



# Parkdene Filling Station

## Economic Impact Assessment Report

**Draft Report**

**2012**

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## Acronym List:

<b>ATM</b>	<b>Automatic Teller Machine</b>
<b>BP</b>	<b>Beyond Petroleum</b>
<b>CAPEX</b>	<b>Capital Expenditure</b>
<b>CBD</b>	<b>Central Business District</b>
<b>CC</b>	<b>Close Corporation</b>
<b>CSI</b>	<b>Corporate Social Investment</b>
<b>EIA</b>	<b>Environmental Impact Assessment</b>
<b>GGP</b>	<b>Gross Geographic Production</b>
<b>HDSA</b>	<b>Historically Disadvantaged South Africans</b>
<b>I/O</b>	<b>Input-Output Model</b>
<b>NEMA</b>	<b>National Environmental Management Act</b>
<b>OPEX</b>	<b>Operational Expenditure</b>
<b>StatsSA</b>	<b>Statistics South Africa</b>

# Section 1: Introduction

## 1.1 Introduction

Urban-Econ was appointed by Lenasia Builders & Developers CC to conduct empirical market research and compile a specialist market feasibility and economic impact assessment of the proposed Parkdene Filling Station development in George.

## 1.2 Project Brief

An independent, specialist analysis regarding the capacity of the local George market to sustain a filling station as well as the proposed developments impact on the existing filling station's in the area and in particular those located along Sandkraal Road and in the industrial area. The outcome of the study and analysis should include *inter alia*, the following aspects;

1. Delineation of the study market area
2. Socio-economic dynamics of the study area
3. Accessibility and visibility of the proposed filling station site
4. The development of alternatives and concepts
5. Market potential of the proposed filling station
6. Socio-economic impact of the filling station development during and after construction
7. Impact of the filling station within the local municipal area of George

Each of the above outcomes will form part of the research objectives and will be key deliverables of this report.

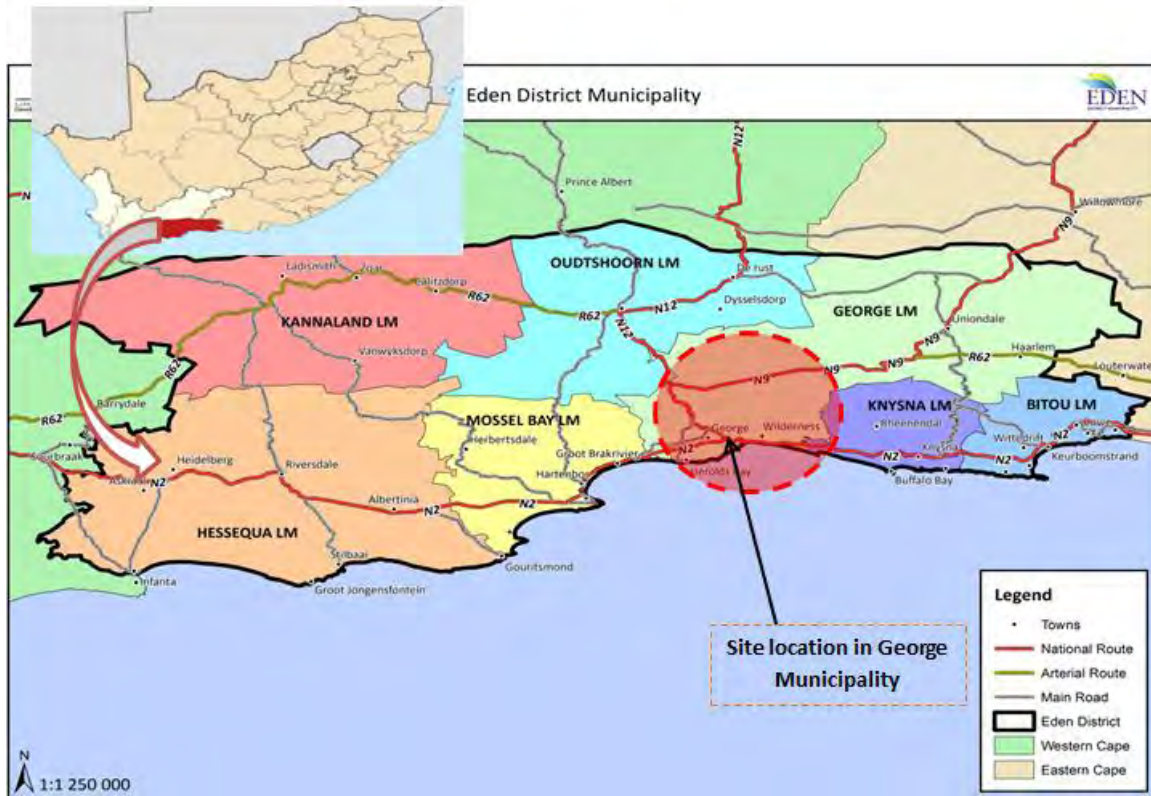
## 1.3 Study Area Delineation

The proposed site for the Parkdene Filling Station development is located on the corner of Sandkraal Road and Main Road in the Parkdene suburb in the George municipal area on erf 11221, which is on the south east corner of the traffic intersection just before the off-ramp onto the N2 highway. Currently the site is occupied by Life Community Services and has a lease agreement with the property owner until the proposed sale of the property. Life Community Services provides crèche facilities and after-school care and activities to children living in the nearby areas of Parkdene, Lawaai kamp and Maraiskamp. Life Community Services has been identified as a key stakeholder and has been informed about the proposed selling and development of the site.

**Map 1.1** shows a map of the study area and the location of the filling station.



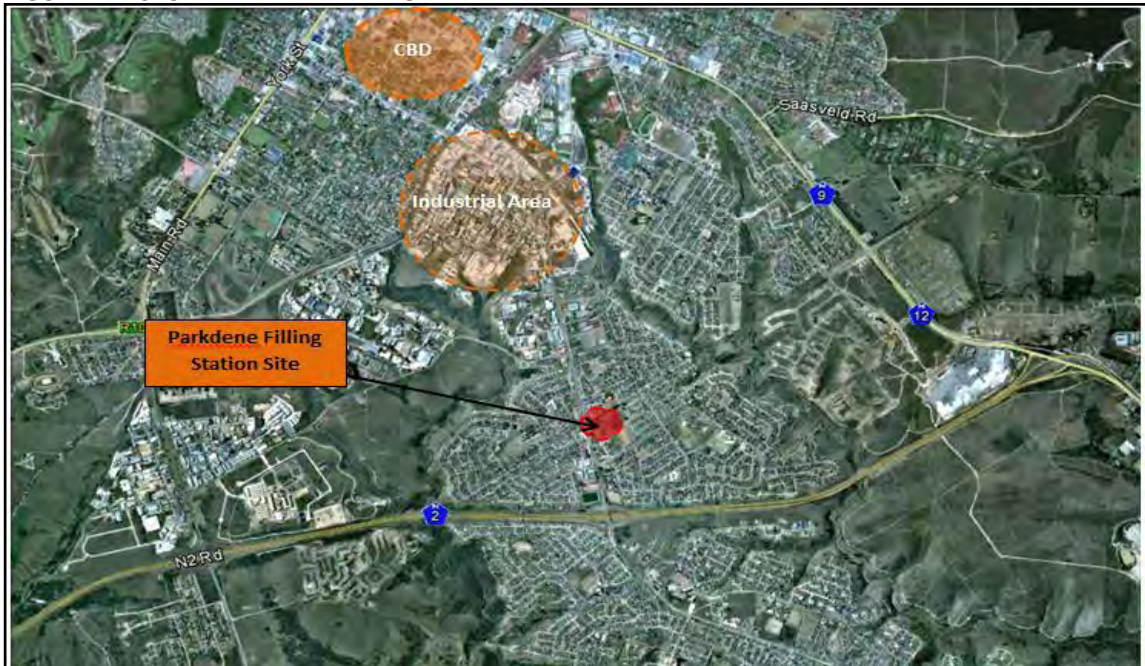
MAP 1.1: STUDY AREA DELINEATION



Source: Urban-Econ GIS Mapping, 2012)

Figure 1.1 below shows the location of the site in the city of George.

FIGURE 1.1: STUDY AREA DELINEATION



(Source: Google Earth, 2012)

The site is located in the suburb of Parkdene which is a traditionally low income area. The intended market for the filling station development has been earmarked as the transient truck and large vehicle market that access



the George Industrial area via Sandkraal Road from the N2, as well as the large vehicle market that use the Sandkraal Road from the industrial area to access the N2 highway.

#### 1.4 Report Outline

The remainder of the report is structured in terms of the following main headings;

- Section 2:** Development Concepts
- Section 3:** Socio Economic Profile
- Section 4:** Filling Station Market Analysis
- Section 5:** Economic Impact Analysis
- Section 6:** Impact Tables

## Section 2: Development Concept

### 2.1 Preamble

The purpose of the following chapter is to provide a more in-depth description of the site, as well as an assessment of site allocated for the proposed Parkdene Filling Station. The potential of the target market is not only influenced by the local markets characteristics and behaviour, but also by location factors such as accessibility, locality and the local development perspective.

The section will provide a clear description and breakdown of the proposed distribution of land on the site which will include the alternative layout concepts; followed by a more in-depth description of the site and its attributes such as locality and size, accessibility and visibility, the image and sense of place; and the existing and proposed services which site currently has and that which should still be put in place.

### 2.2 Proposed Distribution of Land on Site

The proposed development will be owned and operated as an individual business entity and will not form part of a larger development in the area. The development activities proposed for the Parkdene Filling Station development are listed below;

- A four island Filling Station catering for motor vehicles
- An island for the use by trucks
- Car-wash facility
- Basic retail or commercial facilities
- Parking bays (22 and canopy; and
- Access roads
- Public ablutions
- Staff facilities, bulk store, managers office and administration area
- The total area of the erf – 4, 995m<sup>2</sup>

The proposed development for which the feasibility study is being conducted will dispense both Octane and Diesel fuel, however the primary target market and development purpose of the Filling Station is to cater for and service trucks which make use of Sandkraal Road as well as the transient market which make use of the N2 highway running parallel to the south of the site. The proposed fuel capacity of the filling station is 115m<sup>3</sup> or 115, 000 litre storage capacities if all proposed underground storage tanks (UST's) are full and being utilised. The proposed filling station will make provision for motor vehicles as well as trucks. The total area of erf 11221 (on which the site for the development is located) is 4, 995m<sup>2</sup>.

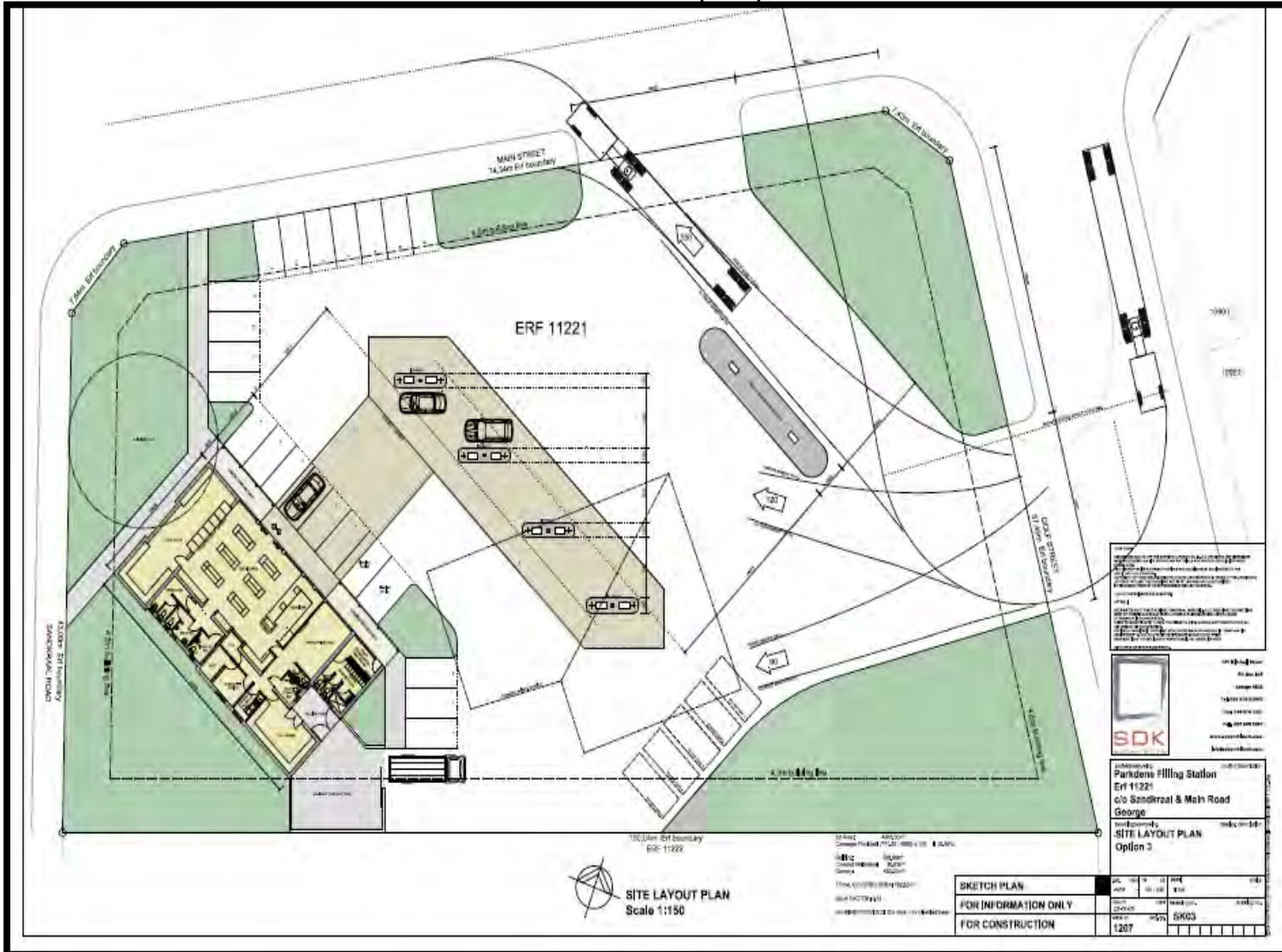
Three alternative development options have been proposed for the Parkdene Filling Station site. These three alternatives are;

1. Alternative 1 (the preferred layout)
2. Alternative 2; and
3. The "No-Go" alternative

Each of these alternative sites will be briefly discussed below, beginning with the preferred layout (alt 1) and alternative 2.

Figure 2.1 below shows the proposed layout which is preferred by the developers for the Parkdene Filling Station.

FIGURE 2.1: PARKDENE FILLING STATION PREFERRED LAYOUT (ALT 1)



(Source: SDK Architects, 2012)

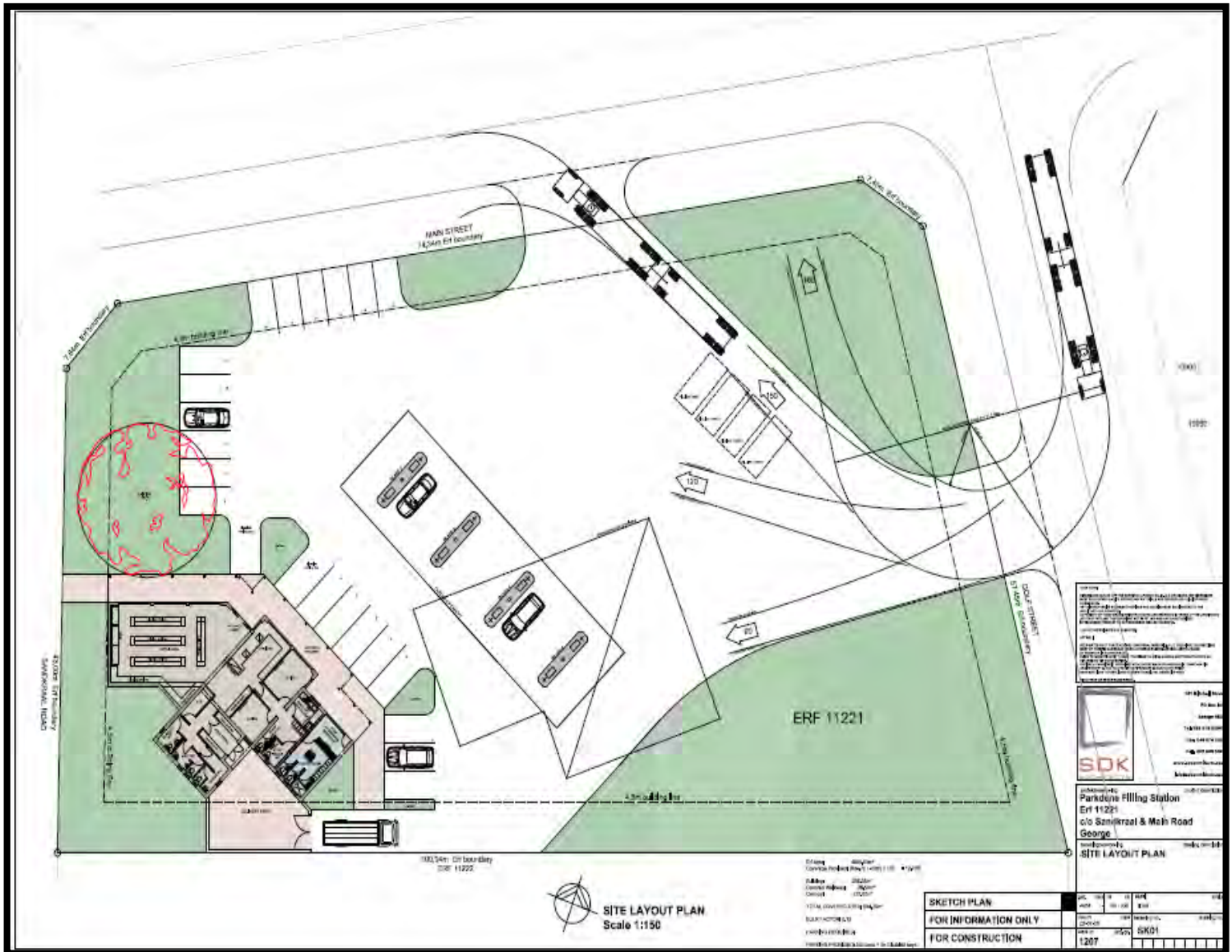
Figure 2.1 above shows the preferred layout of the proposed filling site located on the corner of Main Street (located just off Sandkraal Road) and Golf Street. The site itself is located on the north east corner of erf 11221 with one access road leading into Main Street and a second access road leading into Golf Street. The site itself will face in a northerly direction with the N2 highway located to the south and the George Industrial area and CBD located to the north. The total coverage of the site is 15.45% (771.95m<sup>2</sup>) of the 4, 995m<sup>2</sup> available and the land usage on the site is provided below;

- Building - 308.95m<sup>2</sup>
- Covered walkways - 30.80m<sup>2</sup>
- Canopy - 432.20m<sup>2</sup>
- Total covered area - 769.55m<sup>2</sup>
- Parking - 20 parking bays plus 2 additional disabled parking bays

In terms of National Environmental Management Act (NEMA) legislation, alternatives have to be considered regarding the development of a filling station. These particular alternatives can be site, activity or technological alternatives. In the case of the proposed Parkdene Filling Station development, an alternative layout has been proposed by the developers for the Parkdene Filling Station.

Figure 2.2 below shows the layout of the filling station for Alt 2.

FIGURE 2.2: ALTERNATIVE LAYOUT 2 FOR PARKDENE FILLING STATION



(Source: SDK Architects, 2012)

Figure 2.2 above shows the alternative layout (ALT 2) for the proposed Parkdene Filling Station development. The major difference between the two layouts is the total coverage of the development activities on the site. As opposed to the preferred layout which will have a total coverage percentage of 15.45%, the alternative layout will have a total coverage of 12.70%. Alt 1 and Alt 2 will be located on the north easterly corner of erf 11221 facing in a northerly direction with the N2 highway running to the south of the site, and the George Industrial area and CBD located to the north of the site. The development activities for Alt 2 is as follows:

- Buildings - 258.35m<sup>2</sup>



- Covered Walkways - 88.50m<sup>2</sup>
- Canopy - 287.85m<sup>2</sup>
- Total Covered Area - 634.70m<sup>2</sup>
- Parking - 20 parking bays and 2 disabled parking bays

The third and final alternative is the “No-Go” alternative. In terms of the Environmental Impact Assessment (EIA) process the “No-Go” alternative will be taken as the alternative where the proposed activity (development of the Filling Station) will not be undertaken or implemented. Thus the proposed filling station will not be developed on erf 11221 and the site (as highlighted by the layouts in **Figure 2.1** and **Figure 2.2**) will remain in its current condition with the current infrastructure.

### 2.3 Site Description & Attributes

The specific sites characteristics and attributes fulfil an important role in guiding the development potential of the proposed Parkdene Filling Station development. The following provides an indication of the aspects influencing the filling station sites attributes.

#### 2.3.1 Locality and Size of Site

The proposed development (alternative layout 1 and 2) is located on the corner of Main Street and Golf Street (which runs parallel to Sandkraal Road and connects the George Industrial area with the Thembaletu informal settlement) in the suburb of Parkdene, in the city of George.

**Figure 2.3** below shows the location of the site in the city of George.

**FIGURE 2.3: LOCATION OF THE SITE**



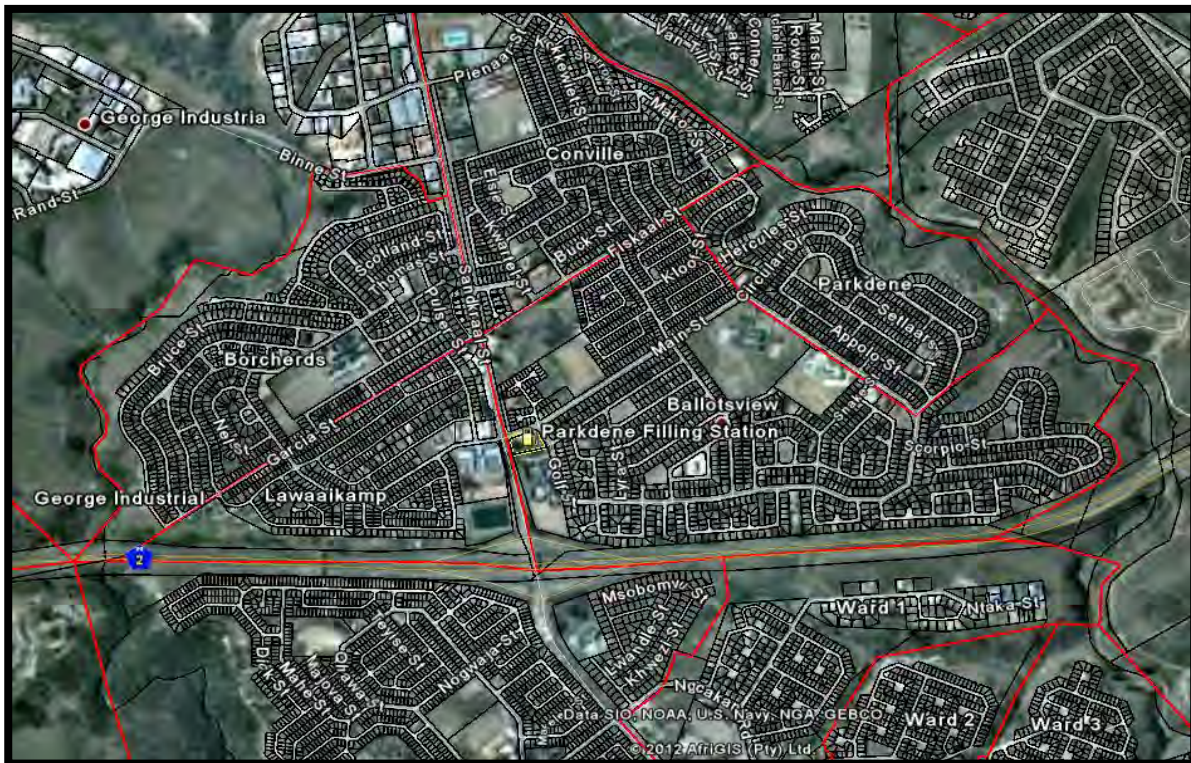
(Source: Google Earth, 2012)



**Figure 2.3** indicates the location of the site in context with the city of George. The figure shows the location of the Industrial area and the George Central Business District (CBD) to the north of the site. The figure also shows the positioning of the Garden Route Mall to the east of the site, as well as the N2 highway located to the south of the site.

**Figure 2.4** below shows the location of the site in the suburb of Parkdene in the city of George.

**FIGURE 2.4: LOCATION OF SITE**



(Source: Google Earth, 2012)

**Figure 2.4** above shows the location of the site within the local context. All four of the suburbs (Lawaalkamp to the west; Parkdene to the west; Thembaletu to the south; and Maraikamp to the north) are traditionally low middle to low income areas earning anything from R1 to R76, 800 per annum. A large percentage of households in the area own only one vehicle or less and rely on taxi's, lifts and walking on foot to commute.

Currently the site is occupied by Life Community Services, which has a lease agreement with the current property owner until the sale of the property has taken place. Life Community Services provide crèche facilities and after-school care and activities to children in the neighbouring areas. Life Community services is a key stakeholder in the proposed development and has been informed regarding the proposed selling of the erf and the potential development of the filling station on the site.

The sites current zoning is Business Zone II. The primary rights associated with a Business Zone II zoning is that it allows for commercial/retail construction and development, whereas consent use of Business Zone I allows for townhouses, apartments, place of gathering, offices and a supermarket or restaurant to be developed on the site.



### 2.3.2 Accessibility and Visibility

The site for the Parkdene Filling Station is located on the corner of Main Street and Golf Street, and the corner of Main Street and Sandkraal Road.

Figure 2.5 below shows the main access point to the proposed filling station.

FIGURE 2.5: MAIN ACCESS POINT



(Source: Urban-Econ Site Visit, 2012)

Figure 2.6 below shows the main access route from the N2 highway to the filling station.

FIGURE 2.6: MAIN ACCESS POINT





### 2.3.3 Image and Sense of Place

At present erf 11221 is zoned as Business Zone II and will remain as such. The areas to the east, west, north and south are currently used for residential and commercial purposes, which includes the suburbs/areas of Parkdene, Lawaaiikamp and Maraiskamp, which are all low to low middle income areas. To the immediate south of the proposed site is the Huis Outeniekwa Plek van Veiligheid, which is secure, fenced in facility that forms the southern boundary for the erf and the proposed site. **Figure 2.7** below shows the entrance board to the facility.

**FIGURE 2.7: HUIS OUTENIEKWA PLEK VAN VEILIGHEID**



(Source: Urban-Econ Site Visit, 2012)

To the east and to the north of the site are middle income and informal residential properties in the suburbs of Parkdene (to the east) and Maraiskamp (to the north). Golf Street forms the eastern boundary of the site and Main Road forms the northern boundary; beyond which the suburbs of Parkdene and Maraiskamp are located. The the immediate west of the site is Sandkraal Road which serves as a Primary distributor where transient traffic can access the industrial area, as well as the main street used by Thembaletu commuters to get into and out of George. As such this distributor carries a large amount of traffic, especially during week days (Monday through to Friday) this includes motor vehicles, large trucks or vehicles as well as heavy construction and agricultural vehicles looking to transport goods and materials into the industrial area.

**Figure 2.8** below shows the areas of Parkdene, Maraiskamp and Lawaaiikamp to the east, north and west of the site.

FIGURE 2.8: SENSE OF PLACE



(Source: Urban-Econ Site Visit, 2012)

Just beyond Sandkraal Road lies the Mxololo Primary School in the suburb of Lawaaikamp. To the north west of the site are a few commercial vendors, distributing mainly convenience goods and food items. The areas surrounding the site are low to low middle income households, and as such the actual vehicle ownership rate in the area is assumed to be low, with majority of the residents using taxi's or walking to get to and from work. Although demand for the filling station from these residential areas would be considered the secondary target market as the main target market as highlighted by the developers are large trucks and heavy vehicles.

#### 2.3.4 Existing Services on Site

Erf 11221 is currently occupied by Life Community Services which provides a crèche and after school care facilities to the local community. The organisation recently installed basic services to the site.

These include (Engineers Service Report, 2012);

- a 22 mm diameter potable water main connection and water meter from Main Street; and
- a 110mm diameter sewer connection from Golf Street on the Eastern Boundary (These existing services are indicated on the layout plan, Dwg no. **VKE1154-02**, which is attached as Annexure B in the Engineering Services Report for Lenasia Builders and Developers CC).

The site has a natural gradient towards Golf Street and all rainwater runoff from the site will flow towards the existing 900mm diameter storm water pipe, which flows in a southerly direction along Golf Street. **George Municipality has confirmed adequate available spare capacity for the proposed scheme within the existing bulk services networks.** (Refer to Annexure A in the Engineering Services Report, 2012).

### 2.3.5 Proposed Services on Site

The municipality of George requires that all new services for any new scheme located within their municipal boundaries are designed in accordance with the "Guidelines for Human Settlement Planning and Design", otherwise known as the "Red Book". These design guidelines determine the required capacity and specifications of the proposed services required for the filling station. This will determine the impact of the development on the existing bulk services.

The engineering services include provision for;

1. Water
2. Sewage
3. Storm Water Drainage; and
4. Solid waste removal

These will be briefly discussed below and can be found in more detail in the Vela VKE Engineers Services Report.

#### 1. Water Provision:

The proposed buildings (which include offices, retail, administration staff and ablution facilities) will result in a water demand of 1.2kl/day.

The size of the pipe components required is determined by the immediate peak flow for the development and limited by the velocity. Pipeline design velocities should be approximately 0.6m/s and should not exceed 1.2m/s. The building will thus require a 32mm diameter erf connection (refer to Engineering Services Report for Water Supply for Fire Fighting).

The proposed car wash facility should make provision for at least 30, 000 litres of rain water storage which will be harvested from the building and canopy roofs. The water demand for the car wash will therefore not be included in the calculation for water demand as municipal water will not be used (Engineers Service Report, 2012).

#### 2. Sewage Provision:

The sewage discharge from business sites need not be taken into account, since these are relatively minor flows that do not peak at the same times as residential flow. The proposed design criteria are as follows (Engineers Service Report, 2012);

- Minimum 160mm pipe diameter
- Minimum gradient of 1:120
- Minimum depth of 1.4m below final road level

#### 3. Storm Water Drainage

The surface water runoff from paved areas will be designed to convey runoff in a controlled manner along the road surfaces and be channelled through inlets into the existing piped storm water system. The proposed 450mm diameter pipes have been sized to accommodate a 1:100 year storm and the location of concrete pipes to be installed is further detailed in the Engineering Services Report.

The management of the storm water must also assist with the prevention of water pollution as regulated by the departments of Forestry and Water Affairs.

It is estimated (Engineering Services Report, 2012) that approximately 1 litre of water can be captured from 1mm of rain over 1m<sup>2</sup> of roof space. The covered area of the building together with the forecourt canopy is approximately 770m<sup>2</sup> (preferred alternative layout) and can therefore capture 7, 700 litres of water from

10mm of rain. Rain water harvesting is in alignment with the water conservation strategy for the region and Municipal water demand management policy (Engineers Service Report, 2012).

**4. Solid Waste Removal:**

The removal of waste will take place from the refuse yard which is located at the rear of the service station. Solid waste will be generated from the forecourt area and from the retail outlet area, and will be disposed of as normal domestic waste at the municipal waste disposal site in George. Solid waste for commercial purposes is calculated on an estimated  $0.12\text{kg}/\text{m}^2/\text{day}$ , therefore the filling station will generate an estimated 37kg of solid waste per day.

All solid waste generated during the construction stage (including packets, plastic, rubble cut plant material, waste metals, etc.) will be placed in a bulk waste collection area in the contractors camp and will be cleared regularly by a recognised waste contractor (Engineers Service Report, 2012).

## Section 3: Socio-Economic Profile

### 3.1 Introduction

The following section of the report will serve to provide a brief orientation regarding the demographic and economic characteristics and environment of the target area for the proposed Parkdene Filling Station development, namely the George Local Municipality.

The section will first provide a fact file on the demographic environment within the local George Municipal area which highlights and briefly discussing demographic variables such as population and household totals and growth rates; education levels; type of dwelling; and age and gender profiles. This will be followed by a fact file on the economic characteristics of the area highlighting and briefly discussing variables such as Gross Geographic Production (GGP); employment levels and employment per industry; and a skills profile of the area.

### 3.2 George Local Municipality Fact File

The following sub-section will provide a fact file on the demographic and economic characteristics of the George Local Municipal area. The characteristics mentioned below include population information such as population and household totals and growth rates; gender and age profiles; education levels; the household income and expenditure snapshot; employment figures including, employment and unemployment status, the economically active and inactive population; as well as skill levels amongst the employed workforce amongst others. The fact file will also include economic information regarding the target area such as GGP figures and growth rates; the contributions of the various industries located in the municipal region to both employment and total GGP; as well as the tress indexes of the area which provides an indication of the production specialisation across the industries that make up the local economy.

**Table 3.1** below displays the demographic characteristics of the George Local Municipality.



TABLE 3.1: GEORGE MUNICIPALITY DEMOGRAPHIC FACT FILE

**GEORGE LOCAL MUNICIPALITY**



(Source: [www.demarcation.org.za](http://www.demarcation.org.za))

The George Local municipality is found within the Eden District municipality, located within the Western Province of South Africa. The local municipality has a total of 25 wards/areas, each with their own individual demographic and economic characteristics. The local and main target area of the filling station is the George Municipal area, in particular the transient market travelling along Sandkraal Road in the Parkdene, Lawaaikamp and Maraiskamp areas. The wards within the municipal are listed below;

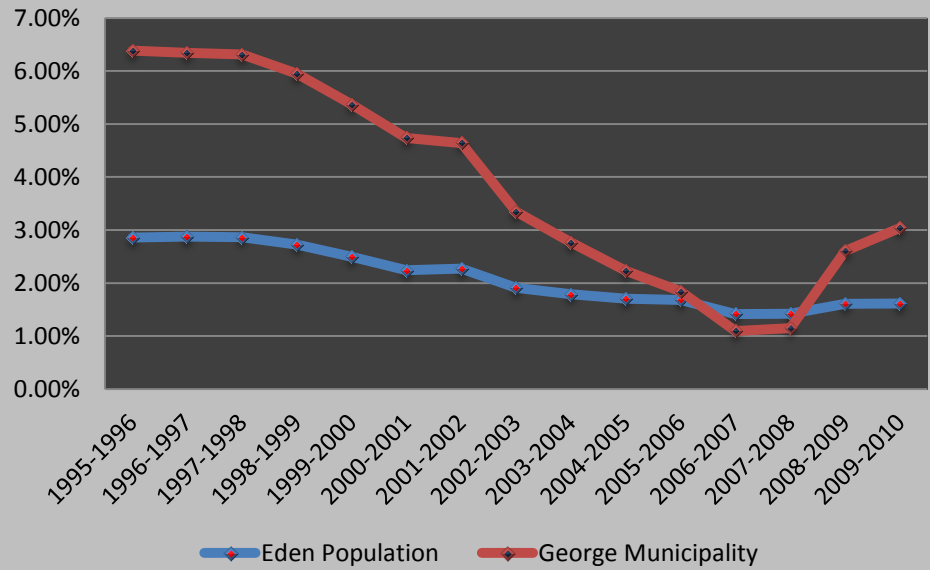
- Blanco
- Denneoord, Fernridge, Bo-dorp, Camphersdrift
- Heather Park, Heatherlands
- Wilderness, Kleinkrantz, Touwsrante, Hoekwil
- Levalie, Loerie Park, Tweerivieren
- Rosemore, Protea Park, Urbansville
- Lawaaikamp, Maraiskamp
- Parkdene, Ballotsview
- Thembaletu
- Pacaltdorp, Andersonville, Seaview
- New Dawn Park
- Conville
- Loeriepark, George Park
- George Central, George South, Dolmesdrift
- Borchers
- Geelhoutboom, Waboomskraal
- Delville Park, Herolds Bay, Oubaai
- Haarlem, Avontuur, Ongelegen
- Uniondale, Esseljag

## POPULATION FACTS AND FIGURES

### Population Facts:

- The George Municipality had a total population of 138, 626 in 2010 and is forecast to grow to a total of 140, 869 by 2012 (at a growth rate of 0.81%).
- The average population growth rate of the municipal area from 1995-2010 was 1.75%, however this has diminished slightly in more recent times (2001-2010) to 0.81%.
- The Eden District had a total population of 509, 799 in 2010 and is forecast to grow to 527, 430 (1.71% growth rate).
- The average population growth rate of the district from 1995-2010 was 2.10%, however this diminished in more recent times (2001-2010) to 1.71%.
- The George municipality represented 27.19% of the total Eden District population in 2010

### Population Growth Rates

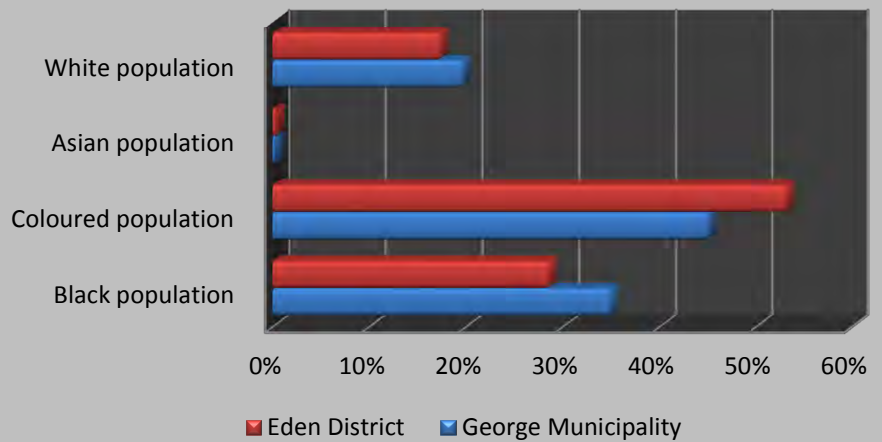


(Source: Quantec EasyData, 2012)

### Population Composition:

- The most represented racial group in both the Eden District and the George Municipality is the coloured racial groups, which makes up 53% of the Eden total population and 45% of the George Municipality total population.
- The second most represented racial group in both Eden and the George Municipality are the black population groups which represent 29% of the total Eden population and 35% of the total George Municipality population.
- The third most represented racial group in both the Eden and the George Municipalities are the white population groups which make up 17% of the Eden District population and 20% of the George Municipality population.

### Population Composition: 2010



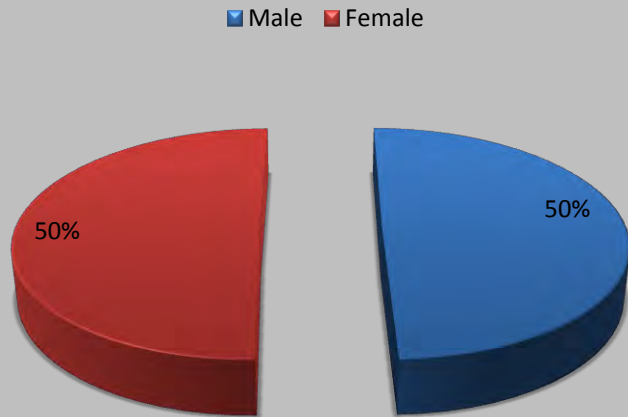
(Source: Quantec EasyData, 2012)



**Gender and Age Profiles:**

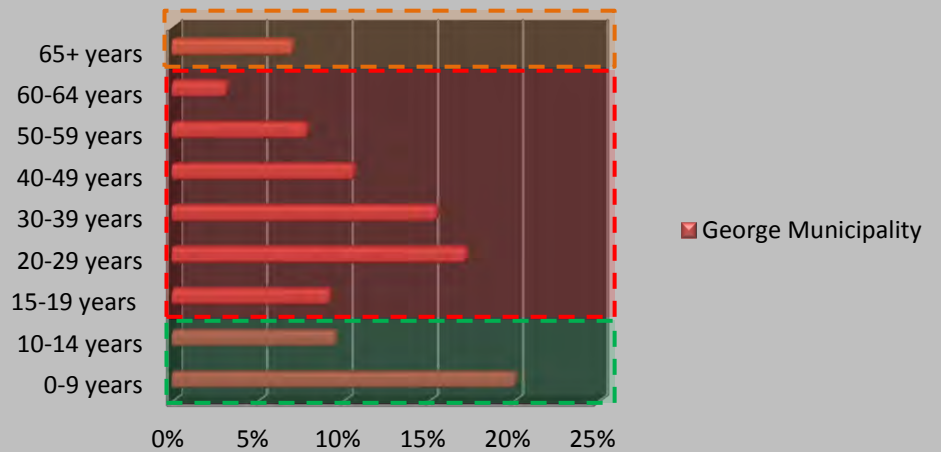
- The George Municipality has a slightly greater number of females. The total population of the municipal area is made up of 53.36% females and 49.64% males.
- The age profile of the municipal area is traditionally sub-categorised into the “Youth” (ages 0-14 years), the economically active age groups (between ages 15 and 65 years) and the Retirees age groups (65+ years).
- The “Youth” age groups represent 29.63% of the municipality’s total population.
- The Economically active age groups make up the largest segment of the total population with 63.38% of the total population falling within these age groups.
- The smallest segment of the municipalities population fall within the Retirees age groups, with only 7% of the total population represented.

**Gender Profile: 2010**



(Source: Quantec EasyData, 2012)

**Age Profile: 2010**

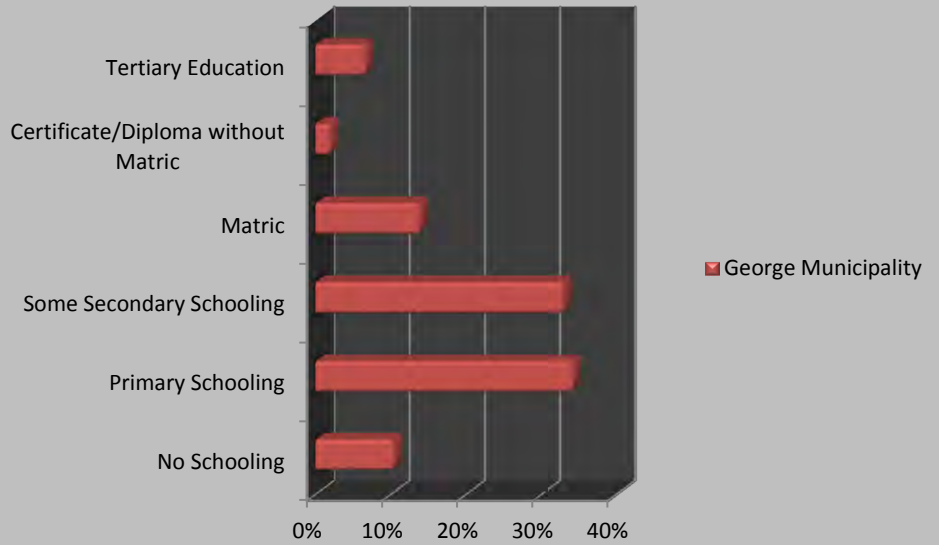


(Source: Quantec EasyData, 2012)

**Education Profile:**

- The education profile is representative of the population in its entirety (all age groups)
- The largest portion (34.15%) of the current population had only completed their primary schooling (grades 0-7) in 2010.
- The second largest portion of the population (32.96%) have only completed some of their secondary schooling (grades 8-11), but have not attained a matric certificate.
- The high percentage of the population (67.11%) which have only completed these education levels can be attributed to the high population percentage within the schooling going ages (0-19 years) with 38.8% of the total population falling into these age groups.
- In the municipal area, only 13.82% have completed their schooling and obtained a matric certificate, while 10.45% of the population have not attended or completed any formal schooling in their life time.
- The smallest percentage of the population (6.64%) have obtained some form of tertiary education (certificate, diploma, Bachelor's Degree, honours etc. with matric)

**Education Profile: 2010**



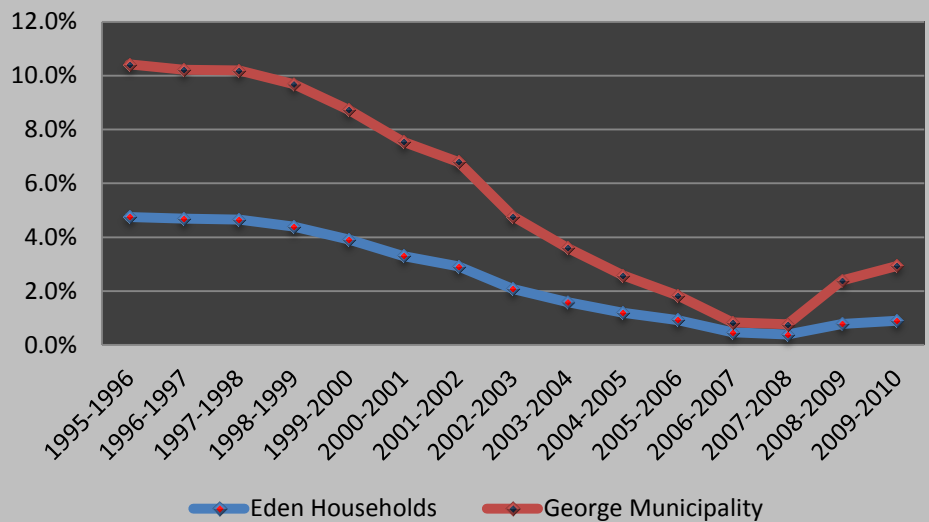
(Source: Quantec EasyData, 2012)

**HOUSEHOLD FACTS AND FIGURES**

**Household Facts:**

- The George Municipality had a total of 39, 812 households in 2010 which is forecast to increase to 41, 171 (1.69% growth rate) in 2012. The Eden District Municipality had a total of 128, 370 households in 2010 which is forecast to increase to 131, 587 (1.25% growth rate) in 2012.
- The average growth rate of households in the George Municipality from 1995-2010 was 3.09%, which has decreased in more recent times (2001-2010) to 1.69%.
- The average growth rate of households in the Eden District Municipality from 1995-2010 was 2.46%, which has decreased in more recent times (2001-2010) to 1.25%.
- The George Municipality constitutes 31.01% of the total households in the Eden District municipality

**Household Growth Rate: 1995-2010**

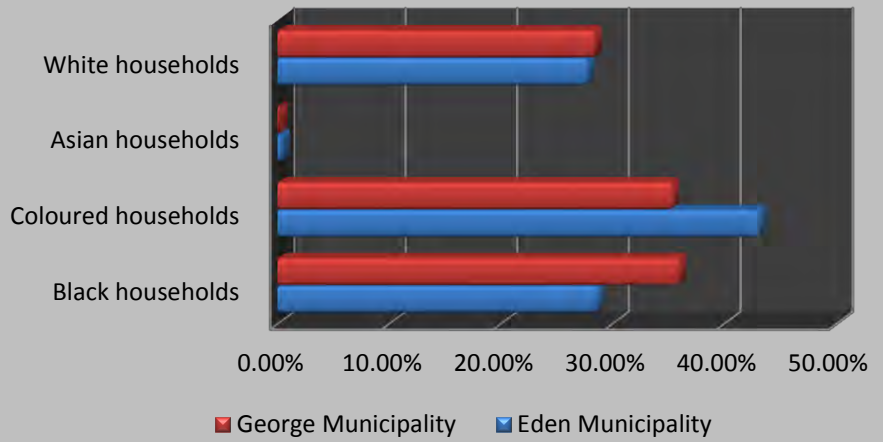


(Source: Quantec EasyData, 2012)

**Household Composition:**

- The most represented racial group (36%) in respect of the total households in the George Municipality is the black racial group. The most represented racial group amongst households in the Eden District (43.13%) is the coloured population.
- The second most represented racial group (35.38%) amongst households in the George Municipality is the coloured population. Within the Eden District as a whole, black households (28.68%) make up the second most represented racial group.
- White households make up the third most represented racial group in both the Eden District (27.80%) and the George Municipality (28.46%).

**Household Composition: 2010**

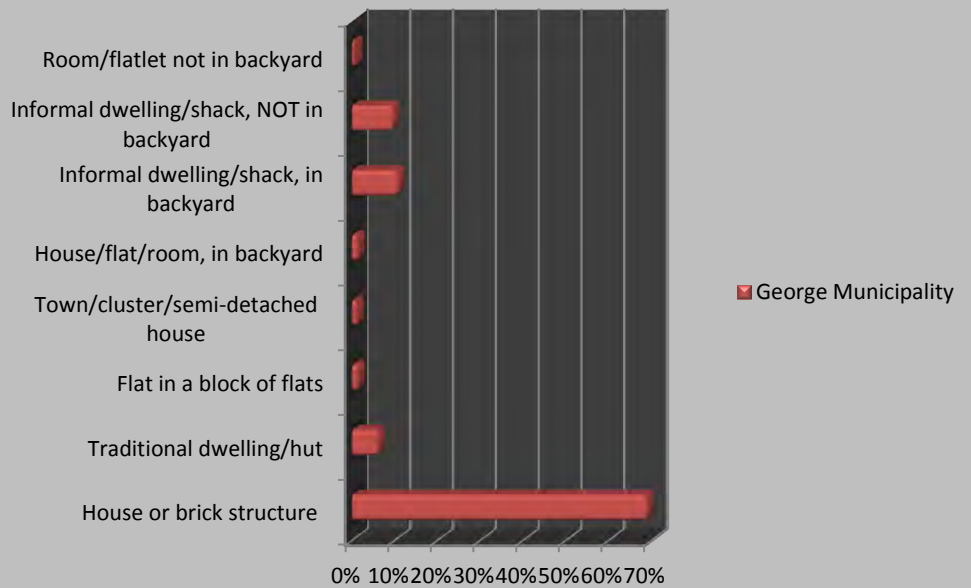


(Source: Quantec EasyData, 2012)

**Type of Dwelling:**

- The majority of households within the George Municipality occupy a house or brick structure on a separate stand (69%), which generally is indicative of middle income households and communities.
- Within the municipal area 20.3% of households occupy an informal dwelling/shack either on the property or backyard of another household (10.7% of households) or in an informal settlement (9.6% of households).
- Only 1.6% of households live in a flat complex (often occupied by middle income households), while 6.1% still live in a traditional dwelling, often constructed of mud and wood.

**Type of Dwelling: 2010**

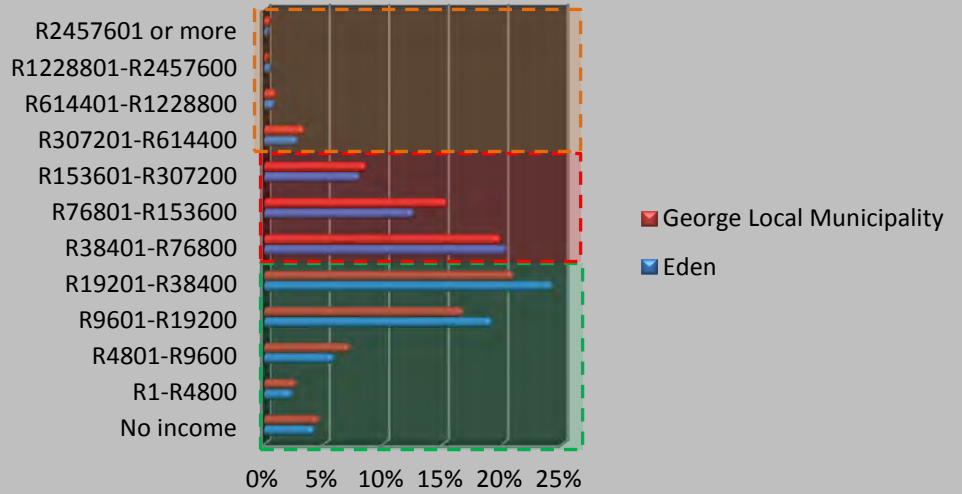


(Source: Quantec EasyData, 2012)

**Household Income:**

- Households are sub-categorised into three broad household groups;
  - *Low Income* (R1 – R38, 400 per annum)
  - *Middle Income* (R38, 401 – R307, 200 per annum); and
  - *High Income* (R307, 201 and above per annum).
- In the George Municipality the largest percentage of households (47.2%) are low incomes earning households.
- The second largest percentage of households are middle income earning (43.6%), while only 4.8% of households are high income earning.
- The majority of households in the Eden District (51.2%) are also low income earning households.
- The second largest percentages of households are middle income earning (40.5%), while only 4.3% are high income earning households.

**Household Income: 2007**



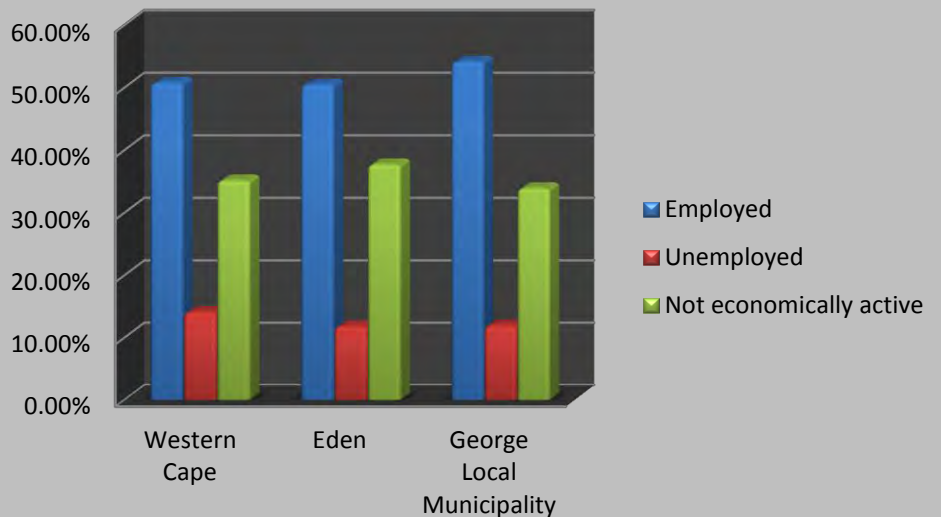
(Source: Quantec EasyData, 2012)

**EMPLOYMENT**

**Employment Figures:**

- The George Municipality, in relation to the Eden District and Province as a whole, has a relatively high employment rate with 54.15% of its working population employed; in contrast to the 50.76% of the Province and 50.46% of the Districts working population which are employed.
- The percentage of the George Municipalities population which are unemployed (11.94%) is lower than Province (14.08%) and only slightly higher than the District (11.81%).
- All three regions have a high segment of the working population which are not economically active, with 33.91% of the George Municipalities working population falling within this category.
- In 2009, the George Municipality had an unemployment rate of 18.1% (meaning that for every 100 workers, 18.1 were unemployed), while the labour force participation rate (those individuals which are economically active) in the Municipal area in 2009 was 66.1%

**Employment Status: 2010**



(Source: Quantec EasyData, 2012)

**Table 3.2** below shows the economic characteristics of the George Municipal area for 2009 and 2010.

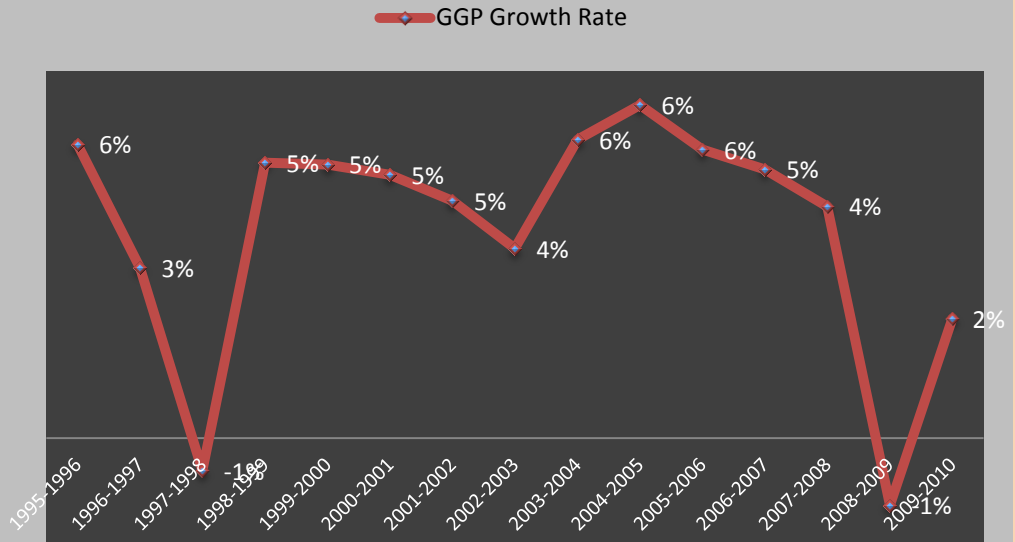
TABLE 3.2: GEORGE MUNICIPALITY ECONOMIC FACT FILE

**GROSS DOMESTIC PRODUCT**

**GGP Facts:**

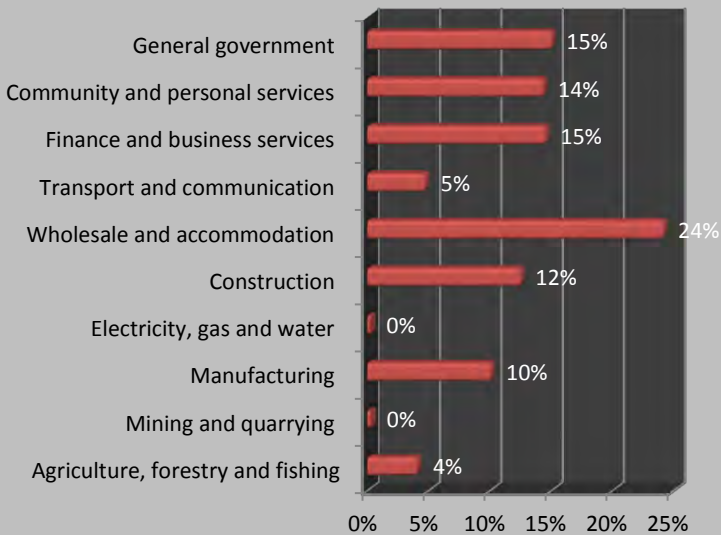
- The total value of goods and services produced within the George Municipality (GGP) in 2010, amounted to R5, 646 million.
- The average growth of Gross Geographic Production (GGP) from 1995-2010 within the George Municipality was 4% and in more recent times (2001-2010) the economy's growth rate has remained steady at 4.01%.
- The tertiary or services sector of the economy made the greatest contribution to total GGP of 72.26% (R4, 080 million). The secondary sector was the second largest contributor to total GGP with 24.40% (R1, 378 million) and the primary sector is the smallest contributor with only 3.34% (R188 million) contribution to total GGP.

**GGP Growth Rate:1995-2010**

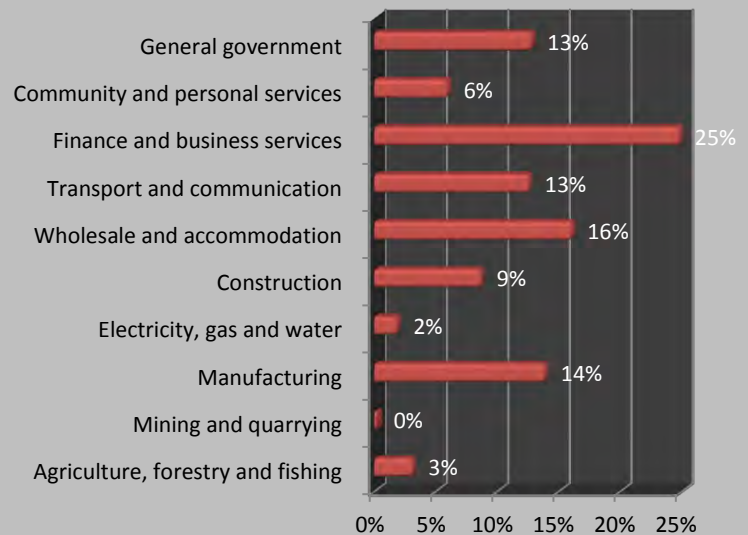


(Source: Quantec EasyData, 2012)

**Employment Per Sector**



**GGP per Sector**



(Source: Quantec EasyData, 2012)

**GGP per Sector:**

- The most significant contributing sector to the total GGP of the George Municipal economy is the Finance and Business Services sector (24.8%) which falls under the Tertiary Sector.
- The second most significant contributor to total GGP in the economy is the Wholesale, Retail Trade, Catering and Accommodation sector (16.1%) which also falls under the Tertiary Sector of the economy.
- The third most significant contributor to total GGP in the local economy is the Manufacturing Industry (13.1%) which falls under the Secondary Sector.
- Along with Mossel Bay, the George economy has traditionally been an industrial stronghold in the Garden Route and Eden District. However in more recent times the economy has seen a shift away from such manufacturing activities to more service orientated



activities to support the Tourism Drive implemented by the local role players in the George economy. This supports the large contributions of tertiary sector industries (Wholesale and Accommodation; Finance and Business Services; Transport and Accommodation; and Community and Personal Services) to the total GGP and highlights the service orientated nature of the local economy.

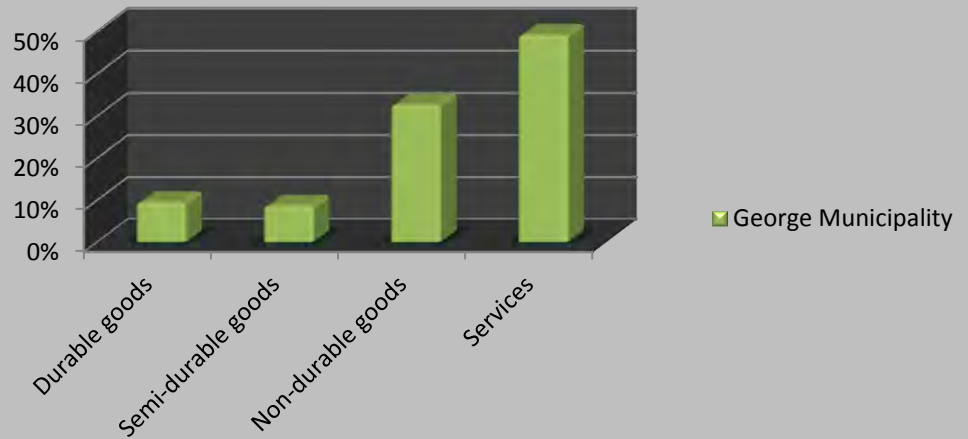
**Employment per Industry:**

- As with GGP the Wholesale, Retail Trade and Accommodation sector provides the most employment within the economy, generating 24.2% of total employment in the economy.
- The second most significant contributor to total employment in the local economy is the Finance and Business Services Sector which generates 14.5% of total employment in the local economy. These two sectors are also the most significant contributors to total GGP in the economy, highlighting the dominance specifically of these two industries in the economy, but also the tertiary sector nature of the local economy.
- General government also contributes a significant amount of GGP (12.8%) and employment (15%) within the economy, however the above analysis focuses on the private or business sector as opposed to the public sector into which government activities fall under.

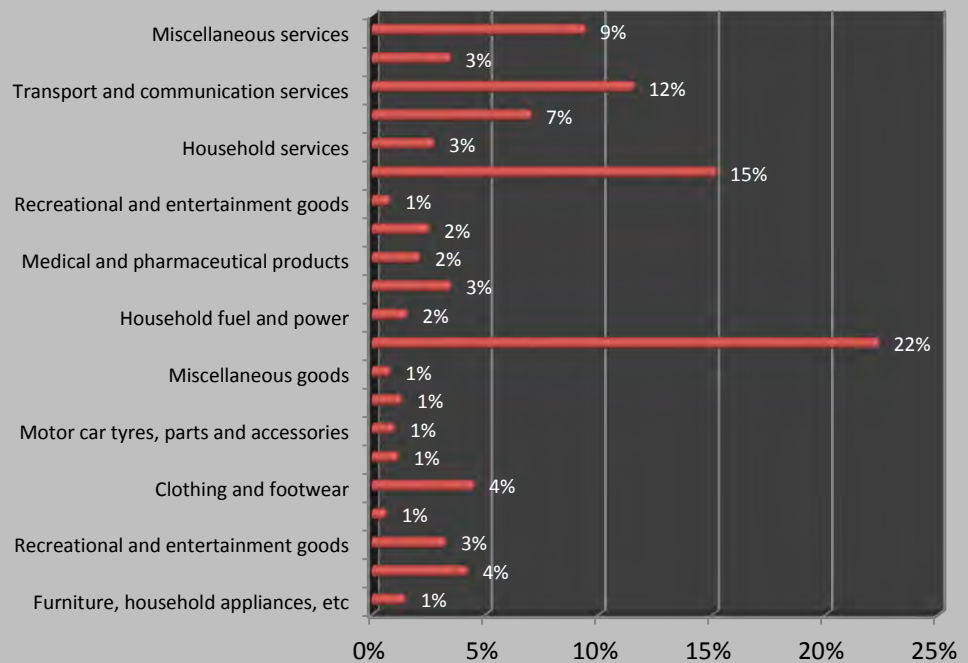
**Household Expenditure:**

- The largest percentage of household’s income in the municipal area is spent within the services sector (49% of total expenditure) which includes expenditure on rent; household services; medical services; recreational and educational services.
- The second largest percentage of households income is spent on non-durable goods (33%) which includes expenditure on food, beverage and tobacco; household fuel and power; medical products; and petroleum products (on which the proposed development will focus).
- The largest individual expenditure for household’s income within the municipal area is Food, Beverages and tobacco (22.4% of total income).
- The second most significant expenditure item for households rent representing 15.1% of household’s total income.
- The significant expenditure by households on services is highlighted in the adjacent graph, where miscellaneous services (9.4% of total income), Personal recreational and educational services (3.4%), transport and communication services (11.5%), Medical services (7%), household services (2.7%) and rent represent the bulk of expenditure on income earned.
- Expenditure on petroleum products represents 2.5% an average households total income earned

**Household Expenditure: 2010**



(Source: Quantec EasyData, 2012)



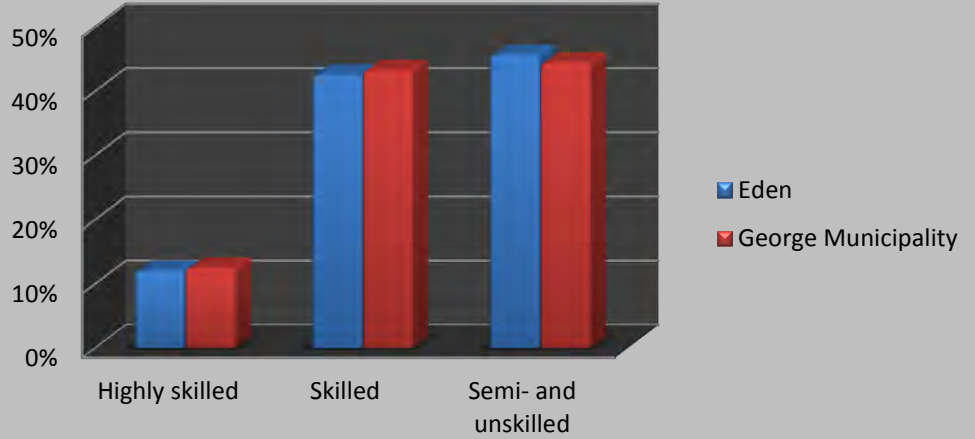
(Source: Quantec EasyData, 2012)

## SKILLS PROFILE

### Skills Profile:

- The skills profile represents labour that is employed in the formal sector of the economy (86.73% of workforce).
- The largest percentage of the workforce in both the Eden District (46%) and the George Municipality (44%) are semi-skilled (perform work that is limited to the performance of routine operations of limited scope e.g. store clerks, machine and plant operators) and unskilled (perform simple duties and tasks which require the experience of little or no independent judgement or previous experience).
- The second largest percentage of the workforce in both the Eden District (42%) and the George Municipality (43%) are skilled labourers (employees capable of working efficiently or exercising considerable independent judgement).
- The smallest percentage of workers in both Eden (12%) and the George Municipality (12%) are highly skilled workers (capable of working and supervising efficiently the work of skilled employees, e.g. technicians, legislators and managers)

### Skills Profile: 2010



(Source: Quantec EasyData, 2012)

(Source: Quantec EasyData, 2012)

### 3.3 Conclusion & Synthesis

The population of George can in general be described as a low to middle income population with majority of households (71.5%) earning between R 0 and R 75, 800 per annum. The population growth rate in the area has in turn also slowed down (0.81%) which is due to a number of reasons such as the decline in economic activity due to the economic downturn since 2008 and a decrease in the number of in-migrants from the Eastern Cape.

The expenditure profile of the area highlights the low income nature of the municipal area with 49% of an average household's income spent on necessities such as rent and transport services and 33% of income spent on non-durable goods such as food, beverages, household fuel and medical products. Consumption expenditure on petroleum and related products represents only 2.5% of households expenditure, pointing to a relatively low vehicle ownership rate with transport services such as taxi fares representing a much bigger proportion of total expenditure (11.5%) emphasizing the low vehicle ownership rate in the municipal area.

The following section of the report will analyse the market potential of the proposed filling station by providing a supply and demand analysis for the filling station to ascertain the net effective demand for fuel as the proposed site for the Parkdene Filling Station development.



# Section 4: Filling Station Market Potential

## 4.1 Introduction

The following section of the economic impact assessment study involves an assessment of the Filling Stations market potential within the local fuel industry in George. The primary purpose of this section is to analyse the demand and supply profile of petrol in the study area and ascertain as to whether there is an actual demand for another filling station based on the local markets demand for fuel and that which is supplied.

To introduce the section a supply profile will be presented highlighting and briefly discussing the characteristics and number of existing fuel stations in the buffer zone (2km radius) and what supplies of diesel and petroleum exist in the current market. This will be followed by a demand profile, which will calculate the demand for fuel of the transient market demand.

## 4.2 Supply Profile

The purpose of this sub-section is to summarise the findings of the petrol station supply assessment conducted by Urban-Econ in April 2012. The effective competitive supply refers to filling stations present within the trade area that will compete with the proposed filling station and its auxiliary functions.

The Market Supply Analysis will address the following aspects regarding the existing filling stations evident in the Market Area and surrounds:

- Geographic location of existing facilities;
- A projection of fuel volumes sold by existing filling stations; and
- Auxiliary functions available at the existing stations.

Currently, there are a total of 22 filling stations located within the George area, including Wilderness and Harold's Bay and the surrounding areas that make up the George Municipal area. Additional filling station developments have been proposed to be constructed in York Street near the Mount View and Lifestyle Resort as well as the Kraibosch Filling Station on Knysna Road adjacent to the Garden Route Mall and a filling station in Thembaletu, which bring the total number of filling station developments to 25.

Of the filling stations (19) located within the George area, 15 of these fall within the 5km radius of the proposed development and only 2 filling stations are located within the 2km radius of the proposed Parkdene filling station. **Figure 4.1** below shows the location of the all the filling stations that are located within the 2km buffer zone for the development, excluding the Engen filling station located in Heatherlands/Heather Park and the 2 filling stations by the old Radermacher's junction.

FIGURE 4.1: FILLING STATION LOCATIONS IN 2KM BUFFER ZONE

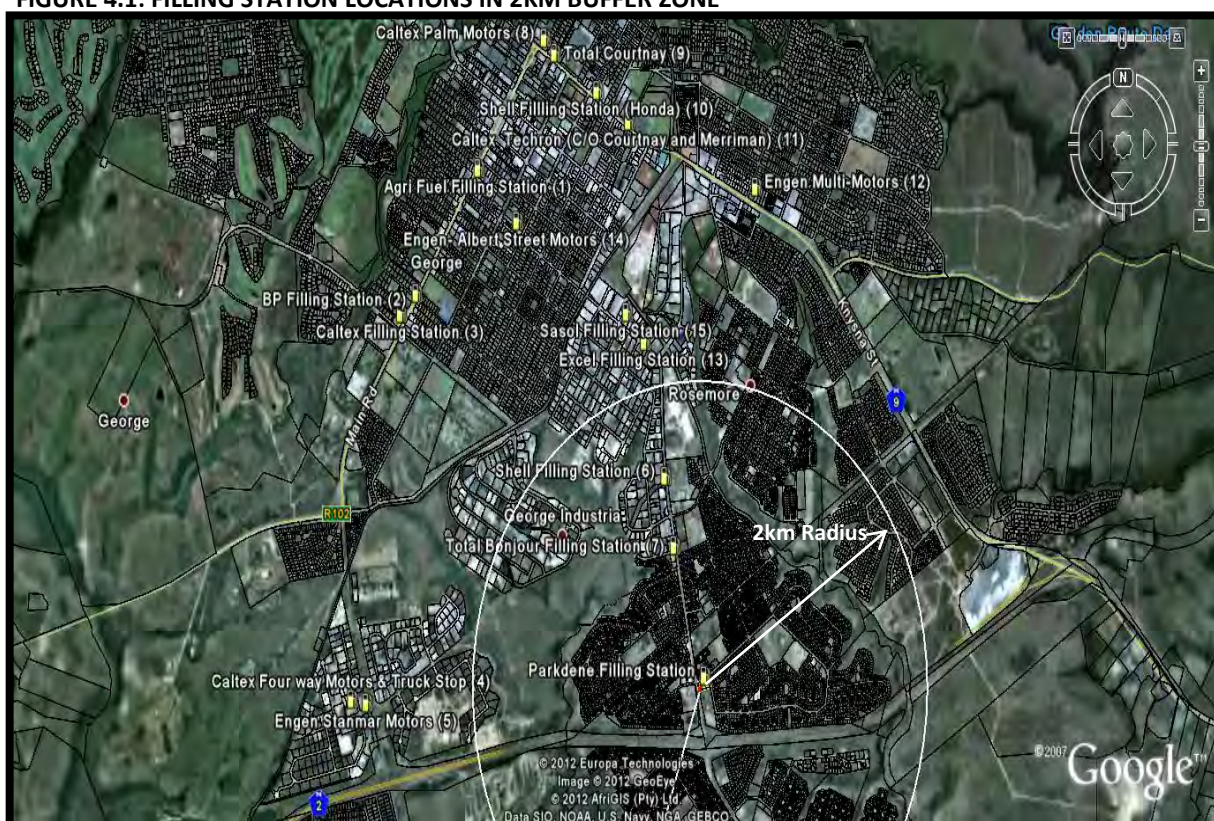


Figure 4.1 above shows the filling stations that fall within the buffer zone numbered from 1 to 15. These filling stations are listed below in Table 4.1;

TABLE 4.1: FILLING STATIONS WITHIN 5KM BUFFER ZONE

Nr	Type	Street Address	Distance	Relevance	Level of Competition
1	Agri-Fuel Filling Station	York Street	app. 4.18 km	☒	Low
2	BP Filling Station	York Street	app. 5.04 km	☒	Low
3	Caltex Filling Station	York Street	app. 5.21 km	☒	Low
4	Caltex Filling Station	Discovery Street	app. 3.56 km	☒	Low
5	Engen Filling Station	Discovery Street	app. 3.51 km	☒	Low
6	Shell Filling Station	Sandkraal Road	app. 1.31 km	☑	Moderate
7	Total (Bonjour) Filling Station	Sandkraal Road	app. 0.84 km	☑	High
8	Caltex Filling Station	c/o Courtney Street & Symmonds Street	app. 5.86 km	☒	Low
9	Total (Bonjour) Filling Station	Courtney Street	app. 5.38 km	☒	Low
10	Shell Filling Station	29 Courtney Street	app. 5.85 km	☒	Low
11	Caltex Filling Station	12 Courtney Street	app. 6.16 km	☒	Low
12	Engen Filling Station	41 Knysna Road	app. 4.42 km	☒	Low
13	Excel Filling Station	42 Albert Street	app. 2.26 km	☒	Low
14	Engen Filling Station	Albert Street	app. 3.69 km	☒	Low

Nr	Type	Street Address	Distance	Relevance	Level of Competition
15	Sasol Filling Station	Albert Street	app. 2.5 km	<input checked="" type="checkbox"/>	Low

(Source: Urban-Econ Filling Station Supply Audit, 2012)

Of the 15 filling stations located within the buffer zone; 5 are located along York Street (which one of the primary distributors and connects with the N2); 5 are located along Courtney Street (which a primary distributor and also connects with the N2 via Knysna Road); 3 are located along Albert Street (which links with Sandkraal Road); and 2 are located along Sandkraal Road, which is a primary distributor and connects with the N2. Sandkraal Road serves as the main access route for transient traffic looking to enter the Industrial area from the N2 highway, which is purported to carry large amounts of trucks and heavy vehicles. Currently there are two existing filling stations in Sandkraal Road; however both of these are located on the western side of the road catering for vehicles travelling in a northerly direction into the George Industrial area away from the N2. There is currently no filling station on the eastern side of the road catering for vehicles travelling in a southerly direction away from the industrial area towards the N2. A traffic island which stretches the length of Sandkraal Road creates complications for vehicles travelling in a southerly direction (eastern side of street) to access the current filling stations located on the western side, and these complications and inconvenience increases with the size of the motor vehicle, in other words, it is a lot easier for a small motor vehicle to do a complete 180° turn than it is for a large motor vehicle or truck.

The filling stations located within the **2 km buffer zone** (refer to **Figure 4.1**) will serve as the main competition for the proposed Parkdene Filling Station development, however all the various filling stations in the George area (including Wilderness) will be included in the supply analysis. The 15 filling stations included in the 5km buffer zone are all owners operated, and operate as an individual franchise unit for the respective petroleum companies.

Of the 15 filling stations only 2 are located within a 2km radius are regarded as relevant competitors, the remaining 13 filling stations are located in other market segments more than 2km from the proposed development.

**Table 4.2** below summarises some of the key information regarding 14 of the existing filling stations included in the buffer zone.

**TABLE 4.2: FILLING STATION SUPPLY AUDIT**

Nr	Franchise	Distance	Store	ATM	Restroom	Workshop	Motor Showroom	Car wash	Take Away
1	Agri-fuel	app. 4.18 km	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	BP	app. 5.04 km	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	Caltex	app. 5.21 km	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Caltex	app. 3.56 km	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	Engen	app. 3.51 km	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	Total	app. 1.31 km	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	Shell	app. 0.84 km	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8	Caltex	app. 5.86 km	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9	Total	app. 5.38 km	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10	Shell	app. 5.8 km	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11	Caltex	app. 6.16 km	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

12	Engen	app. 4.42 km	✓	✓	✓	✗	✗	✓	✗
13	Excel	app. 2.26 km	✗	✓	✗	✓	✗	✗	✗
14	Engen	app. 3.69 km	✓	✓	✓	✗	✗	✓	✗
15	Sasol	app. 2.26 km	✓	✓	✓	✗	✗	✗	✓

(Source: Urban-Econ Filling Station Supply Audit, 2012)

**Table 4.3** below indicates the number of pumps which can be found at each of the 25 filling stations.

**TABLE 4.3: FILLING STATIONS WITHIN 5KM BUFFER ZONE NO. OF PUMPS**

Nr	Type	Area	Number of Pumps
1	Agri-fuel	York Street	24
2	BP	York Street	18
3	Caltex	York Street	22
4	Caltex	Discovery Street	22
5	Engen	Discovery Street	14
6	Total	Sandkraal Road	18
7	Shell	Sandkraal Road	24
8	Caltex	Courtney Street	10
9	Total	Courtney Street	28
10	Shell	Courtney Street	16
11	Caltex	Courtney Street	18
12	Engen	Knysna Road	18
13	Excel	Albert Street	18
14	Engen	Albert Street	18
15	Sasol	Albert Street	18

(Source: Urban-Econ Filling Station Supply Audit, 2012)

Findings regarding the supply audit that was conducted by Urban-Econ and displayed in **Table 4.1** above are;

- Majority, if not all, the filling stations in the George area operate on a 24 hour basis, in other words, they provide fuel and service to customers on a 24 hours of the day.
- All the fuel stations located within the buffer zone have at least ablution facilities; a retail component (be it a fast food vendor, a convenience store or a car dealership); and ATM facilities.
- The filling stations located in George Industria supply a greater percentage of diesel as opposed to petroleum (leaded and unleaded) as indicated in **Table 4.1** by the greater number of diesel pumps as opposed to petroleum pumps. Filling stations located in Courtney and York streets supply a greater percentage of petroleum (leaded and unleaded) as opposed to diesel. This is simply due to the nature of the target market the filling stations aim to service, with those in the Industrial area and Sandkraal, servicing mainly trucks and heavy vehicles, while those in Courtney and York service conventional smaller passenger vehicles.
- On average, filling stations in the Industrial area (which will not include those located at Stanmar Motors) are much larger than those located in Courtney and York Street, with an average size of 608m<sup>2</sup> making the proposed Parkdene Filling station (771m<sup>2</sup> coverage) slightly larger than the average filling station located in the proposed site area.

- The two filling stations within the two km radius of the proposed Parkdene filling station both have 14 pumps of which one is for paraffin.
- A number of the filling stations located in the Industrial area and Sandkraal Road have a pump exclusively for paraffin. This is due to the high demand that low income households have for paraffin as a source of energy which the household can afford for cooking, lighting and heating of requirements.

A monthly pump rate of more than 300,000 litres is considered by most service providers to be the marginal amount sold in order for a filling station to be regarded as feasible. As a result an excess of 3.6 million litres needs to be sold within the market area per annum in order to ensure that the existing filling stations are feasible.

### 4.3 Demand Profile

In this sub-section the market demand for fuel will be determined as a function of a number of factors. The market demand 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 include mainly the northbound traffic passing the site daily heading towards the Industrial Area, as well as the southbound traffic heading towards Thembaletu and the N2.

Factors utilised to determine the Market Demand include the following:

- residential units;
- vehicle ownership ratio;
- average monthly fuel consumption;
- total vehicles;
- inception rate; and
- average fill.

#### 4.3.1 Overview of the Local Market Demand Factors

- Residential Units/size of the local market:** Using Quantec EasyData (2012) the total number of households in the George Local Municipality region amounted to 39, 812 in 2010. This includes both the urban and rural areas surrounding the city of George, such as Hoekwil, Herolds Bay, Wilderness, Avontuur and Uniondale.
- Vehicle Ownership Ratio:** The vehicle ownership rate for the area was calculated using the Eden District Socio Economic Survey which was conducted in 2006 for all the wards in the George Municipal area. From this data a vehicle ownership rate was calculated to be 26% and therefore 10, 351 households own at least one motor vehicle (1 out of every 4 households). This is pertinent for the municipal area in which 71.5% (28, 466 households) earn R76, 800 per annum (R6, 400 per month) or less, while 51.7% of households earn R38, 400 per annum or less and thus fall within the low income categories. As the greatest concentration of the population is concentrated in the city of George, the low vehicle ownership rate can be attributed to a large number of individuals that make use of alternated transport, such as bus and minibus service (20.19%) or walk on foot (21.25%). Another possible reason for the relatively low vehicle ownership rate is the National Credit Act (NCA) which has restricted, especially the low income households from accessing funds in order to purchase property and motor vehicles.
- Average Monthly Fuel Consumption:** National driveway surveys have revealed that the average consumption of the first car in the household varies from 120 – 150 litres per month, while the second car owned by a household consumed between 80 and 100 litres of fuel per month. These figures are accepted as industry standard and utilised in this fashion for the purpose of this study. It is clear from the analysis in



previous sections that the income categories in the local market are high. However for conservative calculations the low end of these figures was used for the demand calculation purposes. These figures are:

- a. 1<sup>st</sup> vehicle per household: 120 litres per month; and
- b. 2<sup>nd</sup> vehicle per household: 80 litres per month.

- iv. **Support for Existing Filling Stations:** 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 a more standard inception rate of 3.5% will be used, thus making the inception rate not too conservative, while at the same time not pushing the maximum industry inception rate, making the results more realistic and applicable to the Parkdene Filling Station development. The purpose of capturing the total local market demand is to include members of the local municipal communities which may make use of the proposed filling station, however as they do not work in the industrial area or use Sandkraal Road on a regular basis and thus were not included in the transient market demand (calculated in **Section 4.4** below).

Support for a new filling station marks the number of individuals that would make use of the station or expressed a demand (Urban-Econ Local Market Survey, 2012) for the proposed filling station in Sandkraal Road. The expected inception rate or support for the new filling station is calculated to be 3.5% for the transient market, as with the local market.

- v. **Average Transient Market Fill:** This is an indicator of the average fill for each vehicle type based on the average tank capacity and the assumption that each vehicle is filled up to 65% of its capacity when visiting the filling station. **Table 4.4** below shows the average fill per vehicle for the transient demand.

**TABLE 4.4: AVERAGE FILL PER VEHICLE**

Vehicle Type	L/L Truck	Bus	Minibus	Private car	Motorcycle
Average Fill	97.5	227.5	45.5	29.25	19.5

(Source: Urban-Econ Fuel Capacity Survey, 2012)

As the transient demand model is broken up into light and heavy vehicles specifically, the average fill figures that will be used from the table above are the 97.5 litres for large trucks (heavy vehicle) and the 29.25 litres for private motor vehicles (light vehicles) as these two categories made up the largest percentage of light and heavy vehicles in the traffic counts.

- vi. **Active Days/Months :** For this study the day's variable represents the number of days in which the development will be operational. As fuel supplies, average fill are the traffic count volumes were calculated on a weekly basis, the number of active weeks will be 52, representing the total number of days/weeks in which the filling station will be operative. Thus the number of active weeks used within the transient demand model below is 52.
- vii. **Leakage factor:** The leakage factor is a consideration of vehicles that choose to be fuelled at alternative filling stations in the area. For the purpose of the study the leakage factor is disregarded since only the intercepted transient traffic is considered.

#### 4.4 Transient Market

The transient market in George is defined as those motorists or vehicles which do not have a permanent residence in George, but are rather passing through the city on route to another destination. In George,

majority of the transient market originates from the N2 highway, either via York Street from the Mossel Bay side; along Knysna and Courtnay Streets from the Knysna, Wilderness and Mossel Bay directions via the N2; or via Sandkraal Road into the Industrial area with traffic coming from the N2 from both the Mossel Bay and Knysna directions. As Sandkraal Road is the primary distributor of traffic from the George Industrial area to the N2 and vice versa, it is expected that the proposed development will experience a large amount of transient traffic passing by the site, from those vehicles that conduct their business within the industrial area or use the Street to access to the N2 in order to conduct business outside the industrial area (for example deliveries, construction work outside the George area, loading and offloading of labour etc.). The transient traffic is expected to be high along this Street throughout the business year.

The purpose of the transient demand model and thus capturing demand for this market is that this represents the demand from motorists that make use of Sandkraal Road on a weekly basis which is then converted to a monthly demand total. The demand derived from this market will represent the primary market of the proposed filling station development. The transient demand represents the fuel demand at the site is purported to be significantly larger than the local market demand.

The demand for fuel in terms of the transient market is a function of the total petroleum that is consumed monthly and the diesel consumed in the same time period by the transient market. This is presented in the following function.

$$D_{tt} = f(p_v; d_v)$$

*D<sub>tt</sub> = Demand for transient trade*  
*P<sub>v</sub> = Petrol Consumption*  
*D<sub>v</sub> = diesel consumption*

The demand for fuel by local taxis and commercial vehicles (large vehicles or trucks) forms the crux of the study, as is the intended target market for the filling station development and are included in the demand figures, as traffic count data was used to derive these figures. The overall demand for both petrol and diesel, during the peak and off peak times of an average working week is determined by the following functions;

**Petrol Volumes:**

$$D_{pv} = f(v; s; a; d)$$

*D<sub>pv</sub> = petrol volumes*  
*v = vehicles (12/24 hour)*  
*s = % support to new filling station*  
*af = average fill*  
*d = days*

**Diesel Volumes:**

$$D_{dv} = f(t; s; a_f; a_d)$$

*D<sub>dv</sub> = demand for diesel volumes*  
*t = trucks (12/24 hours)*  
*s = % support for new filling station*  
*a<sub>f</sub> = average fill*  
*a<sub>d</sub> = active days*



The above formulas apply to the total number of vehicles which (including cars, taxi's (mini-bus), buses, trucks and motorcycles) that would pass by the proposed site of the Parkdene filling station on an average working week day (Monday through to Friday). The traffic counts in question were performed over a week period (26 March – 30 March).

In order to calculate the estimated total transient market travelling via the proposed site, the following method was used in conducting and compiling the traffic count information to be used in the model below;

- Three respective traffic counts were performed during the week period (26 March – 30 March). The first one was conducted on the Monday 26<sup>th</sup> March; the second count was performed on the Wednesday 28<sup>th</sup> March; and the final count was performed on the Friday 30<sup>th</sup> March. These counts represented the Peak period counts which along Sandkraal Road is every day of a regular working week (Monday to Friday)
- On each of these days, three counts were performed consisting of an hour period each and were sub-divided into peak and off-peak time periods. The counts were conducted in the morning, at noon and late afternoon.
- Two additional counts were performed on the 12 and 13 May 2012. These counts were performed on a Saturday (12 May) and a Sunday (13 May) in order to account for the off peak periods along Sandkraal Road, which typically are the weekends when businesses are closed.
- The three counts performed during the peak periods were from 07:30am to 08:30am; 12:30pm to 13:30 pm; and from 16:30pm to 17:30pm. The two off peak counts were performed from 14:30pm to 15:30pm on Saturday and from 18:00pm to 19:00pm on Sunday.
- A traffic count was also performed by Vela VKE engineers for all light vehicles on the 8 November 2011. This traffic count captured traffic flows from 06:15am till 18:00pm traveling in both directions (N2 into Industrial Area and from Industrial area travelling towards the N2.

Given the above methodology for the traffic counts, **Table 4.5** below displays the total transient market which passed by the proposed site per day of the traffic count during both the peak and off peak periods.

**TABLE 4.5: TRANSIENT MARKET TRAFFIC COUNT**

	Light Vehicles (cars, motorbikes, taxi's, bakkies, SUV's etc.)	Heavy Vehicles (large trucks or vehicles, buses, farming and agricultural vehicles etc.)	Total Count
<b>Peak Times of Day (AM and PM)</b>			
Sandkraal Road from George CBD (Industrial Area)	2, 877	368	3, 245
Sandkraal Road from Thembalethu (N2)	2, 698	415	3, 113
From Main Street into Sandkraal Road	950	-	950
From Vuyani Ncamazana Street into Sandkraal Road	379	-	379
<b>Total</b>	<b>6, 904</b>	<b>783</b>	<b>7, 687</b>
<b>Off-peak Times of Day (AM and PM)</b>			
Sandkraal Road from George CBD (Industrial Area)	3, 146	162	3, 308
Sandkraal Road from Thembalethu (N2)	1, 884	196	2, 080
From Main Street into Sandkraal Road	518	-	518
From Vuyani Ncamazana Street into Sandkraal Road	325	-	325

<b>Total</b>	<b>5, 873</b>	<b>358</b>	<b>6, 231</b>
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(Source: Vela VKE Traffic Counts, 2012)

**Table 4.5** above shows that the largest volumes of traffic (for both light and heavy vehicles) are experienced during the peak times of day where a total of 6, 904 light vehicles passed the site during the peak hours (Vela VKE, 2012), and 783 heavy vehicles passed by the site over the same period (Urban-Econ, 2012). The large amount of heavy vehicles has positive implications for the proposed filling station development as this is the intended target market of the development. The large volumes of light vehicles which pass by the site serve as the secondary target market, and although there are already two existing filling stations located on Sandkraal Road, both of them are located on the western side of the street, meaning that potentially all outgoing vehicles could be captured by the filling station.

**Table 4.6 and 4.7** below shows the Urban-Econ Traffic counts which performed for peak and off peak periods over a period of 5 days for both light and heavy vehicles.

**TABLE 4.6: PEAK LIGHT AND HEAVY VEHICLE TRAFFIC COUNTS**

Direction of Traffic (Light Vehicles)	Morning Counts (07:30am to 08:30am)	Afternoon count (12.30pm to 14:30pm)	Afternoon Count (16:30pm to 17:30pm)	Total
<b>26 March (Monday)</b>				
Incoming Traffic (N2 into George Industria)	842	674	526	2, 042
Outgoing (George Industria towards N2)	520	541	1, 107	2, 168
<b>26 March (Wednesday)</b>				
Incoming Traffic (N2 into George Industria)	880	459	553	1, 892
Outgoing (George Industria towards N2)	501	530	1, 032	2, 063
<b>30 March (Friday)</b>				
Incoming Traffic (N2 into George Industria)	850	415	688	1, 953
Outgoing (George Industria towards N2)	509	732	1, 111	2, 352

Direction of Traffic (Heavy Vehicles)	Morning Counts (07:30am to 08:30am)	Afternoon count (12.30pm to 14:30pm)	Afternoon Count (16:30pm to 17:30pm)	Total
<b>26 March (Monday)</b>				
Incoming Traffic (N2 into George Industria)	57	59	51	167
Outgoing (George Industria towards N2)	69	55	78	202
<b>28 March (Wednesday)</b>				
Incoming Traffic	71	56	77	204

Direction of Traffic (Heavy Vehicles)	Morning Counts (07:30am to 08:30am)	Afternoon count (12.30pm to 14:30pm)	Afternoon Count (16:30pm to 17:30pm)	Total
(N2 into George Industria)				
Outgoing (George Industria towards N2)	76	70	56	202
<b>30 March (Friday)</b>				
Incoming Traffic (N2 into George Industria)	68	47	39	154
Outgoing (George Industria towards N2)	60	71	60	191

(Source: Urban-Econ Traffic Counts, 2012)

Table 4.7 below shows the off peak traffic counts for both heavy and light vehicles.

**TABLE 4.7: OFF PEAK LIGHT AND HEAVY VEHICLE TRAFFIC COUNTS**

Direction of Traffic (Light Vehicles)	Afternoon count (14:30pm to 15:30pm)	Evening Count (18:00pm to 19:00pm)	Total
<b>12 May (Saturday)</b>			
Incoming Traffic (N2 into George Industria)	521		521
Outgoing (George Industria towards N2)	535	-	535
<b>13 May (Sunday)</b>			
Incoming Traffic (N2 into George Industria)	-	501	501
Outgoing (George Industria towards N2)	-	532	532

Direction of Traffic (Heavy Vehicles)	Afternoon count (14:30pm to 15:30pm)	Evening Count (18:00pm to 19:00pm)	Total
<b>12 May (Saturday)</b>			
Incoming Traffic (N2 into George Industria)	18	-	18
Outgoing (George Industria towards N2)	18	-	18
<b>13 May (Sunday)</b>			
Incoming Traffic (N2 into George Industria)	-	8	8
Outgoing (George Industria towards N2)	-	9	9

(Source: Urban-Econ Traffic Counts, 2012)

The Urban-Econ traffic counts recorded a total of **5, 887 light vehicles** coming into George via Sandkraal Road over the three peak period days and a total of **6, 583 light vehicles** leaving George via Sandkraal Road over the same period. The total number of heavy vehicles which were recorded during the three peak days was **525** coming into George via Sandkraal Road and **595 heavy vehicles** leaving George via Sandkraal Road.

The total number of light vehicles entering George during the off peak period was **511**, while the number of light vehicles leaving George during the off peak period was **534**. The total number of heavy vehicles coming into George during the off peak period was **13**, while the total number leaving George during the off peak period was **14**.

#### 4.5 Method

In order to determine the demand for a new filling station it is necessary to determine the total fuel sales within the local trading area. The demand is generated by the number of vehicles that pass the site. These vehicles represent potential customers. Although demand that will be generated by the local market residing in the market area will also contribute to the fuel demand, these calculations will not be included.

The transient market demand determines the fuel volumes consumed by the transient 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:

$$D_{pv} = f(v; s; af; d)$$

- ▶  $D_{pv}$  represents the fuel volumes;
- ▶ “v” indicates the number of passing vehicles;
- ▶ “s” indicates the inception rate (%);
- ▶ “af” illustrates the average fill; and
- ▶ “d” represents the number of days.

The transient market demand determines the fuel volumes consumed by the transient vehicles. The figure is calculated with the interaction of the number of vehicles passing the site, the interception rate and the average fill. **Table 4.8** give the demand figures for the transient traffic past the proposed site.

**TABLE 4.8 TRANSIENT TRAFFIC FUEL DEMAND**

	Weekday		Weekend	
	light	heavy	light	heavy
<b>Total traffic</b>	<b>62,412</b>	<b>4,800</b>	<b>65,715</b>	<b>3,026</b>
<b>Interception Rate</b>	<b>2.5%</b>		<b>2.5%</b>	
<b>Average intercepted traffic</b>	<b>1,560</b>	<b>120</b>	<b>1,643</b>	<b>76</b>
<b>Average fill</b>	<b>29.25</b>	<b>97.5</b>	<b>29.25</b>	<b>97.5</b>
<b>Trading days (monthly)</b>	<b>22</b>		<b>8</b>	
<b>Monthly fuel sales</b>	<b>1,003,860</b>	<b>256,080</b>	<b>384,433</b>	<b>59,280</b>
<b>Total fuel sales</b>	<b>1,259,940</b>		<b>443,713</b>	
<b>Total monthly fuel sales</b>	<b>1,703,653</b>			

(Source: Urban-Econ calculations, 2012)

Please note: 97.5% possible leakages is taken into consideration for vehicles that choose to be fuelled at alternative filling stations in the area. The gross fuel volume demand at the proposed site indicates 1,703,653 litres of fuel. This figure represents the minimum demand that could be expected at the proposed development site from the transient market travelling through the market area. This figure is regarded by Urban-Econ as a realistic scenario of the expected demand at the proposed development.



#### 4.6 Implication

According to the accepted industry standard, a filling station should sell approximately 300,000 litres of fuel to be regarded as feasible. From the demand calculations it is clear that the conservative scenario provides adequate demand in terms of fuel volumes to sustain the development of a filling station. As a result it is clear that the proposed filling station development concept can be deemed as feasible in the existing market. Even with the two competing filling stations along Sandkraal Road there is sufficient demand for the Parkdene Filling Station to be developed.

# Section 5: Impact Analysis

## 5.1 Introduction

The following section of the feasibility study will present and analyse the economic impacts that the proposed Parkdene Filling Station development will have within the local George municipality and Eden District municipality. The section will highlight the beneficial effects that the construction of and operation of the development will have on Gross Geographic Production (GGP), New Business Sales and employment, using the Input-Output model.

The section will first take the reader through an in-depth explanation of the Input-Output model in order to provide an understanding of how the analysis will be conducted. This will be followed by a quantification of the direct, indirect, induced and total impacts, which the development will have in the local and regional economies by analysing the CAPEX or construction phase of the development, followed by an analysis of the OPEX or operational phase of the development. To end the section a conclusion and synthesis of the findings will be presented.

## 5.2 Understanding the Input-Output Model

While there are many methods of regional economic impact analysis, the I-O modelling approach has proven to be a particularly effective method for evaluating the implications of introducing an exogenous change to the economy.

The Input-Output table forms the nucleus of the I/O model. Essentially the Input-Output table is nothing more than an extension of the National Accounts of a country, i.e. desegregating it into the various sectors of the economy. Therefore, the Input-Output Table is a quantified and summarised version of all transactions that took place between the main economic stakeholders in a particular year. For this reason, Input-Output Tables are compiled and published by Statistics South Africa (StatsSA), using primarily South African Reserve Bank Accounts data. These sectorial figures are therefore strictly compatible with the macro national accounting data published by the South African Reserve Bank and StatsSA on a regular basis.

The Input-Output Table makes provision for two kinds of transactions at a sectorial level, namely the purchase of intermediate and primary inputs on the one side, and the supply of intermediate and final outputs on the other side. In order to arrive at proper multipliers for the different sectors, household income expenditure has been included in the inter-industry section of the Input-Output table. This implies that household income is treated as being spent within the economic system and is generating further economic activity.

It is also important to note that the main economic decision-makers who are responsible for the transaction activities contained in the Input-Output Table are entrepreneurs, workers, households and government (all three levels).

Importantly, it is the matrixes that can be derived from the I/O model that are used as instruments for economic analysis. This is done by means of the so-called technical input coefficient matrix and the Leontief Inverse matrix. The fundamental assumptions with regard to the I/O model, as well as the use of this model for analytical purposes, are:

1. Production activities in the economy are grouped in homogeneous sectors.

2. The mutual interdependence of sectors is expressed in meaningful input functions.
3. Each sector's inputs are only a function of the specific sector's production.
4. The production by different sectors is equal to the sum of the separate sectors' of production.
5. The technical coefficients remain constant for the period over which forecast the projections is made.
6. There will be no major change in technology.

### 5.3 Defining Economic Impact

Economic impacts can be defined as the effects (positive or negative) on the level of economic activity in a given area(s). The net economic impact is usually measured as the expansion or contraction of an area's economy, resulting from the changes in (i.e. opening, closing, expansion or contraction of) a facility, project or program. Importantly, the net economic impact is ultimately informed by the exogenous change to a particularly defined geographical area/entity.

### 5.4 Forms of Economic Impact

The net economic impact of an exogenous change in the economy will be translated according to various direct and indirect economic effects, as are defined below:

**Direct economic impacts:** are the changes in local business activity occurring as a direct consequence of public or private business decision, or public programmes and policies. Furthermore, increased user benefits lead to monetary benefits for some users and non-users (individuals and businesses) within the geographical area:

- *For affected businesses*, there may be economic efficiency benefits in terms of product cost, product quality or product availability, stemming from changes in labour market access, cost of obtaining production inputs and/or cost of supplying finished products to customers.
- *For affected residents*, benefits may include reduced costs for obtaining goods and services, increased income from selling goods and services to outsiders, and/or increased variety of work and recreational opportunities associated with greater location accessibility.

**Indirect and induced impacts:** Ultimately, the direct benefits to business and the residents of communities and regions may also have broader impacts, including:

- *Indirect business impacts* – business growth for suppliers to the directly- affected businesses
- *Induced business impacts* – business growth as the additional workers (created by direct and indirect economic impacts/effects) spend their income on food, clothing, shelter and other local goods and services. This business growth will also have implications for potential municipal income due to raised taxes and service levies.

### 5.5 Modelling Economic Impact

Using the I/O model methodology, various anticipated direct and indirect economic impacts of the proposed Parkdene Filling Station development have been quantified. These economic impacts have been derived using an understanding of economic cause-effect relationships. The principle of cause-effect is that for any economic action, there can be a multitude of different economic reactions (effects). For the purposes of this project, the main cause/action is the construction of the Parkdene Filling Station development and the site designated. This then results in a number of direct potential/probable effects, which also have a range of indirect potential/probable effects. The nature of the probable cause-effect relationship pertaining to the Parkdene Filling Station development is displayed in **Figure 5.1** below.



- New Business Sales generated;
- Increase in GGP (production); and
- Impact on employment

The cost implications of the CAPEX (Capital Expenditure) phase of the Parkdene Filling Station development are listed below. These costs refer to expenditure items that will be incurred in the construction phases proposed filling station as stated by the developers. The expenditure items (not amounts) pertain to the general requirements of a filling station development, with the amounts spent on these items varying from station to station, depending on the type of market the filling station is aims to target (local market, transient market, motor vehicles, trucks or large vehicles; or motor vehicles and large vehicles etc.) the proposed size of the site and the respective amenities that will form part of the filling station (for example car wash, convenience store, take-away etc.). As the expected development costs listed below pertain to the proposed Parkdene Filling Station development, the results of both the CAPEX and OPEX phases of the Input-Output model will be discussed in reference to the proposed development and the impacts stated in the tables below will represent the actual impacts that the development of the filling station will have in the local and regional economy of George Municipality and the Eden District Municipality.

Through these capital injections and the construction of the proposed facilities, new business sales will be generated within the local economy in order to provide the materials and supplies needed during this phase and will stimulate production and employment opportunities within those businesses directly and indirectly required during the construction phase. The estimated cost implications during the CAPEX phase are as follows;

Development Activities	Capital Expenditure
<b>Pumps</b>	R 700, 000
<b>Tanks</b>	R 1,100,000
<b>Shopfitting</b>	R 250,000
<b>Signage</b>	R 900,000
<b>Building</b>	R 2,800,000
<b>Canopy</b>	R 700, 000
<b>Earthworks</b>	R 700, 000
<b>Professional Fees</b>	R 350, 000
<b>Landscaping</b>	R 50, 000
<b>Municipal Contribution (Electrical)</b>	R 10, 000
<b>Municipal Contribution (Engineering)</b>	R 10, 000
<b>External Civil Services (Engineering)</b>	R 10, 000
<b>Internal Civil Services (Engineering)</b>	R 10, 000
<b>Electrical Infrastructure Costs</b>	R 350, 000
<b>TOTAL</b>	<b>R 7,940,000</b>

The total values of the expected developmental costs that will be incurred during the Construction (CAPEX) phase of the Parkdene Filling Station is R7, 940, 000 and are expected to be once off amounts.

As has been highlighted in **Section 2** (please refer to the Development Concepts section of the report) three alternatives have been presents for the filling station development. Two alternative layouts have been proposed with the preferred layout (alternative 1) being identical to alternative 2 with regards to amenities, number of pumps, location on the erf and access points; with the exception being the size of the two layouts with alternative 1 having a larger coverage of 771m<sup>2</sup> as opposed to the smaller coverage of 635m<sup>2</sup> for alternative layout 2. The third and final alternative that will form part of the impact analysis is the “No-Go”



alternative, in which the development will not take place and the site will remain as it is. All three of these layouts were modelled and the results of which presented in the tables below. It must be emphasized that the cost implications for both alternative layouts 1 and 2 are identical and thus the impacts that they will have on new business sales, GGP and employment are expected to be identical.

These cost implications were used in the formulation and calculation of the impact tables presented below. The impacts on new business sales, production and employment stimulation as a result of the CAPEX expenditure are also discussed below.

**Additional New Business Sales:**

Construction of the Parkdene Filling Station will involve the establishment of the pumps and tank; the laying of building and electrical infrastructure, as well as landscaping and earthworks; construction of the retail amenities and pump operators facilities; as well as the filling station manager and admin offices; and the parking bays facilities.

It is recommended that the building material, supplies and labour that will be used during the construction phase be sourced within the local George and Eden Municipal areas where possible, in order to maximise the positive impacts that the development will have within the local economy. Demand for products and services used the construction phase will create and stimulate new business sales within the region, which will in turn stimulate production and increase the number of indirect and induced employment opportunities in the economy. This is particularly important in context to the living conditions of the residential areas (Lawaaikamp, Maraikamp and Parkdene) in which the filling station will be constructed and operate. The households that live in the surrounding area are low income households and traditionally suffer from high unemployment levels and lack of skills.

**Table 5.1** below shows the direct, indirect, trade induced and total impact of the proposed Parkdene Filling Station development on new business sales within the respective 10 broad industries that make up the economy of the local George Municipal area.

**TABLE 5.1: NEW BUSINESS SALES (CONSTRUCTION PHASE)**

Sectors	Direct Impact	Indirect Impact	Trade Induced	Total Impact
<b>Alternative 1 and Alternative 2</b>				
Agriculture	R0	R10, 000	R50, 000	R60, 000
Mining	R0	R20, 000	R0	R20, 000
Manufacturing	R0	R710, 000	R260, 000	R970, 000
Electricity	R0	R10, 000	R20, 000	R30, 000
Water	R0	0	R10, 000	R10, 000
Building and Construction	R1, 540, 000	R840, 000	R10, 000	R2, 390, 000
Trade and Accommodation	R0	R270, 000	R160, 000	R430, 000
Transport and Storage	R0	R240, 000	R150, 000	R390, 000
Financing	R0	R30, 000	R140, 000	R170, 000
Real Estate and Business Services	R0	R540, 000	R210, 000	R740, 000
Government Services	R0	R290, 000	R60, 000	R350, 000
Other	R0	R40, 000	R50, 000	R80, 000
<b>Total</b>	<b>R1, 540, 000</b>	<b>R3, 000, 000</b>	<b>R1, 120, 000</b>	<b>R5, 660, 000</b>
<b>Alternative 3 (No-go):</b>				
Agriculture	R0	R0	R0	R0
Mining	R0	R0	R0	R0
Manufacturing	R0	R0	R0	R0

Sectors	Direct Impact	Indirect Impact	Trade Induced	Total Impact
Electricity	R0	R0	R0	R0
Water	R0	R0	R0	R0
Building and Construction	R0	R0	R0	R0
Trade and Accommodation	R0	R0	R0	R0
Transport and Storage	R0	R0	R0	R0
Financing	R0	R0	R0	R0
Real Estate and Business Services	R0	R0	R0	R0
Government Services	R0	R0	R0	R0
Other	R0	R0	R0	R0
<b>Total</b>	<b>R0</b>	<b>R0</b>	<b>R0</b>	<b>R0</b>

(Source: Urban-Econ Input-Output Model, 2012)

**Table 5.1** above shows that the total impact (summation of direct, indirect and induced impacts) on new business sales in the George and Eden District municipality's economies is **R21, 180, 000** during the construction phase of the development. The **indirect impacts** will have the most significant impact within the local economies generating **R10, 280, 000** in New Business Sales. The direct impact of the construction of the filling station development will be equal to the total value of the expected developmental costs (R7, 940, 000) showing that all expenditure items within the construction phase will generate the exact same amount of direct New Business Sales. This direct impact relates to the new sales as a result of the construction activities and goods and services required on site. The benefit of these increased direct sales will accrue to those businesses that provide materials and services directly related to the construction of the development, which will include brick layers, cement suppliers, the provision of the piping systems, as well as those companies that will contribute to infrastructure provision and the development of the filling station and retail amenities. **Alternative layout 2**, due to having identical cost implications will have the same impact on new business sales (directly, indirectly and induced) and will have a total impact of **R21, 180, 000**.

This **direct impact (R7, 940, 000** for both alternative layout 1 and 2) will then filter down through the economy and have an indirect impact of **R10, 280, 000**. This will accrue to those businesses that provide goods, supplies, materials and services to those businesses that will be directly involved in the construction of the filling station. The indirect impact simple refers to new business Sales that will accrue to those businesses that form part of the supply chain or provide goods and services to those businesses that will be directly involved in the construction of the Filling Station.

The effect and scope of the **indirect impact (R10, 280, 000)** on new business sales as a result of the development will be more regionally distributed than the effects of the direct impact, incorporating more businesses and households. This is due to the fact that supplies required by those businesses directly involved are sourced from businesses located all over the region and the province, and thus will have a more far reaching effect on the regional economy. Majority of these new business sales are expected to accrue to companies within the George local municipality and the greater Eden District, barring relevant supplies that are not provided locally, which will then have to be sourced outside the region.

The **induced impact** of the filling station development on New Business Sales will be **R 2,790, 000**. The induced impact of the development refers to the increased incomes of those businesses which are involved in the direct and indirect impact phased, that is then spend within the local economies on goods and services. This expenditure (which would not be generated if the development does not take place) generates additional new business sales and the scope and orientation of the businesses which will feel the induced impacts can range from the purchase of property to the purchase of a box of cigarettes at a local supermarket.

The “No-Go” alternative (alternative 3) will result in the Parkdene Filling Station development not being constructed and the proposed site and the current activities on the site (Life Community Services) will continue. As a result the capital injection that would occur as a result of the construction of the site, will no longer take place and as such the “No-Go” alternative will not have an impact on new business sales during the construction phase, as no construction materials or labour will be required in this alternative. This alternative represents the opportunity cost, with regards to additional sales that will be foregone through not constructing the facility.

**Additional GGP:**

Along with the increase in new business sales, the GGP regionally and locally will grow. Gross Geographic Production (GGP) is defined as the total value of final goods and services that are produced in a certain geographic area within a designated period of time (usually per annum), and is stimulated by capital investments such as that being made through the proposed development. **Table 5.2** below shows the direct, indirect, induced and total impacts of the proposed Parkdene Filling Station development on additional production locally within the industries that make up the economies of the George Municipality and Eden District municipality. The figures below are in R’s millions.

**TABLE 5.2: ADDITIONAL GGP (CONSTRUCTION PHASE)**

Sectors	Direct Impact	Indirect Impact	Trade Induced	Total Impact
<b>Alternative 1 and Alternative 2</b>				
Agriculture	R0	R10, 000	R50, 000	R60, 000
Mining	R0	R20, 000	R0	R20, 000
Manufacturing	R0	R710, 000	R260, 000	R970, 000
Electricity	R0	R10, 000	R20, 000	R30, 000
Water	R0	0	R10, 000	R10, 000
Building and Construction	R1, 540, 000	R840, 000	R10, 000	R2, 390, 000
Trade and Accommodation	R0	R270, 000	R160, 000	R430, 000
Transport and Storage	R0	R240, 000	R150, 000	R390, 000
Financing	R0	R30, 000	R140, 000	R170, 000
Real Estate and Business Services	R0	R540, 000	R210, 000	R740, 000
Government Services	R0	R290, 000	R60, 000	R350, 000
Other	R0	R40, 000	R50, 000	R80, 000
<b>Total</b>	<b>R1, 540, 000</b>	<b>R3, 000, 000</b>	<b>R1, 120, 000</b>	<b>R5, 660, 000</b>
<b>Alternative 3 (No-go):</b>				
Agriculture	R0	R0	R0	R0
Mining	R0	R0	R0	R0
Manufacturing	R0	R0	R0	R0
Electricity	R0	R0	R0	R0
Water	R0	R0	R0	R0
Building and Construction	R0	R0	R0	R0
Trade and Accommodation	R0	R0	R0	R0
Transport and Storage	R0	R0	R0	R0
Financing	R0	R0	R0	R0
Real Estate and Business Services	R0	R0	R0	R0
Government Services	R0	R0	R0	R0
Other	R0	R0	R0	R0
<b>Total</b>	<b>R0</b>	<b>R0</b>	<b>R0</b>	<b>R0</b>

(Source: Urban-Econ Input-Output Model, 2012)

**Table 5.2** above shows that the **total impact** (both for alternative layout 1 and 2) of **R5, 660, 000** will be generated in new production activities or GGP within the local and regional economies. The increase in new business sales (discussed above) is the catalyst for the increase in GGP as an increase in sales has to be accompanied by an increase in production to satisfy the increase in demand.

The **total direct impact** that the construction of the filling station development will have in the local economies amounts to **R1, 540, 000**. All of this new direct GGP stimulation will occur in the building and construction sector of the local economies. This new production involves the businesses and companies that will benefit directly from new business sales (such as cement and building material suppliers etc.).

The **indirect impact** of the construction of the filling station amounts to **R3, 000, 000**. The largest percentage of new indirect production stimulation will take place within the building and construction industry (R840, 000). Unlike the direct impact, the total impact will be distributed across a wider variety of industries, highlighting the limited direct impact that construction of the filling station will have, as well as the more far reaching and wider impact on GGP the indirect and induced impacts will have within the local economies. This impact will accrue to businesses and industries within the George and Eden District municipal economies, which will be indirectly involved in the construction of the development.

The **total induced impact** of the construction of the development on GGP amounts to **R1, 120, 000**. This impact is based on expenditure of new income earned through the development activities within the broader economy and refers, in essence, to basic and advance trade activities, between those individuals and businesses which benefit directly and indirectly from the construction of the filling station with other businesses within the economy. This has the most far reaching impact as the impact may not necessarily be confined to the local economies (George and Eden) but can be felt on a national level.

The **“No-Go” alternative** (alternative 3) will result in the Parkdene Filling Station development not being constructed and the proposed site and the current activities on the site (Life Community Services) will continue. As a result the capital injection that would occur as a result of the construction of the site, will no longer take place and as such the “No-Go” alternative will not have an impact on new business sales during the construction phase, as no construction materials or labour will be required in this alternative. This alternative represents the opportunity cost, with regards to additional GGP that will be foregone through not constructing the facility.

**Employment Stimulation:**

**Table 5.3** below presents information and figures on the new employment opportunities that are expected to be generated within each industry of the local economy during the construction of the proposed Parkdene Filling Station development. It must be emphasised that the employment opportunities that will be created below are transitory and will only last as long as construction on the site is being undertaken. The employment figures below are to be interpreted as; one employment opportunity for one person for duration of one year.

**TABLE 5.3: EMPLOYMENT (CONSTRUCTION PHASE)**

Sectors	Direct Impact	Indirect Impact	Trade Induced	Total Impact
<b>Alternative 1 and Alternative 2</b>				
<b>Agriculture</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>Mining</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Manufacturing</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>4</b>
<b>Electricity</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Water</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Building and Construction</b>	<b>7</b>	<b>14</b>	<b>0</b>	<b>21</b>

Sectors	Direct Impact	Indirect Impact	Trade Induced	Total Impact
Trade and Accommodation	0	2	1	3
Transport and Storage	0	0	0	0
Financing	0	0	1	1
Real Estate and Business Services	0	5	2	7
Government Services	0	1	0	1
Other	0	0	0	0
<b>Total</b>	<b>7</b>	<b>25</b>	<b>6</b>	<b>38</b>
<b>Alternative 3 (No-go):</b>				
Agriculture	0	0	0	0
Mining	0	0	0	0
Manufacturing	0	0	0	0
Electricity	0	0	0	0
Water	0	0	0	0
Building and Construction	0	0	0	0
Trade and Accommodation	0	0	0	0
Transport and Storage	0	0	0	0
Financing	0	0	0	0
Real Estate and Business Services	0	0	0	0
Government Services	0	0	0	0
Other	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

(Source: Urban-Econ Input-Output Model, 2012)

Table 5.3 above shows that during the construction phase of the development, a **total of 38 new employment opportunities** will be generated (direct, indirect and induced). This applies for both alternative layouts 1 and 2. A total of **7 new employment opportunities** will be generated **directly** through construction and all of these employment opportunities will accrue to the building and construction industry of the local economy (George municipality). The increased business sales, which in turn will increase production to satisfy this new demand, will generate new employment in order to undertake the increased production to meet the new demand. Due to the nature of the construction phase being temporary (from the time construction begins till the completion of the development), these direct employment opportunities are assumed to be transitory in nature and will cease once the construction of the development is complete.

The **indirect and induced impact** of the construction phase on employment will result in an **additional 31 new employment opportunities** being generated. The increased business sales and production experienced by direct businesses will filter down into the rest of the local, regional and provincial economies through demand for materials, goods and services. As this filtration process occurs a greater number of businesses are impacted and the demand generated for the goods and services which supply will stimulate new employment in order to meet the demand.

As mentioned afore, majority if not all these employment opportunities are transitory in nature and will only last as long as construction on the development occurs. Once construction has been completed however, majority of these jobs will no longer be necessary as the demand will no longer exist. Indirect and induced employment may extent past the construction phase due to the filtering down of the impacts of increased sales and production, creating more sustainable jobs. Direct employment will cease upon completion of construction.



As with production and new business sales, the **No-Go alternative** will have no impact on employment generation as this construction will not take place in this alternative, no labour will be needed and thus will not generate any new employment opportunities. The No-Go however does represent and display the opportunity cost with regards to employment, if the facility is not constructed. As both alternatives will have same impact on employment this would represent an opportunity cost of 38 workers.

## 5.6.2 Operating Expenditure (OPEX)

The following section will describe the economic impacts that would be observed during the operational phases of the proposed development. Unlike capital expenditure impacts which are short term (between the initial phases to the conclusion of construction), operational impacts are assumed to be more medium to long term provided the development is fully functionally. The figures below therefore reflect the annual impacts that will be experienced during each year for the existence of the proposed filling station development.

As with the construction phase analysis; the direct, indirect, induced and total impacts will be analysed with regards to the impact on;

- New Business Sales;
- Additional GGP; and
- Employment

The expenditure items for the operational phase of the Parkdene Filling Station development are presented below. As with the CAPEX costs highlighted in section 5.6.1, the expenditure items highlighted pertain to a standard filling station development, however the amounts listed below are specific to the particular filling station development being analysed (Parkdene Filling Station). The impacts presented and discussed below are thus purported to be the impacts that the operation of the filling station will have within the industries of the local economies of George Municipality and the Eden District municipality. The operational expenditure items per annum are;<sup>1</sup>

• Motor Industry Contributions	=	R3, 600.00 (R300.00 per month)
• Bank Charges	=	R54, 000.00 (R4, 500.00 per month)
• Consumables	=	R12, 000.00 (R1, 000.00 per month)
• Commissions, handling fees and discounts	=	R12, 000.00 (R1, 000.00 per month)
• Insurance	=	R78, 000.00 (R6, 500.00 per month)
• Municipality fees	=	R90, 000.00 (R7, 500.00 per month)
• Unemployment Insurance fund	=	R17, 400.00 (R1, 450.00 per month)
• Security	=	R27, 600.00 (R2, 300.00 per month)
• Audit and accounting fees	=	R18, 000.00 (R1, 500.00 per month)
• Marketing	=	R18, 000.00 (R1, 500.00 per month)
• Interests	=	R3, 600.00 (R300.00 per month)
• License Fees	=	R600.00 (R50.00 per month)
• Wages	=	R816, 000.00 (R68, 000.00 per month)
• Salaries	=	R180, 000.00 (R15, 000.00 per month)
• Compensation Fund	=	R6, 000.00 (R500.00 per month)
• Office expenses	=	R12, 000.00 (R1, 000.00 per month)
• Professional fees	=	R9, 600.00 (R800.00 per month)
• Telephone and internet costs	=	R14, 400.00 (R1, 200.00 per month)

<sup>1</sup> Values in brackets represent the monthly expenditure amounts for expenditure item

• Uniforms	=	R13, 200.00 (R1, 100.00 per month)
• Skills development	=	R9, 600.00 (R800.00 per month)
• Maintenance	=	R12, 000.00 (R1, 000.00 per month)
• Postal and Transport costs	=	R28, 800.00 (R2, 400.00 per month)
• Printing and Stationary	=	R6, 000.00 (R500.00 per month)
• Cleaning Costs	=	R6, 000.00 (R500.00 per month)
• Administration Costs	=	R6, 000.00 (R500.00 per month)

The total expenditure per annum for the operations of the proposed filling station is **R1, 454, 400 per annum** which will be incurred every year for the duration of the filling stations operations. As with the cost implications for the two layout alternatives and the “No-Go” alternative during the construction phase, the costs stated above apply to both alternatives one and two and as such the impacts that they will have on new business sales, GGP and employment are expected to be identical.

The impact on new business sales during the OPEX phase is present and analysed below.

#### New Business Sales:

As the extent of the operational phase cost implications for the annual operations of the development are less than that of the construction phase, the external stimulants for business will be fewer. As a result of this the overall impact of the development (both directly and indirectly will be weaker than the construction phase. **Table 5.4** below presents the direct, indirect, induced and total impact on the year-on-year operations of the Parkdene Filling Station development during the operational phase of the development. The figures below are in R's millions.

**TABLE 5.4: NEW BUSINESS SALES (OPERATIONAL PHASE)**

Sectors	Direct Impact	Indirect Impact	Trade Induced	Total Impact
<b>Alternative 1 and Alternative 2</b>				
Agriculture	R0	R0	R30, 000	R30, 000
Mining	R0	R0	R0	R0
Manufacturing	R0	R370, 000	R260, 000	R630, 000
Electricity	R0	R0	R10, 000	R10, 000
Water	R0	R0	R10, 000	R10, 000
Building and Construction	R0	R440, 000	R10, 000	R450, 000
Trade and Accommodation	R1, 450, 000	R60, 000	R70, 000	R1, 590, 000
Transport and Storage	R0	R60, 000	R80, 000	R140, 000
Financing	R0	R10, 000	R50, 000	R50, 000
Real Estate and Business Services	R0	R120, 000	R90, 000	R220, 000
Government Services	R0	R60, 000	R30, 000	R90, 000
Other	R0	R10, 000	R20, 000	R30, 000
<b>Total</b>	<b>R1, 450, 000</b>	<b>R1, 140, 000</b>	<b>R650, 000</b>	<b>R3, 240, 000</b>
<b>Alternative 3 (No-go):</b>				
Agriculture	R0	R0	R0	R0
Mining	R0	R0	R0	R0
Manufacturing	R0	R0	R0	R0
Electricity	R0	R0	R0	R0
Water	R0	R0	R0	R0
Building and Construction	R0	R0	R0	R0
Trade and Accommodation	R0	R0	R0	R0

Sectors	Direct Impact	Indirect Impact	Trade Induced	Total Impact
Transport and Storage	R0	R0	R0	R0
Financing	R0	R0	R0	R0
Real Estate and Business Services	R0	R0	R0	R0
Government Services	R0	R0	R0	R0
Other	R0	R0	R0	R0
<b>Total</b>	<b>R0</b>	<b>R0</b>	<b>R0</b>	<b>R0</b>

(Source: Urban-Econ Input-Output Model, 2012)

**Table 5.4** above indicates that during the operational phase of the proposed Parkdene Filling Station development, both alternative layouts 1 and 2 are expected to have a **direct impact** of **R1, 450, 000** per year on new business sales within the local and regional economies of George and Eden. The business ventures that will benefit from this increase in new business sales will be those that will be involved in supplying the goods and services (security, management and maintenance services for example) as indicated by the cost breakdown above. In addition, **R1, 140, 000 per annum** worth of new business sales will be generated **indirectly** through the businesses that will benefit directly and will filter down to the rest of the economy, creating an **induced impact of R650, 000 per annum**.

As the cost implications for both layouts will be identical, **alternative layout 2** will also have a **direct impact of R1, 450, 000 per year**; an indirect impact of **R1, 140, 000 per annum**; and an **induced impact of R650, 000**.

The **total impact** of the operations of the proposed Parkdene Filling Station development on new business sales during the operational phase for the pertinent businesses is **R3, 240, 000**. It should be encouraged that majority of the businesses involved in this stage of operations, be sourced locally where possible, in order to maximise the benefits of both the direct, indirect and induced impacts on the local economy.

As in the construction phase, the **No-Go alternative** will not have any impact on new business sales during the operational phase of the Parkdene Filling Station development, as the No-Go implies that the site will be developed and thus operational expenditure at the site will not occur and no positive or negative impacts will be generated within the local George economy. It should be noted however that the no-go alternative will present an opportunity cost for the region, as the total impacts of the preferred site (be it site 1 or 2) will be lost and the sales that are likely to be generated and the additional stimulation of the economy via production and employment as a result of sales will not take place.

**Additional GGP:**

**Table 5.5** below shows the direct, indirect, induced and total impacts of the proposed Parkdene Filling Station development during the operational phase of the development. The figures below are in R's millions.

**TABLE 5.5: ADDITIONAL GGP (OPERATIONAL PHASE)**

Sectors	Direct Impact	Indirect Impact	Trade Induced	Total Impact
<b>Alternative 1 and Alternative 2</b>				
Agriculture	R0	R0	R10, 000	R10, 000
Mining	R0	R0	R0	R0
Manufacturing	R0	R80, 000	R60, 000	R140, 000
Electricity	R0	R0	R10, 000	R10, 000
Water	R0	R0	R0	R0
Building and Construction	R0	R90, 000	R0	R100, 000
Trade and Accommodation	R740, 000	R30, 000	R30, 000	R810, 000

Sectors	Direct Impact	Indirect Impact	Trade Induced	Total Impact
Transport and Storage	R0	R30, 000	R30, 000	R60, 000
Financing	R0	R0	R30, 000	R30, 000
Real Estate and Business Services	R0	R60, 000	R40, 000	R100, 000
Government Services	R0	R30, 000	R10, 000	R50, 000
Other	R0	R0	R10, 000	R10, 000
<b>Total</b>	<b>R740, 000</b>	<b>R330, 000</b>	<b>R250, 000</b>	<b>R1, 320, 000</b>
<b>Alternative 3 (No-go):</b>				
Agriculture	R0	R0	R0	R0
Mining	R0	R0	R0	R0
Manufacturing	R0	R0	R0	R0
Electricity	R0	R0	R0	R0
Water	R0	R0	R0	R0
Building and Construction	R0	R0	R0	R0
Trade and Accommodation	R0	R0	R0	R0
Transport and Storage	R0	R0	R0	R0
Financing	R0	R0	R0	R0
Real Estate and Business Services	R0	R0	R0	R0
Government Services	R0	R0	R0	R0
Other	R0	R0	R0	R0
<b>Total</b>	<b>R0</b>	<b>R0</b>	<b>R0</b>	<b>R0</b>

(Source: Urban-Econ Input-Output model, 2012)

Table 5.5 shows that the **direct impact** will have the most significant impact generating new production during the operational phase to the value of **R740, 000 per annum** for every year the filling station is in operation. The **indirect impact** on production activities as a result of the operations of the filling station will be **R330, 000 per annum** for every year the filling station is in operation and the **induced impact** will be **R250, 000 per annum** for every year of operations.

Due to the nature of operation activities (which occur on a day-to-day basis) it is expected that majority (if not all) the direct and indirect benefits of the increase in production and business sales, will accrue within the local economy of George and the Eden District economies, who it is assumed are in the best position to provide the day-to-day services within the development. The indirect impacts are thus likely to accrue to companies and ventures that provide supplies and services to those directly impacted. These supplies can be source locally, regionally or provincially, however it is recommended that as many of the suppliers to be used in the operations be sourced within the local business pool.

The **induced impact**, which will result through increased income and expenditure as a result of the direct and indirect impacts, will total **R250, 000 per annum** and is will have the least significant impact of the three. As the cost implications for both layouts is identical, **alternative layout 2** will also have a **direct impact** of **R740, 000 per annum**; an **indirect impact** of **R330, 000 per annum**; and an **induced impact** of **R250, 000**.

The **total impact** of the operational phase on production during the operational phase is expected to be **R1, 320, 000 per annum** for every year of operations. The **No-Go alternative** will not have any impact on additional production during the operational phase of the Parkdene Filling Station development, as the no-go implies that the filling station will not be developed and thus operational expenditure at the development will not occur and no positive or negative impacts will be generated within the local George and Eden economies. It should be noted however that the no-go alternative will represent an opportunity cost for the region, as the

total impacts of the preferred site (whether it be site 1 or 2) will be lost and the production that is likely to be generated and the additional stimulation of the economy via employment as a result of the increased production will not take place.

**Employment Stimulation:**

**Table 5.6** below shows the direct, indirect, induced and total impacts of the development on labour and employment opportunities. With the sustainable nature of operational activities, the employment opportunities which are to be generated during this phase of the development, are purported to be full time or long term employment opportunities and if they are occupied by local residents and provided by local ventures, the development will benefit the local economy and ease unemployment and income hindrances, which in turn will stimulate further expenditure and sales within the economy. The employment figures below are to be interpreted as; one employment opportunity for one person for duration of one year.

**TABLE 5.6: EMPLOYMENT (OPERATIONAL PHASE)**

Sectors	Direct Impact	Indirect Impact	Trade Induced	Total Impact
<b>Alternative 1 and Alternative 2</b>				
Agriculture	0	0	0	0
Mining	0	0	0	0
Manufacturing	0	0	1	1
Electricity	0	0	0	0
Water	0	0	0	0
Building and Construction	0	2	0	2
Trade and Accommodation	5	0	0	5
Transport and Storage	0	0	0	0
Financing	0	0	0	0
Real Estate and Business Services	0	1	0	1
Government Services	0	0	0	0
Other	0	0	0	0
<b>Total</b>	<b>5</b>	<b>3</b>	<b>1</b>	<b>9</b>
<b>Alternative 3 (No-go):</b>				
Agriculture	0	0	0	0
Mining	0	0	0	0
Manufacturing	0	0	0	0
Electricity	0	0	0	0
Water	0	0	0	0
Building and Construction	0	0	0	0
Trade and Accommodation	0	0	0	0
Transport and Storage	0	0	0	0
Financing	0	0	0	0
Real Estate and Business Services	0	0	0	0
Government Services	0	0	0	0
Other	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

(Source: Urban-Econ input-Output Model, 2012)

**Table 5.6** above shows that the **direct impact** of the operational phase of the development is expected to generate only **5 new employment opportunities**; while a further **3 employment opportunities** will be generated **indirectly** through the additional direct business sales and production; and **1 new employment**



**opportunity** will be created through the **induced impacts** of the operational phase of the proposed development. To reiterate, it is encouraged that majority if not all the labour should be sourced from within the George Local municipal area, in order to accentuate the positive benefits and impacts of the development on the local economy. As the employment opportunities generated during this phase of the development are permanent and sustainable in the long term, as opposed to those generated during the construction phase which is only transitory, sourcing of local labour during this phase will have a long term beneficial impact.

The **total impact** that the operations of the proposed development are forecast to generate is **9 new employment opportunities**. During the operation of the filling station 1 employment opportunity applies to one person being employed for duration of 1 year. Thus 9 new employment opportunities will be available through the development for each year in which the filling station continues to conduct its operations.

The **No-Go alternative** will not have any impact on employment during the operational phase of the Parkdene Filling Station site, as the no-go implies that the development will not be developed and thus operational expenditure at the site will not occur and no positive or negative impacts will be generated within the local George municipal economy. It should be noted however that the no-go alternative will represent an opportunity cost for the region, as the total impacts of the preferred site (whether it be site 1 or 2) will be lost.

## 5.7 Conclusion & Synthesis

**Table 5.7 and 5.8** below indicate the summary of the direct, indirect and total impact of the Parkdene Filling Station development on business sales, GGP and employment during the CAPEX and the OPEX phases of the development.

**TABLE 5.7: TOTAL IMPACT DURING THE CONSTRUCTION PHASE**

Impact Indicator	Direct Impact	Indirect Impact	Induced Impact	Total Impact
<b>Alternative Layout 1:</b>				
Business Sales	R7, 940, 000	R10, 280, 000	R2, 970, 000	R21, 180, 000
Additional GGP	R1, 540, 000	R3, 000, 000	R1, 120, 000	R5, 660, 000
Employment	7	25	6	38
<b>Alternative Layout 2:</b>				
Business Sales	R7, 940, 000	R10, 280, 000	R2, 970, 000	R21, 180, 000
Additional GGP	R1, 540, 000	R3, 000, 000	R1, 120, 000	R5, 660, 000
Employment	7	25	6	38
<b>No-Go Alternative:</b>				
Business Sales	0	0	0	0
Additional GGP	0	0	0	0
Employment	0	0	0	0

(Source: Urban-Econ Input-Output Model, 2012)

**Table 5.8** below shows the total impact of the development during the operational phase.

**TABLE 5.8: TOTAL IMPACT OF DEVELOPMENT DURING THE OPERATIONAL PHASE**

Impact Indicator	Direct Impact	Indirect Impact	Induced Impact	Total Impact
<b>Alternative Layout 1:</b>				
Business Sales	R1, 450, 000	R1, 140, 000	R650, 000	R3, 240, 000
Additional GGP	R740, 000	R330, 000	R250, 000	R1, 320, 000
Employment	5	3	1	9
<b>Alternative Layout 2:</b>				
Business Sales	R1, 450, 000	R1, 140, 000	R650, 000	R3, 240, 000

Impact Indicator	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Additional GGP	<b>R740, 000</b>	<b>R330, 000</b>	<b>R250, 000</b>	<b>R1, 320, 000</b>
Employment	<b>5</b>	<b>3</b>	<b>1</b>	<b>9</b>
<b>No-Go Alternative:</b>				
Business Sales	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Additional GGP	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Employment	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

(Source: Urban-Econ Input-Output Model, 2012)

The tables above show that in the short term the construction phase will have the greatest impact on New Business Sales (R21, 180, 000), production (R5, 660, 000) and employment (38) for both alternative layout 1 and 2. As both alternative 1 and 2 will have the same impact on new business sales, production and employment, the layout chosen should rest on the preferred size, with alternative 1 (preferred alternative) being larger than alternative 2. With the lack of market share available in the George fuel industry the filling station will may have to shift its target market away from just the transient truck market and attempt to capture a greater share of the light vehicles market (petroleum market as opposed to diesel market assumed to represent the heavy vehicle market).

As has been mentioned in the short term the construction phase will yield the greater impacts, however due to the annual nature of the operational phase impacts on new business sales (R3, 240, 000), production (R1, 320, 000) and employment (9), as well as the transitory nature of the construction phase impact on employment, the annual impacts of the operational phase will over the medium to long term outweigh the impacts of the construction phase. In addition, as the length of employment generated during the construction phase is only temporary and will terminate at the end of the construction period, the generation of 9 sustainable long term jobs far outweighs the impact of 38 part time jobs.

In addition to the operational phase employment generation being superior to that of the construction phase, the daily nature of the employment requirements will better suit individuals that live in the surrounding residential areas of Parkdene, Lawaakamp and Maraiskamp, further enhancing and maximising the positive impacts that the development will have in the surrounding communities.

# Section 6: Impact Tables

## 6.1 Introduction

The following and final section of the report Feasibility study will serve to assess and present the impacts that the construction and operations of the Parkdene Filling Station development will have on various components of the George Local and Eden District municipalities. The components to be analysed include New Business Sales, GGP, Employment, Investment Expenditure and the property market. The assessment serves to establish whether the Parkdene Filling Station will have a positive, negative or neutral impact on these factors. To commence the chapter the approach and rating system that will be used in the following assessment will be presented and discussed; which will be followed by the assessment of the development on the various components; and finally a synthesis and conclusion will be presented to summarise the results.

## 6.2 Approach

The proposed impact tables will rate the development in terms of quantified ratings which have been given to each criterion. This rating system is discussed more fully in the following sub-section. The objective of the impact table is to recommend an optimal alternative location of the development of the proposed Parkdene Filling Station development according to various economic principles.

## 6.3 Rating System

Each impact will be rated using the criteria specified in the plan of study for the EIA. The rating given will be according to the potential impact of each of the identified criteria on the three alternative locations for the Parkdene Filling Station development. The ratings will be described in the following sub-section. The proposed alternatives for the filling station will be rated according to the impacts on the following considerations which have been discussed in the previous sub-sections:

1. Impact on Additional Business Sales
2. Impact on Additional GGP
3. Impact on Job/creation and Lost
4. Impact on Investment Expenditure
5. Impact on the Property Market
6. Impact on Tourism

### Criteria One: Spatial Extent

The spatial extent can be described as the extent of impact, which the development will have on the region. The choices are:

- Site specific;
- Local (< 2km from site);
- Regional (within 30 km of the site);
- National; and
- International.

### Criteria Two: Intensity or the Magnitude of Impact

The intensity describes the magnitude or size of the impact of the development, which can be categorized as:

- High: Natural and/or social functions and/or processes are severely altered;

- › Medium: Natural and/or social functions and/or processes are notably altered; and
- › Low: Natural and/or social functions and/or processes are negligibly altered.

**Criteria Three: Duration**

The duration is the time frame in which the impact will be experienced i.e.:

- › Short term (duration during construction phase);
- › Medium term (duration for migration measures to take effect);
- › Long term (life span of the project); and
- › Permanent (where time will not mitigate the potential impact).

**Criteria Four: Probability**

The probability of the impact occurring can be defined as:

- › Improbable (little or no chance of occurring);
- › Probable (where there is a distinct possibility that the impact will occur);
- › Highly probable (where it is most likely to occur); and
- › Definite (the impact will occur regardless of any preventative measures).

**Criteria Five: Significance**

The significance of the impact on the area is measured in terms of the following:

- › Very High: where an activity would have, or there would be a high risk of, an irreversible negative impact on the receiving environment, or a major positive impact. These impacts should be a central factor in decision-making;
- › High: impacts of high magnitude locally for longer than 6 years and/or regionally and beyond. The impact results in major alterations to the environment even if effective mitigation measures are implemented and will have an influence on decision-making;
- › Medium: impacts of moderate magnitude locally to regionally in the short term. The impact results in medium alterations to the environment and can be reduced or eliminated by the implementation of effective mitigation measures;
- › Low to very low: impacts will be localized and temporary. Impacts result in minor alterations to the environment and can easily be alleviated by the implementation of effective mitigation measures; and
- › No impact: a potential concern or impact, which, upon evaluation, is found to have no significant impact at all.

**Criteria Six: Status**

The status is the overall effect on the environment, which can be, measured in terms of

- › Positive (a benefit to the environment/society);
- › Negative (a cost to the environment/society); and
- › Neutral.

**Criteria Seven: Confidence**

The degree of confidence in predictions (whether an impact will occur) based on available information and specialist knowledge will be assessed as follows:

- › Low (doubtful);
- › Medium (possible); and
- › High (confident)

The significance of the impact post mitigation is also indicated with regards the above impact criterion.

## 6.4 Impact of Development

The following section of the report will display the extent of the impacts that the proposed Parkdene Filling Station development will have within the George and Eden District municipalities. It serves to provide a quantitative analysis of these impacts based on the criterion mentioned in **section 6.3** above. The extent and scope of the impacts will be analysed regarding the developments impact on additional business sales and GGP; employment creation and losses within the local economies; how the development will affect the investment expenditure in the area; and finally the impact the alternatives will have on the local residential markets.

This analysis will provide a more comprehensive description of the impacts that the proposed alternatives will have in the local George Municipal area

### 6.4.1 Additional New Business Sales

**Table 6.1** illustrates the impact which the proposed filling station development will have on the new business sales in the local, regional and provincial context during the construction phase.

**TABLE 6.1: IMPACT ON NEW BUSINESS SALES DURING THE CONSTRUCTION PHASE**

Evaluation Criteria	Alternative 1	Alternative 2	No-Go Alternative
Spatial Extent	Regional	Regional	Regional
Intensity of Impact	Low	Low	Low
Duration	Short Term	Short Term	Short Term
Probability	Highly Probable	Highly Probable	Definite
Significance	Medium	Medium	No Impact
Status	Positive	Positive	Neutral
Confidence	High	High	High

**Table 6.2** below shows the impact the filling station development site will have on new business sales during the operational phase.

**TABLE 6.2: IMPACT ON NEW BUSINESS SALES DURING THE OPERATIONAL PHASE**

Evaluation Criteria	Alternative 1	Alternative 2	No-Go Alternative
Spatial Extent	Regional	Regional	Regional
Intensity of Impact	Low	Low	Low
Duration	Long Term	Long Term	Medium Term
Probability	Highly Probable	Highly Probable	Improbable
Significance	Moderate to High	Moderate to High	Low to very low
Status	Positive	Positive	Neutral
Confidence	High	High	high

**Table 6.1** shows that both alternative layouts 1 (preferred alternative) and 2 will have a positive impact on new business sales during the construction period of the development. This is highlighted in the previous section (Section 5: Impact Analysis) where the total impact on new business sales during the construction phase amounts to R21, 180, 000, which is assumed to accrue to businesses mainly in the George and Eden District municipalities, however as some of the required capital expenditure items may need to be sourced from outside the region some of these positive impacts may be felt by businesses outside the region (provincially and nationally). The No-Go alternative will have a neutral impact on new business sales. The No-Go alternative means that the development will not take place, and as such the impacts on new business sales



which hypothetically may have accrued within the district will not occur (opportunity cost), however as no current business sales will be lost if the development does not take place the development will not have a negative impact, and as such is neutral.

**Table 6.2** shows that during the operational phase of the development, new business sales will be positively impacted (alternatives 1 and 2). The day-to-day requirements of the filling station will require supplies which are recommended to be sourced within the local economy where possible, will generate new business sales for those suppliers for the entire lifespan of the filling station, thus generating positive impacts for all these suppliers in terms of new business sales. As in the construction phase, the No-Go alternative will have a neutral impact for the same reasons as stated above.

#### 6.4.2 Additional GGP

**Table 6.3** illustrates the impact that the proposed filling station development will have on additional production within the economy of George, as well as the Eden District during the construction phase.

**TABLE 6.3: IMPACT ON ADDITIONAL GGP DURING THE CONSTRUCTION PHASE**

Evaluation Criteria	Alternative 1	Alternative 2	No-Go Alternative
Spatial Extent	Regional	Regional	Regional
Intensity of Impact	Low	Low	Low
Duration	Short Term	Short Term	Short Term
Probability	Highly Probable	High Probable	Probable
Significance	Medium	Medium	Low to Very Low
Status	Positive	Positive	Neutral
Confidence	High	High	High

**Table 6.4** shows the impact the filling station development will have on additional production during the operational phase.

**TABLE 6.4: IMPACT ON ADDITIONAL GGP DURING THE OPERATIONAL PHASE**

Evaluation Criteria	Alternative 1	Alternative 2	No-Go Alternative
Spatial Extent	Regional	Regional	Regional
Intensity of Impact	Low	Low	Low
Duration	Long Term	Long Term	Medium Term
Probability	Probable	Probable	Improbable
Significance	Low to very low	Low to very low	No Impact
Status	Positive	Positive	Neutral
Confidence	High	High	High

**Table 6.3** above shows that the constructions phase of the proposed filling station development will have a positive impact on additional production or GGP to the extent of R5, 660, 000 for both alternative layouts 1 and 2. The impact of additional production is dependent on the increase in new business sales, as in order to satisfy the new demand generated by new business sales, additional production needs to take place to ensure that the supply meets the demand. If the local businesses are sourced for materials and services during the construction phase, the positive impacts of the construction phases on production will be maximised as additional production will most likely be concentrated within the local economies of George and Eden. As with the construction phase impacts on New Business Sales, the No-Go alternative will have a neutral impact additional production, as the development will not take place this additional production will not be realised

and thus will not have a positive impact, however as no direct or indirect production will be lost by businesses in the region, it will not have a negative impact.

**Table 6.4** above shows that the operational phases of the filling station development will have a positive impact on production (GDP) for both alternative layout 1 and 2. This is due to the positive impact that new business sales will have in the regional economy which will in turn stimulate new production to satisfy this increased demand. The No-Go alternative will have a neutral impact for the same reasons as those stated for the construction phase.

### 6.4.3 Employment Creation and Loss

**Table 6.5** illustrates the impact the filling station development will have on the creation and loss of employment within the local George municipal area, as well as the Eden District during the construction phase.

**TABLE 6.5: IMPACT ON EMPLOYMENT CREATION AND LOSS DURING THE CONSTRUCTION PHASE**

Evaluation Criteria	Alternative 1	Alternative 2	No-Go Alternative
Spatial Extent	Regional	Regional	Local
Intensity of Impact	Low	Low	Low
Duration	Short Term	Short Term	Short Term
Probability	Probable	Probable	Improbable
Significance	Low to very low	Low to very low	Low to very low
Status	Positive	Positive	Negative
Confidence	High	High	High

**Table 6.6** shows the impact the filling station development will have on employment creation and loss during the operational phase.

**TABLE 6.6: IMPACT ON EMPLOYMENT CREATION AND LOSS DURING THE OPERATIONAL PHASE**

Evaluation Criteria	Alternative 1	Alternative 2	No-Go Alternative
Spatial Extent	Local	Local	Local
Intensity of Impact	Low	Low	Low
Duration	Long Term	Long Term	Medium Term
Probability	Highly probable	Highly Probable	Improbable
Significance	Low to very low	Low to very low	No Impact
Status	Positive	Positive	Negative
Confidence	High	High	Medium

**Table 6.6** above shows that the proposed Parkdene Filling Station development will have a positive impact on employment within the regional economies during the construction phase. This applies for both alternative layouts 1 and 2. The construction phase of the development is expected to generate 38 new employment opportunities for the duration of construction, however this employment will cease once construction has been completed. Thus even though the development will have a positive impact on employment; the extent of the positive impact will only be transitory. It is also recommended that local labour be sourced both during the construction and operational phases of the development, which will maximise the indirect and induced benefits the development will have in the local and regional labour market.

This impact however will once again only be transitory and will decline significantly once construction on the development has been completed. The No-Go alternative will have a negative impact on employment. This is due to high employment rates generally experienced in low income areas. Construction work is unskilled

labour and as such will provide employment (though temporary) for unemployed individuals in the areas surround the development site. In addition it will also provide skills to these individuals which will be vital for them in the future. As the No-Go alternative means the development will not take place these necessary employment opportunities will be lost to the local population.

**Table 6.6** shows that during the operational phase both alternative layouts (1 and 2) will have a positive impact on employment. A total of 9 permanent jobs will be created through the day-to-day operations of the development, and if local labour is sourced, it will aid to increase the incomes of those employed households thus having a positive impact in the local communities. The No-Go alternative will have a negative impact for the same reasoning as that stated for the construction phase above.

#### 6.4.4 Investment Expenditure

**Table 6.7** shows the impact that the filling station development will have on the local economy of the study area in relation to its effects on investment expenditure during the construction phase.

**TABLE 6.7: IMPACT ON INVESTMENT EXPENDITURE DURING THE CONSTRUCTION PHASE**

Evaluation Criteria	Alternative 1	Alternative 2	No-Go Alternative
Spatial Extent	Site Specific	Site Specific	Local
Intensity of Impact	Medium	Medium	Low
Duration	Short Term	Short Term	Medium Term
Probability	Highly Probable	Highly Probable	Probable
Significance	Medium	Medium	High
Status	Positive	Positive	Negative
Confidence	High	High	High

**Table 6.8** below shows the impact that the filling station development will have on investment expenditure during the operational phase.

**TABLE 6.8: IMPACT ON INVESTMENT EXPENDITURE DURING THE OPERATIONAL PHASE**

Evaluation Criteria	Alternative 1	Alternative 2	No-Go Alternative
Spatial Extent	Local	Local	Local
Intensity of Impact	Low	Low	Low
Duration	Medium Term	Medium Term	Short Term
Probability	Probable	Probable	Improbable
Significance	Low to very low	Low to very low	No Impact
Status	Positive	Positive	Negative
Confidence	High	High	High

**Table 6.7** above shows that the construction phase of the proposed Parkdene Filling Station will have a positive impact on investment expenditure in local economy. This is due to expected development or capital costs which are required in the construction phase. The expenditure by the developers on these items will serve as a capital injection into the regional and especially the local economies. The No-Go alternative will have a Negative impact on investment expenditure as no capital expenditure (investment) will take place it represents a loss in capital investment that would greatly have benefited the areas in which the development is to take place, potentially resulting in the loss of job opportunities and income.

The operational phase of the development will also have a positive impact on investment expenditure as both of alternatives 1 and 2 will result in the construction of the development and thus will require a capital

investment expenditure, which through the successful daily operations of the filling station may attract additional investment expenditure, with the filling station development serving as an anchor for additional retail or commercial developments in the areas surround the filling station development.

#### 6.4.5 Suburban Sense of Place

**Table 6.9** shows the impact that the filling station development will have on the sense of place of the Parkdene suburb during the construction phase.

**TABLE 6.9: IMPACT ON SUBURBAN SENSE OF PLACE DURING THE CONSTRUCTION PHASE**

Evaluation Criteria	Alternative 1	Alternative 2	No-Go Alternative
Spatial Extent	Local	Local	Local
Intensity of Impact	Low	Low	Low
Duration	Short Term	Short Term	Short Term
Probability	Improbable	Improbable	Improbable
Significance	Low to very low	Low to very low	No Impact
Status	Negative	Negative	Neutral
Confidence	Medium	Medium	High

**Table 6.10** shows the impacts that the development will; have on the sense of place of the Parkdene suburb during the operational phase.

**TABLE 6.10: IMPACT ON SUBURBAN SENSE OF PLACE DURING THE OPERATIONAL PHASE**

Evaluation Criteria	Alternative 1	Alternative 2	No-Go Alternative
Spatial Extent	Local	Local	Local
Intensity of Impact	Low	Low	Low
Duration	Probable	Probable	Improbable
Probability	Medium Term	Medium Term	Permanent
Significance	Low to very low	Low to very low	No Impact
Status	Negative	Negative	Neutral
Confidence	Medium	Medium	High

**Table 6.9** above shows that constructions phase of the filling station development will have a negative impact on the suburban sense of place in the surrounding areas for both alternative 1 and 2. The construction phase will require a large amount of supplies such as bricks and cement, which will aesthetically impact the surrounding residential areas. The presence of heavy construction vehicles and labour will create noise and potentially safety concerns, especially for the middle income properties and households living to the east of the site. These impacts will however only be transitory, but may create a lasting impression (for example a crime experience) that may affect the perceptions regarding the property in the surrounding areas. The No-Go alternative will have a neutral impact as the development will not take place and therefore the above concerns will no longer become apparent, and it will not have positive impact as the site will continue to be used for its current purposes meaning the market will remain the same.

#### 6.5 Synthesis and Conclusion

**Table 6.11** below shows the individual impacts that the various alternatives will have on each of the criterion with regards to whether they will have a positive or negative impact and the overall impact of the development.

**TABLE 6.11: SYNTHESIS**

<b>Evaluation Criteria</b>	<b>Alternative 1</b>	<b>Alternative 2</b>	<b>No-Go Alternative</b>
New Business Sales	<b>Positive</b>	<b>Positive</b>	<b>Neutral</b>
Additional GGP	<b>Positive</b>	<b>Positive</b>	<b>Neutral</b>
Employment Creation and Loss	<b>Positive</b>	<b>Positive</b>	<b>Negative</b>
Investment Expenditure	<b>Positive</b>	<b>Positive</b>	<b>Negative</b>
Suburban sense of place	<b>Negative</b>	<b>Negative</b>	<b>Neutral</b>
Overall Impact	<b>Positive</b>	<b>Positive</b>	<b>Neutral</b>

**Table 6.11** above shows that the construction and operations of the Sandkraal Filling station development for either alternative 1 or 2 will have an overall positive impact within the local and regional economies, while the No-Go alternative will have a neutral impact.

Although construction of the facility at either alternative layout 1 or 2 will have the same overall positive impact; alternative 1 has been identified as the preferred alternative, the construction of the development at alternative 1 by the developers will be beneficial to local and regional economies.



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