Pixley Ka Seme Local Municipality. The outcome of this study will indicate if the extent of the market demand for a truck stop and filling station is sufficient to sustain development as well as guide investment decisions on the development mix and type for the specific property.

The investigation is based on existing data both published and from past project experience which were augmented with selected and focused primary research. The primary research will depend on interviews to obtain recent market indicators and relevant industry standards.

The purpose of this section is to provide an introduction and background to the research conducted for the truck stop development and augmented with additional research.

1.1 Project Brief

The brief of this study reveals specialised analysis to determine the capacity of the transient consumer market to sustain the proposed development to be constructed in the Pixley Ka Seme Local Municipality. The development will be situated on a major provincial road, the R23 between Volksrust and Standerton. It is understood that this study will be utilised to determine the current demand and feasibility of a truck stop and filling station land-use option and to guide investment decisions regarding the optimal development option.

The outcome of this study will include the following components:

- Market trends relating to the transport industry
- Socio-economic overview of the applicable market areas
- Consumer market profile
- Determination of current demand and supply factors
- Recommendations

1.2 Project Description

The project entails the development of a Long Haul Heavy Vehicle Service Station, together with the storage of petroleum fuel on the Subject Site. The service station is to be complimented with convenient shops normally associated with such an activity and provide for parking facilities for long haul heavy vehicles. Facilities for minor maintenance of these vehicles will also be required and developed. No facilities for providing overnight accommodation facilities will be provided on site.
The project will be done in two phases.

- **Phase 1** - the development of a Long Haul Heavy Vehicle Service Station and Parking *(Meerkat Truck Stop)* with the parking, ablution, convenient shop, workshop and site offices.
- **Phase 2** - the development storage and retail of petroleum fuel *(Filling Station)*

### 1.3 Geographic Location

The development is located within the Volksrust area of Pixley Ka Seme LM on the R23, with good access from the provincial distributor and national routes like the R534 and the N11.

Figure 1.1 illustrates the location of the proposed Meerkat Truck Stop development in context to Volksrust and the regional road network.

![Figure 1.1: Location of Meerkat Truck Stop](image-url)

Source: Google Earth Image, 2012

The exact site profile and location will be discussed in the subsequent site analysis section.

### 1.3 Report Outline

The remainder of the report will be structured under the following sections:

- **Section Two: Economic Perspective** – Underlines relevant economic and automotive-related statistics enabling projections regarding affordability of the local population and susceptibility for development within the market.
Section Three: Local Population Overview – Presents a brief look at the current socio-economic conditions of the greater local area.

Section Four: Site Assessment – Provides an analysis of the proposed site highlighting important factors influencing the specific development potential of a filling station.

Section Five: Truck Stop Market Potential – Analyses the potential transient consumer market and transport industry trends to illustrate the demand for the proposed truck stop.

Section Six: Filling Station Market Potential – Analyses the potential transient consumer market to illustrate the demand for the proposed filling station.

Section Seven: Conclusions and Recommendations – Concludes the market potential analysis findings and formulates recommendations regarding the proposed development/investment approach.
SECTION 2: ECONOMIC PERSPECTIVE

The economic profile provides an overview of the composition and stability of the provincial and local economy. The objective is to underline the relevant historic and current economic indicators, in addition to specific automotive-related statistics, likely to influence the development potential within the identified geographic area. These indicators determine specific trends which are used for projections concerning the future potential growth of the particular markets. The growth will be subjected to the alignment between potential investment and the economic environment.

Analysis of potential economic drivers is practiced on different geographic levels and a comparison is drawn from the findings. It assists in the formation of recommendations based on information pertaining to potential future investment.

The relationship between the current economic performance and the property market is illustrated, followed by an examination of the local vehicle market.

2.1 The Property Market

In order to provide a directive for informed forecasts in the property market it is important to acknowledge the direct and indirect relationship that exists between particular macro-economic variables and sectors influencing various urban property markets. The overall performance of relevant economic sectors serves as a proxy for the subsequent performance of each applicable property market.

Diagram 2.1: The Economy and the Property Market

<table>
<thead>
<tr>
<th>Macro-Economic</th>
<th>Sectoral Performance</th>
<th>Property Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>Trade &amp; Accommodation</td>
<td>Retail, Wholesale &amp; Accommodation</td>
</tr>
<tr>
<td>Inflation</td>
<td>Business &amp; Finance</td>
<td>Offices and Business Related Tourism</td>
</tr>
<tr>
<td>Interest Rate</td>
<td>Transport, storage and communication</td>
<td>Warehousing &amp; Distribution</td>
</tr>
<tr>
<td>Exchange Rate</td>
<td>Manufacturing</td>
<td>Industrial</td>
</tr>
<tr>
<td>Personal Consumption Expenditure (Final Demand)</td>
<td>Tourism</td>
<td>Accommodation</td>
</tr>
</tbody>
</table>

Source: Urban-Econ, 2012

Diagram 2.1 illustrates the indicators that influence consumer spending, which are a major demand driver for a broad spectrum of economic goods and services, specifically retail products. The diagram...
also highlights the transport sector as the economic sector with the most influence on the performance of the distribution and transport-related (truck stop and filling station) property market.

The performance of the transport sector will be analysed in order to give background and context on market expectations.

2.2 Transport Sector Performance

The transportation sector (formally known as the transportation, storage and communication sector) forms part of the tertiary economic sector and is the main driver behind the demand for storage and transportation facilities such as logistic yards, filling stations, truck stops, and warehousing etc. It is of great importance that this profile is given close attention as it can provide valuable insight into the viability and demand for a truck stop and filling station development and may give an indication of potential development success of the envisaged development at the proposed site.

Figure 2.1 illustrates the transportation sector performance for the time period of 2001 to 2011.

![Transport Sector Growth Performance, 2001-2012](image)

Source: Quantec EasyData Standardised Regional, 2012

The transport sector is constantly fluctuating as it is heavily reliant on other economic sectors for growth; these include agriculture, mining, manufacturing, construction and trade. As these sector increase or decrease they affect the performance of the transport sector.

All regions have shown economic growth over the past decade within the transport sector with the exception of Pixley Ka Seme LM, due to the lack of transport orientated businesses such as logistics
companies, trucking companies, truck stops and warehousing facilities the transportation industry is not highly developed in the local area. The local transport sector has declined by -2.9% over the last decade. Other regions on the other hand have experience growth of between 4.2% and 4.5%.

- Gauteng – 4.2%
- Limpopo – 4.5%
- Mpumalanga – 4.2%
- Gert Sibande DM – 4.3%

The development of the transportation sector in Pixley Ka Seme is an important step in the process of diversification in the local economy.

### 2.3 Vehicle Sales

The vehicle sale analysis provides an indication of the number of new vehicles within the national and provincial markets. The sales performance highlights the vehicle affordability amongst locals which in turn signifies the potential development success of the envisaged filling station.

Figure 2.2 illustrates the total vehicle sales in South Africa between November 2005 and November 2012. Over the twelve months, October 2011 to November 2012, a total of 883,637 vehicles have been sold. Since the dip in 2009 as a result of the global recession sales have increased from 583,139 to 883,637 illustrating growth of 14.9% over the last three years.

**Figure 2.2: Total Vehicle Sales in RSA, November 2005 – November 2012**

![Vehicle Sales Chart]

Source: National Association of Automobile Manufacturers of South Africa (NAAMSA), 2012

Figure 2.3 illustrates the total number of vehicle sales in Mpumalanga between November 2005 and November 2012.
Figure 2.3: Mpumalanga Total Vehicle Sales, November 2005 – November 2012

Source: National Association of Automobile Manufacturers of South Africa (NAAMSA), 2012

Mpumalanga has shown a similar increase in vehicle sales from 2009 to 2012 with an annual growth rate of 16.2% over the last 3 years.

Commercial Vehicle Sales - Trucks

It is important to examine the number of commercial vehicles sales for the truck stop feasibility. The sale in commercial vehicles has followed a similar trend as the overall vehicle sales with solid growth in sales over the last 3 years.

Figure 2.4: Total Commercial Vehicle Sales in RSA, November 2005 – November 2012

Source: National Association of Automobile Manufacturers of South Africa (NAAMSA), 2012
Figure 2.5 illustrates the sales figures for commercial vehicles in Mpumalanga from November 2005 to November 2012.

**Figure 2.5: Total Commercial Vehicle Sales in Mpumalanga, November 2005 – November 2012**

When comparing heavy commercial vehicle sales (288) in Mpumalanga with that of the extra heavy commercial vehicles (1,139) it is clear that trucking and logistics companies rather buy extra heavy commercial vehicles capable of transporting in excess of 16,500kg than normal heavy commercial vehicles.

### 2.4 Fuel Price

The historic fuel price analysis presents an indication of the expenditure affordability of the local population and displays the potential turnover of a truck stop and/or filling station development in the national environment.

**Figure 2.6: SASOL Fuel Price History, November 2007 – November 2012**

Source: National Association of Automobile Manufacturers of South Africa (NAAMSA), 2012

Source: SASOL, 2012
The South African fuel price experience drastic increases for the past two years with the 95-octane unleaded fuel recording the highest price of R12.20/litre in October 2012 which is close to the current (November 2012) price of R12.10/litre. Wholesale diesel currently retails for R11.44/litre and 93-octane unleaded at R11.87/litre.

The growth in fuel prices may have a negative impact on the potential fuel sales of existing and planned facilities. However, the lack of multi-modal public transport results in an inelastic demand for fuel in the country. Fuel is detrimentally important to any vehicle owner and it can therefore be expected that the volume of fuel sales will increase with the growing live vehicle population.

2.6 Economic Summary

The following economic development implications must be highlighted:

- The current statistical analysis tends to emphasise the end of the global recession and positive economic growth is projected for all sectors
- An increase in vehicle sales are recorded for the past three years, resulting in the assumption that more new vehicles are on the roads within the province

Additional factors supporting the viability of the proposed development:

- Pixley Ka Seme LM and Gert Sibande DM have recorded positive GDP growth for the past few years. Growth in local production indicates greater financial output relating to higher levels of disposable income which can be spent within the specific area.

In conclusion the economic and automotive-related conditions, together with its outlook indicate favourable conditions for this development.
SECTION 3: LOCAL POPULATION OVERVIEW

3.1 Introduction

The local population overview offers an analysis of the socio-economic character of the local market area population that will form part of the populace likely to be intercepted by the proposed filling station. The socio-economic character indicates the potential of the directly surrounding market to sustain consumer related facilities. The statistical analysis will assist to determine the needs and desires of the market population. It leads to the efficient alignment between the potential success of the development and the needs of the market area. Although the truck stop and filling station will have a regional client base it is still important to consider the local population profile.

3.2 Local Market Area Delineation

The market area reflects the area of influence or the source market. The local market area can be defined as the geographic area or market segment that the proposed development could potentially capture. However, the nature of a typical transient consumer market of a truck stop and/or filling station does not limit the delineated market area as the sole source of clients. Therefore, the identified areas are the portions of the market that would be most dramatically influenced by the proposed development.

A delineation process is conducted in order to determine the scope and character of the local market population. The market area delineation is a multifaceted process taking the location and proximity of residential settlements in terms of the envisaged development into consideration. As previously mentioned the local market analysis aims to provide a socio-economic overview of the local area and is in no way a socio-economic analysis of the entire targeted market area.

The market area consists of all the noteworthy residential sub-places surrounding the proposed filling station within an appropriate proximity of up to 10 kilometres. The main market for the truck stop and filling station will be the transient traffic along the R23 with specific focus on the commercial vehicles (trucks). The surrounding local markets are illustrated in Map 3.1.

For the purpose of this study a local market area will be used, namely Pixley Ka Seme with the main area of influence being the town of Volksrust. The study will also utilise a transient market, the traffic that passes by the development site, for this purpose a traffic count was conducted to determine the number of vehicles that passes the development site each day.

Due to a lack of information on the transient market, the local market will be analysed using the new Census 2011 data from Statistics South Africa where possible.
3.3 Local Market Profile

The local market profile lists the characteristics and preferences of the identified market areas. These characteristics and preferences are analysed to identify the potential property buyers and consumers. The purpose of the market area profile is to provide an overview of the main characteristics of the market population that need to be intercepted with the proposed development. These characteristics will indicate to a certain extent the capacity of the market population to sustain consumer related developments.

The following aspects, among other, are analysed in this section:

- Population and number of households
- Population employment and occupation profiles
- Demographic profile
- Household income profile
- Adult education profile
- Mode of transport utilised

3.3.1 Population Profile

Population size and growth are important indicators in any land development research study. The population growth and size indicate the demand for a new development and determine the possibility of a sustainable development. The current population figures for the purpose of this study are derived from projected growth estimates.
Table 3.1 provides the population and household estimates for 2012 along with their individual five year average growth rates based on population growth projections from the Statistics South Africa Population Census, 2011.

### Table 3.1: Population and Household Profile, 2012

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pixley Ka Seme</td>
<td>83,235</td>
<td>1.8%</td>
<td>84,733</td>
<td>19,897</td>
</tr>
</tbody>
</table>


The total local market population under analysis consist of approximately 84,733 people accommodated in approximately 19,897 households, which relates to an average household size of 4.2 persons per household. The average population and household growth rates of 1.8% exhibited by the local market are greatly above the national averages of 1.2%. However, the average household size of 4.2 persons per household is slightly above the national average of 3.8 persons per household.

### 3.3.2 Age Profile

The age profile of an area illustrates the total population in terms of age groups. This indicates how many residents within the market area qualify to be economically active and the extent of the dependency burden on the working population.

Table 3.2 explains these concepts.

### Table 3.2: Age Profile Classification

<table>
<thead>
<tr>
<th>Age</th>
<th>Category</th>
<th>Socio-economic contribution</th>
<th>Dependence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Younger than 14 years</td>
<td>Junior population</td>
<td>Non-working population which do not generate any form of income</td>
<td>Dependent on adult to provide to their needs</td>
</tr>
<tr>
<td>Between 15 to 64 years</td>
<td>Potentially Economically Active (PEA) population</td>
<td>The working population and main generators of income.</td>
<td>Independent/Usually provides for the other groups</td>
</tr>
<tr>
<td>65 years and older</td>
<td>Senior population</td>
<td>Retired population which are no longer productive within the working environment</td>
<td>Dependent on government or relatives to provide to their needs</td>
</tr>
</tbody>
</table>

Figure 3.1 presents the age profile of the areas under analysis.
The local market area is characterised by large youth population with almost 35% of the population aged between 0 and 14 years and approximately 22% are aged between 15 and 25 years.

### 3.3.3 Education Profile

The education profile indicates the level of community education and development, which provides further insight in terms of the quality and size of the potential labour pool. The level of skill is often directly proportional to the income and remuneration received by workers.
Though the level of education has improved slightly over the last decade, it is still an area characterised by low levels of education due to the rural nature of the market area and the lack of quality education centres.

### 3.3.4 Employment

The employment and occupation profile of an area is a great indicator of human development within the mentioned area. It forms a basis for disposable income and the expenditure capacity and possible vehicle ownership of the population.

This section distinguishes between three major groups of employment:

- **Employed individuals:**
  - Working population

- **Unemployed individuals:**
  - Persons who has not worked within the last seven days
  - Persons who wants to work and is available to start within two weeks
  - Persons who took active steps to look for work or business in the preceding four weeks

- **The Not Economically Active (NEA) portion of the population:**
  - Portion of the workforce who decide not to work
  - Including students, housewives and any other non-working person of working age
  - Greatly dependent on others for their wellbeing

The employment profile is illustrated in Figure 3.3:

**Figure 3.3: Employment Profile, 2011**

![Employment Profile, 2011](image)


Though the unemployed population is only 16% it is important to note that 8.5% are discouraged work seekers and 47.3% of the population is not active.

It is important to examine the sector employment of the working population. Figure 3.4 illustrates the sector employment of the working population.
The majority (68.3%) of the workforce is employed in the formal sector while 19.2% are employed in the informal sector.

### 3.3.5 Household Income

Following the analysis of key factors influencing household income, the household income profile is provided. The level of disposable income is often a reflection of the capacity of the consumer market income which could be related to expenditure on consumables such as fuel etc.

**Figure 3.5: Average Annual Household Income, 2011**

The higher the disposable income; the greater the opportunity for expenditure on retail products, consumables and services which in turn presents stronger local support for the proposed development. To summarise; the income profile indicates the affordability within the market area.

The income groups identified are as follows:

- **Low Annual Household Income:** R0 – R38 400 (73.1%)
- **Middle Annual Household Income:** R38 401 – R614 400 (25.8%)
- **High Annual Household Income:** R614 400+ (1.1%)

The majority of households fall within the low income bracket with 73.1% of households in this category. This middle income bracket contributes 25.8% of total households while only 1.1% of households fall within the high income bracket.

### 3.3.6 Mode of Transport

The transport profile is analysed to better understand the character of transportation in the local area. Figure 3.6 illustrates the main mode of transport for people within the market area.

**Figure 3.6: Main mode of Transport, 2001**

![Mode of Transport Chart]


The figure illustrates that almost 80% of the population travel on foot as their main mode of transport while 4.3% travel by car as the driver. The data is based on Census 2001 data as the mode of transport data from Census 2011 has not yet been released by Statistics South Africa.
3.4 Conclusion

It can be concluded that the market area is growing and that education levels are increasing, however the majority of the area is still a low income area with little private vehicle ownership.

It is important to note that the influence from the local market area on the proposed development will be minimal and that the majority of the consumer base will be intercepted from the transient traffic that pass by the development along the R23 route. The Truck Stop Market Potential Section (Section 5) and the Filling Station Market Potential Section (Section 6) of this report will elaborate and examine the demand for a truck stop and filling station in greater detail.
SECTION 4: SITE ASSESSMENT

The development potential of a planned facility is strongly linked to the specific characteristics and attributes of its establishment site. These features need to be analysed to identify its salient development effects and ultimately inform the development potential of the envisaged filling station at the proposed site. An in-depth assessment matrix is utilised to illustrate the viability and suitability of the development location as well as to highlight important development strengths of the identified location.

The site assessment addresses the following factors:

- Site specific characteristics and location
- Accessibility, movement and visibility
- Adjacent and surrounding land uses
- Assessment matrix of all of the above-mentioned factors

4.1 Site Description and Location

Map 4.1 presents the proposed development site profile.

Map 4.1 Development Site Profile

Source: TOWB Trading, 2012
The site is located approximately 4km from the centre of Volksrust on the R23 to Standerton. The site is currently covered by grassland and eucalyptus trees with no formal structures on the development site. The Subject Site comprises of Portion 9 (of portion 5) of the Smalkloof Farm No. 122 HS, Volksrust. The size of Portion 9 (of portion 5) of the Smalkloof Farm is approximately 8.56 hectares in extent.

The external form of development site is a longish, narrow, irregular shape of land along the northwest boundary of the Volksrust – Standerton R23 National Road. The dimensions of the site are approximately 560 meters long along the R23 and ± 125 meters deep at the narrowest part. The long leg of the irregular shape site is along the R23 with sufficient length for possible safe access to the site, especially for accesses required for a service station for long haul heavy vehicles.

The development site is situated on top of a minor watershed and slightly sloping to all northwest, northeast and southeast directions. The general slope of the site is flat with a small degree of gradient to the northeast away from the R23. The average slope of the property is less than 2°, suitable for a service station development.

The site provides a favourable location for the establishment of a filling station and does not restrict the size of the proposed facility in a major way.

4.2 Accessibility

Accessibility illustrates the level of access to the development site by means of various transport modes and is paramount to the success of a filling station development. Accessibility in terms of potential access points, level of vehicle movement and transport infrastructure surrounding the site are analysed in this sub-section.

The site has access from the R23 with an existing access road. The site is easy accessible and provides easy accessibility and mobility to various other provincial and national routes including the R543 and the N11. The R23 is characterised by high volume vehicle movements between Standerton and Volksrust in the form of public transport (minibuses, busses), commercial freight vehicles (trucks) as well as passenger vehicles. The site is highly accessible by light and heavy vehicles.

4.3 Visibility

The visibility profile aims to highlight the exposure of the development site which is directly correlated to the potential utilisation of the filling station by the passing traffic.

Figure 4.1 illustrates the visibility profile of the development site from the R23 route.
The site is highly visible and located directly along the R23.

The high visibility levels are likely to attract a high volume of potential consumers owing to the outstanding exposure to the public and private transport market. Note that the truck stop and filling station will be able to capture vehicles travelling in both directions on the carriageway. It is therefore important that advertising boards, indicating the location and distance to the filling station, are erected to ensure that the vehicles travelling at high speeds can take note of the development.

The site enjoys above-average exposure and advertising capabilities.

4.4 Neighbouring Land-Uses

The neighbourhood of the immediate surrounding is predominantly agricultural to the north with some mixed use or small holding activities to the south and south west of the subject site with no environmentally protected or sensitive areas in proximity. A guest house is located to the north east of the development site.

4.5 Site Evaluation

Market potential is influenced not only by passing traffic and the vehicle ownership ratio, but also by characteristics of the truck stop and filling station’s specific site. Truck stops and filling stations have specific location requirements, also known as critical success factors, and should subsequently be
assessed in terms of selected location criteria. To this effect, a truck stop and filling station site evaluation model is utilised.

The site assessment model is pragmatic and is based on the assignment of values to various location factors. Firstly, the site is evaluated on a five-point scale, with five representing the highest attainable grade. Secondly, the factors are adjusted according to an established multiplier which indicates the level of importance of the specific factor. The guidelines for grading are provided in Table 4.2.

**Table 4.2: Site Evaluation Grading System**

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Poor</td>
</tr>
<tr>
<td>2</td>
<td>Fair</td>
</tr>
<tr>
<td>3</td>
<td>Adequate</td>
</tr>
<tr>
<td>4</td>
<td>Good</td>
</tr>
<tr>
<td>5</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

**4.5.1 Site Assessment Matrix**

Table 4.3 presents the site assessment matrix.

**Table 4.3: Site Assessment Matrix**

<table>
<thead>
<tr>
<th>Success Factor</th>
<th>Description</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Traffic Volume - Indicates the number of vehicles passing the site during the 12 hour day period distinguishing between light and heavy vehicles. Less than 10 000 vehicles will indicate a grade of less than 3 (adequate). More than 20,000 will indicate a grade of 5 (excellent).</td>
<td>The site currently enjoys relatively low volumes with approximately 2,079 vehicles passing over a 12 hour period. The heavy vehicle count of 556 is high for a provincial road like the R23.</td>
<td>3</td>
</tr>
<tr>
<td>2. Accessibility - Indicates the level of access from the surrounding suburbs and transient traffic. If the site is located on a major route with a high level of transient traffic and adequate access to the surrounding suburbs a score of 3 (adequate) or higher is provided. Sites located on major highways with separate off-ramps such as the 1 Stop and Ultra City filling stations is assigned a value of 5 (excellent).</td>
<td>Access from both carriageways is available off the R23 with an existing access road.</td>
<td>5</td>
</tr>
<tr>
<td>3. Visibility</td>
<td>Indicates the level of visual exposure the development attains from passing traffic. If the view of the site is obstructed by any large features a grade of 3 (adequate) or less is assigned. If the site enjoys high visibility a score of 5 (excellent) is assigned.</td>
<td>The development site is adjacent to the R23 with a road front exposure of 560m along the R23 provides the site with excellent visibility.</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4. Filling Station Supply</td>
<td>a high grade (5 – excellent) is assigned if the number of potential competitive facilities within close proximity is less than 5. If the number of competitive facilities in close proximity exceeds 5, a grading of 3 (adequate) or less is assigned.</td>
<td>There are no competing truck stop facilities on the R23. There are however a number of filling stations in town.</td>
</tr>
<tr>
<td>5. Appeal of the Site</td>
<td>Indicates the suitability and aesthetic appeal of the site. A site adjacent to a highway off-ramp or on the corner of a shopping centre is most ideal and attain a value of 4 (good) or more whilst a grade of 3 (adequate) or less is assigned to sites that are not located in a business area.</td>
<td>The site appeals to the transient market travelling on the R23 as it is easily accessible. The site is greatly suited for a truck stop as it will be able to accommodate large and long haul vehicles with each without disturbing the residents in town.</td>
</tr>
<tr>
<td>6. Size and Potential Growth of the Area</td>
<td>A grade of 4 (good) or more is assigned to sites that are located on major routes and corridors based on the importance of the route. A grade of less than 3 (adequate) is reflected if the site is located in a quiet suburban area with less passing traffic.</td>
<td>The site is located on the R23 and only 4km from Volksrust. The site of 8.5ha is more than enough to accommodate the whole development. It is located on a busy corridor for freight haul which makes it ideal.</td>
</tr>
<tr>
<td>7. Income Level</td>
<td>Reflects the income of households compared to the national average. A low-income area will attain a grading of 2 (fair) or less, middle-income areas are graded between 3 (adequate) and 4 (good) and affluent areas attain a grading of 5 (excellent)</td>
<td>The area is characterised by low and middle-income earners.</td>
</tr>
<tr>
<td>8. Vehicle Ownership Ratio</td>
<td>Indicates the average number of vehicles owned per household. If 1 vehicle is owned by the average</td>
<td>Vehicle ownership ratio is very low, but the development is reliant on transient traffic and more specifically heavy</td>
</tr>
</tbody>
</table>
household a grading of 3 (adequate) is assigned. If less than one vehicle is owned a grading of 2 (fair) or less is assigned and vice versa.

4.5.2 Weighted Success Factor

A specific weight is attributed to each success factor according to its importance for the viable development of a filling station. Each success feature will be adjusted according to its multiplier (weight) to ultimately produce a site suitable percentile. Table 4.4 presents the weighed success factors.

Table 4.4: Weighted Success Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Grade</th>
<th>Multiplier</th>
<th>Weighted Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Traffic Volume</td>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>2. Accessibility</td>
<td>5</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>3. Visibility</td>
<td>5</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>4. Filling Station Supply</td>
<td>4</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>5. Appeal of the Site</td>
<td>5</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>6. Size and Potential Growth of the Area</td>
<td>5</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>7. Income Level</td>
<td>3</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>8. Vehicle Ownership Ratio</td>
<td>3</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>

| Rating                           | 74%   |

4.6 Implications

The assessment of the proposed site indicated an overall rating of 74% as illustrated in Table 4.4 of the previous sub-section. This rating can be interpreted as a high potential in terms of developing a filling station on the particular site. High exposure and visibility is a positive feature as it increases the potential to capture the transient market.
SECTION 5: TRUCK STOP MARKET POTENTIAL

5.1 Introduction

The purpose of this section is to determine the market’s ability to sustain a truck stop development in the proximity of Volksrust in Pixley Ka Seme Local Municipality. The section will focus on transport industry trends, truck stop market trends as well as the feasibility assessment with regards to demand and supply.

5.2 Development Concept

As mentioned in Section 1 the Truck Stop will be part of Phase 1 of the development. The size of the Subject Site is sufficient to be utilised for the proposed activities with ample of free space for the envisaged activities, vehicular movement and parking.

The development of the Truck Stop will include, parking, ablution, convenient shop, workshop and site offices. For easy and convenient access from the parked vehicles, five, suitably designed, convenient and functional, ablution only facilities for the vehicle operators will be developed on the proposed site, providing for both male and female patrons. The buildings for the ablution facilities will each be approximately 70m² in size.

More often than not, heavy vehicles, travelling the long hours on the road, encounter some minor faults on the vehicles. To assist the vehicle operators with these faults, a small workshop for minor repairs is proposed on the site. Minor repairs are to include battery charging or replacement, wheel changes, light repairs on the vehicles, load securing facilities, minor engine and vehicle lubrication, exhaust and vacuum system repairs, but will exclude major work and services to vehicle engines. A building of 250m² for the workshop function is proposed and to be located in the north-west corner of the site.

Electrical power points will be provided on site for electricity to be supplied to some vehicles that require electricity, for instance some cooling and refrigerator trucks.

5.3 Transport Industry Trends

This subsection will focus on the international and local transport industry trends with regards to freight movement and corridor developments that affect the trucking and freight hauling industry.

5.3.1 Southern African Corridors

In southern Africa, much of the freight that moves between North and South (e.g. the North-South Corridor, which links South Africa to the countries to its north), as well as between East and West (e.g.
the Walvis Bay Corridor, which links the port of Walvis Bay to the central and southern SADC region, is by road. This is because road transport is more flexible, more reliable and usually cheaper per ton/kilometre than rail transport (International Organisation for Migration (IOM), 2010).

Figure 5.1: Southern African Corridor Routes

Source: International Organisation for Migration (IOM), 2010

However, due to various infrastructural challenges and/or delays experienced at border crossings, the work of transporting goods from one area to another is neither an easy nor a fast one. Thus, many truck stops or ‘hot spots’ have sprung up along the routes and borders to cater for long distance truck drivers and others traveling along transport corridors. One example is the travel from Malawi to South Africa. The distance between Lilongwe and Johannesburg is about 1,900 km, which, traveling at an average speed of 60 km per hour and driving at eight hours per day, should take less than four days. However, the maximum number of journeys a truck can do on this route, if all goes well, is two a month, with most time spent waiting rather than traveling.

The main southern Africa transport corridors are as follows:

- Beira and Zambezi Development Corridors
- Limpopo Development Corridor
- Lobito Development Corridor
- Maputo Development Corridor
- Mtwara Development Corridor
- Nacala Development Corridor
- North-South Development Corridor (also known as the Durban Corridor)
- Tazara Development Corridor (also known as the Dar es Salaam Corridor)
- Walvis Bay Development Corridor
5.3.2 South African Corridors and Freight Trends

Government recently adopted the Infrastructure Plan that is expected to transform the economic landscape of the country and strengthen the delivery of basic services to the population. Major investments will be made in South Africa’s road network to, amongst others; help the country unlock the economic potential of areas that are currently hard to access due to poor transport links.

Government has developed 18 Strategic Integrated Projects - to support economic development and address service delivery - with one of them being the development of the Durban-Free State-Gauteng industrial and logistics corridor. This will improve the flow of goods and services around the country, which will ultimately lead to more economical ways of doing business (Presidential Planning Commission, 2012).

Figure 5.2 presents a need analysis of infrastructure to support economic development and trade whilst simultaneously addressing the needs of the poor. This illustration is made to determine the critical areas of infrastructure investments that need to happen.

Figure 5.2: Infrastructure Need Analysis, 2012

Source: Presidential Planning Commission, 2012
Development of Harbours

Key among the KwaZulu-Natal’s superior physical infrastructure facilities are the two strategically situated ports of Durban and Richards Bay. Together, the two ports handle nearly 80% of South Africa’s cargo tonnage. Here is the base of a transportation and freight logistics complex which will provide an effective platform for forging trade linkages between provinces within the country, with neighbouring states and the rest of the world (particularly the Asian and South American sub-continents), offering the province considerable investment spin-offs and opportunities.

Indicators:

- Total volume of all twenty-foot Equivalent Units (TEU’s) landed and shipped through KwaZulu-Natal (excluding transhipments and empties) Success should be indicated from year to year by an increasing figure – starting with the 2012 baseline of 2.5million units, rising to 6million in 2020 and 9million in 2030.

- Container-handling rates (moves per gross crane hour), the baseline is 26 moves per hour. In 2020 this should improve to 33 moves per hour and in 2030 it should be at 40 moves per hour.

The Port of Durban will undergo major upgrades over the next few decades to accommodate the growing demand of local and international consumer goods and resources. Figure 5.3 illustrates the container expansion sequence over the next 30 years.

Figure 5.3: Port of Durban Container Expansion Sequence

Source: Transnet Group Planning, April 2011
This significant increase in container expansion will be needed to keep up with the ever increasing demand. Figure 5.4 illustrates the demand for containers over the next 30 years as projected by Transnet Group Planning, April 2011.

**Figure 5.4: Port of Durban Container Demand Forecast**

The increase in freight that would have to be hauled over the next 30 years as projected by Transnet will result in a high demand for rail and road freight movement between the economic centres and the ports of entry. **Due to the lack of sufficient rail infrastructure the initial demand will have to be supplied by road freight in the form of trucks to transport the goods and resources to the various destinations.**

**Inland Multi-Modal Logistics Hub (Inland Ports)**

Modal integration is encouraged and the movement of some goods from road to rail emphasised, so to increase the efficient utilization of infrastructure. The KZN strategy ought to encompass all transportation modes including air, rail, road and pipelines. There is a continual debate about the potential for switching road freight cargo back to rail as a more desirable form of transport, from the perspective of fuel efficiency, environmental friendliness, reduction of externalities such as congestion and accidents and improvement to utilisation by the state owned railway system. There has been a suggestion that the railway system should be rebuilt to the wider “Standard Gauge” to improve options for inter-modality. In the longer term, it may be possible to develop systems for intermodal transport of a range of different commodities, but this would only be possible within a rail operation that is geared to customer demand in relation to general freight. The focus of the state railway system has been developed by government policy and is unlikely to change without very significant institutional and organisational reform of the structure and management of the railway system of the country (KwaZulu-Natal Provincial Growth and Development Plan, 2012).
A feasibility study was completed for a The Cato Ridge Intermodal Inland Terminal. The inland hub will make freight transport more efficient and reduce traffic issues with trucks in the greater Durban region.

5.4 Truck Stop Market Trends

As part of the investigation interviews with existing truck stops were conducted. Table 5.1 illustrates the responses given by the truck stop managers during the interviews.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Highway Junction, Harrismith</th>
<th>Lembobo Truck Stop</th>
<th>Cool Ideas Truck Stop</th>
<th>Marian Hill Truck Stop, Pinetown</th>
<th>Tugela Truck Inn, Ladysmith</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What facilities do you have at the truck stop?</td>
<td>Diesel, Laundromat,</td>
<td>Convenience store,</td>
<td>Diesel, Automatic truck</td>
<td>Overnight parking,</td>
<td>Fuel, food, ablation</td>
</tr>
<tr>
<td></td>
<td>shower facilities,</td>
<td>laundry, bathroom</td>
<td>wash, restaurant,</td>
<td>showers, T.V, snooker</td>
<td>and parking</td>
</tr>
<tr>
<td></td>
<td>restaurants, secured</td>
<td>facilities, truck</td>
<td>ablution facilities</td>
<td>tables, convenience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>parking, convenience</td>
<td>wash, parking</td>
<td></td>
<td>store, diesel, security</td>
<td></td>
</tr>
<tr>
<td></td>
<td>store, ablution blocks,</td>
<td>facilities and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>truck workshops, patrol</td>
<td>ATM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>dogs, cemented parking are</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. How does your operational model work? Do you charge trucks for the</td>
<td>Per night R108 for normal</td>
<td>R3 per Hour, first</td>
<td>R10 per hour or R150 for</td>
<td>6pm to 6am is R120</td>
<td>R100 per night per truck.</td>
</tr>
<tr>
<td>night or are you solely reliant on the money they spend at the truck stop?</td>
<td>trucks R165 per night</td>
<td>15min are free</td>
<td>24 hours</td>
<td></td>
<td>Under one hour its free</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 3. How many trucks on average make use of your truck stop each day?

<table>
<thead>
<tr>
<th>Trucks per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 trucks</td>
</tr>
<tr>
<td>±200 trucks</td>
</tr>
<tr>
<td>Peak season 150 trucks and 40 washes a day</td>
</tr>
<tr>
<td>Monday to Thursday ±70 trucks and weekends 120 to 140 trucks</td>
</tr>
<tr>
<td>200 trucks</td>
</tr>
</tbody>
</table>

### 4. How does the trucking industry influence the economy?

<table>
<thead>
<tr>
<th>Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>High flow of goods and resources</td>
</tr>
<tr>
<td>Good influence, supply transport and freight hauling services. Getting goods and resources to their destinations.</td>
</tr>
<tr>
<td>Creates business opportunities and an enabling environment for the economy.</td>
</tr>
<tr>
<td>Important in the distribution of goods</td>
</tr>
<tr>
<td>Important in transporting food and other essential products such as fuel to meet every day needs</td>
</tr>
</tbody>
</table>

### 5. How does the current state of roads affect the trucking industry?

<table>
<thead>
<tr>
<th>Roads Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads are in good condition with N5 being recently renovated</td>
</tr>
<tr>
<td>Roads are on toll route, so in good condition, mainly trucks going to Mozambique.</td>
</tr>
<tr>
<td>Roads are in good condition</td>
</tr>
<tr>
<td>Roads are in good condition</td>
</tr>
<tr>
<td>No influence</td>
</tr>
</tbody>
</table>

From the interviews it is clear that there is a definite need for Truck Stops on South African roads, especially on the major freight hauling routes. The existing truck stops are all doing well financially and have daily usage figures of between 150 and 300 trucks a day. Some of the most important facilities are:

- Secured Parking
- Ablutions
- Restaurant/Food Store
- Truck Wash
- Workshop

The next section will examine the interviews conducted with large trucking and logistics companies.
5.5 Trucking and Logistics Company Feedback

As the companies indicated that they would like to remain anonymous with regards to their feedback, the companies will be given designated names. Table 5.2 illustrates the responses given during the interview.

Table 5.2: Trucking and Logistics Companies Feedback

<table>
<thead>
<tr>
<th>Questions</th>
<th>Company A</th>
<th>Company B</th>
<th>Company C</th>
<th>Company D</th>
<th>Company E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In which area and routes do you currently operate?</td>
<td>Witbank, Durban, mainly Natal hubs</td>
<td>Mainly Polokwane, Limpopo</td>
<td>Durban, Bloemfontein, P.E</td>
<td>Richards Bay and Mariensburg</td>
<td>Whole of SA and Botswana</td>
</tr>
<tr>
<td>2. How many trucks does your company currently operate?</td>
<td>55 own vehicles and 100 subcontracts</td>
<td>Cannot give out information</td>
<td>48 Trucks in different departments</td>
<td>50 trucks in different departments</td>
<td>65</td>
</tr>
<tr>
<td>3. How does the current state of roads affect the trucking industry?</td>
<td>The company tries to maintain some, if road is too bad they get permission to fix it.</td>
<td>Not so much</td>
<td>Roads are in good conditions</td>
<td>Moderate influence</td>
<td>Not so much</td>
</tr>
<tr>
<td>4. How does the trucking industry influence the economy?</td>
<td>High influence in transport goods which in turn generates revenue</td>
<td>Very big influence with regards to movement of goods and services</td>
<td>Big influence in flowing economy</td>
<td>Major and positive influence, create jobs</td>
<td>Flow of goods and money</td>
</tr>
<tr>
<td>5. What are your company’s rules regarding long haul routes? Do your drivers stop and sleep over on these long hauls?</td>
<td>Abide to law that after 8 hours, driver is expected to rest. If local area, the change drivers</td>
<td>Yes, the stop an sleepover</td>
<td>Yes</td>
<td>Yes to avoid dry burn, drivers stop at 10pm and drive at 4am</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### 6. Do they make use of Truck Stops or do they stop in or near towns?

<table>
<thead>
<tr>
<th>Truck stops</th>
<th>Truck stops</th>
<th>Truck stops</th>
<th>Truck Stops</th>
<th>Truck stops, if driver too tired they park and sleep at a nearby town</th>
</tr>
</thead>
</table>

### 7. If a safe truck stop was available along the operational routes at a reasonable price, will your company consider utilising such a facility?

| There is sufficient truck stops already on the routes | Sufficient truck stops | There is more than enough, especially on the Durban route | Maybe | Yes |

### 8. What type of facilities would you like to see at such a truck stop? (Refuelling, ablutions, food store, workshop, etc.)

| Basic sleep and eat facilities, workshop | Ablution, secure parking, food stores | Entertainment facilities, | Showers, ablution, workshop | Shower, toilets, shops |

### 9. How and where do your trucks refuel?

| Own depots | Own diesel facilities in their own yard | Imperial division companies such as Shell | Mariansburg | Imperial box services |

All five of the interviewed companies indicated that they make use of Truck Stops during the night on their long haul routes. The most important facilities that they require at these Truck Stops are:

- Secured Parking
- Ablution and shower
- Food services

Even though most companies indicated that the major routes have enough Truck Stops already, especially the N3 to Durban, they mentioned that some of the smaller routes still need Truck Stops as there are none and drivers are forced to stop next to the road or in towns. This poses a security risk for the companies and they would rather make use of a Truck Stop,
5.6 Market Supply

With regards to the proposed Meerkat Truck Stop there is no competing facility within a minimum radius of 50km. There is no Truck Stop with secure parking and ablution facilities in Volksrust, trucks are forced to park in town as illustrated in the following photos.

Figure 5.5: Photos of Trucks parking in Volksrust

On an average night in Volksrust, there will be between 80 and 150 trucks overnighting on the streets of the town.

5.7 Market Demand

This section will determine the demand for establishing a Truck Stop in the Volksrust area. The market demand will be determined by way of a traffic count as well as socio-economic factors and an increase in freight demand in South Africa and the SADC region.

The preferred route for heavy vehicle between Gauteng and the eastern coast port of KwaZulu-Natal is the N3 National Road but due to the increase traffic volumes, the increased toll road fees and the upgraded N11 National road between Volksrust, Newcastle and Ladysmith, caused an increase in
heavy vehicle traffic between Gauteng and the KZN port cities via Volksrust. A further contributing factor could be the unpredictable bottleneck situation at Van Reenen’s Pass in bad weather, which could sometimes cause hours, and even days, of delay in reaching the destination. The upgraded N1 national road between Volksrust and Ermelo has also recently been upgraded contributing to an increased heavy vehicle traffic volume between the Mpumalanga Coal hub (Middleburg, Witbank, Secunda area) and the KZN coastal ports. The later preferred route is along the N2 via Piet Retief and Pongola or Vryheid, however recently also via Volksrust, Utrecht and Vryheid. In comparison to the container couriers from Gauteng, not many of the heavy vehicles from the Mpumalanga Coal Belt, of which a big percentage transport bulk raw material, stopover in Volksrust at night.

Some of the contributing factors for heavy vehicles to favour parking in Volksrust overnight could be as follows:

- Convenient and suitable travelling time from Gauteng (3.5 hours to 4 hours), leaving at business closing time, to have a break for a rest before the decent over the Laingsnek pass at Amajuba, 8km out of Volksrust, with sufficient time after the rest to reach the destination in Durban or Richards Bay 6 to 8 hours later and in time for opening of business (Laingsnek pass is known for high collision and accident rates for heavy vehicles caused by driver’s fatigue);
- Convenient and suitable location to check machine and cargo for road safety purposes before the decent and stretch to the coast;

5.7.1 Traffic Count

A traffic count was conducted at the location of the proposed site by WSP Civil and Structural Engineers on 21 May 2012.

The traffic count for vehicles passing the site over a 12 hour period indicated that the total 12 hour count for all vehicles were 2,079 vehicles with a 24 hour estimate of 2,495. The heavy vehicle count for 12 hours was 556 with an estimated 667 over a 24 hour period.

The heavy vehicle percentage on the R23 route pass the site makes up 27% of the total number of vehicles travelling the route; this is a significant percentage and indicates that the route is a freight haul route. The R23 is a popular alternative route for heavy vehicles trying to avoid paying the high toll rates on the N3.

5.7.2 Socio-Economic Factors

The heavy vehicles parking in Volksrust overnight cause numerous economic and social challenges for the town and its immediate surrounding and further beyond. Some of the negative impact the truck have are:

- Traffic obstructions are caused by heavy vehicles parked bumper to bumper along main roads, and sometimes double parked next to each other, causing only a single lane open for through traffic, contributing to an unsafe traffic situation for other road users;
Heavy vehicles competing for safe and secure parking space with sufficient lighting and surveillance, cause heavy vehicle congestion along the limited length of the roadway which is illuminated in town;

Heavy vehicles competing for safe parking space, illegally venture of the roadway and with their heavy loads and tight turning manoeuvres damage the roads, not designed or constructed for the weight, and cause tremendous damage to the road surface, sub base, curbing and road infrastructure and furniture, of which the costly repairs of the road is for the expense of the public at large (see Figure 5.6);

Stopping and starting of heavy vehicles parked in the residential suburb cause tremendous noise and air pollution during time of rest for the residents to unacceptable, tolerate levels and to irritation to inhabitants;

Heavy vehicles parked in the residential suburb cause obstruction for inhabitants to access residences, contributing to an increased level of irritation against the road users;

The lack of suitable facilities for the vehicle operators with regards to ablution, sanitation and cooking facilities contributes not only to the pollution of the environment, but also to an unhealthy situations with reduced levels of comfort for the vehicle operators and the public at large;

The lack of suitably developed facilities with sufficient space and accessibility contribute to a very limited number of heavy vehicles refuelling in Volksrust, reducing the exposure to the specific industry for the town;

Vehicle operators being bored and seek entertainment cause an influx of ‘night workers’ to the area causing tremendous social and health problems.
On the positive impact side there is the fact that there is a great opportunity for Volksrust to share in the heavy vehicle R13 billion economic activities of South Africa, by providing proper facilities for the vehicles and their crew in a suitably located facility. Some of the positive aspects for the town to accommodate the heavy vehicles at a secure and proper developed facility are as follows:

- Provisions of suitably located and secure parking facilities with provided amenities will serve the truck crew, will reduce the number of heavy vehicles parked in town and reduce accidents;
- The reduced time spend by the heavy vehicles in the town will reduce the overall fuel consumption of the vehicles and reduce the volume of exhaust emissions related thereto, which will reduce the air pollution and carbon footprint of the vehicles;
- The reduced number of parked heavy vehicles in town and the therewith related manoeuvring activities for secure parking will reduce the impact on the main roads and the roads in the residential area, and therewith reducing the roads maintenance cost to the public;
- Security fenced and illuminated parking area with 24 hour surveillance will provide a safe area for the vehicles, their cargo and crew, which will increase the comfort level of the drivers and thereby reduce the level of road fatigue and therewith the driver’s attitude on the road;
- Secure and surveillance at the parking area will reduce the access for ‘nightworkers’;
- The provision of proper facilities for the heavy vehicles in Volksrust could possibly cause an increase in the use by heavy vehicles from other areas and therewith possibly increase the economic base of the Volksrust area with possible spin-offs to other related activities to the benefit and increased employment and economic activities and related services.
- The Meerkat Truck Stop will generate approximately 200 jobs during the construction period and 30 jobs during the operational period. The project will also invest R35 million in the development providing a big investment into the local economy.

According to the local South African Police Service, there were 43 accidents involving trucks between January 2012 and November 2012 in and around the Volksrust area. The development of a truck stop will reduce the number of accidents as trucks will no longer have to park and obstruct vehicles in the streets of Volksrust.

5.7.3 Transport Industry and Freight Trends

As mentioned in Section 5.2 of this report, the increasing demand for goods and services is resulting in an ever increasing demand for transport and freight services. Due to the lack of sufficient freight rail infrastructure in South Africa a large component of freight haul is done by trucks, these trucks need to stop for rest and repairs and would preferably do so at Truck Stops which are secure and provide the necessary facilities for them.

The movement of freight by trucks is going to increase significantly over the next 30 years as port expansions and upgrading continues as well as the development of inland multi-modal terminal hubs. The necessary infrastructure with regards to roads is very important and government is tending to it. It is also very important to provide Truck Stops and Filling Stations as new routes and increased volumes will
place strain on the existing facilities. With the new toll roads and every increasing toll fees more drivers and companies will start to look for alternative routes that will make financially more sense.

5.8 Feasibility Assessment

Based on the subsections of this chapter it is clear that there is a need for a Truck Stop in the Volksrust area. The traffic count determined that over 660 trucks pass by the site on a daily rate and there is already between 100 and 150 trucks overnighting on the streets of Volksrust. The development of the Meerkat Truck Stop, with space for 150 trucks, therefore makes sense and based on the demand factors raised in this section it should be feasible and sustainable.
SECTION 6: FILLING STATION MARKET POTENTIAL

Phase 2 of the development will be a fuel retail facility (filling station). Demand analysis determines the profitability of the development of a filling station at the proposed location by indicating the extent of current and future support from the local and transient population. The demand for a filling station is determined by estimating the quantity of fuel sales that can be generated at the new filling station. The following sub-sections will illustrate the potential fuel sales by means of various functions and calculations.

6.1 Market Supply Analysis

The purpose of this sub-section is to summarise the findings of the petrol station supply assessment conducted in November 2012. The effective local supply refers to filling stations present within the trade area that will compete with the proposed petrol station and its auxiliary functions whereas the regional supply refers to competing facilities situated on main roads from which the proposed facility are likely to attract consumers.

6.1.1 Local Supply

The local supply refers to filling stations situated within a five kilometre radius of the proposed development. It is not noted as direct competitive supply as the proposed filling station will play a more important role in the regional landscape and specifically for heavy vehicles. However, it is still of paramount importance to note the location of these local facilities considering that the neighbouring consumer market may utilise these filling stations.

The local filling station market comprise of 6 filling stations and 3 other fuel dispensing facilities.

Figure 6.1: Retail Filling Stations in Volkrust

Source: Map Studio, 2012
Most of the filling stations are located either on Nelson Mandela Drive or on Joubert Streets as they are the main routes in Volksrust. None of the existing facilities are suitable for trucks and the trucks are finding it very difficult to refuel at any of these filling stations.

### Table 6.1: Local Supply Summary

<table>
<thead>
<tr>
<th>Franchise</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Retail Filling Station</strong></td>
<td></td>
</tr>
<tr>
<td>Shell</td>
<td>Smit Motors</td>
</tr>
<tr>
<td>Total</td>
<td>Total Volksrust</td>
</tr>
<tr>
<td>Engen</td>
<td>Engen Midway</td>
</tr>
<tr>
<td>Engen</td>
<td>Engen Aveling [1 Plus]</td>
</tr>
<tr>
<td>Caltex</td>
<td>Caltex Yacoob’s Auto</td>
</tr>
<tr>
<td>Excel</td>
<td>Excel Amajuba Service Station</td>
</tr>
<tr>
<td><strong>Other Fuel Dispensing Outlets</strong></td>
<td></td>
</tr>
<tr>
<td>BKB</td>
<td>Caltex Pump</td>
</tr>
<tr>
<td>Afrig</td>
<td>Total Pump</td>
</tr>
<tr>
<td>FPS Bulk Diesel</td>
<td>Bulk Diesel sales</td>
</tr>
</tbody>
</table>

Source: Urban-Econ Supply Survey, November 2012

### Figure 6.2: Photos of local filling stations

[Images of filling stations]
For the proposed development, which will have a specialised focus on heavy vehicles like trucks, to be regarded as feasible with sufficient capacity to compete with the existing facilities the following requirements needs to be met:

- The provision of four or more pumps would be beneficial for the proposed development to be on par with the average existing filling stations
- Easy access for trucks and other heavy vehicles with enough manoeuvrability to get in and out of the filling station
- Include at least a convenience store, ATM machine and restroom facilities.

6.2 Market Demand Analysis

In this sub-section the market demand for fuel will be determined as a function of a number of factors. The market demand analysis determines the total demand (expressed as monthly fuel sales in litres) for a filling station at the proposed location which is determined as a function of transient traffic passing the proposed development on a regular basis. For the purpose of this study the transient market would consist of the traffic passing the site daily heading to and from Volksrust on the R23.

Factors utilised to determine the market demand include the following:

- Total vehicles
- Inception rate
- Average fill
- Trading days per month

6.2.1 Overview of the Market Demand Factors

a) Total Number of Vehicles

The total number of vehicles refers to the quantity of light and heavy vehicles passing the proposed development site in a 24-hour period. The original source for the total number of vehicles is obtained
from a traffic count conducted by WSP Civil and Structural Engineers in May 2012. Table 6.2 provides the total number of vehicles passing the site on a 24-hour period based on the surveys of the WSP Engineers.

### Table 6.2: Traffic Count on the R23

<table>
<thead>
<tr>
<th></th>
<th>Light Vehicles</th>
<th>Taxis</th>
<th>Heavy Vehicles</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 Hour Survey</td>
<td>1,319</td>
<td>204</td>
<td>556</td>
<td>2,079</td>
</tr>
<tr>
<td>24 Hour Estimate</td>
<td>1,583</td>
<td>245</td>
<td>667</td>
<td>2,495</td>
</tr>
</tbody>
</table>

Source: WSP Engineers Traffic Count, 21 May 2012

A total of 2,495 vehicles pass the site in an average 24 hour period, the majority is light vehicles with a substantial heavy vehicle count as well.

**b) Interception rate**

The interception rate refers to the percentage of the total transient traffic which would turn into the proposed filling station. The interception rate is estimated between 2% and 5%. This figure is based on the research of the National Roads Agency and is regarded as industry standard.

For the purpose of the filling station calculations two scenarios will be utilised to allow for potential deviations in terms of the interception rates. The first scenario will utilise a more conservative interception figure of 2% while the second scenario will utilise a more standard interception rate of 4%.

**c) Average fill**

The average fill indicates the average quantity of fuel purchased per vehicle stopping at a filling station. The average fill is derived from specialist fuel capacity surveys conducted and differs for light and heavy vehicles. The average light vehicle fill varies between 25 and 35 litres per vehicle, depending on the distance between filling stations as well as the area’s income profile. The average fill for heavy vehicles varies between 80 and 120 litres depending on the particular site’s accessibility for larger heavy vehicles and busses. Based on these broad guidelines the following average fill will be utilised for the proposed filling station as illustrated in Table 6.3.

### Table 6.3: Average Vehicle Fill

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Average Fill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Vehicles</td>
<td>28 litres</td>
</tr>
<tr>
<td>Heavy Vehicles</td>
<td>100 litres</td>
</tr>
</tbody>
</table>

Source: Traffic Survey, October 2012
6.2.2 Method

As previously mentioned, the demand for a new filling station is quantified by expressing the total fuel sales within the local trading area. The demand is generated by the number of transient vehicles that pass the site. These vehicles represent potential customers. Although demand that will be generated by the local market residing in the surrounding influence area will also contribute to the fuel demand, these calculations will not be included to avoid possible double counting.

The transient market demand determines the fuel volumes consumed by passing vehicles. This figure is calculated with the interaction of the number of vehicles passing the site, the inception rate and the average fill. The following function indicates the method to calculate the transient market fuel demand:

\[ D_{pv} = f(v; s; af; d) \]

- “Dpv” represents the fuel volumes
- “v” indicates the number of passing vehicles
- “s” indicates the inception rate (%)
- “af” illustrates the average fill
- “d” represents the number of days

Table 6.4 presents the conservative scenario demand calculations.

<table>
<thead>
<tr>
<th>Table 6.4: Conservative monthly fuel sales</th>
<th>Light Vehicles</th>
<th>Heavy Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of passing vehicles in a 24-hour period</td>
<td>1,828</td>
<td>667</td>
</tr>
<tr>
<td>Interception Rate (%)</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Average Fill</td>
<td>28l</td>
<td>100l</td>
</tr>
<tr>
<td>Trading Days</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Monthly Fuel Sales</td>
<td>30,710 litres</td>
<td>40,020 litres</td>
</tr>
<tr>
<td>Total</td>
<td>70,730 litres</td>
<td></td>
</tr>
</tbody>
</table>

Table 6.5 presents the realistic scenario demand calculations.

<table>
<thead>
<tr>
<th>Table 6.5: Standard monthly fuel sales</th>
<th>Light Vehicles</th>
<th>Heavy Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of passing vehicles in a 24-hour period</td>
<td>1,828</td>
<td>667</td>
</tr>
<tr>
<td>Interception Rate (%)</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Average Fill</td>
<td>28l</td>
<td>100l</td>
</tr>
<tr>
<td>Trading Days</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Monthly Fuel Sales</td>
<td>61,421 litres</td>
<td>80,040 litres</td>
</tr>
<tr>
<td>Total</td>
<td>141,461 litres</td>
<td></td>
</tr>
</tbody>
</table>
Fuel demand is greatly influenced by the inception rate. When the conservative scenario is compared to the realistic scenario a difference of 70,731 litres is evident. It is anticipated that the conservative scenario underestimates the market demand. Therefore, it is conservatively expected that the proposed facility will sell at least 70,730 litres to 141,461 litres per month.

6.3 Implication

According to the accepted industry standard, a filling station should sell approximately 350,000 litres of fuel to be regarded as feasible. The proposed filling station falls well short of this mark and is therefore not feasible at this stage. For the filling station to be feasible the transient traffic volumes will have to increase to around 10,000 vehicles per day.
SECTION 7: CONCLUSION AND RECOMMENDATIONS

The report offers a final summary of development guidelines which will improve the sustainability and profitability of the planned facility. Recommendations are based on important research findings and the highlighted development implications. A summary of the research findings and the main competitive advantages of the proposed development culminate in the recommendations provided.

7.1 Research Findings

The overall research findings can be summarised in the following classification:

- Economic indicators
- Local population socio-economic characteristics

The economic profile of the market area indicates a potential recovery phase for the local transport sector with an upturn in transportation related activities expected within the Province and district. The current provincial economic situation and its outlook, combined with the prospect of sustainable growth for the local economy indicates favourable conditions and good timing for development considering that vehicle sales and freight transport has been increasing over the last three years.

Volksrust and Pixley Ka Seme LM is not taking advantage of the growing transport industry and the lack of facilities like truck stops, logistics companies and warehouses are hampering growth in this sector.

The socio-economic profile presents a growing population with increased levels of education and is characterised as a low-middle income area.

7.2 (PHASE 1) Truck Stop Findings and Recommendations

The report has stated that there is a definite demand for truck stop in the Volksrust region. The town has on average between 100 and 150 trucks that overnight on the streets of Volksrust which results in numerous socio-economic and economic impacts. The findings with regard to the proposed Meerkat Truck Stop are as follows:

- The R23 is a popular alternative route for freight hauling trucks trying to avoid the busy N3 and its ever increasing toll fees
- The local municipality, Pixley Ka Seme Local Municipality has approved the development of the Meerkat Truck Stop and there is significant buy-in from the political leaders in the municipality
- The truck stop will alleviate a number of headaches that the residents of Volksrust experience due to the trucks parking on neighbourhood streets at night, these include:
  - Less congestion and obstructions
  - Reduce the number of accidents involving trucks
Less damage to roads that are not designed for trucks to stop and transport goods

Reduce the emissions of exhaust fumes and noise levels from trucks stopping and starting

Solve the issue of trucks struggling to refuel due to insufficient refuelling facilities in town

The increased demand for goods and services in South Africa has increased the demand for freight transport significantly and with the upgrading and expansion of the Durban and Richardsbaai ports the movement of freight between these ports and the inland provinces of Gauteng, Mpumalanga, Limpopo and North West will continue to grow

7.2.2 Recommendations

In order to accommodate the current influx of heavy vehicles to Volksrust and provide for future expansion, when the need arises, the desired location for such an activity is of crucial importance. The proposed site of the Meerkat Truck Stop should ideally satisfy some of the following, however not limited to such, criteria:

- Easy and convenient direct access to movement corridor and traffic arteries
- Sufficient parking and manoeuvre space for the long haul heavy vehicles
- Secure parking and convenience facilities for man and machine
- Provide sufficient commodities for a sustainable development
- Have sufficient space for future expansion
- Not be directly or easily accessible to member of the community not directly related to the services and benefit of the vehicles
- Consider possible future expansion of the town and mayor road networks
- Consider the physical character of the environment on and directly immediate to the proposed development
- Consider the impact of the proposed development on the environment, including social and economic aspects;
- Consider the imposed traffic situation on the direct vicinity of the site
- Provide enough parking facilities for 150 trucks

Based on market research it is proposed that the Truck Stop ask a fee of R100 per night or R10 an hour with the first 15 minutes free. It also recommended that at least the following facilities be incorporated into the development:

- Secured parking facilities for 150 trucks
- Ablution Facilities
- Laundrette
- Fast Food and/or Food Store
- Workshop for small repairs and maintenance of trucks
- Convenience Shop
7.3 (PHASE 2) Filling Station Findings and Recommendations

This report determined that at the present state there is not sufficient demand for a filling station at the proposed site. The traffic volumes of 2,495 vehicles a day is not sufficient to sustain a filling station. The estimated fuel sales of between 70,000 and 141,000 litres a month is far below the industry standard of 350,000 litres a month.

7.3.1 Recommendations

As the primary focus of the development is the Meerkat Truck Stop, it is recommended that instead of a filling station, two diesel dispensing pumps be included as phase 2 of the development to cater for the trucks at Meerkat Truck Stop. The fuel dispensing pumps must be located in such a way that trucks can easily manoeuvre in and out of the area designated for refuelling.

It is also recommended that the owners of the truck stop contact trucking and logistics companies that make use of the truck stop to enter into negotiations to supply fuel to the trucks that pass along the route.

7.4 Implications of not developing the Meerkat Truck Stop

Should the development not go ahead there will be a number of implications for the town of Volksrust, these include:

- Continuous destruction of local roads within the town and neighbourhoods as a result of heavy vehicles parking and manoeuvring on the local streets due to the lack of transport facilities like a truck stop
- Increased number of accidents as a result of congestion and obstructions caused by trucks parking overnight in town or attempting to refuel at existing fuel stations not suitable for the refuelling of trucks
- Increase in noise and air pollution around residential neighbourhoods where the trucks park to overnight
- The proposed investment of R35 million into the project will bring much needed economic stimulation and job creation for up to 200 people during the construction period, should the project not go ahead this will not realise and the further decline of the local transport sector becomes a reality
- Pixley Ka Seme is the only region that has declining growth in terms of its transportation sector, whereas other municipalities in Gert Sibande and the province are experiencing growth in excess of 4% in the transport sector. Without the necessary investment of transportation facilities like this truck stop the trend will continue