



OVERSTRAND MUNICIPALITY

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PROJECT 280850 - OVERSTRAND MUNICIPALITY'S WSDP FOR 2017-2022 (FIRST CYCLE)

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WSDP – IDP WATER SECTOR INPUT REPORT (EXECUTIVE SUMMARY)

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ABBREVIATIONS AND DEFINITIONS

AADD	Average Annual Daily Demand
ACIP	Accelerated Community Infrastructure Programme
ADWF	Average Dry Weather Flow
AMP	Asset Management Plan
ART	Anti-Retroviral Treatment
BDS	Blue Drop System
COD	Chemical Oxygen Demand
CRC	Current Replacement Cost
CRR	Cumulative Risk Ratio
CRU	Community Residential Units
CSI	Corporate Social Investment
DRC	Depreciated Replacement Cost
DTTC	Desmond Tutu Tuberculosis Centre
DWQ	Drinking Water Quality
DWS	Department of Water and Sanitation
ECD	Early Childhood Development
EHP	Emergency Housing Programme
EIA	Environmental Impact Assessment
EMIS	Education Management Information Systems
EMS	Environmental Management Services Section
EPHP	Enhanced People's Housing Process
EPWP	Expanded Public Works Programme
FET	Future Education Training
GAMAP	General Accepted Municipal Accounting Practice
GDIP	Green Drop Improvement Plan
GDP	Gross Domestic Product
GDPR	Regional Gross Domestic Product
GDS	Green Drop System
GRAP	Generally Recognized Accounting Practice
HDI	Human Development Index
HIV	Human Immunodeficiency Virus
IDP	Integrated Development Plan
ILI	Infrastructure Leakage Index
IMQS	Infrastructure Management Query System
IRDP	Integrated Rural Development Program
ISP	Internal Strategic Perspective
km ²	Square Kilometre
LED	Local Economic Development
LGTAS	Local Government Turn Around Strategy
m	Metre
MAP	Mean Annual Precipitation
MAR	Mean Annual Runoff
MFMA	Municipal Finance Management Act
MISA	Municipal Infrastructure Support Agent

ABBREVIATIONS AND DEFINITIONS / Continue

Ml	Mega Litre
MI/a	Mega Litre per Annum
MLSS	Mixed Liquor Suspended Solids
MTEF	Medium-Term Expenditure Framework
MTREF	Medium Term Revenue Expenditure Framework
NGO	Non-governmental organization
NRW	Non-Revenue Water
NWRS	National Water Resource Strategy
ODM	Overberg District Municipality
OMAF	Overstrand Municipal Advisory Forum
OREIA	Overstrand Rehabilitation & Educational Institute for Adolescents
ORIO	Netherlands Facility for Infrastructure Development
PAT	Progress Assessment Tool
PDA	Previously Disadvantage Area
PDD	Peak Daily Demand
PRV	Pressure Reducing Valve
RBIG	Regional Bulk Infrastructure Grant
RDP	Reconstruction and Development Programme
RSA	Republic of South Africa
RUL	Remaining Useful Life
SALGA	South African Local Government Association
SAMRAS	South African Municipal Resource Administration System
SANS	South African National Standard
SCADA	Supervisory Control and Data Acquisition
SCM	Supply Chain Management
SDBIP	Service Delivery and Budget Implementation Plan
SDF	Spatial Development Framework
TMG	Table Mountain Group
TSS	Total Suspended Solids
TWL	Top Water Level
VAT	Value Added Tax
VIP	Ventilated Improved Pit
WCNCB	Western Cape Nature Conservation Board (South Africa)
WDM	Water Demand Management
WMA	Water Management Area
WSA	Water Services Authority
WSDP	Water Services Development Plan
WSP	Water Services Provider
WTP	Water Treatment Plant
WTW	Water Treatment Works
WWTP	Waste Water Treatment Plant
WWTW	Waste Water Treatment Works

KEY TERMS

TERM	INTERPRETATION
Basic Water Supply Facility	The infrastructure necessary to supply 25 litres of potable water per person per day supplied within 200 metres of a household and with a minimum flow of 10 litres per minute (in the case of communal water points) or 6 000 litres of potable water supplied per formal connection per month (in the case of yard or house connections).
Basic Water Supply Service	The provision of a basic water supply facility, the sustainable operation of the facility (available for at least 350 days per year and not interrupted for more than 48 consecutive hours per incident) and the communication of good water-use, hygiene and related practices.
Basic Sanitation Facility	The infrastructure necessary to provide a sanitation facility which is safe, reliable, private, protected from the weather and ventilated, keeps smells to the minimum, is easy to keep clean, minimises the risk of the spread of sanitation-related diseases by facilitating the appropriate control of disease carrying flies and pests, and enables safe and appropriate treatment and/or removal of human waste and wastewater in an environmentally sound manner.
Basic Sanitation Service	The provision of a basic sanitation facility which is easily accessible to a household, the sustainable operation of the facility, including the safe removal of human waste and wastewater from the premises where this is appropriate and necessary, and the communication of good sanitation, hygiene and related practices.
Climate Change	Changes in climatic conditions due to natural causes or to anthropogenic (man-made) effects such as emissions of greenhouse gases, e.g. carbon dioxide, nitrous oxide, and methane, from industry, transport, farming and deforestation, that are expected to have significant consequences for rainfall and water availability on earth.
CRC	The cost of replacing the service potential of an existing asset, by reference to some measure of capacity, with an appropriate modern equivalent asset. GAMAP defines CRC as the cost the entity would incur to acquire the asset on the reporting date.
DRC	The replacement cost of an existing asset after deducting an allowance for wear or consumption to reflect the remaining economic life of the existing asset.
Global Warming	The increase in the average surface temperatures across the globe, usually measured over long periods of time; reported to have increased by 1°C over the past hundred years.
IDP	A municipal plan as defined in the Municipal Systems Act.
National Water Resource Strategy 2	Sets out how we will achieve the following core objectives: <ul style="list-style-type: none"> • Water supports development and the elimination of poverty and inequality. • Water contributes to the economy and job creation, and • Water is protected, used, developed, conserved, managed and controlled sustainably and equitably.

KEY TERMS

TERM	INTERPRETATION
Re-use	Utilisation of treated or untreated wastewater for a process other than the one that generated it. For instance, the re-use of municipal wastewater for agricultural irrigation. Water re-use can be direct or indirect, intentional or unintentional, planned or unplanned, local, regional or national in terms of location, scale and significance. Water re-use may involve various kinds of treatment (or not) and the reclaimed water may be used for a variety of purposes.
RUL	The time remaining over which an asset is expected to be used.
Water Balance	The regulation or rationalisation of human activity to match the sustainable local water supply, rather than base, or a process of balancing water supply and demand to ensure that water use does not exceed supply.
WSA	A WSA is any municipality that has the executive authority to provide water services within its area of jurisdiction in terms of the Municipal Structures Act 118 of 1998 or the ministerial authorisations made in terms of this Act. There can only be one water services authority in any specific area. Water services authority area boundaries cannot overlap. Water services authorities are metropolitan municipalities, district municipalities and authorised local municipalities.
WSDP	A plan for water and sanitation services in terms of the Water Services Act.
WSP	A Water services provider is <ul style="list-style-type: none"> • Any person who has a contract with a WSA or another WSP to sell water to, and/or accept wastewater for the purpose of treatment from that Authority or Provider, who is usually a bulk water services provider); or • Any person who has a contract with a WSA to take responsibility for providing retail water services to one or more consumers within a specific geographic area; or • A WSA that provides either or both of the above services itself.
WC	The minimisation of loss or waste, the care and protection of water resources and the efficient and effective use of water.
WDM	The adaptation and implementation of a strategy or a programme by a water institution or consumer to influence the water demand and usage of water in order to meet any of the following objectives: economic efficiency, social development, social equity, environmental protection, sustainability of water supply and services and political acceptability.

WSDP – IDP Water Sector Input Report (Executive Summary)

Introduction

Every WSA has a duty to all customers or potential customers in its area of jurisdiction to progressively ensure efficient, affordable, economical and sustainable access to water services that promote sustainable livelihoods and economic development.

Sections 12 and 13 of the Water Services Act (Act No 108 of 1997) place a duty on WSAs to prepare and maintain a WSDP, as part of the process of preparing an IDP. The DWS has developed a new eWSDP website to assist WSAs with the WSDP process and to provide a framework for the capturing of the data. The business elements included in the website and also addressed in detail in the two Modules of Overstrand Municipality's WSDP are as follows:

- Administration
- Demographics Profile
- Service Levels Profile
- Socio Economic Background Profile
- Water Services Infrastructure Profile
- Operation and Maintenance Profile
- Associated Services Profile
- Water Resources Profile
- Conservation and Demand Management Profile
- Financial Profile
- Institutional Arrangements Profile
- Social and Customer Service Requirements Profile
- Needs Development Plan

The 2017-2022 WSDP (First Cycle) of Overstrand Municipality consists of the following documents.

- 2017/2018 WSDP-IDP Water Sector Input Report (For Council approval and Public Participation Process)
- eWSDP: Base data and an overview and assessment of the status of information and strategies on a WSA level.
- Module 2: Base Data and Compliance Data.
- Module 3: Strategies.

The primary instrument of planning in the water services sector is the WSDP. The following principles apply to the WSDP, as taken from the Strategic Framework for Water Services (2003):

- All WSAs must develop a WSDP.
- A new plan must be developed every five years and the plan should be updated as necessary and appropriate in the interim years.
- The WSDP must be integrated with the IDP of the municipality, as required in terms of the Municipal Systems Act.
- The WSDP must integrate water supply planning with sanitation planning.

- The WSDP must integrate technical planning with social, institutional, financial and environmental planning. The planning of capital expenditures must also be integrated with the associated operation and maintenance requirements and expenditures.
- The WSDP must be informed by the business plans developed by water services providers and with the plans of any regional water services providers, as relevant.
- The plan must take into account the impact of HIV/Aids on future water demand.
- The WSDP must integrate with the catchment management strategy.
- The planning process must take into account the views of all important stakeholders, including communities, through a consultative and participatory process. Every effort must be made to ensure the adequate and meaningful participation of women in consultation forums.
- The draft plan must be made available for public and stakeholder comment and all comments made must be considered when preparing the final plan.
- The contents of the WSDP must be communicated to all important stakeholders, including the DWS.
- A WSA must report annually and in a public way on progress in implementing the plan.

The purpose of this report is to provide relevant and summarised WSDP inputs for incorporation into Overstrand Municipality's IDP process and is structured as follows:

Section A: Status Quo Overview: Provides a summarised overview of the water services status quo in terms of the water services functional business elements as aligned to the WSDP framework.

Section B: State of Water Services Planning: Presents the status of- and references the water services planning within Overstrand Municipality.

Section C: Water Services Existing Needs Perspective: Gives an overview of Overstrand Municipality's assessment and interpretation of its water services, with specific focus on problem definition statements.

Section D: Water Services Objectives and Strategies: Outlines the 5-year water services objectives and strategies as developed through the WSDP process for incorporation in terms of the IDP and aligned to the water services functional business elements.

Section E: Water Services MTEF Projects: The agreed water services projects for the medium-term expenditure framework and inclusive of funding sources.

Section F: WSDP Projects: Presents the projects identified during the WSDP process in order to meet the water services strategies of Overstrand Municipality, as aligned to the outflow from the situation analysis per water services business element.

SECTION A: STATUS QUO OVERVIEW

Business Element 1: Administration

Section 14 of the Water Services Act requires that the WSA must take reasonable steps to bring its draft WSDP to the notice of a number of different stakeholders so that they have the opportunity to comment on it. Section 15 of the Act requires that the WSA must supply a copy of the WSDP to the Minister of Water and Sanitation, Minister of Provincial and Local Government, the relevant Province and all neighbouring WSAs.

The 2017-2022 (First Cycle) WSDP will be distributed to the public as part of the IDP public participation process. The draft WSDP will also be distributed to all the neighbouring WSAs for their comments. All relevant comments received on the draft WSDP will be included in the final WSDP.

Business Element 2: Demographics

Overstrand Municipality falls within the newly established Breede-Gouritz Water Management Area (WMA). The Municipality consists of thirteen (13) individual wards, and is the only WSA within this municipal area and is also the WSP. Overstrand Municipality commenced with a 15 years contract with Veolia Water Solutions & Technologies South Africa (Pty) Ltd on the 1st of November 2015 of which the main purpose is to effectively and efficiently operate and maintain the bulk water services infrastructure with emphasis on driving efficiencies and to provide appropriate skills and expertise. Overstrand Municipality however remains the WSA and WSP with direct accountability to the community. Overstrand Municipality's Management Area includes the following towns and **Water Distribution Systems**:

- Rooi Els, Pringle Bay, Betty's Bay – **Buffels River System**
The towns of Rooi Els, Pringle Bay and Betty's Bay obtain their bulk water from the Buffels River Dam.
- Kleinmond – **Kleinmond System**
Kleinmond is supplied from the Palmiet River. The weir and inlet in the river is currently being upgraded. The "Dorpsfontein" and a borehole (1998), located 300m to the east of the fountain, are used as additional sources.
- Fisherhaven, Hawston, Vermont, Onrus, Sandbaai, Zwelihle, Mount Pleasant, Hermanus – **Greater Hermanus System**
The Greater Hermanus area is supplied with bulk surface water from De Bos Dam and bulk groundwater from the Gateway-, Camphill- and Volmoed Well Fields. Final effluent from the Hermanus WWTW is currently re-used for irrigation purposes.
- Stanford – **Stanford System**
Stanford is supplied with bulk water from the high discharging Stanford Spring, generally known as "Die Oog" (the Eye), which was previously the sole source of supply of potable water to the town and the greater area. Two Kouevlakte boreholes were also drilled during 2010/2011 and a new bulk pipeline was constructed the following year in order to connect the boreholes to the existing network.
- De Kelders, Gansbaai, Kleinbaai, Franskraal – **Greater Gansbaai System**
The water sources of Gansbaai, De Kelders, Kleinbaai and Franskraal are integrated with each other through the bulk water supply distribution system. In the past specific sources were utilised for specific areas, but due to peak supply limitations of underground resources during peak seasons, the system has become completely integrated. Bulk water supply to the Greater Gansbaai system is from the Franskraal and Kraaibosch dams and the Klipgat water sources, which consist of a spring in the De Kelders caves and a spring at Stanfords Bay. Final effluent from the Gansbaai WWTW is currently re-used for irrigation purposes.
- Pearly Beach – **Pearly Beach System**
Pearly Beach is supplied from seven springs located in the mountains some 6km from Pearly Beach. The water from the springs is kept in storage at the Pearly Beach Dam. A Service Level Agreement is also in place for the supply of 0.26 Ml/d from the Koekemoer Dam free of charge to the Municipality.
- Baardskeerdersbos – **Baardskeerdersbos System**
Bulk water supply to Baardskeerdersbos is from two boreholes. Baardskeerdersbos previously received their bulk water from the Boskloof Stream, but all current bulk water supply to the area and in the future will be from the boreholes.
- Buffeljags Bay – **Buffeljags Bay System**
Bulk water supply to Buffeljags Bay is from a borehole.

The most significant challenges, from a Water Services perspective are the augmentation of the existing water sources for Hermanus, the replacement and upgrading of the old water and sewerage infrastructure to accommodate development, the operation and maintenance of the new WTWs and WWTWs in a sustainable manner, the provision of sustainable basic services to informal settlements and to ensure the provision of basic services to households located on privately owned farms. Strategies and action plans will need to be developed and implemented, in collaboration with farm owners, in order for the Municipality to fulfil its legal obligations and responsibilities as WSA, with regard to the provision of basic services once clear and practical policy guidelines are made available from the DWS and funding is made available.

Physical Perspective:

Climate change: In terms of adapting for climate change, water systems will need to be more robust and new / alternative sources of supply may need to be found. Increased skills will be required from water managers and long-term water projections are required. Although an overall decrease in rainfall is generally not forecasted, increased variability in the climate and frequency of extreme events, as well as increased temperature and wind could have an impact on water sources, particularly surface waters.

It is necessary for WSAs to develop climate response strategies and include these in their WSDPs, implement WC/WDM and reduce levels of NRW. Water-related climate change adaptation and mitigation planning should be incorporated into all WSDPs and IDPs. The implementation of WC/WDM is a critical element of adapting to climate change. This must be implemented by all water sector institutions and water users, and should include the optimisation of dam and groundwater operation, as well as the reduction of physical water losses and the introduction of water-efficient appliances and processes.

It is therefore advisable for Overstrand Municipality that a conservative approach be followed regarding the management of water sources. It is proposed that the following approach be adopted to mitigate and adapt to the impacts of climate change:

- All resources, especially surface water resources, need to be re-evaluated, especially where demand is close to the safe one in twenty year yields. It is therefore important to establish assurance of supply levels of all water sources;
- increase assurance of supply of the water resources by ensuring that there is at least 10% additional capacity (headroom), when considering the maximum 24 hour demand on the peak month of the year;
- do not undertake new developments unless a proper investigation of the implication on water sources and sustainability in the long term has been undertaken;
- vigorously implement WDM measures, especially in terms of the following:
 - increased water efficiency
 - frequent monitoring of the water supply system, from the sources to the consumers; and
 - regular and adequate system maintenance and repairs.
- Diversify water resources, e.g. surface water, groundwater, wastewater re-use and sea water desalination.

Floods: One of the climate change threats in some parts of the Western Cape is the likelihood of floods with greater intensity and longer term impacts. There is likely to be increases in the severity and unpredictability of weather patterns. Flooding and storms are predicted which could have devastating effects on agricultural production.

Natural Environment:

The stretch of coastline includes three remarkable blue flag beaches, namely Kleinmond, Grotto and Hawston. The Grotto beach also received the prestigious international “Blue Flag” award. The Management Area also includes the Kogelberg Biosphere Reserve which is only one of two such areas in the Republic. It is commonly referred to as the heart of the Cape floral kingdom as roughly one fifth of all known fynbos species occurs here.

The Environmental Management Section of Overstrand Municipality strives towards sustainable environmental management by means of environmental good practice. Accordingly, the section strives to coordinate, plan and manage all human activities in a defined environmental system to accommodate the broadest possible range of sustainable short and long term environmental, social and economic development objectives. The mission of the section is to promote the use of sound environmental management principles to ensure a healthy environment within the Overstrand Municipality.

Demographic Perspective:

Economics: The economy in Overstrand grew by 3.1% on average between 2005 and 2015. Tourism is a major economic driver in the area and its popularity as a holiday destination results in a fourfold increase of its population over the holiday seasons. This influx places a great strain on the existing municipal services.

Social: The HDI has risen from 0.714 in 2011 to 0.739 in 2015, it weakened slightly between 2014 and 2015. Social indicators that have moved in a positive direction include the increasing access to basic services, decreasing poverty intensity, below district average informal dwellers, good education achievements, decreasing TB patients, and lower teenage pregnancies, among others. Indicators that are of concern include the increasing indigent households, high proportion of people without income, increasing income inequality, rising poverty headcount, and high ART patient loads, among others (Municipal Economic Review and Outlook 2016)

Regional Perspective:

The 2015 Socio-Economic Profile for the Overstrand Municipality includes the following conclusions from their socio-economic analysis (Western Cape Government, Provincial Treasury).

- Overstrand ranks second in terms of population size within the Overberg District with a figure of 86 711 people in 2015. The total number of households in Overstrand Municipality is estimated to be 28 892 in 2015.
- Overstrand residents has a literacy rate of 87.5% and a matric pass rate of 86.4% in 2014.
- Poverty remains a challenge with 19.3% of the households earn less than R400/month in 2011 and a per capita income of R33 082.
- A high learner dropout rate which is particularly concerning given the low employment opportunities on offer for semi- and unskilled workers.
- The majority of schools in the Overstrand municipal area were at the end of 2014 no fee schools; the proportion of no fee schools has increased marginally from 70.58% in 2012 to 70.60% in 2014.
- The presence of FET colleges is encouraging as it can potentially absorb the high number of high-school dropouts and offer alternative education and training opportunities.
- Overstrand has a teenage birth rate of 6% which was the lowest in the District and a termination of pregnancy rate of 12.4% which was higher than the District's average of 7%.
- By the end of March 2015, Overstrand's ART patient load increased to 2 948, administered from four treatment sites.
- Overstrand municipal area outperforms the District in terms of access to water, sanitation and refuse. Access to electricity is slightly below the District average access levels.
- Overall, Overstrand Municipality appears to be affected by drug-related crime and residential burglaries.
- Overstrand comprised 34% of the GDP and 33% of the employment in the District in 2013. Overstrand has been able to post strong real GDP growth, averaging 5.4% per annum between 2005 and 2013.

- The industry structure of the regional economy reveals a notably bigger share of the finance, insurance, real estate and business services, wholesale and retail trade, catering and accommodation and manufacturing.
- Overstrand experienced net job losses in the agriculture, manufacturing, construction and other sectors. Conversely, the commercial services and general government and CSP services sectors experienced net employment, allowing a positive overall net employment of 1 437 in the municipal area.
- Overstrand experienced an increase in labour demand in the categories of highly skilled, skilled and informal employment; semi- and unskilled sector on the other hand registered a decrease in demand.
- Overstrand has a Wi-Fi access level of 37.4%. Increased access, readiness and usage of internet would offer greater potential for economic growth in the Municipality. There is also Wi-Fi provided by the provincial government in each of the wards in the municipal area.

The 2015/2016 population of Overstrand Municipality was established by applying an annual growth rate of 4.04% to the 2011 Census population figures. The annual population growth percentages for the individual towns were agreed with the Municipality during January 2014. The current estimated population figures and the annual population growth percentages used in this WSDP-IDP Water Sector Input Report are aligned with the figures used in DWS's National GeoDatabase, which forms the baseline for the WSDP Guide Framework.

The table below gives an overview of the population and households and the water and sanitation service level categories in Overstrand Municipality's Management Area.

Table A.1: Water services overview																							
Settlement Type	2011/12		2015/16		Water category							Sanitation category											
	Households	Population	Households	Population	Adequate: Formal	Adequate: Informal	Adequate: Sahred Services	Water resources needs only	O&M needs only	Infrastructure needs only	Infrastructure & O&M needs	Infrastructure, O&M & Resource need	No Services: Informal	No Services: Formal	Adequate: Formal	Adequate: Informal	Adequate: Sahred Services	Water resources needs only	O&M needs only	Infrastructure needs only	Infrastructure & O&M needs	Infrastructure, O&M & Resource need	No Services: Informal
URBAN																							
Metropolitan Area																							
Sub-Total																							
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																							
Formal Town																							
Sub-Total																							
22,781 61,937 27,759 76,783																							
Townships																							
Sub-Total																							
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																							
Informal Settlements																							
Sub-Total																							
3,436 13,744 3,106 12,424																							
Working towns & service centres																							
Sub-Total																							
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																							
Sub-Total: (Urban)																							
26,217 75,681 30,865 89,207																							
RURAL																							
Rural / Farming																							
Sub-Total																							
1,794 4,727 1,909 5,029																							
Informal Settlements																							
Sub-Total																							
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																							
Sub-Total (Rural)																							
1,794 4,727 1,909 5,029																							
TOTAL																							
28,011 80,408 32,773 94,236																							
9 5 7 0 0 0 0 0 0 0 0 0 1 9 5 7 0 0 0 0 0 0 0 1																							

The Community Survey of 2016 from Statistics South Africa estimate the 2016 population for Overstrand Municipality at 93 466 persons and the permanent households at 35 739, at an average household size of 2.6 persons per household.

The Growth Potential Study 2014, of the Western Cape Government determined the growth potential and socio-economic needs of settlements in the Western Cape using quantitative data (e.g. factors relating to socio-economic, economic, physical-environmental, infrastructure and institutional aspects). The table below gives an overview of the growth potential indicators for the towns in Overstrand Municipality's Management Area, as included in the Growth Potential Study.

Indicator	Buffels River	Kleinmond	Greater Hermanus	Stanford	Greater Gansbaai	Pearly Beach	Baards-keerdersbos	Buffeljags Bay
Absolute socio-economic needs	Very Low	Low	High	Low	Medium	Very Low	-	-
Proportional socio-economic needs	Very Low	Low	Low	High	Medium	High	-	-
Human capital index	Very High	Medium	High	Medium	Medium	Medium	-	-
Economic index	Medium	Medium	High	Medium	Medium	Low	-	-
Physical index	Medium	High	Medium	Medium	High	Medium	-	-
Infrastructure	Very High	Very High	Very High	Medium	High	Low	-	-
Institutional	High	High	Very High	High	High	Medium	-	-

The total housing demand in the Overstrand municipality mainly consists of the people living in informal settlements as well as the number of backyard dwellers.

Business Element 3: Service Levels

All the formal households in the urban areas of Overstrand Municipality's Management Area are provided with water connections inside the erven. Informal areas are supplied with shared services as an intermediary measure. Overstrand Municipality is committed to ensure that private landowners provide at least basic water and sanitation services to those households in the rural areas with existing services below RDP standard once clear and practical policy guidelines are made available from the DWS and funding is made available.

The table and graph below give an overview of the water service delivery access profile in Overstrand Municipality’s Management Area.

Table A.3: Residential water services delivery access profile: Water							
Census Category	Description	Year 0		Year -1		Year -2	
		FY2015/16		FY2014/15		FY2013/14	
		Nr	%	Nr	%	Nr	%
	WATER (ABOVE MIN LEVEL)						
Piped (tap) water inside dwelling/institution	House connections	34,264	80%	33,910	80%	33,145	79%
Piped (tap) water inside yard	Yard connections	5,300	12%	5,300	12%	5,300	13%
Piped (tap) water on community stand: distance less than 200m from dwelling/institution	Standpipe connection < 200 m	3,137	8%	3,219	8%	3,361	8%
	Sub-Total: Minimum Service Level and Above	42,701	100%	42,429	100%	41,806	100%
	WATER (BELOW MIN LEVEL)						
Piped (tap) water on community stand: distance between 200m and 500m from dwelling/institution	Standpipe connection: > 200 m < 500 m	21	0%	21	0%	21	0%
Piped (tap) water on community stand: distance between 500m and 1000m (1km) from dwelling /institution	Standpipe connection: > 500 m < 1 000 m	8	0%	8	0%	8	0%
Piped (tap) water on community stand: distance greater than 1000m (1km) from dwelling/institution	Standpipe connection: > 1 000 m	5	0%	5	0%	5	0%
No access to piped (tap) water	No services	49	0%	49	0%	49	0%
	Sub-Total: Below Minimum Service Level	83	0%	83	0%	83	0%
	Total number of households	42,784	100%	42,512	100%	41,889	100%

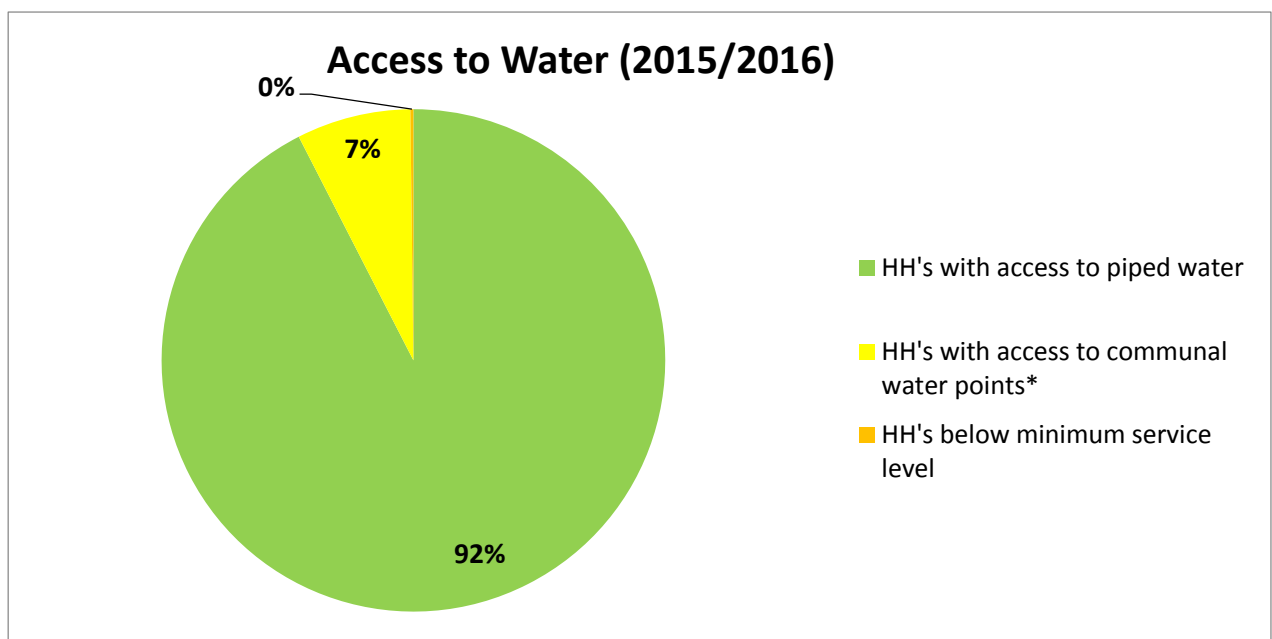


Figure A.1: Access to water services in 2015/2016.

The existing residential water service levels in Overstrand Municipality's Management Area are estimated as follows:

Table A.4: Residential water service levels (Residential Consumer Units)										
Service Level	Buffels River	Kleinmond	Greater Hermanus	Stanford	Greater Gansbaai	Pearly Beach	Baardskeerdersbos	Buffeljags Bay	Farms	Total
No Water Services	0	0	0	0	0	0	0	0	49 ²⁾	49
Below RDP: Infrastructure Upgrade	0	0	0	0	0	0	0	0	0	0
Below RDP: Infrastructure Extension	0	0	0	0	0	0	0	0	34 ³⁾	34
Below RDP: Infrastructure Refurbishment	0	0	0	0	0	0	0	0	0	0
Below RDP: O&M Needs	0	0	0	0	0	0	0	0	0	0
Below RDP: Water Resource Needs	0	0	0	0	0	0	0	0	0	0
Below RDP: Infrastructure and O&M Needs	0	0	0	0	0	0	0	0	0	0
Below RDP: Infrastructure, O&M and Water Resource Needs	0	0	0	0	0	0	0	0	0	0
Total Basic Need (RDP)	0	0	0	0	0	0	0	0	83	83
Below Housing Interim ⁴⁾	0	0	0	0	0	0	0	0	0	0
Adequate Housing Permanent ⁵⁾	0	379	1 328	106	1 293	0	0	0	0	3 106
Total Housing Need	0	379	1 328	106	1 293	0	0	0	0	3 106
Standpipes	0	0	0	0	0	0	0	0	31	31
Yard Connections ⁶⁾	6	282	3 623	482	625	39	0	0	243	5 300
House Connections ¹⁾	3 316	3 553	18 305	1 156	5 034	1 254	64	30	1 552	34 264
Total Adequate	3 322	3 835	21 928	1 638	5 659	1 293	64	30	1 826	39 595
Total Residential Consumer Units for the Municipality	3 322	4 214	23 256	1 744	6 952	1 293	64	30	1 909	42 784

Notes:

- 1) Number of residential consumer units for urban areas for 2015/2016, as taken from the financial system.
- 2) Census 2011: Number of households with no access to piped (tap) water 49
- 3) Census 2011: Number of households with communal services (200m – 500m) 21, (500m – 1000m) 8 and (>1000m) 5.
- 4) Below Housing Interim in the above table is the number of shacks in informal areas without basic water services.
- 5) Adequate Housing Permanent in the above table is the number of shacks in informal areas with communal water services, as confirmed by the Municipality (June 2016).
- 6) Estimated number of backyard dwellers, as agreed with the Municipality during January 2014, as part of DWS's Backlog Eradication Strategy process.

The table and graph below give an overview of the sanitation service delivery access profile in Overstrand Municipality’s Management Area.

Table A.5: Residential water services delivery access profile: Sanitation							
Census Category	Description	Year 0		Year -1		Year -2	
		FY2015/16		FY2014/15		FY2013/14	
		Nr	%	Nr	%	Nr	%
	SANITATION (ABOVE MIN LEVEL)						
Flush toilet (connected to sewerage system)	Waterborne	24,099	56%	23,757	56%	22,818	54%
	Waterborne: Low Flush	4,100	10%	4,100	10%	4,100	10%
Flush toilet (with septic tank)	Septic tanks / Conservancy	11,182	26%	11,170	26%	11,344	27%
Chemical toilet	Non-waterborne (above min. service level)	5	0%	5	0%	5	0%
Pit toilet with ventilation (VIP)		27	0%	27	0%	27	0%
Other		3,106	7%	3,188	7%	3,330	8%
	Sub-Total: Minimum Service Level and Above	42,519	99%	42,247	99%	41,624	99%
	SANITATION (BELOW MIN LEVEL)						
Pit toilet without ventilation	Pit toilet	12	0%	12	0%	12	0%
Bucket toilet	Bucket toilet	68	0%	68	0%	68	0%
Other toilet provision (below min. service level)	Other	119	0%	119	0%	119	0%
No toilet provisions	No services	66	0%	66	0%	66	0%
	Sub-Total: Below Minimum Service Level	265	1%	265	1%	265	1%
	Total number of households	42,784	100%	42,512	100%	41,889	100%

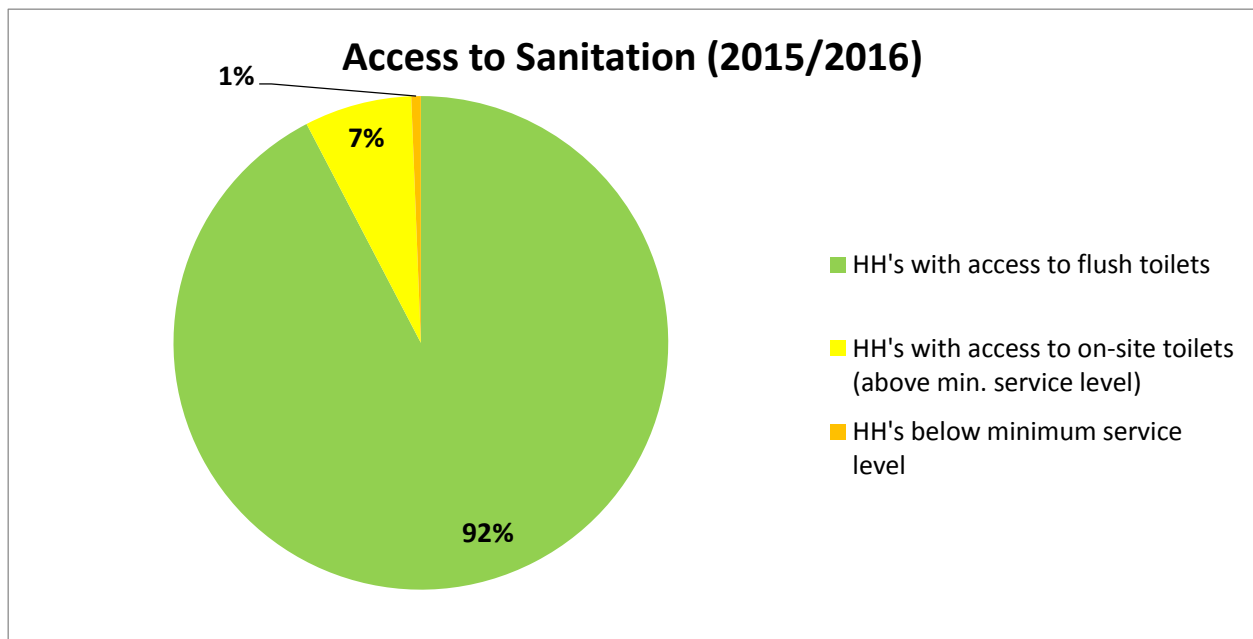


Figure A.2: Access to sanitation services in 2015/2016

The existing residential sanitation service levels in Overstrand Municipality's Management Area are estimated as follows:

Service Levels	Buffels River	Kleinmond	Greater Hermanus	Stanford	Greater Gansbaai	Pearly Beach	Baardskeerdersbos	Buffeljags Bay	Farms	Total
No Sanitation Services	0	0	0	0	0	0	0	0	66 ³⁾	66
Below RDP: Infrastructure Upgrade	0	0	0	0	0	0	0	0	204 ⁴⁾	204
Below RDP: Infrastructure Extension	0	0	0	0	0	0	0	0	0	0
Below RDP: Infrastructure Refurbishment	0	0	0	0	0	0	0	0	0	0
Below RDP: O&M Needs	0	0	0	0	0	0	0	0	0	0
Below RDP: Water Resource Needs	0	0	0	0	0	0	0	0	0	0
Below RDP: Infrastructure and O&M Needs	0	0	0	0	0	0	0	0	0	0
Below RDP: Infrastructure, O&M and Water Resource Needs	0	0	0	0	0	0	0	0	0	0
Total Basic Need (RDP)	0	0	0	0	0	0	0	0	270	270
Below Housing Interim ⁵⁾	0	0	0	0	0	0	0	0	0	0
Adequate Housing Permanent ⁶⁾	0	379	1 328	106	1 293	0	0	0	0	3 106
Total Housing Need	0	379	1 328	106	1 293	0	0	0	0	3 106
No Waterborne (VIP)	0	0	0	0	0	0	0	0	27	27
Waterborne Low Flush	0	0	4 100	0	0	0	0	0	0	4 100
Septic Tanks	2 792	789	0	136	747	354	64	30	1 612	6 524
Conservancy	530	330	1 398	10	2 124	266	0	0	0	4 658
Waterborne	0	2 716	16 430	1 492	2 788	673	0	0	0	24 099
Total Adequate ²⁾	3 322	3 835	21 928	1 638	5 659	1 293	64	30	1 639	39 408
Total Residential Consumer Units for the Municipality	3 322	4 214	23 256	1 744	6 952	1 293	64	30	1 909	42 784

- 1) Total for Septic Tanks and Conservancy tanks in Urban Areas according to Municipal information for June 2016 for "Developed Sites Septic Tanks (SE8D)"
- 2) Include Backyard dwellers
- 3) Census 2011: Number of households with no toilet facility 66.
- 4) Census 2011: Number of households with existing buckets 68, chemical toilets 5, pit toilets without ventilation 12 and "other" 119.
- 5) Below Housing Interim in the above table is the number of shacks in informal areas without basic sanitation services.
- 6) Adequate Housing Permanent in the above table is the number of shacks in informal areas with communal ablution facilities, as confirmed by the Municipality (June 2016).

Overstrand Municipality's Directorate Community Services regularly count the number of households in the informal areas. The municipality renders basic services in terms of potable water, sewer infrastructure (toilets), and cleaning services to all informal settlements. Toilet facilities and potable water taps are provided according to the following national ratios, namely:

- Water: 1:25 families
- Toilets: 1:5 families

The current number of households in the informal areas, with access to communal basic services, is 3 106.

The number of households with communal services in the informal areas and the number of households per facility type are summarised in the table below (June 2016).

Table A.7: Communal service levels in the informal areas						
Area	Informal Settlement	No. of Households	Number of Toilets	Household / Toilet	Number of Taps	Households / Tap
Stanford	Die Kop	106	16	6.6	6	17.7
Kleinmond	Overhills	379	102	3.7	21	18.0
Gansbaai	Mashakhane	1 183	269	4.4	38	31.1
	Beverly Hills	95	24	4.0	13	7.3
	Buffeljachts	15	8	1.9	2	7.5
Hawston	Erf 170	11	4	2.8	2	5.5
Zwelihle	Tsepe-Tsepe	220	40	5.5	6	36.7
	Serviced Sites	79	22	3.6	3	26.3
	Thambo Square / Zipunzana	398	55	7.2	9	44.2
	Asazani	65	13	5.0	6	10.8
	Mandela Square	200	44	4.5	9	22.2
	New Camp	55	12	4.6	5	11.0
	Transit Camp	300	115	2.6	18	16.7
Total		3 106	724	4.3	138	22.5

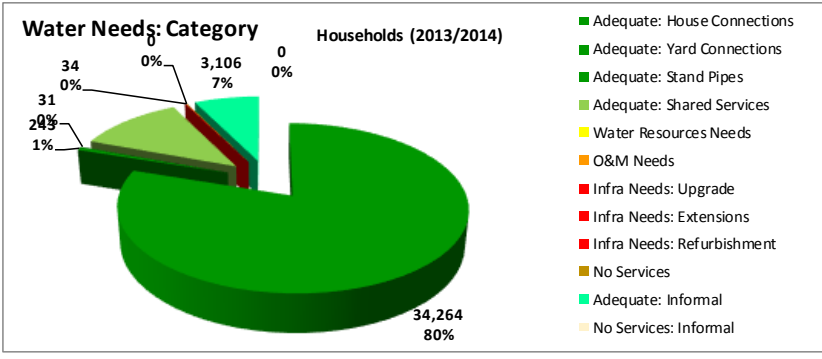
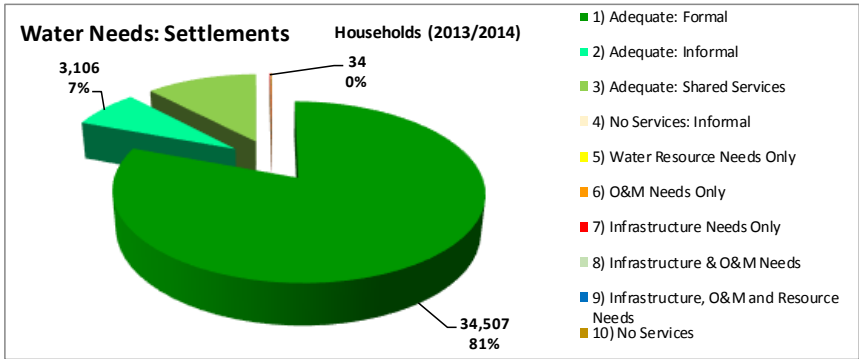
The number of user connections in each user sector, for the various distribution systems in Overstrand Municipality's Management Area, is as follows:

Table A.8: Number of consumer units in each user sector for the last three financial years					
Distribution System	Residential	Commercial	Industrial	Other	Total
2013/2014 (Average over period December 2013 – June 2014)					
Buffels River	3 226	109	0	37	3 372
Kleinmond	3 523	265	0	64	3 852
Greater Hermanus	17 647	833	32	324	18 836
Stanford	1 137	49	2	14	1 202
Greater Gansbaai	4 950	225	4	220	5 399
Pearly Beach	1 076	5	0	10	1 091
Baardskeerdersbos	63	0	0	3	66
Buffeljags Bay	29	0	0	3	32
TOTALS	31 651	1 486	38	675	33 850
2014/2015 (Average over period July 2014 – June 2015)					
Buffels River	3 264	106	0	36	3 406
Kleinmond	3 533	264	0	65	3 862
Greater Hermanus	18 168	904	31	325	19 428
Stanford	1 147	53	2	14	1 216
Greater Gansbaai	4 962	225	4	188	5 378
Pearly Beach	1 221	5	0	7	1 234
Baardskeerdersbos	63	0	0	3	66
Buffeljags Bay	30	0	0	4	34
TOTALS	32 388	1 557	37	642	34 624
2015/2016 (Average over period July 2015 – June 2016)					
Buffels River	3 316	110	0	31	3 457
Kleinmond	3 553	263	0	64	3 880
Greater Hermanus	18 305	999	32	308	19 644
Stanford	1 156	54	2	17	1 229
Greater Gansbaai	5 034	228	4	198	5 464
Pearly Beach	1 254	4	0	7	1 265
Baardskeerdersbos	64	0	0	3	67

Table A.8: Number of consumer units in each user sector for the last three financial years					
Distribution System	Residential	Commercial	Industrial	Other	Total
Buffeljags Bay	30	0	0	6	36
TOTALS	32 712	1 658	38	634	35 042

Table A.9: Total number of consumer units per town and percentage growth from 2013/2014 to 2015/2016				
Distribution System	Annual Growth % 13/14 – 15/16	15/16	14/15	13/14
Buffels River	1.25%	3 457	3 406	3 372
Kleinmond	0.36%	3 880	3 862	3 852
Greater Hermanus	2.12%	19 644	19 428	18 836
Stanford	1.12%	1 229	1 216	1 202
Greater Gansbaai	0.60%	5 464	5 378	5 399
Pearly Beach	7.68%	1 265	1 234	1 091
Baardskeerdersbos	0.75%	67	66	66
Buffeljags Bay	6.07%	36	34	32
TOTALS	1.75%	35 042	34 624	33 850

Water Categorisation	Number of settlements	FORMAL																		INFORMAL							
		Adequate								Water Resource needs	O & M Needs	Infrastructure Needs						No services	Adequate		No services						
		House Connections		Yard Connections		Stand Pipes		Shared Services				Upgrades		Extensions		Refurbishment			HH	%	HH	%					
		HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%	HH	%				
1	9	34,264	100%	243	100%																						
2	5																						3,106	100%			
3	7					31	100%	5,057	100%																		
4	0																										
5	0																										
6	0																										
7	0														34	100%											
8	0																										
9	0																										
10	1																			49	100%						
Total Household Interventions required		34,264		243		31		5,057		0		0		0		34		0		49		3,106		0			



1	Adequate	3	Adequate: Shared services	5	Water Resources Needs <u>Only</u>	7	Infrastructure Needs <u>Only</u>	9	Infrastructure, O&M & Resource Needs
2	Adequate: Informal	4	No Services: Informal	6	O & M Needs <u>Only</u>	8	Infrastructure & O&M needs	10	No Services

Business Element 4: Socio Economic

The 2001 Census recorded the population in the Overstrand Municipality's Management Area at 55 770 persons (19 082 Households) and the 2011 Census data recorded the population at 80 408 persons (28 011 Households). The population of Overstrand Municipality is currently estimated at approximately 94 235 persons for 2015/2016.

Due to the high levels of uncertainty projecting the current and future population of Overstrand Municipality it was decided to include a **high** and **low** estimate in the WSDP. The high growth percentages were however used in the future water requirement projection models for each of the water distribution systems. The low growth percentages were as agreed with the Municipality during January 2014. The estimated current population and the population growth rates for the various distribution systems are summarised in the table below.

Table A.11: Estimated current population and population growth rates

Distribution System	Historical Population Growth per year (2001 – 2011)	Census 2011			Future Population Growth per year (2011 Onwards)	Projections for 2015/2016		Number of Residential Consumer Units for 2015/2016 + HH in Informal Areas
		Population	Number of Households	Persons / Household		Population	Number of Households (Permanent)	
Buffels River	4.15%	2 297	1 158	1.98	5.00%	2 792	1 408	3 316
					4.15%	2 703	1 363	
Kleinmond	2.50%	6 629	2 733	2.43	3.00%	7 461	3 076	3 553 + 379 = 3 932
					2.50%	7 317	3 017	
Greater Hermanus	4.45%	47 332	15 618	3.03	5.50%	58 636	19 348	18 305 + 1 328 = 19 633
					4.45%	56 336	18 589	
Stanford	2.65%	4 781	1 493	3.20	4.50%	5 701	1 780	1 156 + 106 = 1 262
					2.65%	5 308	1 658	
Greater Gansbaai	4.89%	13 326	4 658	2.86	5.50%	16 509	5 771	5 034 + 1 293 = 6 327
					4.89%	16 130	5 638	
Pearly Beach	2.11%	1 047	485	2.16	6.00%	1 322	612	1 254
					2.11%	1 138	527	
Baardskeerdersbos	0.05%	122	39	3.13	0.50%	124	40	64
					0.50%	124	40	
Buffeljags Bay	1.56%	147	33	4.45	0.50%	150	34	30
					0.50%	150	34	
Farms		4 727	1 794	2.63	1.56%	5 029	1 909	1 909
TOTALS	3.73%	80 408	28 011	2.87	4.99%	97 724	33 978	37 727
					4.04%	94 235	32 775	

A summary of the recent changes in various social indicators in the Overberg District is given in the table below (Municipal Economic Review and Outlook 2016).

Table A.12: Social indicators in the Overberg District

Indicator	Overberg District	Overstrand	Cape Agulhas	Theewaters-kloof	Swellendam
GDP growth (2005 – 2015)	3.6%	3.1%	5.9%	2.8%	3.9%
Population growth (2011 – 2016)	11.0%	16.2%	9.0%	7.7%	12.0%
HDI (2011 – 2015)	Increase	Increase	Increase	Increase	Increase
Indigent households (2014 – 2015)	Increase	Increase	Increase	Decrease	Increase
Households with no income (2016)	12.6% of total	Above ODM average	Below ODM average	Below ODM average	Below ODM average
Gini coefficient (2013 – 2015)	Increase	Increase	Decrease	Increase	Decrease
Poverty headcount (2011 – 2016)	Decrease	Increase	Increase	Increase	Decrease
Poverty intensity (2011 – 2016)	Decrease	Decrease	Increase	Increase	Increase
Informal dwelling (2016)	13.6% of total dwellings	Below ODM average	Above ODM average	Above ODM average	Below ODM average

Indicator	Overberg District	Overstrand	Cape Agulhas	Theewaters-kloof	Swellendam
Access to water (2011 – 2016)	Increase	Increase	Increase	Increase	Increase
Access to electricity (2011 - 2016)	Increase	Increase	Increase	Increase	Increase
Access to sanitation (2011 – 2016)	Increase	Increase	Increase	Increase	Increase
Access to refuse removal (2011 – 2016)	Increase	Increase	Increase	Increase	Increase
No schooling (2016)	3% of total population	Below ODM average	Below ODM average	Above ODM average	Above ODM average
Grade 12 or higher certificate (2016)	37.6% of total population	Above ODM average	Below ODM average	Below ODM average	Below ODM average
ART patient load (2013 – 2015)	Increase	Increase	Increase	Increase	Increase
No of TB patients (2013 – 2015)	Decrease	Decrease	Increase	Increase	Decrease
Immunisation coverage (2013 – 2015)	Below WC average	Above ODM average	Below ODM average	Above ODM average	Below ODM average
Birth weight (2013 – 2015)	Below WC average	Below ODM average	Equal WC average	Above ODM average	Above ODM average
Teenage pregnancies (2013 – 2015)	Above WC average	Below ODM average	Above WC average	Above ODM average	Above ODM average

The sectors that contributed the most to Overstrand's employment in 2015 were as follows:

- Wholesale and retail trade, catering and accommodation at 31.2%.
- Finance, insurance, real estate and business services at 16.3%.
- Community, social and personal services at 13.6%.

Between 2004 and 2015 almost every economic sector in Overstrand grew positively in terms of GDP, except for the agriculture, forestry, and fishing sector and mining and quarrying sector. Almost all the economic sectors are showing positive growth after the recession, except for the agriculture, forestry and fishing sector and the construction sector. The transport, storage and communication sector showed the highest recovery at 4.4% (2009-2015). Although the Overstrand's economy experienced a contraction between 2008 and 2009, it has experienced a positive average growth rate of 2.3% between 2009 and 2015. The most robust sector in Overstrand is the transport, storage and communication sector, which experienced the highest economic growth during the recession, averaging at 4.1%.

Business Element 5: Water Services Infrastructure Management (Infrastructure)

The bulk water and sewerage infrastructure for which the operation and management functions were outsourced to an external Contractor from 1 November 2015 are as follows:

- Water Sources: Five (5) dams, one (1) river abstraction, Seventeen (17) boreholes and three (3) springs.
- Bulk Water Infrastructure: Nine (9) WTWs, nineteen (19) water pump stations, forty four (44) reservoirs and seventy eight (78) km of bulk water pipelines.
- Bulk Wastewater Infrastructure: Five (5) WWTWs, thirty six (36) sewer pump stations and forty five (45) km of bulk sewer pipelines.

The table below gives an overview of the major water infrastructure components, for the various distribution systems, in Overstrand Municipality's Management Area.

A.13: Existing main water infrastructure (Resources and WTWs)			
Water Distribution System	Bulk Supply	WTWs and Treatment Processes	
	(Resources)	WTW (Capacity in MI/d)	Processes
Buffels River	Buffels River Dam	Buffels River (5.500)	Chemical dosing (Aluminium Sulphate and Soda Ash), flocculation, sedimentation, filtration (Rapid gravity sand filters), stabilization (Soda Ash) and disinfection (Chlorine Gas)
Kleinmond	Palmiet River, Kleinmond Borehole & Dorpsfontein Spring	Kleinmond (5.800)	Chemical dosing (Aluminium Sulphate and Soda Ash), flocculation, sedimentation, filtration (Rapid gravity sand filters), stabilization (Soda Ash) and disinfection (Chlorine Gas).
Greater Hermanus	De Bos Dam and Gateway, Camphill and Volmoed wellfields	Preekstoel (28.000)	Chemical dosing (Aluminium Sulphate, Sodium Aluminate, Poly-electrolyte and Lime), flocculation, sedimentation, filtration (Rapid gravity sand filters), stabilization (Lime) and Disinfection (Chlorine Gas)
		Groundwater (10.000)	Biological WTW for iron and manganese removal by contact filtration, Caustic Soda dosing and Aeration
Stanford	Stanford Spring and two Kouevlakte Boreholes	-	Disinfection (Sodium Hypochlorite)
Greater Gansbaai	Franskraal and Kraaibosch Dams	Franskraal (6.500)	Chemical dosing (Aluminium Sulphate, Caustic Sodium Aluminate, Soda Ash), flocculation, sedimentation, filtration (Rapid gravity sand filters), disinfection (Chlorine Gas) and stabilization (Soda Ash)
	Klipgat Fountain and De Kelders Caves Fountain.	De Kelders (1.600)	Ultrafiltration plus Reverse Osmosis Plant and disinfection (Sodium Hypochlorite)
Pearly Beach	Pearly Beach Springs and Koekemoer Dam	Pearly Beach (1.440)	Ultrafiltration Modules from Memcor, Chemical dosing (Sudfloc K300), Carbon filters and disinfection (Sodium Hypochlorite)
Baardskeedersbos	Two Boreholes	Baardskeedersbos (0.185)	pH adjustment, oxidation, settling, ultrafiltration and disinfection (Sodium Hypochlorite).
Buffeljags Bay	Borehole	-	Disinfection (Chlorine Tablets)

A.14: Existing main water infrastructure (Reticulation, pump stations and reservoirs)						
Water Distribution System	Water Distribution Networks		Number of Water PS		Reservoirs and Water Towers	
	Bulk	Internal	Raw Water	Potable Water	Number of Reservoirs & Water Towers	Total Storage in MI
	km	km	Number of PS	Number of PS		
Buffels River	14.255	124.610	-	4	6	5.767
Kleinmond	-	75.130	3	-	3	8.100
Greater Hermanus	38.295	324.795	-	5	21	38.836
Stanford	5.565	27.910	-	2	2	2.750
Greater Gansbaai	19.200	127.980	3	2	10	11.050
Pearly Beach	12.420	30.205	-	2	2	2.295
Baardskeedersbos	0.525	5.315	-	1	1	0.150
Buffeljags Bay	-	0.475	-	-	1	0.096
Total Overstrand	90.260	716.420	6	16	46	69.044

The table below gives an overview of the major sewerage infrastructure components, for the various drainage systems, in Overstrand Municipality's Management Area.

A.15: Existing main sewerage infrastructure						
Sewer Drainage Systems	WWTWs and Treatment Processes			Sewer Drainage Network		Number of Sewer PS
	Hydraulic Capacity	Organic Capacity	Treatment Processes	Rising	Gravity	
	MI/d	kg COD/d		km	km	
Buffels River	-	-	-	-	-	-
Kleinmond	2.000	1 400	Kleinmond Activated Sludge System	7.100	28.700	5
Greater Hermanus	1.000	800	Hawston Activated Sludge System	32.500	252.800	32
	12.000	9 000	Hermanus Activated Sludge System			
Stanford	0.500	350	Stanford Activated Sludge System	1.600	20.800	2
Greater Gansbaai	2.000	3 600	Gansbaai Nereda System	3.100	15.400	5
Pearly Beach	0.259	To be confirmed	Eluxolweni Oxidation Pond System	0.500	5.200	2
Baardskeerdersbos	-	-	-	-	-	-
Buffeljags Bay	-	-	-	-	-	-
Total Overstrand				44.800	322.900	46

A new oxidation pond WWTW was constructed at Eluxolweni in Pearly Beach. Rooi Els, Pringle Bay, Betty's Bay, Fisherhaven, De Kelders, Kleinbaai, Franskraal and Pearly Beach are not currently serviced by a sewer reticulation system. The towns of Kleinmond, Hawston, Hermanus, Stanford and Gansbaai are partially serviced by a sewer system.

Asset Management: An Asset Management Policy, with the following key elements, is in place:

- Statutory and Regulatory Framework / Responsibilities and Accountabilities
- Financial Management / Internal Controls / Management of Control Items
- Management and Operation of Assets / Classification and Components
- Accounting for Assets / Financial Disclosure

The Asset Management Section consists of three staff members and forms part of the Expenditure and Asset Management Division within the Finance Directorate. The costing module on the SAMRAS Management Information System is utilized to cost all new asset components up to completion there-of. This approach was deployed over the past year with great success. Regular Asset counts are conducted in accordance with the prescriptions of the Asset Management Policy. Information regarding Asset Register updates in respect of disposals, adjustments, review of useful life etc. is based on submissions by user departments in accordance with the procedures in place. Management envisages that the Asset Register will be hosted on software specifically developed for this purpose (currently on Excel) and more to full adherence to GRAP requirements.

Water Infrastructure: The current replacement cost and depreciated replacement cost of the water infrastructure of Overstrand Municipality is summarised in the table below (June 2016):

Table A.16: Current Replacement Cost and Depreciated Replacement Cost of the water infrastructure - June 2016			
Asset Type	CRC	DRC	% DRC / CRC
Dams	R14 705 474	R6 197 481	42.1%
Boreholes	R11 619 334	R8 660 092	74.5%
Bulk Water Pipelines	R147 559 584	R58 910 916	39.9%
Pump Stations	R49 260 105	R26 621 741	54.0%
Reservoirs	R121 288 796	R64 321 953	53.0%
Water Reticulation Pipelines	R677 888 127	R302 145 668	44.6%
Buffels River WTW	R13 813 820	R6 640 612	48.1%
Kleinmond WTW	R27 568 183	R15 294 135	55.5%
Preekstoel WTW	R78 510 492	R73 100 541	93.1%

Asset Type	CRC	DRC	% DRC / CRC
Franskraal New WTW	R36 743 472	R29 578 119	80.5%
Franskraal Old WTW	R20 036 738	R8 114 719	40.5%
Baardskeerdersbos WTW	R6 724 089	R6 494 341	96.6%
Pearly Beach WTW	R8 154 514	R6 930 451	85.0%
De Kelders WTW	R18 982 042	R16 034 314	84.5%
Totals	R1 232 854 768	R629 045 082	51.0%

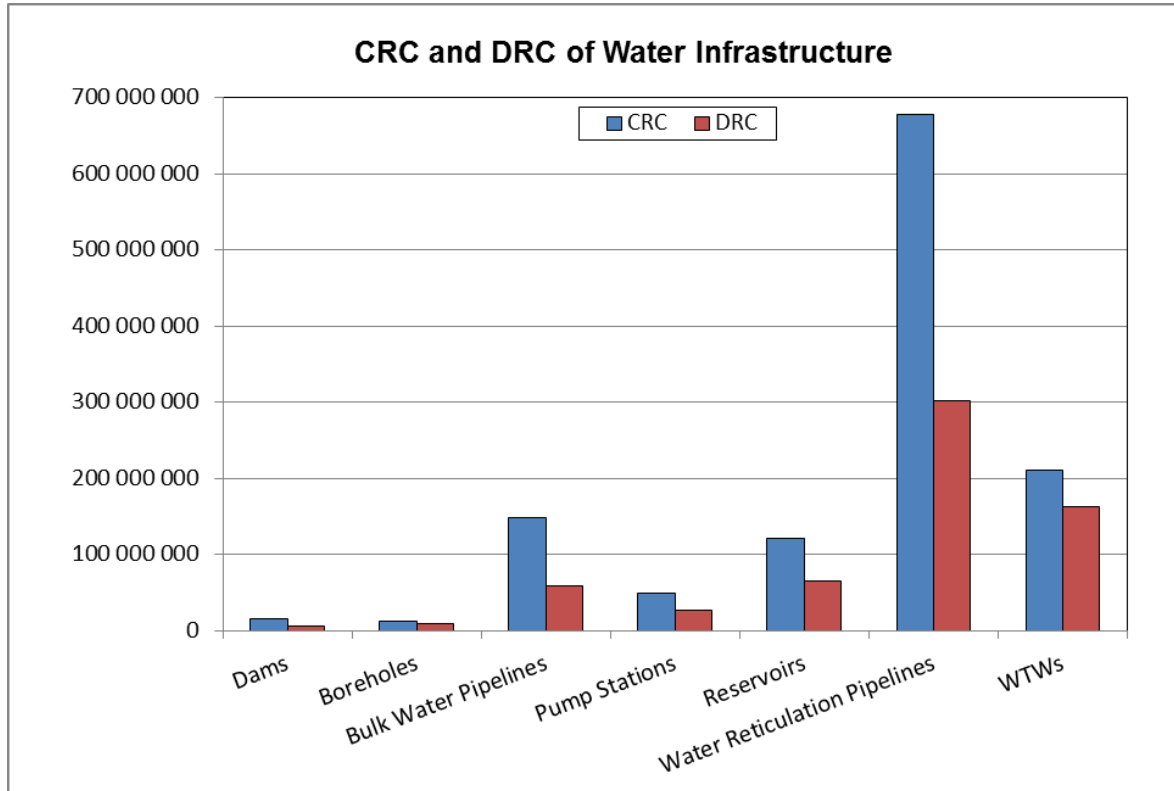


Figure A.3: CRC and DRC of the Water Infrastructure

The above table means that 49.0% of the value of the water supply infrastructure has been consumed.

The following table gives an overview of the remaining useful life by facility type for the water infrastructure (CRC):

Asset Type	0 – 5 yrs	6 – 10 yrs	11 – 15 yrs	16 – 20 yrs	> 20 yrs
Remaining Useful Life					
Dams	R0	R134 772	R3 580 729	R0	R10 989 973
Boreholes	R186 545	R5 555 772	R980 399	R16 106	R4 880 512
Bulk Water Pipelines	R0	R69 186 368	R0	R1 975 841	R76 397 374
Pump Stations	R3 234 952	R19 151 083	R7 875 007	R384 692	R18 614 370
Reservoirs	R375 505	R11 460 662	R6 095 041	R414 640	R102 942 947
Water Reticulation Pipelines	R0	R435 589 079	R0	R21 947 656	R220 351 393
Buffels River WTW	R0	R4 083 118	R1 371 013	R0	R8 359 688
Kleinmond WTW	R7 919	R3 515 816	R422 128	R18 819	R23 603 501
Preekstoel WTW	R532 306	R1 967 360	R13 107 243	R976 366	R61 927 218
Franskraal New WTW	R14 721	R14 502 574	R354 761	R63 424	R21 807 992
Franskraal Old WTW	R2 274 059	R3 046 496	R2 260 796	R6 955	R12 448 432

Asset Type	0 – 5 yrs	6 – 10 yrs	11 – 15 yrs	16 – 20 yrs	> 20 yrs
Baardskeerdersbos WTW	R0	R10 486	R5 198 392	R65 430	R1 449 782
Pearly Beach WTW	R0	R584 561	R2 176 250	R2 652 030	R2 741 672
De Kelders WTW	R0	R86 730	R12 488 801	R0	R6 406 511
Totals	R6 626 007	R568 874 877	R55 910 560	R28 521 960	R572 921 364

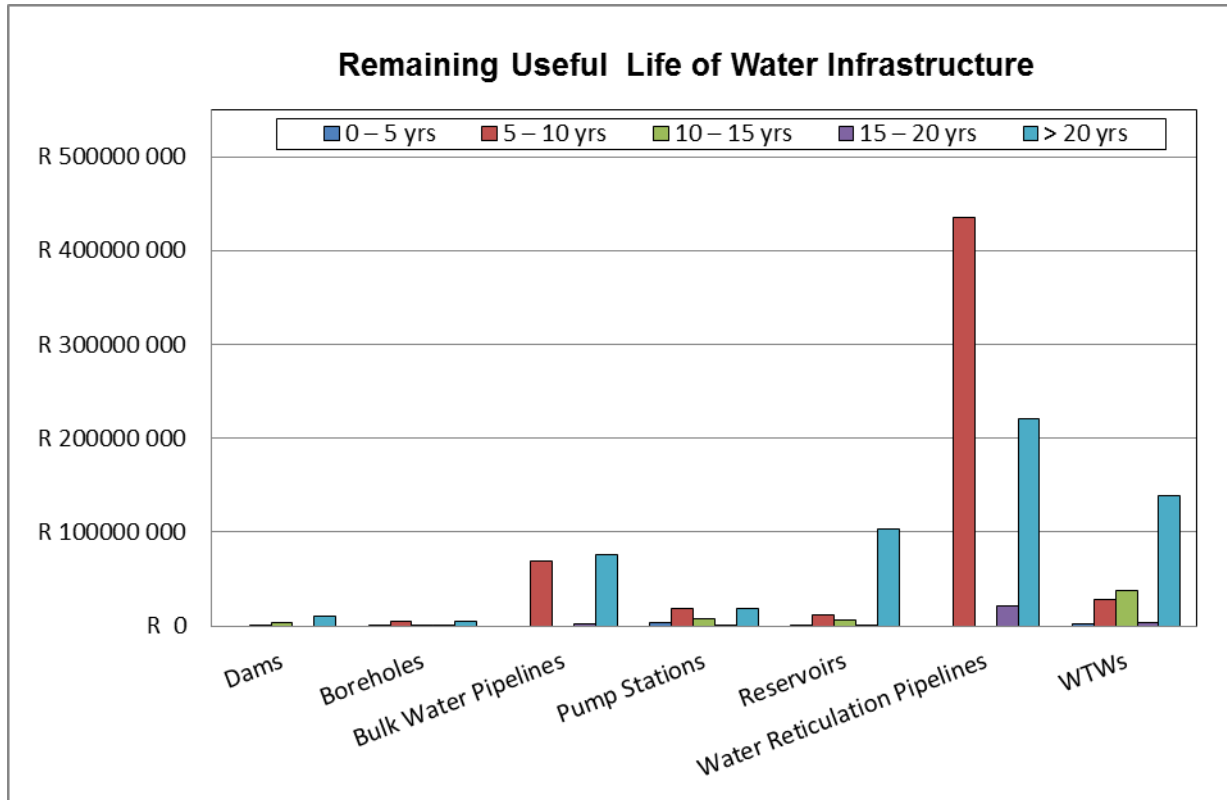


Figure A.4: Remaining Useful Life of the Water Infrastructure

The following table gives an overview of the age distribution by facility type for the water infrastructure (CRC):

Asset Type	0 – 5 yrs	6 – 10 yrs	11 – 15 yrs	16 – 20 yrs	> 20 yrs
Age distribution by Facility Type					
Dams	R8 053	R134 772	R0	R0	R14 562 649
Boreholes	R3 316 958	R7 591 997	R146 652	R47 614	R516 112
Bulk Water Pipelines	R17 776 013	R7 371 907	R0	R0	R122 411 663
Pump Stations	R7 023 888	R18 483 067	R10 333 594	R134 086	R13 285 470
Reservoirs	R4 342 617	R13 168 599	R20 563 450	R253 605	R82 960 525
Water Reticulation Pipelines	R156 126 481	R140 707 827	R0	R28 107 241	R352 946 579
Buffels River WTW	R112 335	R3 987 088	R80 770	R941 889	R8 691 737
Kleinmond WTW	R1 625 527	R3 513 404	R5 649 745	R195 174	R16 584 334
Preekstoel WTW	R76 023 040	R1 955 146	R532 306	R0	R0
Franskraal New WTW	R31 823	R36 711 648	R0	R0	R0
Franskraal Old WTW	R230 355	R332 615	R4 570 227	R182 481	R14 721 061
Baardskeerdersbos WTW	R6 724 089	R0	R0	R0	R0
Pearly Beach WTW	R6 293 841	R557 932	R934 953	R99 407	R268 380
De Kelders WTW	R18 982 042	R0	R0	R0	R0
Totals	R298 617 062	R234 516 001	R42 811 697	R29 961 496	R626 948 511

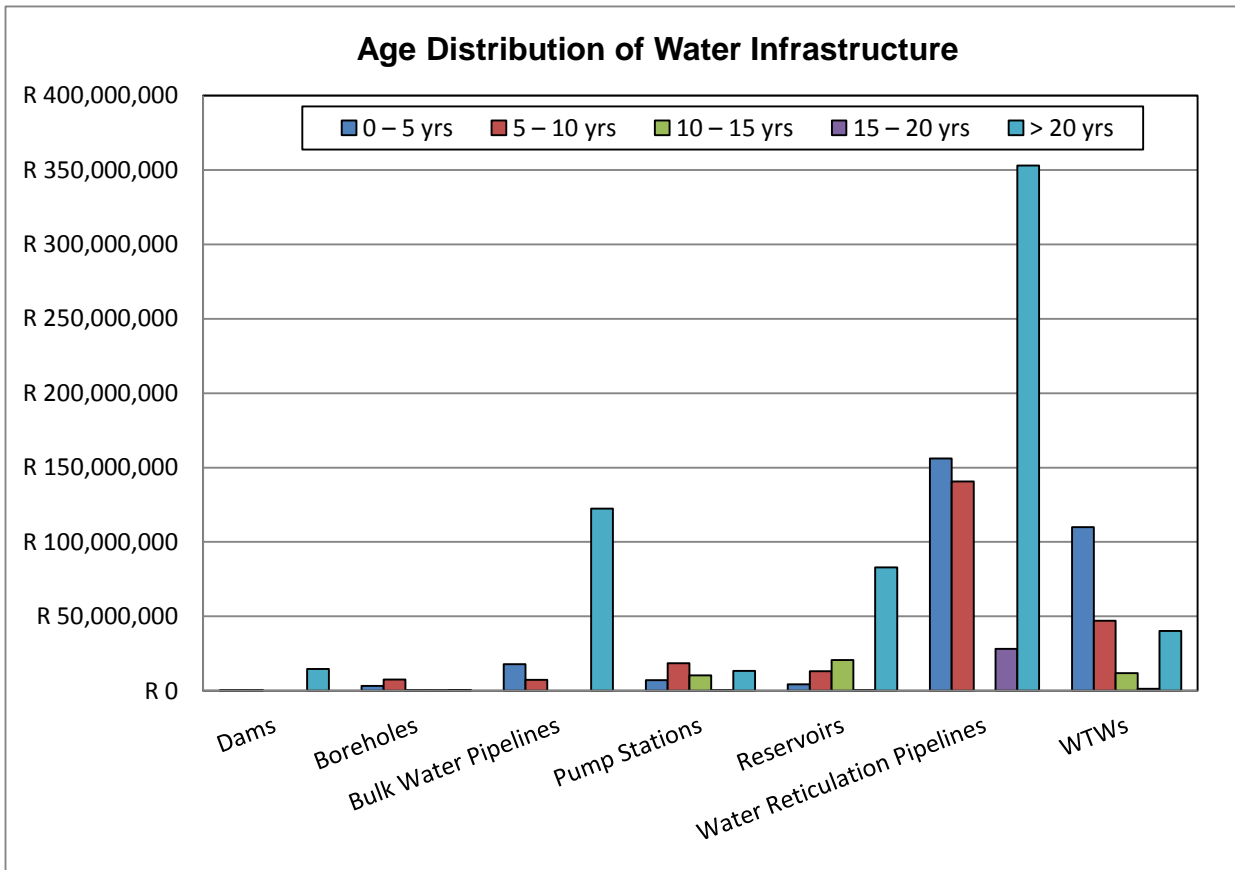


Figure A.5: Age distribution of the Water Infrastructure

Sewerage Infrastructure: The current replacement cost and depreciated replacement cost of the sewerage infrastructure of Overstrand Municipality is summarised in the table below (June 2016):

Table A.19: Current Replacement Cost and Depreciated Replacement Cost of the sewerage infrastructure – June 2015			
Asset Type	CRC	DRC	% DRC / CRC
Sanitation Pump Stations	R52 341 513	R32 227 835	61.6%
Sewer Reticulation Pipelines	R550 869 620	R331 876 782	60.2%
Stanford WWTW	R26 379 445	R15 903 360	60.3%
Hermanus WWTW	R97 706 408	R73 284 892	75.0%
Hawston WWTW	R14 823 834	R9 476 983	63.9%
Kleinmond WWTW	R17 315 851	R11 034 290	63.7%
Gansbaai WWTW	R43 974 977	R25 043 377	56.9%
Pearly Beach WWTW	R14 240 616	R14 240 616	100.0%
Totals	R817 652 264	R513 088 136	62.8%

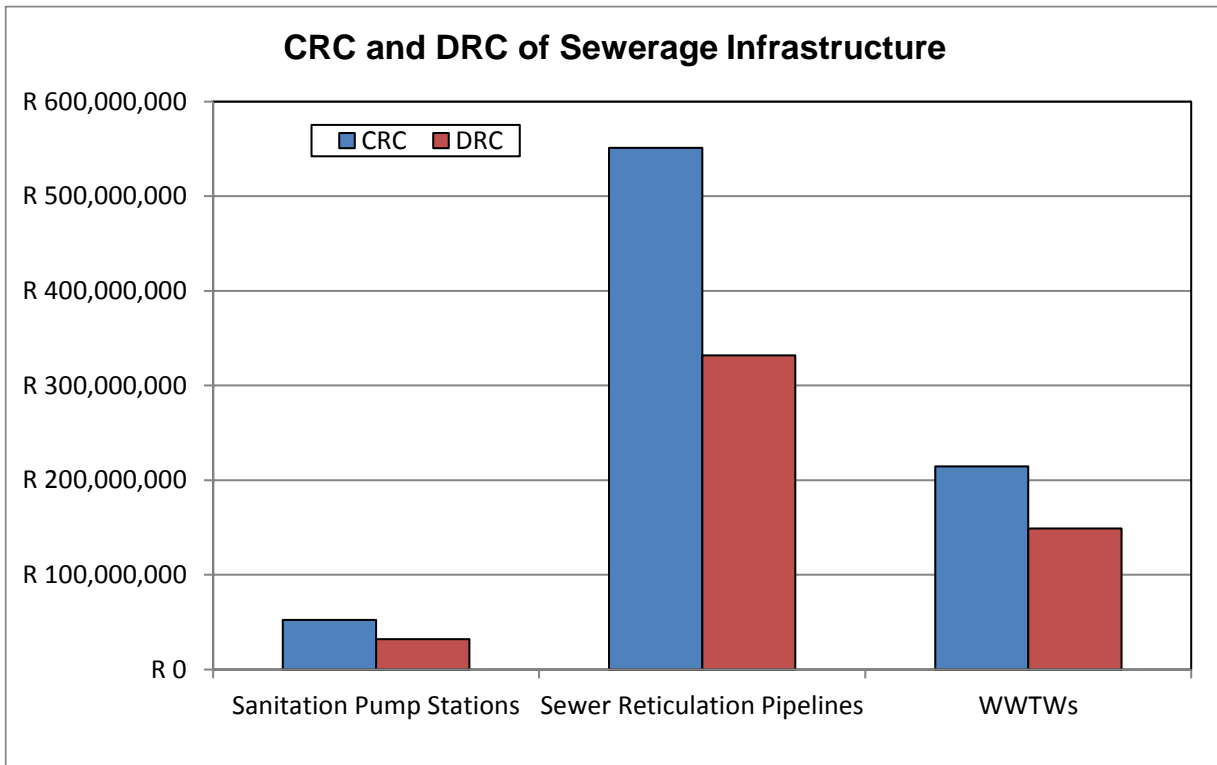


Figure A.6: CRC and DRC of the Sewerage Infrastructure

The information in the previous table means that 37.2% of the value of the sewerage infrastructure has been consumed.

The following table gives an overview of the remaining useful life by facility type for the sewerage infrastructure (CRC):

Table A.20: Overview of the remaining useful life by facility type for the sewerage infrastructure – June 2016 (CRC)					
Asset Type	0 – 5 yrs	6 – 10 yrs	11 – 15 yrs	16 – 20 yrs	> 20 yrs
RUL					
Sanitation Pump Stations	R0	R21 122 437	R9 765 181	R142 890	R21 311 005
Sewer Reticulation Pipelines	R0	R6 004 602	R12 917 851	R60 819 956	R471 127 210
Stanford WWTW	R0	R5 698 154	R11 246 896	R3 298	R9 431 097
Hermanus WWTW	R6 662	R12 186 370	R53 088 957	R1 259 458	R31 164 962
Hawston WWTW	R0	R4 221 185	R2 696 415	R1 189 327	R6 716 908
Kleinmond WWTW	R33 363	R6 613 593	R3 911 819	R11 941	R6 745 135
Gansbaai WWTW	R4 633 310	R18 649 844	R7 664 154	R88 559	R12 939 110
Pearly Beach WWTW	R0	R109 910	R526 685	R376 756	R13 227 265
Totals	R4 673 335	R74 606 095	R101 817 957	R63 892 185	R572 662 693

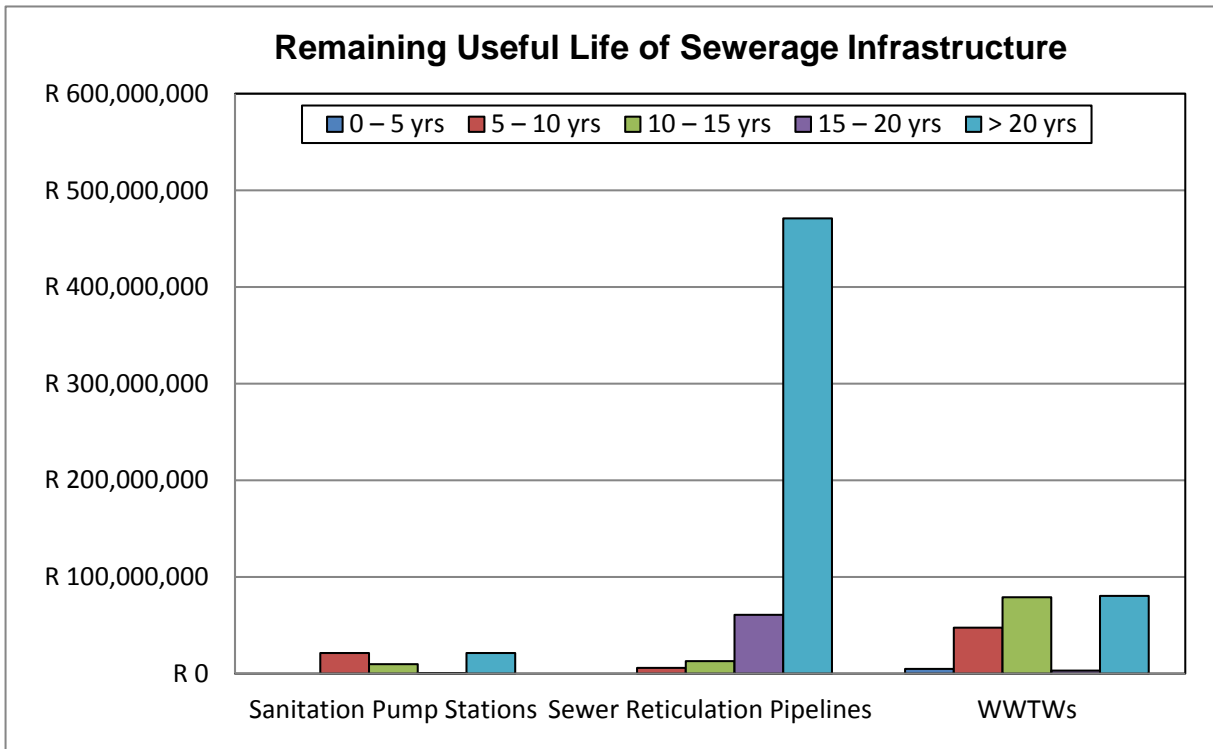


Figure A.7: Remaining Useful Life of the Sewerage Infrastructure

The following table gives an overview of the age distribution by facility type for the sewerage infrastructure (CRC):

Asset Type	0 – 5 yrs	6 – 10 yrs	11 – 15 yrs	16 – 20 yrs	> 20 yrs
Age distribution by Facility Type					
Sanitation Pump Stations	R13 437 478	R21 193 092	R1 058 858	R180 058	R16 472 027
Sewer Reticulation Pipelines	R101 417 804	R3 283 157	R21 624 836	R133 812 542	R290 731 282
Stanford WWTW	R10 620 482	R5 607 558	R1 149 720	R136 002	R8 865 683
Hermanus WWTW	R68 275 907	R2 915 442	R2 323 534	R1 131 772	R23 059 753
Hawston WWTW	R5 020 421	R3 692 506	R2 601 470	R262 343	R3 247 095
Kleinmond WWTW	R3 765 784	R6 672 914	R3 772 717	R212 022	R2 892 414
Gansbaai WWTW	R8 708 680	R17 634 398	R10 312 015	R53 528	R7 266 355
Pearly Beach WWTW	R14 240 616	R0	R0	R0	R0
Totals	R225 487 172	R60 999 067	R42 843 151	R135 788 266	R352 534 609

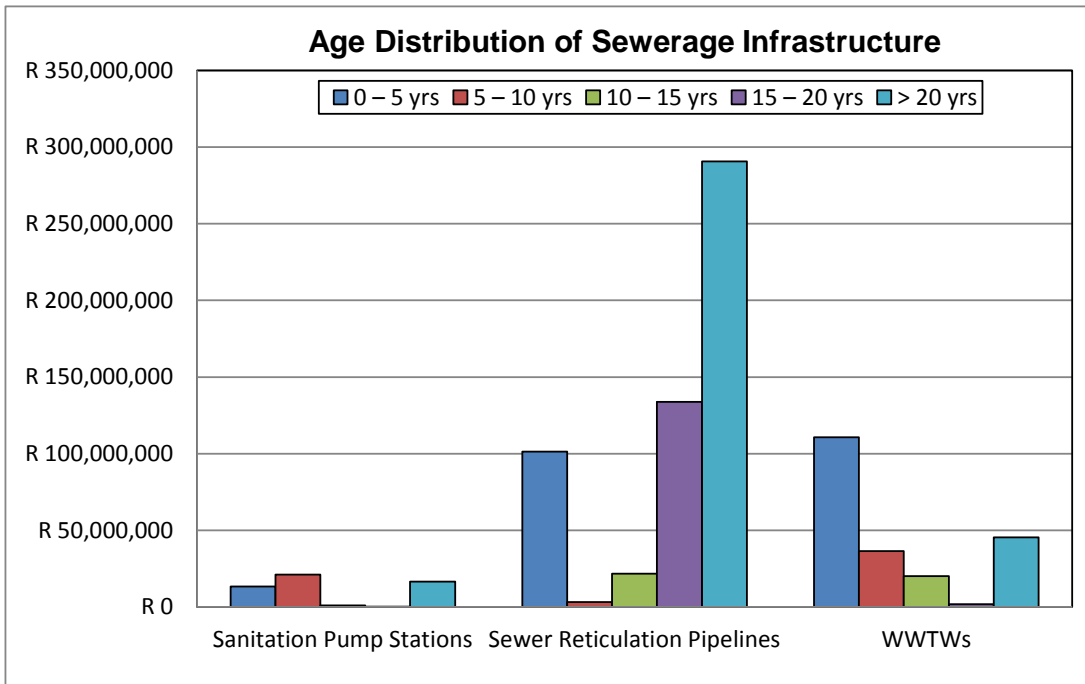


Figure A.8: Age distribution of the Sewerage Infrastructure

Business Element 6: Water Services Infrastructure Management (O&M)

Water Safety Plans are in place for all the water distribution systems and treatment facilities. A detailed risk assessment was executed as part of the process and the existing control measures implemented by Overstrand Municipality were evaluated. An Improvement / Upgrade Plan is also in place with relevant Water and Safety Management Procedures for any type of incident.

A W₂RAP for the various WWTWs is also in place. The W₂RAP is an all-inclusive risk analysis tool by which risks associated with the management of collection, treatment and disposal of wastewater, are identified and rated (quantified). The identified risks can then be managed according to its potential impacts on the receiving environment / community / resource.

The Water Safety Plan and W₂RAP Teams of Overstrand Municipality are committed to meet regularly to review the implementation of all the aspects of the Water Safety Plan and W₂RAP to ensure that they are still accurate and to determine whether the field assessments need updates or modifications and whether the Incident Response Management Protocol is still adequate. In addition to the regular three year review, the Water Safety Plan and W₂RAP will also be reviewed when, for example, a new water source is developed, major treatment improvements are planned and brought into use, or after a major incident.

An Incident Response Management Protocol is in place and forms part of Overstrand Municipality's Water Safety Plan and W₂RAP. The Incident Response Management Protocol entails that certain reactive procedures are followed when an incident occurs, such as when a malfunction of the treatment processes occurs due to power failures, faulty equipment, adverse weather conditions or human error.

Operational Alert Levels are also in place for the various WTWs and WWTWs in order to ensure that the various unit processes in the plant performs optimally. If these pre-determined Alert Levels are exceeded at any of the control points where samples are taken for operational purposes, specific actions are taken to bring the operational parameters back to within the target ranges.

The Maintenance Team mainly performs their own repair and preventative maintenance work to the equipment and infrastructure of the Municipality, except when specialised repair work is required, in which case the work is sub-contracted to approved sub-contractors on the municipal database.

An Operational and Compliance Water Quality and Final Effluent Monitoring Programme, which meets the requirements of the DWS as stipulated in their Blue and Green Drop criteria, were drawn up by Overstrand Municipality and are implemented by the Municipality.

DWS's Blue Drop Process

The DWS launched the blue and green drop certification, with regard to drinking water quality and wastewater quality management, at the Municipal Indaba during September 2008. Blue drop status is awarded to those towns that comply with 95% criteria on drinking water quality management. The Blue Drop Certification programme is in its seventh year of existence and promises to be the catalyst for sustainable improvement of South African drinking water quality management in its entirety. The blue drop performance of Overstrand Municipality is summarised as follows in the DWS's 2014 Blue Drop Report:

Table A.22: Blue Drop Performance of the Municipality (DWS's 2014 Blue Drop Report)	
Municipal Blue Drop Score	2011 – 90.56%, 2012 – 96.82% and 2014 - 90.79%
<p>Regulatory Impression: The Overstrand Local Municipality team was well prepared and demonstrated their commitment to the Blue Drop assessment and water quality excellence. The Municipality is to be congratulated for obtaining Blue Drop status for the Greater Hermanus system. A decreased municipal score was however achieved during this assessment. The reason for the observed decrease in compliance includes:</p> <ul style="list-style-type: none"> • Full compliance with the requirements of SANS 241 with regard to monitoring and analysis could not be demonstrated. No chemical determinants have been analysed in the reticulation network to monitor the chemical quality of water provided to the consumer and identify any potential health impacts. In addition, the frequency of analysis does not comply with the requirements for the final water produced at treatment facilities receiving surface water or within the reticulation network. The Municipality however confirmed that subsequent to the assessment that a service provider has been appointed to implement a risk based monitoring programme that fully complies with the requirements of SANS 241, sampler training and uploading of analytical data to the BDS. • Detailed annual process audits could not be demonstrated that assessed the performance of the treatment systems and each process unit with the design capacity of the plant. Recommendations should be incorporated into the review process of water safety plan. • Poor microbiological compliance was observed in the Baardskeerdersbos system. This should be mitigated when the new plant to treat borehole water is commissioned in August 2014. <p>Significant progress has been made by the municipality with regard to WC/WDM and projects have been ongoing for the last three years. Good baseline information and a formal strategy are available that enables the municipality to make informed decisions regarding ongoing planning to minimise non-revenue water.</p> <p>It is anticipated that the identified gaps will be addressed by the Overstrand Local Municipality and that an upward trend towards Blue Drop compliance will once again be achieved in the next assessment.</p> <p>Based on the Audit results, the DWS has serious concerns on the poor microbiological drinking water quality and the resultant risk to consumers of the Baardskeerdersbos water supply system. These concerns have to be addressed as a matter of urgency and drinking water quality results and appropriate actions must be communicated to consumers should the water be found to be unfit for human consumption.</p> <p>Site Inspection (Preekstoel WTW (88%) and Buffels River WTW (90%)): The site inspection impression at the Preekstoel WTW was considered to be good. A number of drinking water quality management practices still require attention, including:</p> <ol style="list-style-type: none"> 1. A flow chart was displayed of the incident management protocol that indicates roles and responsibilities but alert levels were not included. 2. Records of the results of the jar tests that are routinely undertaken could not be provided. 3. Emergency shower and eye wash facilities were not located at the chemical dosing room. 4. Manual post dosing of lime was being undertaken at the time of the assessment due to equipment failure. This was to be repaired as part of the maintenance contract with an external service provider. Standby equipment was not installed. 5. Standby chlorine dosing equipment is not installed. <p>The site inspection impression at the Buffels River WTW was considered to be good. A number of drinking water quality management practices still require attention, including:</p> <ol style="list-style-type: none"> 1. A flow chart was displayed of the incident management protocol that indicates roles and responsibilities but alert levels were not included. 2. The original O&M manual for the WTW is not available. Standard operating procedures have been compiled. 3. Records of jar tests undertaken by the service provider could not be provided. 4. Chemical tanks are not contained within a bounded area. 5. Standby chlorine dosing equipment is not installed. 6. Standby air compressor is not installed. 	

280850 : OVERSTRAND MUNICIPALITY : WSDP – IDP WATER SECTOR INPUT REPORT FOR 2017/2018

Performance Area	Baardskeerdersbos	Buffeljags Bay	Buffels River	Greater Gansbaai	Greater Hermanus	Kleinmond	Pearly Beach	Stanford
Water Services Provider(s)	Overstrand LM	Overstrand LM	Overstrand LM	Overstrand LM	Overstrand LM	Overstrand LM	Overstrand LM	Overstrand LM
Water Safety Planning	29.75	23.54	33.43	31.50	33.43	31.15	24.59	29.75
Treatment Process Management	4.28	5.60	4.00	6.80	8.00	6.40	6.80	4.70
DWQ Compliance	0.00	15.75	23.25	23.25	29.60	23.25	29.60	30.00
Management Accountability	8.95	8.20	9.25	9.25	9.25	9.25	9.25	9.25
Asset Management	8.72	9.24	11.03	10.50	11.90	10.29	10.29	11.38
Use Efficiency, Loss Management	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Bonus Scores	9.17	6.50	3.25	4.00	1.27	3.25	3.83	2.86
Penalties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Blue Drop Score (2014)	63.87%	71.83%	87.20%	88.30%	96.44%	86.59%	87.35%	90.94%
Blue Drop Score (2012)	91.6%	93.8%	95.0%	97.1%	97.9%	95.0%	95.2%	92.7%
Blue Drop Score (2011)	93.7%	75.4%	95.1%	95.1%	87.2%	93.1%	94.3%	95.2%
Blue Drop Score (2010)	Not Assessed	Not Assessed	63.83%	63.81%	75.31%	60.06%	Not Assessed	Not Assessed
System Design Capacity (Ml/d)	0.150	0.100	5.500	7.100	28.000	5.800	1.400	1.500
Operational Capacity (% i.t.o. Design)	100%	105%	44%	100%	29%	39%	100%	57%
Average daily consumption (l/p/d)	655.0	310.3	803.4	445.9	192.4	230.1	1605.4	159.9
Microbiological Compliance (%)	90.0%	95.5%	99.9%	99.9%	98.9%	99.9%	99.9%	99.9%
Chemical Compliance (%)	92.0%	99.9%	96.4%	96.1%	96.4%	96.4%	99.9%	96.4%

Overstrand Municipality achieved overall 3rd position from the twenty five (25) municipalities in the Western Cape in the 2014 Blue Drop Report and the Greater Hermanus system obtained the highest Blue Drop score (96.44%) of all 122 water systems in the Western Cape.

Table A.23: DWS's 2014 Blue Drop Risk Ratings for the various towns								
Municipal Blue Drop Risk Rating								41%
The overall 2014 Risk Rating for Overstrand LM is 41% which translates into the 10th best performance in the Western Cape. Note that this value is based on the 3 specific areas indicated below and shows concerns (medium to critical risks) for Process Control (which risks reflect compliance in terms of draft Regulation 813) in 6 of the 8 systems; Drinking Water Quality in 2 out of the 8 systems; and Risk Management in none of 8 systems.								
Assessment Area	Baardskeerdersbos	Buffeljags Bay	Buffels River	Greater Gansbaai	Greater Hermanus	Kleinmond	Pearly Beach	Stanford
2014								
Blue Drop Risk Rating (2014)	47.2%	60.1%	57.3%	57.6%	17.2%	57.3%	56.1%	27.1%
Process Control RR	55.6%	71.1%	64.1%	74.4%	34.1%	64.1%	71.1%	40.5%
Drinking Water Quality RR	70.4%	55.6%	40.7%	40.7%	25.9%	40.7%	11.1%	11.1%
Risk Management RR	17.4%	26.1%	13.0%	26.1%	17.4%	13.0%	26.1%	13.0%
2013								
Blue Drop Risk Rating (2013)	20.6%	12.2%	12.5%	12.7%	13.5%	12.5%	12.7%	15.6%

Table A.23: DWS's 2014 Blue Drop Risk Ratings for the various towns								
Municipal Blue Drop Risk Rating								41%
Process Control RR	22.2%	17.6%	28.2%	34.9%	31.7%	28.2%	26.3%	29.7%
Drinking Water Quality RR	55.6%	11.1%	11.1%	11.1%	14.8%	11.1%	11.1%	11.1%
Risk Management RR	13.0%	13.0%	13.0%	13.0%	17.4%	13.0%	13.0%	13.0%
2012								
Blue Drop Risk Rating (2012)	75.5%	52.7%	72.1%	76.7%	78.1%	72.1%	83.5%	64.9%
Process Control RR	77.8%	76.5%	79.5%	79.5%	80.5%	79.5%	78.9%	83.8%
Drinking Water Quality RR	11.1%	11.1%	11.1%	40.7%	11.1%	11.1%	11.1%	11.1%
Risk Management RR	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%

The average daily consumption (l/p/d) for the last four financial years are summarised in the table below:

Table A.24: Average residential daily consumption (l/p/d) for the last four financial years.												
Distribution System	2012/2013			2013/2014			2014/2015			2015/2016		
	Estimated Permanent Population	Aver. Daily Billed Metered Res. Consumption (kl)	Aver. Daily consumption (l/p/d)	Estimated Permanent Population	Aver. Daily Billed Metered Res. Consumption (kl)	Aver. Daily consumption (l/p/d)	Estimated Permanent Population	Aver. Daily Billed Metered Res. Consumption (kl)	Aver. Daily consumption (l/p/d)	Estimated Permanent Population	Aver. Daily Billed Metered Res. Consumption (kl)	Aver. Daily consumption (l/p/d)
Buffels River	2 392	760	318	2 492	756	303	2 595	834	321	2 703	864	320
Kleinmond	6 795	1 034	152	6 965	1 009	145	7 139	1 050	147	7 317	1 072	147
Greater Hermanus	49 438	5 946	120	51 638	6 155	119	53 936	6 754	125	56 336	6 848	122
Stanford	4 908	388	79	5 038	403	80	5 171	420	81	5 308	447	84
Greater Gansbaai	13 978	1 508	108	14 661	1 503	103	15 378	1 533	100	16 130	1 558	97
Pearly Beach	1 069	193	181	1 092	197	180	1 115	211	189	1 138	243	214
Baardskeerdersbos	123	16	130	123	15	122	124	16	129	124	18	145
Buffeljags Bay	148	7	47	148	8	54	149	7	47	150	8	53

Note: The average residential billed metered consumption in the above table is for the period July to June each financial year, excluding the period November to February.

DWS's Green Drop Process

The DWS also completed their Third Order Assessment of Municipal Waste Water Treatment Plants, DWS's Green Drop Report for 2013, which provides a scientific and verifiable status of municipal waste water treatment. Green drop status is awarded to those WSAs that comply with 90% criteria on key selected indicators on waste water quality management. The green drop performance of Overstrand Municipality is summarised as follows in the DWS's 2013 Green Drop Report.

Table A.25: Green Drop Performance of the Municipality (DWS's 2013 Green Drop Report)					
Average Green Drop Score	2009 – 63.00%, 2011 – 88.80%, 2013 - 89.14%				
<p>Regulatory Impression: The Overstrand Local Municipality is to be congratulated with an outstanding performance and able presentation of their Portfolio of Evidence. The Inspection team were impressed with "... <i>the team's enthusiasm, expertise and knowledge of the wastewater business.</i>" As result, Overstrand is awarded with four Green Drop Certificates. The overall management of all five systems is consistent and indicative of the personnel's dedication and discipline to wastewater management. Regrettably, the Kleinmond system did not perform on par with the other four systems, which weakened the municipal Green Drop score to 89.14%, just short of overall Green Drop award.</p> <p>The points of strength include the high overall compliance of effluent quality, prominent risk abatement, and technical skilled staff with strong management support and involvement. The presence of the Finance department contributed to the positive score received for asset management and ring-fenced costing. The Hermanus WWTW is currently in the process of upgrading the works to 12MI/d. Monitoring programs should be revised to include sludge monitoring at all systems and to ensure sufficient sampling frequency where process upgrades have occurred.</p> <p>Overall, Overstrand has managed to produce a polished Green Drop Performance. Overstrand is also one of very few municipalities that were using the opportunity to score against all the bonus criteria. Well done. The absolute consistency displayed in keeping all systems in low risk zones using the W₂RAP process, is commendable. Overstrand is an accomplished service provider in wastewater management, and deserves to be mentioned amongst the top performers in the Province.</p> <p>Green Drop Findings:</p> <ol style="list-style-type: none"> 1. Regulation 17 compliance need to receive attention. 2. Sea outfall monitoring frequency need to be revised for Hermanus. 3. Sludge monitoring and handling could improve going forward. 4. Some shortcomings are evident on process assessment which might possibly resolve some of the lower compliance to ammonia, EC, O-PO₄, SS/COD at some plants, given that ample capacity exist at all plants. 					
GREEN DROP REPORT CARD					
Key Performance Area	Hermanus	Hawston	Stanford	Gansbaai	Kleinmond
Process Control, Maintenance & Management Skill	84	100	100	100	80
Monitoring Programme	93	95	95	100	95
Submission of Results	100	100	100	100	100
Effluent Quality Compliance	68	69	85	77	29
Risk Management	96	73	73	73	73
Local Regulation	100	100	100	100	100
Treatment Capacity	100	100	100	96	56
Asset Management	96	93	96	93	100
Bonus Scores	4.86	5.48	3.55	4.43	8.84
Penalties	0.20	0.23	0.30	0.37	0.91
Green Drop Score (2013)	91.17%	90.03%	93.39%	91.76%	77.61%
Green Drop Score (2011)	92.10%	87.90%	83.00%	75.80%	82.50%
Green Drop Score (2009)	66.00%	57.00%	61.00%	66.00%	66.00%
System Design Capacity (MI/d)	7.300	1.000	0.500	2.000	2.000
Capacity Utilisation (% ADWF i.t.o. Design Capacity)	56.89%	30.00%	79.20%	55.00%	44.90%
Resource Discharged into	Sea outfall (shallow)	Natural Wetland to Dunes	Kleinrivier	Lined wetlands, sports field irrigate	Wetland that drains to sea
Microbiological Compliance	91.67%	91.67%	91.67%	100.00%	83.33%
Chemical Compliance	87.50%	81.25%	90.00%	93.75%	77.08%
Physical Compliance	66.67%	91.67%	94.44%	80.56%	100.00%
Overall Compliance	80.21%	86.46%	91.67%	89.58%	86.46%
Wastewater Risk Rating (2012)	34.70%	33.30%	44.40%	38.90%	44.40%
Wastewater Risk Rating (2013)	45.45%	29.41%	29.41%	35.29%	47.06%
Site Inspection Score	-	-	-	-	75%

The 2014 Green Drop Progress Report of the DWS is further the product of a “gap” year, whereby progress is reported in terms of the improvement or decline in the risk position of the particular WWTW, as compared to the previous year’s risks profile. This tool to collect, assess and report the risk profile is called the Green Drop Progress Assessment Tool (PAT). The PAT progress assessment period was done on compliance data and actions during 1 July 2012 – 30 June 2013, which represents the year immediately following the Green Drop 2013 assessment period. The results for Overstrand Municipality were summarised as follow in DWS’s 2014 Green Drop Risk Profile Progress Report.

Table A.26: DWS’s 2014 Green Drop Risk Profile Progress Report results for Overstrand Municipality					
Technology Description	Hermanus	Hawston	Stanford	Gansbaai	Kleinmond
Technology (Liquid)	Activated sludge	Activated sludge	Activated sludge	Nereda plant	Activated sludge
Technology (Sludge)	Belt press dewatering and Solar drying beds	Screw press dewatering and Solar drying beds	Screw press dewatering and Sludge pond	Belt press dewatering and Solar drying beds	Belt press dewatering and Sludge pond
Key Risk Areas					
ADWF Design Capacity (Ml/d)	12.000	1.000	0.500	2.000	2.000
Operational % i.t.o. Design Capacity	38%	33%	70%	67%	53%
Annual Average Effluent Quality Compliance (2012-2013)	79.2%	71.9%	90.6%	83.3%	87.5%
Microbiological Compliance	83.3%	83.3%	91.7%	91.7%	58.3%
Physical Compliance	69.4%	77.8%	100.0%	77.8%	100.0%
Chemical Compliance	85.4%	64.6%	83.3%	85.4%	85.4%
Technical skills (Reg 813)	Yes	Yes	Yes	Yes	Yes
2014 Wastewater Risk Rating (%CRR/CRR_{max})	40.9%	52.9%	29.4%	41.2%	41.2%
2013 Wastewater Risk Rating (%CRR/CRR_{max})	45.5%	29.4%	29.4%	35.3%	47.1%
Risk Abatement Planning					
Highest Risk Areas based on the CRR	Wastewater quality	Wastewater quality	Chemical compliance	Wastewater quality	Wastewater quality
WW Risk Abatement Status	Final document plus implementation	Final document plus implementation	Final document plus implementation	Final document plus implementation	Final document plus implementation
Capital & Refurbishment expenditure for Fin Year 2012-2013 (Rand)	R10,5m	R0,12m	R0,05m	R1,9m	R1,9m
Description of Projects’ Expenditure 2012-2013	Refurbished & upgraded from 7.3 to 12 Ml/d started in 2010/11 and completed in Dec 2012	Aerators refurbished and new outlet meter installed	Constructed new outlet pipe from sludge screw press to skip	Belt press installed	Belt press installed and a new chlorination system for disinfection
W ₂ RAP Abatement Document and Status Commentary	<p>Hermanus: Date of document could not be established. Action plan refers to 12/13. Quite a few references to Gansbaai in Hermanus W₂RAP, e.g. Gansbaai operational and compliance monitoring alert levels. Only 1 high risk identified. Non-compliance to Reg. 813 re PCs not identified as risk.</p> <p>Hawston: Date of document could not be established. Action points refer to 13/14. Quite a few references to Gansbaai in Hawston W₂RAP - to be rectified. No high risk identified. Non-compliance of effluent not identified as high risk.</p> <p>Stanford: Date of document couldn't be found. Action points refer to 12/13/ 14/15. 1 high risk identified - inadequate fencing around reed bed system. Non-compliance of effluent not identified as high risk.</p> <p>Gansbaai: Date of document couldn't be found. Action points refer to 12/13/ 14/15. 1 high risk identified - inadequate fencing around reed bed system. Non-compliance of effluent not identified as high risk.</p> <p>Kleinmond: Date of document couldn't be found. Action points refer to 13/14/15. 1 high risk identified: security fencing around plant. Non-compliance of effluent not identified as high risk.</p>				

Regulatory Impression

Overstrand Municipality achieved Green Drop status for 4 of their 5 wastewater systems in the 2013 Green Drop audits. The municipal Green Drop score was 89.14% - a fraction away from achieving municipal Green Drop status. This is excellent and is part of a steady and significant improvement since 2009. The Municipality is sincerely congratulated with this accomplishment.

During the present 2013-14 Green Drop Progress Reporting the situation deteriorated marginally, with 2 systems showing an increased Risk Rating – more significantly in the case of the Hawston system. The Municipality should make a concerted effort to prevent further deterioration and should continue to improve their Green Drop status in 2015. The Municipality has the necessary supervisory excellence at all systems. There is however a concern with the non-compliant effluent quality at all works except at the Stanford works. The Municipality is encouraged to continue with implementation of the GDIP and thus to ensure that progress at the systems is achieved and maintained. The overall risk profile is still very good, with 4 of 5 plants residing in low risk space. Well done.

Business Element 7: Associated Services

All schools and medical facilities in Overstrand Municipality's Management Area are supplied with a higher level of water and sanitation services.

Business Element 8: Conservation and Demand Management

Overstrand Municipality is committed to reduce the current percentage of NRW for the various distribution systems to 17% by June 2017 (SDBIP). The Municipality's WDM Strategy and Action Plan include the following key activities (June 2016 progress in brackets):

- Sourcing of funding for implementation of water reclamation for potable purposes in the longer term (applications for RBIG and ORIO grant funding have been submitted to the Department of Water and Sanitation (DWS));
- Continue with pipe replacement in priority areas with old reticulation networks and history of frequent pipe failures (Contract completed in Pearly Beach, Gansbaai, De Kelders and Rooi-Els to Hermanus);
- Implementation of intelligent pressure management in specific areas. (Stanford and Kleinmond completed and contract was awarded for Betty's Bay, which was implemented with the 2014/2015 pipeline replacement project);
- Phased pro-active replacement of older water meters (Previous contract was completed and new contract was awarded in June 2016);
- Review and improve efficiency of remote monitoring of minimum night flows in all zones (On-going maintenance of SCADA and telemetry systems).
- Link properties with distribution zones in financial data base to enable water balance in smaller areas (Completed for Hermanus, ongoing for other areas);
- Perform focused leak detection and repair programs in areas with highest minimum night flows (Second two year leak detection contract awarded in 2015 – work in progress);
- Continue with leak repairs at indigent households and installation of water management devices (Previous contract was completed and new contract was awarded in June 2016);
- Enhance public awareness on water demand management issues, e.g. the watering of gardens as determined by the bylaws, rain water harvesting, dam levels, and general water saving tips (Regular publication of water and waste water quality in local media and on Overstrand Municipality's web-site);
- Identify users on financial data base with regular abnormal high or abnormal low water use, and physically inspect the causes (on-going);

- Sourcing of external funds, e.g. from the DWS RBIG and ACIP programs, ORIO, Green Fund and Disaster Reduction Program (ACIP funding was received for the upgrading of the Stanford WWTW);
- Tariffs structured to discourage excessive use of water, including volumetric sewerage tariffs, and specific water restriction tariffs implemented for specific dam levels (implemented and on-going);
- Continue with removal of alien vegetation in catchment areas (Work for Water program – ongoing);
- Maximum use of treated effluent for irrigation (Implemented in Hermanus, Gansbaai and Pearly Beach).

The table below gives a summary of the NRW for the various distribution systems in Overstrand Municipality's Management Area.

Table A.27: Non revenue water for the various distribution systems							
Description	Unit	15/16	Record : Prior (MI/a)				
			14/15	13/14	12/13	11/12	10/11
Buffels River	Volume	163.864	286.578	350.035	438.541	533.140	526.339
	Percentage	30.07%	42.51%	50.46%	57.03%	58.47%	56.66%
	ILI	1.68	3.10	3.82	5.45	5.07	5.06
Kleinmond	Volume	209.194	236.018	248.504	285.680	239.492	246.783
	Percentage	28.75%	31.68%	34.23%	34.38%	30.08%	29.41%
	ILI	2.57	2.25	2.26	2.49	2.58	2.17
Greater Hermanus	Volume	474.020	359.729	380.399	324.189	317.241	594.352
	Percentage	11.66%	9.13%	10.91%	9.04%	9.69%	15.62%
	ILI	1.19	0.88	0.96	0.85	0.98	1.50
Stanford	Volume	73.438	80.356	76.516	91.388	142.029	128.297
	Percentage	24.19%	26.97%	25.87%	30.83%	37.46%	35.46%
	ILI	3.69	2.81	2.69	2.90	5.90	5.67
Greater Gansbaai	Volume	384.841	363.302	413.621	405.799	435.335	457.525
	Percentage	28.49%	27.96%	31.30%	31.19%	31.96%	32.83%
	ILI	3.35	2.93	3.34	3.15	3.46	3.71
Pearly Beach	Volume	36.951	52.640	87.708	67.435	45.689	36.511
	Percentage	25.41%	33.68%	48.42%	41.93%	32.28%	26.27%
	ILI	1.0	2.86	4.79	4.79	3.02	2.41
Baardskeerdersbos	Volume	6.654	6.251	5.665	4.000	2.778	4.085
	Percentage	45.44%	46.26%	48.62%	36.30%	29.26%	37.29%
	ILI	1.3	1.28	1.16	0.75		
Buffeljags Bay	Volume	0.705	0.612	0.004	0.090	0.019	0
	Percentage	15.85%	15.45%	0.12%	2.63%	0.49%	0%
	ILI	3.83	3.80	0.42	0.46		
TOTAL	Volume	1 349.667	1 385.486	1 562.452	1 617.122	1 715.723	1 993.892
	Percentage	18.86%	19.43%	23.25%	23.23%	24.94%	26.65%
	ILI	1.74	1.78	2.02	2.26	2.02	2.33

Notes: ILI for 2015/2016 in the above table was calculated by GLS for the various distribution systems.

Infrastructure Leakage Index (ILI) for Developed Countries = 1 – 2 Excellent (Category A), 2 – 4 Good (Category B), 4 – 8 Poor (Category C) and > 8 – Very Bad (Category D)

Category A = No specific intervention required.

Category B = No urgent action required although should be monitored carefully.

Category C = Requires attention

Category D = Requires immediate water loss reduction interventions

The Infrastructure Leakage Index (ILI) in the above table is the most recent and preferred performance indicator for comparing leakage from one system to another. It is a non-dimensional index representing the ratio of the current real leakage and the “Unavoidable Annual Real Losses”. A high ILI value indicates a poor performance with large potential for improvement while a small ILI value indicates a well-managed system with less scope for improvement. Attaining an ILI = 1 is a theoretical limit, which is the minimum water loss in an operational water reticulation system. A value of less than 1 should not occur since this implies that the actual leakage is less than the theoretical minimum level of leakage.

Business Element 9: Water Resources

The graph below gives an overview of the total bulk system input volume and NRW for the various distribution systems in Overstrand Municipality’s Management Area.

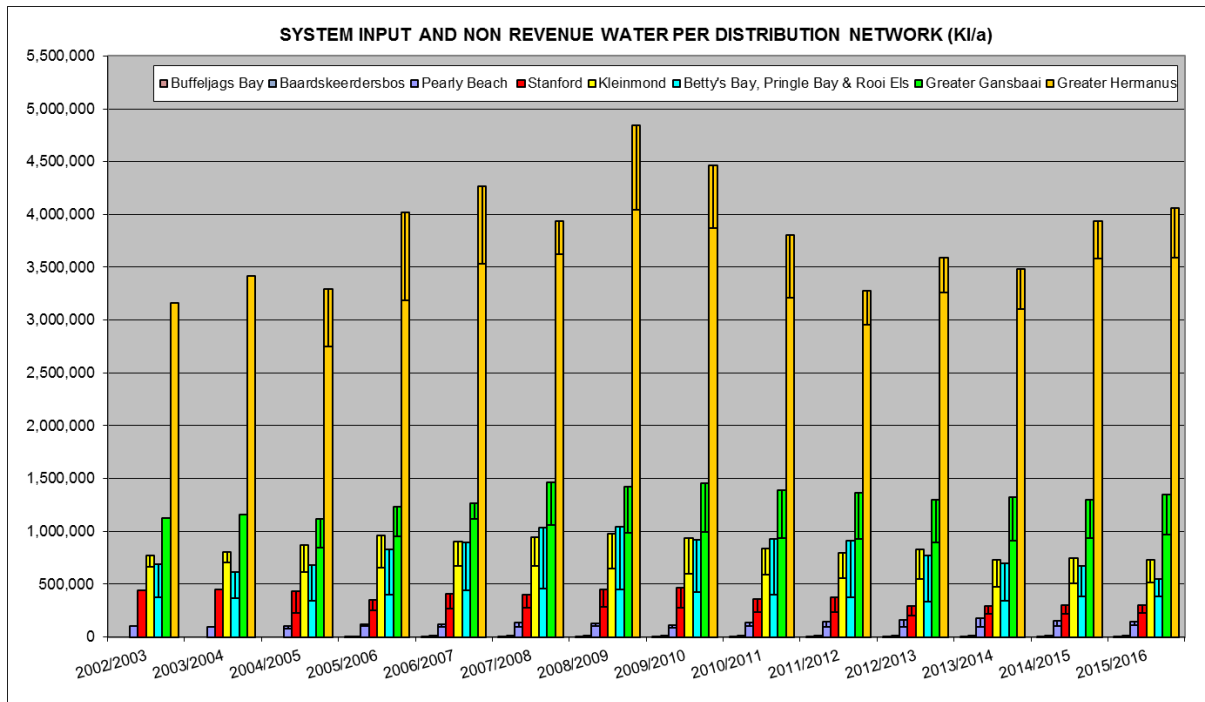


Figure A.9: System input volume and NRW per distribution network for the last fourteen financial years.

The table below summarise the bulk raw water supplied to the various towns in Overstrand Municipality’s Management Area.

Table A.28: Volume of bulk raw water supplied to the various towns							
Distribution System	Source Name	Current 15/16	Record : Prior (Ml/a)				
			14/15	13/14	12/13	11/12	10/11
Buffels River	Buffels River Dam	762.669	832.082	884.443	959.091	890.129	1 060.903
Kleinmond	Palmiet River, Kleinmond borehole & Dorpsfontein spring	772.220	770.268	757.170	937.438	908.556	865.079
Greater Hermanus	De Bos Dam & Groundwater	4 636.164	4 611.987	4 012.029	3 698 894	3 375.238	3 921.834
Stanford	Stanford spring and two boreholes	387.777	310.787	295.818	296.392	379.130	361.810
Greater Gansbaai	Kraaibosch and Franskraal Dam, Klilpgat, De Kelders Grotte	1 511.060	1 501.361	1 535.945	1 486.216	1 320.178	1 358.985
Pearly Beach	Pearly Beach Springs and Koekemoer Dam	150.919	162.746	190.304	160.831	141.542	138.969
Baardskeersdersbos	Two boreholes	18.380	17.466	11.652	11.019	9.495	10.954
Buffeljags Bay	Borehole	5.427	3.962	3.258	3.418	3.895	3.560
Total supply to all towns		8 244.616	8 210.659	7 690.619	7 553.299	7 028.163	7 722.094

Water Quality: Overstrand Municipality makes use of an accredited external laboratory to conduct the drinking water compliance sampling and analysis. Samples are taken at various locations in each system and analysed to evaluate the compliance. The water quality results are loaded onto DWS's BDS via the internet. Once entered the data is automatically compared to SANS241. This real-time system allows for immediate intervention to rectify any problems.

The overall percentage of compliance of the water quality samples taken over the period July 2015 to June 2016 is summarised in the table below per distribution system (SANS241:2015 Limits).

Table A.29: Percentage compliance of the water quality samples for the period July 2015 to June 2016		
Performance Indicator	Performance Indicator categorised as unacceptable Yes / No (Table 4 of SANS 241-2:2015)	% Sample Compliance according to SANS 241-2015 Limits
Buffels River		
Acute Health Microbiological	No (Excellent)	100.0%
Acute Health Chemical	No (Excellent)	100.0%
Chronic Health	No (Excellent)	100.0%
Aesthetic	No (Excellent)	100.0%
Operational Efficiency	No (Excellent)	98.2%
Kleinmond		
Acute Health Microbiological	No (Excellent)	100.0%
Acute Health Chemical	No (Excellent)	100.0%
Chronic Health	No (Excellent)	100.0%
Aesthetic	No (Excellent)	99.4%
Operational Efficiency	No (Excellent)	97.7%
Greater Hermanus		
Acute Health Microbiological	No (Excellent)	100.0%
Acute Health Chemical	No (Excellent)	100.0%
Chronic Health	No (Excellent)	100.0%
Aesthetic	No (Excellent)	99.0%
Operational Efficiency	No (Excellent)	97.7%
Stanford		
Acute Health Microbiological	No (Excellent)	100.0%
Acute Health Chemical	No (Excellent)	100.0%
Chronic Health	No (Excellent)	100.0%
Aesthetic	No (Excellent)	100.0%
Operational Efficiency	No (Excellent)	100.0%
Greater Gansbaai		
Acute Health Microbiological	No (Excellent)	97.5%
Acute Health Chemical	No (Excellent)	100.0%
Chronic Health	No (Excellent)	99.7%
Aesthetic	No (Excellent)	98.5%
Operational Efficiency	No (Excellent)	98.6%
Pearly Beach		
Acute Health Microbiological	No (Excellent)	100.0%
Acute Health Chemical	No (Excellent)	100.0%
Chronic Health	No (Excellent)	100.0%
Aesthetic	No (Excellent)	99.5%
Operational Efficiency	No (Excellent)	99.0%
Baardskeerdersbos		
Acute Health Microbiological	No (Excellent)	97.4%
Acute Health Chemical	No (Excellent)	100.0%
Chronic Health	No (Excellent)	98.7%
Aesthetic	No (Excellent)	98.4%
Operational Efficiency	No (Excellent)	97.5%
Buffeljags Bay		
Acute Health Microbiological	Yes (Unacceptable)	93.8%
Acute Health Chemical	No (Excellent)	100.0%

Performance Indicator	Performance Indicator categorised as unacceptable Yes / No (Table 4 of SANS 241-2:2015)	% Sample Compliance according to SANS 241-2015 Limits
Chronic Health	No (Excellent)	100.0%
Aesthetic	No (Good)	90.0%
Operational Efficiency	No (Excellent)	97.2%

The table below gives an overview of the four categories under which the risks posed by micro-organism, physical or aesthetic property or chemical substance of potable water is normally classified:

Category	Risk
Acute Health	Determinand that poses an immediate unacceptable health risk if present at concentration values exceeding the numerical limits specified in this part of SANS 241.
Aesthetic	Determinand that taints water with respect to taste, odour and colour and that does not pose an unacceptable health risk if present at concentration values exceeding the numerical limits specified in SANS 241.
Chronic Health	Determinand that poses an unacceptable health risk if ingested over an extended period if present at concentration values exceeding the numerical limits specified in SANS 241.
Operational	Determinand that is essential for assessing the efficient operation of treatment systems and risks from infrastructure

The operational water quality sampling programmes of Overstrand Municipality complies with the minimum monitoring frequency for process risk indicators (SANS241-2:2015: Table 1) for the various WTWs and distribution systems.

The table below indicates the compliance of the E.Coli monitoring frequency in the water distributions systems of Overstrand Municipality, in terms of the minimum requirements of SANS: 241-2:2015. The period assessed was for samples taken from July 2015 to June 2016.

Distribution System	Population served	Required number of monthly samples (SANS 241-2:2015: Table 2)	Number of monthly E.Coli samples taken by Municipality during 2015/2016
Buffels River	2 703	2	5.4
Kleinmond	7 317	2	3.4
Greater Hermanus	56 336	11.3	11.3
Stanford	5 308	2	2.4
Greater Gansbaai	16 130	3.2	9.8
Pearly Beach	1 138	2	3.4
Baardskeerdersbos	124	2	3.3
Buffeljags Bay	150	2	2.7

Effluent quality: The overall Microbiological, Chemical and Physical compliance percentages of the final effluent samples taken over the last three financial years at the Kleinmond, Hawston, Hermanus, Stanford and Gansbaai WWTW is summarised in the table below (General Standards).

WWTW	2015/2016	2014/2015	2013/2014
Kleinmond	100.0%	91.7%	66.7%
Hawston	91.7%	100.0%	91.7%
Hermanus	100.0%	75.0%	91.7%
Stanford	91.7%	91.7%	91.7%
Gansbaai	83.3%	91.7%	91.7%
Total	93.3%	90.0%	86.7%

Table A.33: Percentage chemical compliance of the compliance samples taken at the various WWTWs for the last three financial years.

WWTW	2015/2016					2014/2015					2013/2014				
	Ammonia	Nitrites & Nitrates	COD	Ortho Phosphate	Overall	Ammonia	Nitrites & Nitrates	COD	Ortho Phosphate	Overall	Ammonia	Nitrites & Nitrates	COD	Ortho Phosphate	Overall
Kleinmond	41.7%	91.7%	66.7%	100.0%	75.0%	41.7%	83.3%	91.7%	100.0%	81.7%	50.0%	75.0%	91.7%	100.0%	83.3%
Hawston	25.0%	100.0%	50.0%	100.0%	73.3%	50.0%	100.0%	41.7%	91.7%	68.3%	25.0%	100.0%	25.0%	50.0%	53.3%
Hermanus	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	91.7%	100.0%	100.0%	91.7%	96.7%
Stanford	100.0%	75.0%	100.0%	100.0%	95.0%	100.0%	83.3%	100.0%	100.0%	96.7%	91.7%	58.3%	75.0%	100.0%	83.3%
Gansbaai	83.3%	91.7%	83.3%	91.7%	88.3%	91.7%	100.0%	91.7%	91.7%	95.0%	100.0%	75.0%	91.7%	100.0%	93.3%
Total	70.0%	91.7%	80.0%	98.3%	86.3%	76.7%	93.3%	85.0%	96.7%	88.3%	71.7%	81.7%	76.7%	88.3%	82.0%

Table A.34: Percentage physical compliance of the compliance samples taken at the various WWTWs for the last three financial years.

WWTW	2015/2016				2014/2015				2013/2014			
	pH	Electrical Conductivity	Total Suspended Solids	Overall	pH	Electrical Conductivity	Total Suspended Solids	Overall	pH	Electrical Conductivity	Total Suspended Solids	Overall
Kleinmond	100.0%	91.7%	75.0%	88.9%	100%	91.7%	83.3%	91.7%	100.0%	100.0%	91.7%	97.2%
Hawston	100.0%	50.0%	83.3%	77.8%	100%	91.7%	83.3%	91.7%	100.0%	33.3%	91.7%	75.0%
Hermanus	100.0%	0.0%	91.7%	63.9%	100%	8.3%	75.0%	61.1%	100.0%	0.0%	91.7%	63.9%
Stanford	100.0%	91.7%	100.0%	97.2%	100%	91.7%	100.0%	97.2%	100.0%	100.0%	100.0%	100.0%
Gansbaai	83.3%	66.7%	83.3%	77.8%	100%	75.0%	91.7%	88.9%	100.0%	58.3%	91.7%	83.3%
Total	96.7%	60.0%	86.7%	81.1%	100%	71.7%	86.7%	86.1%	100.0%	58.3%	93.3%	83.9%

The EMS Section of Overstrand Municipality continues with the extensive monitoring of the recreational waters to determine the severity of faecal pollution in the Klein River Estuary, on behalf of Overberg District Municipality. Data collected and assimilated from the monthly samples form the basis of a monthly Water Quality Report, which is used to recommend actions to address health hazards in the Estuarine and marine recreational environment. The long term goal is to extend the monitoring programme to embrace estuarine and marine environments throughout the municipal region. This will enable the department to establish accurate data and to recommend best practice in the management of these systems to ensure appropriate water quality.

Industrial Consumers: The volumes and nutrient loads of effluent discharged by industries in Overstrand Municipality's Management Area into the Municipality's sewer system are not yet monitored by Overstrand Municipality. The Municipality's tariff structure for the discharge of effluent by industrial consumers does not make provision for nutrient loads and volume to be taken into account. There is no limit on the permitted volume of effluent that can be discharged into the sewer system, but the concentration limits for the various parameters are included in the Municipality's Water Services by-laws (Acceptance of industrial effluent for discharge into the sewage disposal system).

Business Element 10: Financial

Capital Budget: The table below gives an overview of Overstrand Municipality's historical water and sewerage capital expenditure over the last five financial years.

Financial Year	Water Infrastructure			Sewerage Infrastructure		
	Budget	Expenditure	% Spend	Budget	Expenditure	% Spend
2011/2012	R71 859 060	R57 332 947	79.79%	R29 101 193	R26 040 258	89.48%
2012/2013	R56 878 743	R48 633 690	85.50%	R17 877 374	R16 342 067	91.41%
2013/2014	R23 831 730	R23 630 683	99.16%	R12 153 413	R10 159 365	83.59%
2014/2015	R16 384 323	R16 275 016	99.33%	R12 070 996	R11 969 551	99.16%
2015/2016	R16 390 184	R14 232 323	86.83%	R8 360 500	R6 418 821	76.78%

Overstrand Municipality's approved revised Capital Budget for the 2016/2017 financial year is R15.589 million for water infrastructure and R14.849 million for sewerage infrastructure.

Operational Budget: The table below gives a summary of the total operational costs and income for water and sanitation services for the last five financial years.

Service	Expenditure / Income	Actual 15/16	Actual 14/15	Actual 13/14	Actual 12/13	Actual 11/12
Water	Expenditure	R105 388 386-73	R87 684 218-72	R95 829 984-21	R85 498 520-43	R83 115 288-69
	Income	R117 279 277-35	R109 580 993-32	R96 057 574-71	R96 578 920-13	R104 938 998-48
	Surplus / (Deficit)	(R11 890 890-62)	(R21 896 774-60)	(R227 590-50)	(R11 080 399-70)	(R21 823 709-79)
Sanitation	Expenditure	R64 371 024-75	R59 653 861-52	R57 539 215-06	R51 607 042-31	R45 790 334-40
	Income	R77 211 013-42	R75 482 947-03	R65 032 183-93	R64 291 003-56	R74 623 658-62
	Surplus / (Deficit)	(R12 839 988-67)	(R15 829 085-51)	(R7 492 968-87)	(R12 683 961-25)	(R28 833 324-22)

Tariff and Charges: The first six (6) kl of water is provided free to all indigent consumers. Overstrand Municipality's tariffs support the viability and sustainability of water supply services to the poor through cross-subsidies (where feasible). Free basic water and sanitation services are linked to Overstrand Municipality's Indigent Policy and all indigent households therefore receive free basic water and sanitation services. This implies that either the equitable share is used to cover this cost, or higher consumption blocks are charged at a rate greater than the cost in order to generate a surplus to cross-subsidise consumers who use up to six (6) kilolitres per month.

Overstrand Municipality's current six (6) block step tariff system discourages the wasteful or inefficient use of water. It is expected that this tariff structure will continue to be applied in the future. The sustainable supply of potable water is becoming an ever increasing challenge. This scarce commodity has to be optimally managed. The continued increase in the price of electricity and chemicals for purification has contributed to the cost of delivering the service. The water usage block tariff has been structured for a basic affordable tariff for up to 18 kl per household per month. Punitive tariffs are in place for excessive water consumption.

The domestic sewerage tariff is based on 70% of water consumption, to a maximum of 50kl water consumption per month, i.e. maximum 35kl/month sewerage charged.

Business Element 11: Water Services Institutional Arrangements

Overstrand Municipality acts as both WSA and WSP to the consumers in their Municipal Management Area and therefore does not manage other WSPs. A 15 year contract with Veolia Water Solutions & Technologies South Africa (Pty) Ltd however commenced on the 1st of November 2015 to effectively and efficiently operate and maintain the Municipality's bulk water and sewerage infrastructure on behalf of Overstrand Municipality, as previously mentioned. The Municipality also has the right to extend the contract for a further five (5) years. Overstrand Municipality remains accountable to the community and the contractor is accountable to the Municipality.

The benefits of the bulk water services operation and maintenance contract are as follows:

- Extensive training and development of staff.
- Regulatory compliance to be achieved within three years (Regulation 2834).
- The operational risk is transferred to the Operator.
- Improved operational efficiencies (e.g. SCM processes and Treatment Process Optimization)
- Substantial saving compared to the Municipality performing the full function (R9M per year).

A comprehensive set of Water Services By-laws are in place for Overstrand Municipality's Management Area. The By-laws cover the provision of services for water supply, sanitation and industrial effluent.

The IDP is the Municipality's single most strategic document that drives and directs all implementation and related processes. The Municipality's budget is developed based on the priorities, programmes and projects of the IDP, after which a Service Delivery Budget Implementation Plan (SDBIP) is developed, to ensure that the organisation actually delivers on the IDP targets.

The SDBIP is the process plan and performance indicator / evaluation for the execution of the budget. The SDBIP is being used as a management, implementation and monitoring tool that assists and guide the Executive Mayor, Councillors, Municipal Manager, Senior Managers and the community. The plan serves as an input to the performance agreements of the Municipal Manager and Directors. It also forms the basis for the monthly, quarterly, mid-year and the annual assessment report and performance assessments of the Municipal Manager and Directors.

The vacancy rate of Overstrand Municipality was 7.19% for the 1 113 approved posts on the organogram in 2015/2016. The vacancy rate for the 114 approved Infrastructure and Planning Services posts was 14.0% in 2015/2016.

At a technical, operations and management level, municipal staff is continuously exposed to training opportunities, skills development and capacity building in an effort to create a more efficient overall service to the users. Veolia Water Solutions & Technologies South Africa (Pty) Ltd are responsible to ensure that submissions are made to the DWS for the classification and registration of the Process Controllers and Supervisors at the various plants. A skills audit is conducted during each year, which leads to various training programmes in order to wipe out skills shortages and to provide employees with the necessary capacity. A Workplace Skills Plan for 2016/2017 is in place.

Municipal Strategic Self-Assessment (MuSSA): Overseen by the DWS the MuSSA conveys an overall business health of municipal water business and serves as a key source of information around municipal performance. The MuSSA also identifies key municipal vulnerabilities that are strategically important to DWS, the Department of Cooperative Government (DCoG), National Treasury, the planning Commission/Office of the Presidency, the South African Local Government Association (SALGA) and the municipalities themselves. The MuSSA team continues to engage (1) DWS directorates and their associated programmes (e.g. Water Services Development Plan, Water Services Regulation), and (2) other sector departments and their associated programmes (e.g. LGTAS, MISA) to minimize duplication and ensure alignment. Through the tracking of current and likely future performance, the key areas of vulnerability identified, allow municipalities to effectively plan and direct appropriate resources that will also enable DWS and the sector to provide more effective support.

The Spider Diagram below effectively indicates the vulnerability levels of Overstrand Municipality across the key service areas, as identified through the Municipal Strategic Self-Assessment of Water Services process.

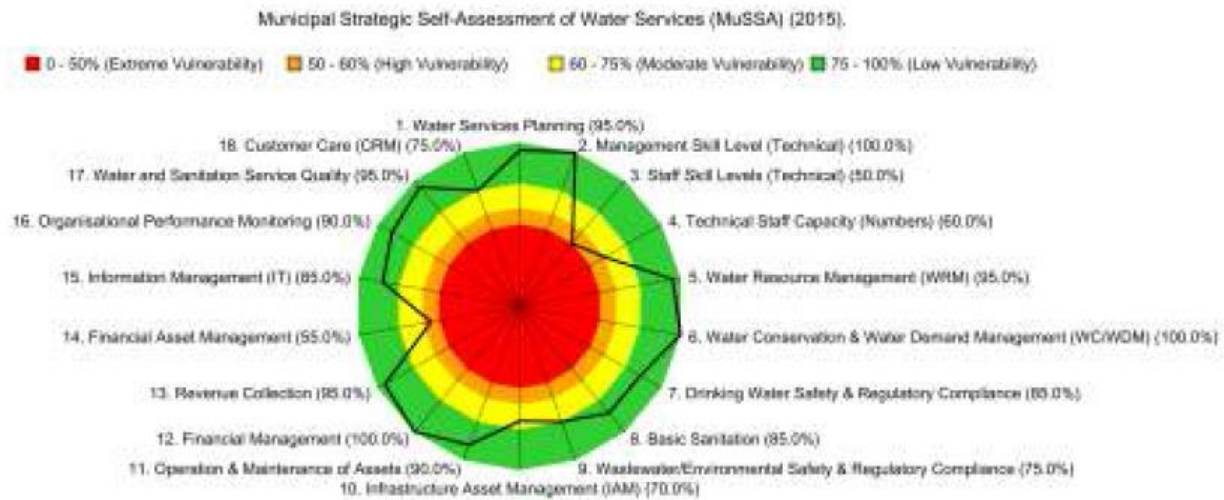


Figure A.10: Spider Diagram of the vulnerability levels of Overstrand Municipality for 2015

Overstrand Municipality’s Vulnerability Index for 2015 was indicated as **0.26 “Low Vulnerability”** in the “2015 Municipal Services Strategic Assessment (MuSSA) for Western Cape Province” Report.

Business Element 12: Social and Customer Service Requirements

In line with Overstrand Municipality’s Vision – **to be a centre of excellence to the community** – the Municipality has developed a comprehensive customer care strategy. The strategy has now rolled out into consumer services charters for the following departments: electricity, water and sanitation, solid waste management and roads and storm water.

The consumer services charter for water and sanitation include the following commitments with regard to water services quality and service standards.

Our Purpose: To provide consumers with potable water and appropriate sanitation services.

Water Services Quality:

- We commit ourselves to supply – where the infrastructure allows – water that meets the standards set out for drinking water (SANS 0241) and treat effluent to a standard prescribed by law before disposal thereof into our water resources.
- We have a water quality management programme in terms of which potable water is frequently sampled at various places and tested by an independent accredited laboratory. The results of our treated water and effluent analyses are reported monthly to the Department of Water and Sanitation and thus monitored nationally.
- We strive to obtain Blue Drop status for all our water purification works and Green Drop status for all our wastewater treatment plants.

Our Service Standards: We will

- Respond to any reports about poor water quality within 12 business hours;
- Ensure that prolonged water supply interruptions (12 hours) are not more than 3 times per annum;
- Give 2 days prior notice in case of planned interruptions;
- Have an alternative supply of water available to meet basic needs in case of unplanned interruptions that last longer than 24 hours;
- Install new connections within 10 working days of receiving the application and all prescribed requirements have been met;
- Clean up sewer overflows due to blockages in our system failure within 24 hours;
- Report the spillage of sewerage in a watercourse or sea to the relevant authorities within 24 hours of such occurrence;
- Promote the use of alternative water sources for irrigation and industry. Note that the use of grey water is allowed, but we may inspect such use and impose conditions;
- Upgrade and monitor telemetry systems, to act as an early warning system for e.g. pipe failures, reservoir overflows and sewer pump stations failures;
- Replace old consumer water meters in phases.

A comprehensive Customer Services and Complaints system is in place at Overstrand Municipality and the Municipality has maintained a high and a very consistent level of service to its urban water consumers. Help-desks were developed at all the municipal administrations with the objective to assist customers. Disabled people are supported to do business from the help-desks. Requests by the illiterate are being captured and forwarded to the relevant official / section. All municipal buildings are accessible and wheel-chair friendly.

After hour emergency requests are being dealt with by the control room on a twenty four hour basis. Requests are furthermore captured on an electronic mail or works-order system to ensure execution thereof. All help desks were equipped with Batho Pele picture signage.

The table below gives a summary of the records that are kept by Overstrand Municipality of the maintenance work carried out over the last four financial years.

Table A.37: Water and sanitation indicators monitored by Overstrand Municipality with regard to customer services and maintenance work																					
Service	Definition	Gansbaai				Hermanus				Kleinmond				Stanford				Total			
		15/16	14/15	13/14	12/13	15/16	14/15	13/14	12/13	15/16	14/15	13/14	12/13	15/16	14/15	13/14	12/13	15/16	14/15	13/14	12/13
Sewerage connection	Provision of connection or inspection of existing connections	-	-	1	24	16	87	44	86	2	2	4	1	1	-	2	1	19	89	51	112
Smallbore Connections	Test new tanks smallbore	-	-	-	-	87	-	-	-	-	-	-	-	-	-	-	-	87	-	-	-
Sewer blockages	Repair blockages on main sewer pipelines up to connection points	122	109	128	69	689	1 350	1 057	1 389	217	224	227	202	50	82	46	28	1 078	1 765	1 458	1 688
Investigate sewer reticulation network	Investigate network	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0
Manholes sewer reticulation	Inspection and installation of manholes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0
Other sewer reticulation	Any other sewer reticulation inspections	19	29	60	49	21	14	16	44	2	3	9	6	5	1	1	29	47	47	86	128
PDA toilets repairs	Previously disadvantaged toilets repaired	96	124	122	134	63	43	3	5	-	-	-	-	-	-	1	-	159	167	126	139
Pipeline sewer	Installation of sewer pipelines or repair of pipelines	-	-	1	-	32	4	3	1	-	-	3	-	1	-	2	-	33	4	9	1
Investigate sewer reticulation pump stations	Work carried out at sewer pump stations	-	7	-	-	19	25	20	21	2	18	9	6	13	35	29	3	34	85	58	30
Replace water meters	Replace water meters	3	3	23		10	30	11		20	11	13		19	-	17		52	44	64	
Test water meter	Testing of water meter for accuracy	1	3	-	-	25	20	12	27	-	1	1	-	-	-	-	-	26	24	13	28
Disconnect water connection	Disconnect supply	2	2	4	3	13	17	13	17	1	10	6	12	2	1	3	5	18	30	26	37
Install drip system	Installation and inspection of drip systems	1	1	1	1	-	-	-	-	-	1	2	4	-	-	-	-	1	2	3	5
Inspect water connections	Inspect connections	13	9	13	20	5	61	259	52	12	19	19	44	4	8	9	35	34	97	300	151
New water connections	New water connections	45	51	29	56	149	158	101	84	67	72	53	35	6	13	2	9	267	294	185	184
Other water connections	Inspections and work carried out at water connections	44	45	56	127	29	20	16	18	5	31	73	79	16	31	26	13	94	127	171	237
Pipelines water	Installation or repair of water pipelines	2	-	7	-	7	2	1	2	-	1	1	7	1	11	13	12	10	14	22	21
Pressure	Complaints with regard to pressure in the system	23	44	14	21	55	70	16	13	38	41	61	46	-	-	-	3	116	155	91	83
Water Pump Stations	Inspections and work carried out at water pump stations.	-	-	2	-	-	2	-	-	1	2	3	8	9	35	35	8	10	39	40	16
Repair pipe bursts	Repair of burst water pipelines	61	35	16	43	89	157	151	130	98	165	204	210	51	28	9	6	299	385	380	389
Reservoirs	Inspection of reservoirs and work carried out at reservoirs	-	6	-	2	1	-	-	3	4	-	-	37	-	1	-	1	5	7	0	43
Water Routine Inspections	Any water related inspections	69	-	63	174	-	6	-	-	-	-	5	4	18	1	21	159	87	7	89	337
Water Valves	Inspection of valves and work carried out on valves	1	-	2	2	1	7	10	3	-	6	12	6	3	-	1	1	5	13	25	12

SECTION B: STATE OF WATER SERVICES PLANNING

This WSDP is for 2017-2022 (First Cycle) and Overstrand Municipality is committed to update their WSDP for the interim years and to compile a new WSDP every five years, as required by legislation. The 2017-2022 (First Cycle) WSDP was also populated on the eWSDP website of the DWS.

Overstrand Municipality also compiled annual WSDP Performance- and Water Services Audit Reports for the last number of years. The WSDP Performance- and Water Services Audit Report gives an overview of the implementation of the Municipality's previous year's WSDP and can be seen as an annexure to Overstrand Municipality's Annual Report. The 2015/2016 WSDP Performance- and Water Services Audit Report was approved by Council as part of the Municipality's Annual Report.

Overstrand Municipality's Water and Sewer Master Plan process entails the establishment of computer models for the water systems and the sewer systems in Overstrand Municipality, the linking of these models to the stand and water meter databases of the treasury financial system, evaluation and master planning of the networks and the posting of all the information to IMQS. The Water and Sewer Master Plans lists the analyses and findings of the study on Overstrand Municipality's water distribution and sewer drainage systems.

The latest Water and Sewer Master Plans, which were available for inclusion in Overstrand Municipality's WSDP, were as follows:

- Water Master Plan, Overstrand Municipality, June 2016, GLS Consulting
- Sewer Master Plan, Overstrand Municipality, June 2016, GLS Consulting

The following water and sanitation related investigations were successfully completed during the last two financial years.

- The WSDP Performance- and Water Services Audit Report for 2015/2016 was finalised and approved by Council as part of the Annual Report. The non-revenue water balance models were also updated for each of the distribution systems (Up to the end of June 2016) as part of the WSDP Performance- and Water Services Audit Process.
- Overstrand Municipality continues with the implementation of their Drinking Water Quality and Effluent Quality Sampling Programmes (Both Operational and Compliance Monitoring). Sample results are loaded on a monthly basis onto DWS's BDS and GDS. All the WTWs and WWTWs are also registered on the BDS and GDS websites.
- The WSDP-IDP Sector Input Report for 2016/2017 was compiled and taken to Council with the IDP and approved on the 25th of May 2016.
- The Asset Register was updated to include all the water and sewerage capital projects completed during the 2015/2016 financial year.
- The Water and Sewer Master Plans for all the water distribution systems and sewer drainage systems were updated.
- The Municipality completed the Section 78(1) Municipal Systems Act investigation for the bulk water and sewerage services, and made a resolution i.t.o Section 78 (2) to continue with an internal service delivery mechanism, but with a support contract. The Contract was signed with Veolia Water Solutions & Technologies South Africa (Pty) Ltd for implementation from 1 November 2015.
- A preliminary design report was compiled for the upgrading of the Stanford WWTW.
- WorleyParsons completed the Hermanus sewerage pump station investigation.
- An investigation on pH and Aluminium and colour optimization at surface water treatment plants was completed by Aurecon in 2016/2017.
- GLS completed a revenue enhancement study as additional study to the water master plan.
- Lyners completed an investigation on the upgrade of the sewer network in Zwelihle (MIG application).

SECTION C: WATER SERVICES EXISTING NEEDS PERSPECTIVE

The existing needs perspective as presented below was developed through a systematic and comprehensive review of the water services function in terms of the WSDP Guide Framework. The output from this process is presented below and includes compliance assessment in terms of:

- Quality: Assessment current status against compliancy requirements.
- Quantity: An indication of the representation of the total area to address the issue.
- Future plan assessment: Degree in which future demand has been established.
- Strategy assessment: Whether a Strategy is in place to address the need.

The water services situation analysis prompted the development of problem statements which formed the input for the development of the water services objectives and strategies which follows in Section D.

Business Element 1: Administration

Table C.1 : Business Element 1: Administration (Topic 1)					
Overview of Topic		Status Quo and Knowledge Interpretation Statistics			
This topic provides knowledge on the status of the WSA's 5-year WSDP as well as with the contact particulars of the key role-players which have contributed to the development of the WSDP.	Item	Quality (%) assessment of current status against compliancy requirements	Quantity (%) an indication of the representation of the total area to address the issue	Future Plan Assessment	Strategy Assessment
	n/a	n/a	n/a	n/a	n/a
	TOTAL for Topic	n/a	n/a	n/a	n/a
Problem Definition Statements					
Nr	Statements - Short Comings	Possible Improvement / Project			
1	Key issues raised in the WSDP need to be taken to the IDP	Ensure Executive Summary of WSDP (WSDP-IDP Water Sector Input Report) is included in the IDP.			

The Municipality has two distinct structures through which formalised public participation with its communities takes place i.e.

- Ward Committees as well as
- The Overstrand Municipal Advisory Forum (OMAF).

Ward Committees as a governance structure promotes public accountability and strengthens community participation. The Ward Committee System is fully institutionalised and capacitated within the Overstrand Municipality.

The Vision and Mission statements of Overstrand Municipality are as follows:

Vision: "To be a centre of excellence for the community"

Mission: "Creation of sustainable communities by delivering optimal services to support economic, social and environmental goals in a politically stable environment"

The Strategic Objectives of Overstrand Municipality are as follows:

- The provision of democratic, accountable and ethical governance;
- The provision and maintenance of municipal services;
- The encouragement of structured community participation in the matters of the municipality;
- The creation and maintenance of a safe and healthy environment; and
- The promotion of tourism, economic and social development.

Like any other municipality the Overstrand Municipality experiences a number of general challenges which are described below (IDP 4th review of 2012/17 cycle):

Challenges	Actions to address
The on-going difficulties in the national and local economy and the subsequent risk of an increase in outstanding debtors.	Applying strict credit control measures.
Ever aging water, roads, sewage and electricity infrastructure.	Prioritizing of projects in terms of Revenue protections, Asset conservation and supply of basic services as a constitutional obligation.
Backlog in infrastructure.	Comprehensive 25 year infrastructure master plan developed.
Housing backlog and densely populated informal settlements.	A comprehensive 5 year housing strategy and programme developed.

Business Element 2: Demographics

Overview of Topic	Status Quo and Knowledge Interpretation Statistics				
This topic provides an overview of demographics of the WSA as sourced from the National Geo-Referenced Database, aligned to Census figures as well as the number of public amenities and private facilities within the jurisdictional area of the WSA.	Item	Quality (%) assessment of current status against compliance requirements	Quantity (%) an indication of the representation of the total area to address the issue	Future Plan Assessment	Strategy Assessment
	Settlement Types (Urban, Rural , Farming)	78.82	74.12	71.76	71.76
	Public Amenities Consumer types	78.82	75.29	72.94	72.94
	TOTAL for Topic	78.82	74.71	72.35	72.35
Problem Definition Statements					
Nr	Statements - Short Comings	Possible Improvement / Project			
1	Conservative approach is followed regarding the management of water sources, due to the possible impact of climate change.	All resources, especially surface water resources, need to be re-evaluated, especially where demand is close to the safe one in twenty year yields. Establish assurance of supply levels of all water sources.			
2	Municipality needs to evaluate all land use planning applications against the broad SDF and Growth Management Strategy principles before approvals and recommendations are made.	Continue with the implementation of the SDF and Growth Management Strategy for each of the towns and ensure that new developments are in line with these priority action plans.			
3	Ensure that the required bulk water and sewerage infrastructure are in place before housing projects are implemented.	Ensure that the provision of bulk water and sewerage infrastructure are aligned with the Housing Strategy and that housing projects only continue once the required bulk water and sewerage infrastructure are in place.			

The six key strategies that should underpin all spatially related decision making in the Overstrand Municipality's Management Area, as included in Overstrand Municipality's Spatial Development Framework, are as follows:

Spatial Development Strategy	Strategy
Managing Population Growth and In-migration	Adopt a selective "supply driven" approach by only providing for housing growth and related community facilities in the urban areas where the highest potential for sustained economic growth exists.
Housing Strategy	Eliminate the current subsidised housing backlog through the implementation of a co-ordinated housing supply plan. Ensure that the overall provision of land for housing makes provision for a balanced mix and range of housing types for all income groups.
Bulk Service Infrastructure Provision	Compile a co-ordinated bulk infrastructure supply provision policy which prioritises the implementation of bulk infrastructure based on the municipality spatial development concept – Growth Management Framework.
Initiate – Place specific key	Stimulate economic growth and development linked to the comparative locational advantage.

Table C.4: Six key strategies that should underpin all spatially related decision making (SDF)	
Spatial Development Strategy	Strategy
economic development projects / drivers	Municipality must identify and actively facilitate key catalyst projects in conjunction with strategic partnerships with business / investors.
Priority areas for biodiversity conservation	All public owned land that is of high conservation importance is to be included in a formal municipal reserve network. The mechanism being to establishing contract nature reserves negotiated in conjunction with the WCNCB conservation stewardship programme, providing legally binding guidelines for land-use.
Rural development strategy	Demarcate Rural Development Areas (RDAs) to ensure that non-agricultural development outside urban areas is managed and promoted in a sustainable manner.

The concept of using a Growth Management Strategy to promote the longer term sustainability of the municipal area and its sub-region is strongly supported by the Overstrand Municipality's Council. The Growth Management Strategies for the various areas identifies and discusses the factors that affect densification within the context of the Overstrand Municipal Area and include the proposed strategies and associated policies.

Recommendations were also made in the Growth Management Strategies regarding the proposed densification priority areas for the next five years and the strategic actions required achieving the implementation thereof.

A Housing Strategy is in place and the main vision of the Strategy is to not only eradicate the current housing backlog, but to develop and plan for future integrated communities and settlements that would be able to sustain the growing needs for housing in such a way that all people will benefit from the housing developments.

The table below gives an overview of the Objectives of the Housing Strategy, as well as the Housing Programmes and Related Projects.

Table C.5: Objectives of the Housing Strategy and Housing Programmes and Related Projects	
Objectives	Housing Programmes and Related Projects
<ul style="list-style-type: none"> • Upscale provision and implementation of serviced sites. • Increasing densities of new human settlement developments on well-located land. • Reduce bulk infrastructure as a constraint to human settlement development. • Acquiring well-located land for well-planned integrated Human Settlements. • Provide a fair allocation of housing opportunities. • Increase beneficiary involvement in the development of housing opportunities. • Enhancing supply of new rental housing opportunities and encourage improved property management and rental stock. • Increase sustainable resource use by exploring alternative technologies and building methodologies. • Implement Overstrand Municipal Growth Management Strategy. 	<ul style="list-style-type: none"> • Integrated residential Development Programme (IRDP) • Upgrading of Informal Settlements • Provision of Economic & Social Facilities • Institutional Subsidies • Enhanced People's Housing Process (EHP) • Emergency Housing Programme (EHP) • Social Housing Programme • Community Residential Units (CRU)

A detailed action plan has been set in place to reduce the backlog and address the current and future housing need. The Housing Strategy Five-Year Plan will incorporate several housing programmes, each focused on and addressing different needs. The Overstrand Municipality has compiled a comprehensive 5 Year Human Settlement Programme to guide and improve housing development and is specifically focused on delivery within the Municipality. The Programme is updated and revised on a six-monthly basis due to the rapid changing environment in which it operates. Funding allocations from the Provincial Department of Housing are amended from time to time and subsidy amounts are also revised from time to time.

Business Element 3: Service Levels

Table C.6: Business Element 3: Service Levels (Topic 3)					
Overview of Topic	Status Quo and Knowledge Interpretation Statistics				
Topic 3 information is presented in terms of the Department of Water and Sanitations' service level classification which considers the adequacy of services in establishing the service level profile. The profile is presented in terms of settlements, population and households.	Item	Quality (%) assessment of current status against compliancy requirements	Quantity (%) an indication of the representation of the total area to address the issue	Future Plan Assessment	Strategy Assessment
	Water - Below: No Services (Formal)	60.00	60.00	40.00	40.00
	Water - Below: Infra. Needs	60.00	60.00	40.00	40.00
	Water - Below: O&M Needs	80.00	80.00	80.00	80.00
	Water - Below No Services (Informal)	80.00	80.00	80.00	80.00
	Sanitation – Below: No Services (Formal)	60.00	60.00	40.00	40.00
	Sanitation – Below: Infra. Needs	60.00	60.00	40.00	40.00
	Sanitation – Below: O&M Needs	80.00	80.00	80.00	80.00
	Sanitation – Below: No Services (Informal)	80.00	80.00	80.00	80.00
	Residential, Public Institutions and Industries Amenities	74.44	60.74	63.33	63.33
	TOTAL for Topic	70.49	68.97	60.37	60.37
Problem Definition Statements					
Nr	Statements - Short Comings	Possible Improvement / Project			
1	Ensure that all households on the farms in the rural areas with existing services below RDP standard are provided with at least basic water and sanitation services.	Assist private landowners as far as possible with the provision of basic water and sanitation services to all the households in the Municipality's Management Area with existing service levels below RDP standard, once practical guidelines become available from the DWS.			

Overstrand Municipality's basic water and sanitation service delivery challenges are summarised in the table below:

Table C.7: Basic water and sanitation service delivery challenges		
Service Area	Challenge	Actions to address
Water and Sewerage	Aging infrastructure	Increased maintenance and replacement (capital and operational funding).
All basic services	Vandalism	Educational programmes, increased security measures.
Sewerage	Blockages	Educational programmes, upgrading of ageing infrastructure
Water	High water losses	Pipe replacement programme, pressure management, awareness programmes, water meter replacement, leak repairs.

As a priority it is the responsibility of Overstrand Municipality to make sure that adequate and appropriate investments are made to ensure the progressive realisation of the right of all people in its area of jurisdiction to receive at least a basic level of water and sanitation services. Whilst the provision of basic water services is the most important and immediate priority, WSAs are expected to provide intermediate and higher levels of services (for example, water on-site) wherever it is practical and provided it is financially viable and sustainable to do so.

The service levels to be provided by Overstrand Municipality to the consumers in their Management Area are included in the Consumer Charter and also in the Municipality's Water Services By-laws. All water and sanitation services provided by Overstrand Municipality to consumers within the Municipal Management Area are linked to the Municipality's Tariff Policy and Rates Policy and poor households are incorporated through Overstrand Municipality's Indigent Policy.

The large number of residents in the lowest income groups (living in informal areas) places a major challenge on Overstrand Municipality to provide suitable housing. Overstrand Municipality works towards providing all households in the towns with a water connection inside the erf and connecting all households to a waterborne sanitation system.

All the formal households in the urban areas of Overstrand Municipality's Management Area are provided with water connections on the property (Higher level of service). Communal standpipes and ablution facilities are provided in the informal areas as temporary emergency services. Overstrand Municipality takes note of the fact that communal standpipes represent probably the weakest part of a network's water supply services. Standpipes are often constructed in ways that cannot withstand excessive use (and abuse) and often neglected in terms of operation and maintenance adversely affecting the health of its already vulnerable and poor users. Communal standpipes are also used by poor households who normally don't pay for water. Therefore a contract was awarded for the maintenance of these facilities.

Overstrand Municipality's challenges with regard to the provision of basic water and sanitation services are as follows:

- To provide basic water and sanitation services in the informal areas to new citizens moving into the informal areas and to ensure that health and hygiene awareness and education is part of the process of providing basic services.
- To identify suitable land for the relocation of the people from informal areas, with existing communal services, to formal houses with a higher level of water and sanitation service (Services inside the house).
- To identify adequate funding for the rehabilitation, maintenance, replacement and upgrading of the existing bulk and reticulation infrastructure in order to support the sustainability of the water and sanitation services.
- To monitor the provision of basic water and sanitation on privately owned land.

Overstrand Municipality is committed to support the private landowners as far as possible with regard to addressing the basic water services backlog that might still exist on the farms in the rural areas once clear and practical policy guidelines are available from the DWS and funding is made available. Overstrand Municipality is however faced with various challenges with regard to the provision of services on private owned land in a financial sustainable manner (enabling the ongoing operation of services and adequate maintenance and rehabilitation of the assets), which include the following:

Free basic water policy:

- The provision of the infrastructure (facilities) necessary to provide access to water to all households in a sustainable and economically viable manner.
- The development of subsidy mechanisms which benefit those who most need it.

Free basic sanitation policy:

- Provision of the most appropriate sanitation facility to the poor household.
- Health and hygiene promotion must be provided in a co-ordinated manner and must be properly managed and adequately funded if free basic sanitation is to become a reality. This requires close collaboration between the EHPs of the Overberg District Municipality responsible for environmental health and Overstrand Municipality.
- Subsidising the operating and maintenance costs. If the basic service is to be provided free to the poor then Overstrand Municipality must ensure that the costs of providing the service are covered by the local government equitable share and / or through cross-subsidies within Overstrand Municipality's Management Area.

The ownership of water services assets may be in the hands of the person owning the land where an "on-site" water or sanitation facility is provided to a household. There is no legal impediment to the use of government grants to fund infrastructure for a poor household on private land not owned by that household, provided that the intermediary (the private land owner) makes a financial contribution (This is because the intermediary becomes the owner of the infrastructure once it is installed). Government is looking at specific policies with regard to the appropriate level of contribution.

The clinics and hospitals in Overstrand Municipality's Management Area have adequate and safe water supply and sanitation services. All the schools in Overstrand Municipality's Management Area also have adequate and safe water supply and sanitation services. It is important for the schools in Overstrand Municipality's Management Area to focus on Water Demand Management activities and for Overstrand Municipality to support the schools with a WDM programme.

Business Element 4: Socio Economic

Table C.8: Business Element 4: Socio-Economic (Topic 4)					
Overview of Topic	Status Quo and Knowledge Interpretation Statistics				
The socio-economic information contained in the WSDP provides a broad overview of the socio-economic status of the municipality in terms of population growth rates, age and gender profile, employment profile, migration patterns, household income and economics. The topic also contains a quick reference to water services affordability by expressing the typical monthly water bill in terms of average monthly income in the municipal area.	Item	Quality (%) assessment of current status against compliancy requirements	Quantity (%) an indication of the representation of the total area to address the issue	Future Plan Assessment	Strategy Assessment
	General	80.00	80.00	-	-
	Age and gender profile	80.00	80.00	-	-
	Employment profile	64.00	64.00	-	-
	Demographic trends and migration patterns	68.00	40.00	-	-
	Household income	63.33	63.33	-	-
	Water Affordability	60.00	60.00	-	-
	Sanitation Affordability	60.00	60.00	-	-
	Economics	60.00	60.00	-	-
	TOTAL for Topic	66.92	63.42	-	-
Problem Definition Statements					
Nr	Statements - Short Comings	Possible Improvement / Project			
1	Various socio-economic needs in the Management Area.	Adequately covered through the Municipality's Policies, LED Strategy, SDF and Social Programmes.			
2	Challenges of poverty in the area	Alleviation of poverty by means of the Municipality's Indigent Policy, Local Labour Promotion Projects, OREIA, LED projects and the use of Supply Chain Management Policy as an instrument to enforce the maximum use of local labour.			

Social: Overstrand Municipality have had very fruitful partnerships during the last three years, especially in the ECD and Disability sectors respectively. There are now at least three registered ECD programmes being rolled out across the Overstrand coupled with the necessary training. Much has been achieved in the ECD sector, but much still needs to be done to ensure that more children have access to safe and well managed ECD facilities. The Municipality also needs to broaden their focus to ensure that their efforts discourage children and youth from getting involved with substance abuse by making more options available to them and keeping them informed.

Overstrand Municipality will assist organisations delivering services to the most vulnerable groups in their communities where possible. The Municipality will also provide financial assistance to organisations working amongst others with vulnerable groups in their communities through their Grant-in-Aid.

Some of the major social development initiatives identified and planned by stakeholders in the municipal area include the following (IDP 4th Review of 2012/2017 cycle):

- Overstrand Rehabilitation and Educational Institute for Adolescents (OREIA), is a registered NGO with affiliation to the Sjechinah Christian Centre. OREIA aims to establish an adolescent rehabilitation centre in the municipal area that will focus on counselling services, rehabilitation and education facilitation and skill development.

- The Desmond Tutu Tuberculosis Centre (DTTC), Facility of Health Services at the University of Stellenbosch is proposing the establishment of “The Sustainable Primary Healthcare Facility” in the Gansbaai area. The project is in the planning phase and the municipality is considering making land available at a nominal rate due to the significant social benefits that can derive from this project.
- Boland College has expressed interest in establishing a campus in the Overstrand.
- A local NGO, “Greater Hermanus Training Centre / Groter Hermanus Opleiding Sentrum” aims to offer training courses throughout the Overstrand area.

Apart from the challenge to facilitate more housing developments, there is also the challenge to integrate these areas with areas of opportunities to work, facilities and affordable service delivery. A detailed action plan has been set in place to reduce the backlog and address the current and future housing need. This Housing Strategy Five-Year Plan will incorporate several housing programmes, each focused on and addressing different needs. Overstrand Municipality also compiled a comprehensive Five Year Human Settlement Strategy to guide and improve housing development and delivery within the Municipality.

Economic: The need to work together is increasingly becoming critical and important to building up the economic future, including the quality of life of its inhabitants. The Municipality realizes and recognises the importance of putting LED as one of its key strategic objectives thus giving adequate attention to economic development and constantly deal with the impact of the changing economic climate.

The challenges with regard to the implementation of the LED Strategy are summarised in the table below (2015/2016 Approved Annual Report):

Table C.9: Economic Challenges and Actions to address these challenges	
Challenge	Actions by Overstrand Municipality
High level of unemployment and poverty	Implement municipal capital projects through EPWP principles and facilitate an environment that will attract sectors with high value and support industries that yield employment opportunities. Ensure quick response to proposals and cut red tape.
Co-operation with the private sector	Identify joint initiative for leveraging on each other. Introduce Municipal to Business initiative by identifying areas inhibiting (red tape) ease to do business. Introduce a Mayoral award for sustainable and responsible projects initiated by the private sector through CSI.
Seasonality	Market the Overstrand as a year round destination through organized packages. Vigorous marketing campaign as a destination of all seasons. Encourage on all year round programmes for festivals and events. Encourage “buy local” campaigns and better business management strategies to cushion businesses from impact of seasonality.
Low skill base, brain drain and inequality	Implement joint programmes with other spheres of government and NGOs focusing on skills development, learnerships and promotion of early childhood development promoting the culture of learning at an early age.
Widening gap between the rich and the poor measured the gini-co-efficiency.	Work with the private sector and other spheres of government to improve income levels, quality jobs, education and entrepreneurship.
Restrictive environmental aspects	Co-operation between the municipality, responsible government department and the community and introduction of appropriate planning methods that adopts sustainable development as a principle.
Restrictive economy attracting few provincial and national focus enterprises.	Conducive business environment taking into consideration business needs – effective and efficient systems to do business in the area. Improve business attraction strategies. Improve business attraction strategies. Investigate call centre concept and attract institutions of higher learning. Support small businesses.
Financial and investment support programmes	Understanding the eco-system of entrepreneurs and financiers to better understand the types of companies suited for the area and which are not. Tapping into government development incentives. Host investment seminars to attract investment including financing houses.
Exporting	Investigate and apply for consideration as a Special Economic Zone to boost export potential. Expand export potential and competitiveness of firms by adopting an Industrial policy.
The changing nature of the way the tourist travels.	Working with the local bureaus to address lower booking numbers resulting in less commission. Engaging with private sector on collaborations in order to leverage on their budgets / experience and improve product offering.
Lack of Transformation in Tourism Business Ownership / opportunities	Access training and opportunities for the previously disadvantaged communities. Working with Provincial and National role-players to help with the keys to Transformation.

The Municipality shall, in its approach to implementing LED approaches integrate and apply the following principles:

- Focus on and prioritise poverty and unemployment as the main challenges facing the Overstrand;
- Allowing full participation in the economic life of the Overstrand by giving opportunities to SMMEs, marginalized communities and emerging service providers;
- That LED is not approached as a one size fits all, each area may develop an approach that is best suited for its environment and context;
- Use of local resources and skills and maximize opportunities for development;
- Implement flexible approaches to respond to changing circumstances in all areas including the integration of diverse economic initiatives inclusively;
- Ensure participation and involvement of other spheres of government national and provincial, creation of partnerships between communities, businesses and government to solving problems, promote the creation of joint business ventures to gain harmony and shared growth.

In meeting the municipality's economic development goals, the Overstrand Municipality shall put in place the following important programmes:

- Develop the infrastructure of the municipality to make it easier for businesses to operate;
- Promoting tourism as one of the biggest growth industries in the Overstrand- this includes developing local tourist sites and facilities, take advantage of the three blue flag facilities for economic benefit, improve product offering and ensure a welcoming environment;
- Steering the procurement process to favour emerging service providers. Where contracts are too large for emerging service providers to handle, take steps to get larger companies to enter into joint ventures with smaller partners;
- Marketing the municipality, its infrastructure, environment and offerings to local and international businesses through appropriate means and technological advance initiatives;
- Develop and implement a marketing strategy;
- Operate a service centre that provides assistance and information to businesses and aspiring entrepreneurs coupled with outreach programmes;
- Introduce outreach programmes and assesses local initiatives;
- Provide relevant and useable information to job seekers and entrepreneurs;
- Deliver capacity building programmes aimed at improving business operations and developing local skills;
- Support and build entrepreneurial communities;
- Agriculture and aquaculture zones to increase export potential, create and maintain jobs.

Overstrand Municipality's approaches towards growing the Local Economies are comprehensively addressed in the IDP 4th Review of 2012/2017 cycle and the section below just summarise the main key focus areas:

- Promotion of shared values;
- Link between the environment and the economy;
- Encouraging business growth;
- Servicing new and retaining existing enterprises;
- Stakeholder management and engagement;
- Promoting economic development;
- Skills and capacity development;
- Sustainable urban development including potential of towns; and
- Export and direct investment

Business Element 5: Water Services Infrastructure Management (Infrastructure)

Table C.10: Business Element 5: Water Services Infrastructure (Topic 5)					
Overview of Topic	Status Quo and Knowledge Interpretation Statistics				
Topic 5.1 provides an overview of the extent-, functionality- and asset status of the municipality's water services infrastructure. It also provides an overview of the municipality's compliance in terms of legislation- and regulations concerning asset management, disaster management, water quality management, water resource licensing, etc. It should be emphasized that the topic does not provide the detail per infrastructure element, but provides an overview per each main water services infrastructure component.	Item	Quality (%) assessment of current status against compliancy requirements	Quantity (%) an indication of the representation of the total area to address the issue	Future Plan Assessment	Strategy Assessment
	General Information	65.00	65.00	55.00	55.00
	Operation	70.77	67.69	69.23	67.69
	Monitoring and sample failure	62.67	61.33	60.00	60.00
	Functionality	63.16	61.05	62.11	62.11
	Institutional status	70.00	65.00	60.00	60.00
	Asset assessment spectrum	60.00	60.00	45.00	45.00
	Type and capacity	64.00	56.00	60.00	60.00
	TOTAL for Topic	65.09	62.30	58.76	58.54
Problem Definition Statements					
Nr	Statements - Short Comings	Possible Improvement / Project			
1	Ensure adequate reservoir storage capacity for the various towns	Provide additional reservoir storage capacity for the towns with inadequate storage capacity, as identified through the WSDP and Water Master Plans.			
2	Inadequate capacities of water pump stations and reticulation networks.	Upgrade existing water pump stations and provide new water pump stations for specific areas, as identified in the Water Master Plan. Upgrade sections of the water reticulation network as proposed in the Water Master Plan.			
3	Inadequate capacities of sewer pump stations and sewer drainage networks.	Upgrade existing sewer pump stations and provide new sewer pump stations for specific areas, as identified in the Sewer Master Plan. Upgrade sections of the sewer drainage network as proposed in the Sewer Master Plan.			
4	Priority should be given to rehabilitating existing infrastructure as this generally makes best use of financial resources and can achieve an increased in (operational) services level coverage's most rapidly.	The preparation of maintenance plans and the allocation of sufficient funding for maintenance are required to prevent the development of a large condition backlog.			
5	Ensure that an appropriate maintenance and rehabilitation plan (AMP) is developed and implemented.	Develop an Asset Management Plan (AMP) from the updated Asset Register. This plan must be based on the principle of preventative maintenance in order to ensure that, as far as this is practical, damage to assets is prevented before it occurs.			
6	Records need to be kept of the number of breakages / failures per infrastructure type in order to assist the Municipality with their refurbishment and maintenance planning.	Keep record of all breakages / failures per infrastructure type.			
7	The Municipality needs to differentiate between budget allocated towards the operation and maintenance of the water and sewerage infrastructure and budget allocated towards the replacement of the water and sewerage infrastructure.	A budget of approximately 2% of the total asset value per annum should be allocated towards the replacement of existing water and sewerage infrastructure. In the case of operations and maintenance of the system, a budget of approximately 1% to 2% of the value of the system is typically required to ensure that the system remains in good condition.			
8	Ensure that all the assets, as listed under the various tables in this chapter, are included in the Asset Register.	Update the Asset Register to include all the water and sewerage infrastructure assets.			

The approved 2015/2016 Annual Report highlights the following water services and waste water (sanitation) provision challenges.

Table C.11: Water services and waste water (sanitation) provision challenges	
Description	Actions to address
Water Services	
Continue to reduce the relatively high water losses in areas.	Continues with water pipe replacement, leak repairs, pressure management, water meter replacement, and public awareness.
Climate change.	Diversifying water resources through further development of groundwater resources, liaising with Overberg Water on the potential Theewaterskloof Dam transfer scheme, waste water reclamation and eventually seawater desalination.
Lack of suitably qualified technical staff.	On-going training of staff through implementation and management of the bulk water services support contract.
Ageing infrastructure	Increase the maintenance budget and enhance asset replacement programmes (Capital budget).
Waste water (sanitation)	
Provision of adequate treatment capacity in all areas.	Upgrade of waste water treatment works when required.
Extension of waterborne sewer networks.	Elimination of septic tanks by laying new sewer pipe networks and connecting properties to it. Ensure provision of sewer networks for new developments.
Sludge handling according to legislation.	Disposal of dried waste sludge in the most efficient way remains a challenge.
Extension of basic services.	Improvement of ratio of sanitation facilities to households in informal settlements.
Lack of suitably qualified personnel.	Training of staff. The training of process controllers is being addressed through the bulk water services support contract.
Lack of knowledge of sewer systems by consumers.	Public awareness and training.
Ageing infrastructure / lack of maintenance funds.	Increased maintenance budget as well as capital for replacement of old infrastructure.
Stormwater infiltration into sewer networks.	Public awareness and law enforcement.
High number of blockages.	Repair / replace sections of pipelines and increase public awareness / education on sewerage systems.
Conservancy tanker service.	Additional tankers and the replacement of ageing tankers required.

It is believed that the technology and the expansion of infrastructure and the personnel capacity has not been developed in the same manner, accordingly the human resources previously found it difficult to operate and maintain the infrastructure and did not necessarily had the skills to operate the infrastructure optimally. The operation and maintenance contract signed with Veolia Water Solutions & Technologies South Africa (Pty) Ltd will ensure the adequate operation and maintenance of the WTWs and WWTWs and the other bulk water and sewerage infrastructure.

It is also important for the Municipality to secure adequate funding for the provision of bulk infrastructure and development of additional sources to keep up with the high demand for services.

The Water and Sewer Master Plans (June 2016) for the various distribution and drainage systems in Overstrand Municipality's Management Area recommends upgrades of the water and sewer reticulation networks to the values indicated in the tables below in the foreseeable future in order to accommodate development and population growth according to the SDF.

Table C.12: Summary of the future water and sewerage infrastructure requirements for Overstrand Municipality, as included in the 2016 Water and Sewer Master Plans			
Zone / Area	Water Infrastructure	Sewerage Infrastructure	Total
Buffels River	R33 130 800	R195 597 800	R228 728 600
Kleinmond	R10 668 440	R48 037 700	R58 706 140
Greater Hermanus	R121 913 960	R112 497 700	R234 411 660
Stanford	R8 628 240	R13 479 600	R22 107 840
Greater Gansbaai	R138 933 820	R166 975 000	R305 908 820
Pearly Beach	R6 876 420	R28 624 800	R35 501 220

Zone / Area	Water Infrastructure	Sewerage Infrastructure	Total
Baardskeerdersbos	R0	R3 687 900	R3 687 900
Buffeljags Bay	R0	R1 031 600	R1 031 600
Total	R320 151 680	R569 932 100	R890 083 780

Note: Costs include P&G's, Contingencies & Fees, but exclude EIA studies, registration of servitudes and/or land acquisition and VAT.

GROUNDWATER INFRASTRUCTURE

Overstrand Municipality will continue with the implementation of their Groundwater Monitoring Programmes for areas where groundwater is abstracted. The groundwater monitoring data is regularly processed, analysed and reported on by an experienced hydrogeologist in order to ascertain whether the resources are being sustainably utilised and to ensure compliance with the approved Groundwater Monitoring Programmes. The Hermanus well fields are to be expanded within the MTREF.

WATER TREATMENT WORKS INFRASTRUCTURE

The table below gives a summary of the existing capacities and current flows at each of the WTWs (Ml/d).

WTW	Existing Hydraulic Capacity	Peak Daily Flow (Dec 2015 / January 2016)	Peak Month Average Daily Flow	Average Daily Flow (Jul 2015 – Jun 2016)	Required Treatment Capacity (1.5 x AADD10yr)
Buffels River	5.500	4.089	2.965 (Dec 2015)	2.090	4.212
Kleinmond	5.800	3.683	2.796 (Dec 2015)	2.097	4.227
Preekstoel and Bio-filtration	38.000	19.340	17.526 (Dec 2015)	12.702	28.203
Franskraal	6.500	Unknown	3.954 (Dec 2015)	2.748	6.102
De Kelders	1.600	Unknown	1.495 (May & Jun 2016)	1.392	1.600
Pearly Beach	1.440	Unknown	0.666 (Dec 2015)	0.413	0.834
Baardskeerdersbos	0.185	Unknown	0.119 (Jan 2016)	0.050	0.092

Buffels River WTW: Under normal circumstances the plant is operated below its design capacity, and is only in operation for approximately eight (8) hours per day. There is therefore considerable spare capacity available by operating the plant for longer duration per day, and no capacity increase will be required in the near future. The WTW received two consecutive Blue Drops in 2011 and 2012 and a Blue Drop score of 87.2% in 2014. The 2014 Risk Rating for only Process Control was above 50% (64.1%). The recommendations included in the 2015 Process Audit Report were as follows:

- The inflow and outflow meters should be calibrated annually and Calibration Certificates should be kept on site.
- The pH in the mixing race must be kept at 6.00 – 6.20 at all times to ensure complete metal precipitation.
- Repair chemical dosing pipe.
- The dosing pipeline should be refurbished.
- Maintain at least 0.40 mg/l free chlorine at all times.
- All staff should be registered as Process Controllers by DWS.
- Signs needed at the First Aid kit storage.
- A Visitors Log book should be implemented and access to plant should be controlled with a Visitors Log book.
- Fence should be fixed. Gates at fence should be fixed and should be locked, as only the doors at the premises can be locked.
- Signs should be implemented at the gate indicating no entry, no swimming and private.

Kleinmond WTW: The plant operates well within its design capacity. The Kleinmond WTW is generally operated and maintained satisfactorily. The distribution system received a Blue Drop award in 2012 and a Blue Drop score of 86.59% in 2014. The 2014 Risk Rating for only Process Control was above 50% (64.1%). The recommendations included in the 2015 Process Audit Report were as follows:

- The flow meters should be calibrated and a Calibration Certificate should be kept on site.
- The inflow meter should be installed in a kiosk or should be protected from inclement weather.
- Continue the pre-chlorination at the inlet to oxidize the metals.
- The pH in the mixing race must be kept at 6.00 – 6.20 at all times to ensure complete metal precipitation.
- Maintain at least 0.40 mg/l Free Chlorine at all times.
- The reservoirs should be cleaned.
- A Maintenance Plan with a Standard Operating Procedure should be available to clean reservoirs.
- No jar testing equipment on site.
- Jar tests should be conducted regularly as raw water changes.
- Chemical standards should be run daily prior to testing.
- Filing system of operating procedures and data files require attention.
- Operating Manual required on site.
- All staff should be registered as Process Controllers with DWS.
- Process Controllers registration certificates should be available on site.
- A Maintenance Log book must be kept on site and must reflect regular maintenance carried out by the Municipality's own maintenance team and also when the external contractors are used.
- An Operation and Maintenance Manual must be compiled by a competent person and must be kept on site.
- An Incident Management Procedure must be defined.
- Life jackets should be available when working with open water dams.

Preekstoel WTWs: The WTW was upgraded from 24 MI/d to 28 MI/d during the 2011/2012 financial year. A new 10 MI/day biological WTW for iron and manganese removal was also constructed at the Preekstoel WTW during the 2012/2013 financial year, in order to treat the newly developed groundwater sources and to increase the overall treatment capacity for the Greater Hermanus to 38 MI/d. Both plants are operated well within the design capacities. The distribution system received Blue Drop awards in 2012 and 2014. The 2014 Risk Ratings for Process Control, Drinking Water Quality and Risk Management were all below 50%. The recommendations included in the 2015 Process Audit Report were as follows:

Preekstoel WTW

- The inflow and outflow meters should be calibrated annually and the Calibration Certificates should be displayed on site.
- The pH in the mixing race must be kept at 6.00 – 6.20 at all times to ensure complete metal precipitation and adequate colour removal.
- An in-line pH meter should be installed and the pH monitored hourly to assist with pH control in the mixing race.
- The chemical dosing equipment should be upgraded.
- Ensure even division of flow and distribution of flocculated water to A and B side.
- The overflow weirs must be kept free from algal and other growths by regular brushing and cleaning.
- The Turbidity and pH of the overflow must be recorded regularly, as at present.

- In case of poor settling tank performance check inflow volume, calculate upflow velocity, check inflow distribution and check coagulation chemical dosing rates.
- Ensure that the filter media depth is correct.
- Inspect filter media regularly – ensure even float surface and no mudballs and cracks.
- Ensure even distribution of air-scour and backwash water during backwash cycles. Ensure adequate backwash cycles.
- Maintain the treated water pH in the range 9.00 – 9.40 at all times to ensure complete stabilization.
- Ensure adequate operation of the lime feeder.
- Maintain at least 0.40 mg/l Free Chlorine at all times.
- A Standard Operating Procedure for cleaning of reservoirs should be available.
- A reservoir maintenance plan should be implemented.
- Monitor the chlorine levels in the reservoir weekly.
- A First Aid kit sign should be erected.
- Initiate a Visitors Register.

Biofiltration WTW

- The flow meters must be calibrated annually and a Calibration Certificate must be available on site.
- Calibrate Dissolved Oxygen probes annually.
- Calibrate pH probes annually.
- The quantity of sludge wastage should be recorded.
- The sludge should be analysed annually.
- All safety signs are not visible and more safety signs should be erected.
- Access to site is not controlled. Visitors Log book should be implemented.

Stanford WTW: The raw water complies with SANS 0241:2015 standards. A new chlorination facility was however constructed in order to eliminate potential risks, which includes a telemetry connection to the Franskraal WTW. The distribution system received a Blue Drop score of 90.94% in 2014. The 2014 Risk Ratings for Process Control, Drinking Water Quality and Risk Management were all below 50%. The recommendations included in the 2015 Process Audit Report were as follows:

- Flow meters should be calibrated annually.
- Repair the Sodium Hypochlorite dosing stations.
- The dosing rate should be monitored and recorded daily.
- Maintain at least 0.40 mg/l Free Chlorine at all times.
- A Maintenance Plan with a Standard Operating Procedure should be available to clean reservoirs.
- Chlorine residuals should be measured daily.
- Chlorine dosing rate should be recorded daily.
- An emergency shower should be installed at the chlorine dosing point.
- Clear signage should be installed.
- First Aid kit should be available.
- Fire extinguisher should be available.

Franskraal WTW: The WTW was completely rebuilt a number of years ago and is currently well equipped and well-operated. The plant operates well within its design capacity under normal conditions. It received two consecutive Blue Drop awards in 2011 and 2012. The distribution system received a Blue Drop score of 88.30% in 2014. The 2014 Risk Rating for only Process Control was above 50% (74.4%).

The recommendations included in the 2015 Process Audit Report were as follows:

- The inflow and outflow meter should be calibrated annually and a Calibration Certificate should be kept on site.
- The pH in the mixing race must be kept at 6.00 – 6.20 at all times to ensure complete metal precipitation.
- Maintain at least 0.40 mg/l free chlorine at all times.
- Sludge levels should be checked regularly in all reservoirs.
- A Standard Operating Procedure for cleaning of reservoirs should be available.
- Records of regular cleaning of reservoirs should be kept.
- Lead should be monitored monthly in the treated water and the reticulation water as it appears to be problematic from time-to-time.
- All staff should be registered as Process Controllers with DWS.
- All personnel handling chlorine must undergo appropriate accredited chlorine handling training.
- A Visitors Register should be kept on site.

De Kelders WTW: This new Reverse Osmosis WTW was constructed during 2011 at De Kelders. The recommendations included in the 2015 Process Audit Report were as follows:

- Daily integrated flow meter readings should be readily available on site in a file dedicated for this purpose.
- All records should be readily available on site.
- All staff should be registered as Process Controllers with DWS.
- A Class V Supervisor should be appointed for supervision.

Pearly Beach WTW: The Pearly Beach WTW is a new treatment plant and uses state-of-the-art ultrafiltration membrane technology to ensure a high quality final effluent. The plant operates at its design treatment rate, but does not operate for 24 hours per day. It is only operated for approximately 4 – 6 hours per day and therefore does not exceed the rated capacity of the plant. The distribution system obtained Blue Drop status in 2012 and a Blue Drop score of 87.35% in 2014. The 2014 Risk Rating for only Process Control was above 50% (71.1%). The recommendations included in the 2015 Process Audit Report were as follows:

- All flow meters should be calibrated annually and the Calibration Certificate should be kept on site.
- Maintain at least 0.40 mg/l Free Chlorine at all times.
- A Maintenance Plan with a Standard Operating Procedure should be available to clean the reservoir.
- All staff should be registered as Process Controllers with DWS.
- An emergency eye wash should be installed.
- A Visitors Log book should be implemented.

Baardskeerdersbos WTW: The plant operates well within its design capacity. The distribution system obtained a Blue Drop score of 63.87% in 2014. The 2014 Risk Ratings for Process Control (55.6%) and Drinking Water Quality (70.4%) were above 50%. The recommendations included in the 2015 Process Audit Report were as follows:

- The flow meters should be calibrated annual and a Calibration Certificate should be kept on site.
- Record volumes of sludge being disposed.
- Maintain 0.40 mg/l Free Chlorine at all times.
- All staff should be registered as Process Controllers with DWS.
- A Class II Process Controller should be available on each shift.
- Install an emergency shower and eye wash facility.

Buffeljags Bay WTW: No water treatment is done, except for disinfection. The distribution system obtained a Blue Drop score of 71.83% in 2014. The 2014 Risk Ratings for Process Control (71.1%) and Drinking Water Quality (55.6%) were above 50%.

- Record meter readings daily.
- Calibrate inlet and outlet meters.
- Repair the Sodium Hypochlorite dosing flow switch.
- A Visitors Register should be in place.

BULK WATER INFRASTRUCTURE

The Water Master Plan (June 2016) has indicated that based on the most likely land-use development scenario, it will be necessary to upgrade the following bulk water supply systems.

Buffels River: The existing bulk water supply system has insufficient capacity to supply the future water demands for the fully occupied scenario and the additional future development areas.

- The 300mm dia. bulk pipeline requires upgrading from Buffels River WTP to where the pipe split into the 300mm dia. Betty's Bay Voorberg reservoir supply and the 300mm dia. Pringle Bay reservoir supply.

Kleinmond: The existing bulk water supply system has insufficient capacity to supply the future water demands for the fully occupied scenario and the additional future development areas.

- A new 150mm dia. supply pipeline will be required in the future for the new booster 3 zone.

Greater Hermanus: The existing bulk water supply system has insufficient capacity to supply the future water demands for the fully occupied scenario and the additional future development areas. The following upgrades to the existing Coastal bulk pipeline supply system will be required in future to augment bulk water supply through this system.

- New 200 mm dia. parallel reinforcement of the existing 160 mm dia. bulk supply pipeline to the Onrus reservoir in order to augment supply to the reservoir.
- New 315 mm dia. parallel reinforcement of the existing 250 mm dia. pipeline when the existing 250 mm Ø bulk pipe reaches capacity.
- New 315 mm dia. parallel reinforcement of the existing 150 mm dia. bulk supply pipeline to the Hawston LL reservoir in order to augment supply to the reservoir.
- New 250 mm dia. parallel reinforcement of the existing 200 mm dia. bulk supply pipeline to the Fisherhaven LL reservoir in order to augment supply to the reservoir.

- New 315 mm dia. parallel reinforcement of the existing 200 mm dia. bulk supply pipeline to the Fisherhaven HL reservoir in order to augment supply to the reservoir.

The following upgrades to the existing Hermanus bulk pipeline supply system will be required in future to augment bulk water supply through this system.

- Replace the existing 225mm dia. bulk pipeline with a 400mm dia. pipeline when the existing 225 and 300mm dia. bulk pipes reaches capacity.
- New 315mm dia. parallel reinforcement of the existing 400mm dia. bulk supply pipeline when the 400mm dia. pipeline reaches capacity.
- Replace the existing 100 mm dia. bulk supply pipeline to the Mount Pleasant reservoir with a 200 mm dia. pipeline

The following new feeder main will be required in future in order to augment the existing Greater Hermanus system with bulk water from the Theewaterskloof water source:

- New 315 mm Ø bulk supply pipeline from the Fisherhaven HL reservoir to the existing bulk water infrastructure at the Hawston reservoir.

Other future mains that will require upgrading are

- New 250mm dia. parallel reinforcement of the existing 150mm dia. bulk supply pipeline to the Sandbaai reservoir in order to augment supply to the reservoir.
- Replace the existing 225mm dia. bulk pipeline (from the Preekstoel WTW to the Coastal and Hermanus bulk pipelines) with a 500mm dia. pipeline when the existing 225, 400 and 600mm dia. bulk pipes from the Preekstoel WTW reaches capacity.

Stanford: No new future feeder mains are required.

Greater Gansbaai: The existing Greater Gansbaai bulk supply system was designed to supply water to De Kelders, Gansbaai, Kleinbaai and Franskraal from the Klipgat water source. During peak demand periods, zone valves before Gansbaai reservoirs are closed to ensure that Klipgat pump station provides water only to De Kelders and a portion of the Gansbaai consumers whereas the remaining consumers are temporarily provided with water from the Franskraal Pump System.

Since the De Kelders WTP has been constructed, the De Kelders zone is supplied with water from the De Kelders WTP. Water is pumped from the De Kelders WTP to the De Kelders reservoirs through the De Kelders zone.

The existing bulk water supply system has insufficient capacity to supply the future water demands for the fully occupied scenario and the additional future development areas.

For the future scenario the Greater Gansbaai bulk system was designed to supply water from the Franskraal pump system to Franskraal, Kleinbaai and Gansbaai. De Kelders will be supplied with water from the Klipgat system and be supplemented by water from the Franskraal pump system. The following upgrades to the existing Greater Gansbaai bulk supply system will be required in the future:

- Replace the existing 200mm dia. bulk pipeline with a 400mm dia. pipeline when the existing 200mm and 355mm dia. bulk pipes reaches capacity.
- New 355mm dia. parallel reinforcement of the existing 250 mm dia. bulk supply pipeline in order to augment supply to the to the Gansbaai and De Kelders reservoirs (construction of this item is currently in progress).

- New 400mm dia. bulk supply pipeline to the Gansbaai reservoir. This item is required in order to utilize the existing bulk pipelines between Gansbaai and De Kelders so that bulk water supply to the De Kelders reservoirs can be augmented from Gansbaai.
- Dedicate the existing 250mm dia. pipeline between the Greater Gansbaai bulk system and the De Kelders reservoirs as 'n bulk supply pipeline to the De Kelders reservoirs. These items are required to isolate the bulk and distribution systems from each other when the new supply pipeline from the reservoirs to the De Kelders network is implemented.
- New 600mm dia. bulk supply pipeline from the Franskraal WTP clearwell reservoir to the main Franskraal bulk PS.
- New 315mm dia. bulk supply pipeline from the main Franskraal bulk PS to the proposed Franskraal HL reservoir.
- New 500mm dia. bulk supply pipeline from the main Franskraal bulk PS to the existing 355mm dia. and future 400mm dia. pipeline bulk pipes to Kleinbaai, Gansbaai and De Kelders.
- New 355mm dia. dedicated bulk supply pipeline from the main Franskraal bulk PS to the existing Franskraal LL reservoirs.

Pearly Beach: No feeder mains require upgrading in the future.

Baardskeerdersbos: No feeder mains require upgrading in the future.

Buffeljags Bay: No feeder mains require upgrading in the future.

WATER PUMP STATIONS

The Water Master Plan (June 2016) has indicated that based on the most likely land-use development scenario, it will be necessary for the following water pump stations:

Table C.14: Future water pump stations required					
Distribution System	Recommendations included in the Water Master Plan	Year	Capacity (l/s)	Head (m)	Cost (R Million)
Buffels River	To improve the residual pressures of the higher lying erven in the Voorberg reservoir zone.	2020	10	25	0.923
	Required to augment bulk supply to Voorberg reservoir	2020	75	12	1.356
	Required to sustain pressure in the Voorberg reservoir zone network	2016	15	150	0.178
Kleinmond	A new booster pump station for the higher lying areas in future development area KM4	2035	15	30	0.965
Greater Hermanus	Upgrading of the existing Fisherhaven HL pump station is proposed.	2018	45	55	0.375
	A new bulk pump station to augment bulk water supply from the Fisherhaven LL to the Fisherhaven HL reservoir for when bulk water supply to the Greater Hermanus area is augmented from the Theewaterskloof water source.	2018	105	55	1.828
	A new booster pump station to augment water supply through the Coastal bulk pipeline.	2017	90	20	1.505
Stanford	No future pump stations are required		-	-	-
Greater Gansbaai	New bulk pump station to supply bulk water to De Kelder reservoirs	2020	45	60	1.281
	New dedicated pump station from the Franskraal Clearwater reservoir to the proposed Franskraal HL reservoir	2030	65	60	1.475
	New dedicated bulk PS to Kleinbaai & Gansbaai when existing bulk supply reaches capacity	2025	220	35	2.668
	Dedicated PS to Franskraal reservoirs when existing bulk PS reaches capacity	2035	130	5	1.682
Pearly Beach	Upgrade booster PS when Pearly Beach AADD exceeds 1 000 kl/d	2030	75	45	0.279
Baardskeerders-	No upgrading of existing pump stations will be require in the future	-	-	-	-

Distribution System	Recommendations included in the Water Master Plan	Year	Capacity (l/s)	Head (m)	Cost (R Million)
bos					
Buffeljags Bay	No pump stations	-	-	-	-
Total					14.515

RESERVOIR INFRASTRUCTURE

Overstrand Municipality's overall storage factors of the reservoirs for the various towns for 2015/2016, based on 1 x PDD (24 hours storage capacity), are 1.52 for Buffels River, 2.00 for Kleinmond, 1.71 for Greater Hermanus, 1.29 for Stanford, 1.34 for Greater Gansbaai, 2.14 for Pearly Beach, 1.34 for Baardskeerdersbos and 2.67 for Buffeljags Bay.

Even though the Municipality's overall storage capacity might be adequate there might be some distribution zones within the Municipality's networks with inadequate storage capacity, as identified through the Water Master Plan (June 2016) and indicated in the table below:

Distribution System	Recommendations included in the Water Master Plan	Year	Capacity (MI)	Cost (R Million)
Buffels River	Required at the existing Sunny Seas reservoir site to increase reservoir storage for Betty's Bay (TWL = 89m).	2025	1.000	3.766
	Required at the existing Pringle Bay reservoir site to increase reservoir storage for Pringle Bay (TWL = 67m).	2017	3.000	7.854
	Required at the Voorberg reservoir site to increase reservoir storage for Betty's Bay (TWL = 66m).	2018	3.500	8.844
Kleinmond	Proposed at the existing Kleinmond Protearand reservoir site when AADD exceeds 4000 kl/d (TWL = 91m).	2035	1.500	4.949
Greater Hermanus	Proposed at the existing Fisherhaven LL reservoir site to augment reservoir storage for the Fisherhaven LL reservoir zone (TWL = 60m).	2030	3.500	8.844
	Proposed at the existing Hawston LL reservoir site to augment reservoir storage for Hawston (TWL = 66m).	2030	3.000	7.854
	Proposed at the existing Vermont reservoir site to augment reservoir storage for the Vermont reservoir zone (TWL = 83m)	2025	1.000	3.766
	Proposed at the existing Onrus reservoir site to augment reservoir storage for Onrus (TWL = 78m).	2020	1.500	4.949
	Proposed at the existing Onrus Manor reservoir site to augment reservoir storage in the Onrus Manor reservoir zone (TWL = 144m)	2025	0.500	2.408
	Required to increase reservoir storage for Kidbrooke Place (Cost to developer) (TWL = 85m).	2020	0.300	0.000
	Proposed at the existing Sandbaai reservoir site to augment reservoir storage for Sandbaai (TWL = 65m).	2017	3.000	7.854
	Proposed at the existing Northcliff reservoir site to augment reservoir storage in the Northcliff reservoir zone (TWL = 75m).	2030	0.300	1.743
	Proposed at the existing Mount Pleasant reservoir site to augment reservoir storage in the Mount Pleasant reservoir zone (Currently under construction) (TWL = 87m).	2016	1.000	0.000
	Proposed at the existing Fisherhaven HL reservoir site to augment reservoir storage for the Fisherhaven HL reservoir zone (TWL = 108m).	2018	6.000	12.852
	Proposed at the existing Hermanus 1 & 2 reservoir site to augment reservoir storage for the zone when AADD for Hermanus reservoir zone exceeds 5 000 kl/d (TWL = 61m).	2030	2.000	5.964
Stanford	Proposed at the existing Stanford reservoir site to augment reservoir storage for Stanford when the AADD for the town exceeds 1 350 kl/d (TWL = 85m)	2025	1.500	4.949
Greater Gansbaai	Proposed at the existing Franskraal reservoir site to augment reservoir storage for Franskraal (TWL = 59m).	2025	2.000	5.964
	Proposed at the existing Kleinbaai reservoir site to augment reservoir storage for Kleinbaai, Romans Bay and the Birkenhead area (TWL = 61m).	2025	3.000	7.854
	Proposed at the existing Gansbaai reservoir site to augment reservoir storage for Gansbaai - phase 1 (TWL = 63m).	2018	4.000	9.744

Distribution System	Recommendations included in the Water Master Plan	Year	Capacity (MI)	Cost (R Million)
	Proposed at the existing Gansbaai reservoir site to augment reservoir storage for Gansbaai - phase 2 (TWL = 63m).	2030	4.000	9.744
	Proposed at the existing De Kelders reservoir site to augment reservoir storage for De Kelders (TWL = 98m).	2035	1.000	3.766
	Additional reservoir storage capacity for Franskraal LL zone when future areas GG31 & the lower lying erven of future development area GG33 develop (TWL = 69m).	2030	7.000	14.406
	New Franskraal HL reservoir when future areas GG32 and higher lying erven of GG33 develop (TWL = 120m).	2030	5.500	12.089
Pearly Beach	Proposed at the existing Pearly Beach reservoir site to augment reservoir storage when existing AADD reaches 1 000 kl/d (TWL = 19m).	2030	1.500	4.949
Baardskeedersbos	No additional reservoir storage capacity is required.	-	-	-
Buffeljags Bay	No additional reservoir storage capacity is required.	-	-	-
Total				155.112

WATER AND SEWER RETICULATION INFRASTRUCTURE

The Water Master Plan (June 2016) has indicated that based on the most likely land-use development scenario, the following future water reticulation infrastructure components will be necessary.

BUFFELS RIVER	
Proposed distribution zones	<ul style="list-style-type: none"> The only changes to the existing distribution zones are that the water network of the higher lying erven in the Betty's Bay Voorberg reservoir zone is rezoned and incorporated in a new Betty's Bay booster zone.
Proposed future system and required works	<p>The existing Buffels River water distribution system has insufficient capacity to supply the future water demands for the fully occupied scenario and the additional future development areas.</p> <ul style="list-style-type: none"> A few distribution pipelines are required to reinforce water supply within the Pringle Bay reservoir, Voorberg reservoir and Sunny Seas reservoir distribution networks. A few pipelines and valves are proposed in order to implement the Betty's Bay booster zone.
KLEINMOND	
Proposed distribution zones	<ul style="list-style-type: none"> The Protearand reservoir zone is increased to accommodate future development areas within the zone. A new booster pumping zones are proposed for higher lying future development area KM4. Zone adjustments to the Overhills booster zone to improve pressures in low pressure areas.
Proposed future system and required works	<p>The existing Kleinmond water distribution system has insufficient capacity to supply the future water demands for the fully occupied scenario and the additional future development areas.</p> <ul style="list-style-type: none"> A few distribution pipelines are required to reinforce water supply within the Kleinmond distribution networks. New distribution pipelines are proposed for when future development areas KM2, KM3 and KM4 develop. A new pipeline and valves are proposed in order to implement zone boundary changes to the Kleinmond Overhills booster zone
GREATER HERMANUS	
Proposed distribution zones	<ul style="list-style-type: none"> The boundaries of the existing Fisherhaven HL reservoir zone are increased to accommodate future development areas GH1, GH5.1 and GH5.2 A new Fisherhaven HL PRV zone (supplied from the existing Fisherhaven HL reservoir zone via a PRV is proposed to accommodate future development areas GH6.3 - 6.5. The setting of the PRV should be set at 63 m. The boundaries of the Northcliff reservoir zone are increased to accommodate some of the higher lying erven of the Hermanus reservoir zone. The boundaries of the existing reservoir zones are increased to accommodate future development areas in Greater Hermanus.
Proposed future system and required works	<p>The existing Greater Hermanus water distribution system has insufficient capacity to supply the future water demands for the fully</p>

Table C.16: Future water reticulation infrastructure required
<p>occupied scenario and the additional future development areas.</p> <ul style="list-style-type: none"> • A few distribution pipelines are required to reinforce water supply within the Greater Hermanus distribution network. • New distribution pipelines are proposed to supply future development areas with water when they develop. • A new inter-connection pipeline between the Fisherhaven LL reservoir zone and the Hawston reservoir is proposed as an emergency connection when future development area GH3 develops. • A new PRV in the future Fisherhaven HL reservoir zone is proposed in order to manage static pressures in this future zone. • Rezoning between the Northcliff reservoir and Hermanus reservoir zones is proposed.
STANFORD
<p>Proposed distribution zones</p> <ul style="list-style-type: none"> • The existing Stanford PRV zone is increased to accommodate a larger portion of the existing Stanford reservoir zone. • The boundaries of the existing zones are increased to accommodate future development areas in Stanford.
<p>Proposed future system and required works</p> <ul style="list-style-type: none"> • A few distribution pipelines are required to reinforce water supply within the Stanford distribution network. • New distribution pipelines are proposed for when future development areas SF1 to SF3 and SF7 develop.
GREATER GANSBAAI
<p>Proposed distribution zones</p> <ul style="list-style-type: none"> • A new Gansbaai booster zone is proposed to accommodate the higher lying erven of future development area GG8.2. • A new Romansbaai booster zone is proposed to accommodate future development area GG30. • A new Franskraal HL reservoir zone is proposed to accommodate future development area GG32 and the higher lying erven of future development area GG33. • The boundaries of the existing reservoir zones are increased to accommodate future development areas in Greater Gansbaai.
<p>Proposed future system and required works</p> <p>The existing Greater Gansbaai water distribution system has insufficient capacity to supply the future water demands for the fully occupied scenario and the additional future development areas.</p> <ul style="list-style-type: none"> • A few distribution pipelines are required to reinforce water supply within the Greater Gansbaai distribution network. • New distribution pipelines are proposed to supply future development areas with water when they develop. • In De Kelders a dedicated supply pipeline from the reservoirs to the network is proposed. • It is proposed that when the Birkenhead area in Kleinbaai is serviced with a formal water network, a secondary pipeline between Birkenhead and the existing Kleinbaai network is constructed along the coastline in order to improve network redundancy and conveyance in the area.
PEARLY BEACH
<p>Proposed distribution zones</p> <ul style="list-style-type: none"> • The boundaries of the existing distribution zones are increased to accommodate future development areas in Pearly Beach.
<p>Proposed future system and required works</p> <p>The existing Pearly Beach water distribution system has insufficient capacity to supply the future water demands for the fully occupied scenario and the additional future development areas.</p> <ul style="list-style-type: none"> • A few distribution pipelines are required to reinforce water supply within the Pearly Beach distribution network and new distribution pipelines are proposed to supply water to anticipated future development areas.

The Sewer Master Plan (June 2016) has indicated that based on the most likely land-use development scenario, the following future sewer reticulation infrastructure components will be necessary.

Table C.17: Future sewer reticulation infrastructure required
BUFFELS RIVER
<ul style="list-style-type: none"> • A new sewer reticulation system is proposed for the towns of Rooi Els, Pringle Bay and Betty's Bay in the Buffels River area, which are currently serviced by septic tanks. • In Rooi Els 4 x new future PS drainage areas are proposed that pumps the sewage of Rooi Els locally and eventually to a proposed Rooi Els Main bulk PS. • In Pringle Bay 3 x new future PS drainage areas are proposed that pumps the sewage of Pringle Bay locally and eventually to a proposed Pringle Bay Main bulk PS. • In Betty's Bay 8 x new future PS drainage areas are proposed that pumps the sewage of Betty's Bay locally and eventually to 3 x proposed Betty's Bay Main bulk PS's. <p>A new bulk sewage pumping system is proposed for the Buffels River area where sewage from the proposed Rooi Els Main PS is pumped to the Pringle Bay Main PS. From the Pringle Bay Main PS to the Betty's Bay Main PS no. 1, from the Betty's Bay Main PS no. 1 to the Betty's Bay Main PS no. 2 and from the Betty's Bay Main PS no. 2 to the Betty's Bay Main PS no. 3. It is proposed that the sewage of the Buffels River area is then pumped from the Betty's Bay Main PS no. 3 directly to the existing Kleinmond WWTP.</p>
KLEINMOND
<ul style="list-style-type: none"> • The boundaries of the existing drainage areas in Kleinmond are increased to accommodate proposed future developments and existing unserved erven that fall within these drainage areas. • Upgrading of the Kleinmond PS no. 4 is proposed when the existing PS reaches capacity. • A few existing outfall sewers require upgrading by replacement with larger sized future sewers. • New outfall sewers are proposed to accommodate future development areas and to service the existing unserved erven in Kleinmond.
GREATER HERMANUS
<ul style="list-style-type: none"> • The boundaries of the existing drainage areas in the Hermanus WWTP and Hawston WWTP sewer systems are increased to accommodate proposed future development areas and existing unserved erven that fall within these drainage areas. • In Fisherhaven new future PS drainage areas GH1 & GH2 are proposed for the areas in Fisherhaven that cannot gravitate to the existing Fisherhaven PS. New PS's and rising mains should be constructed for these new drainage areas that discharge into the existing Fisherhaven PS drainage area. • New future PS GH3, GH4, GH5, GH6, GH7 and GH8 drainage areas are proposed for future development areas GH4, GH6.2 - GH6.6, GH19, GH24, GH49 and the existing unserved erven in Hawston that cannot gravitate to the existing Hawston WWTP drainage area. New PSs and rising mains should be constructed for these new drainage areas. Future PSs GH7 & GH8 should discharge into the proposed future PS GH4 drainage area. Future PSs GH4 and GH5 should discharge into the existing Hawston WWTP drainage area. It is proposed that future PS GH3 pumps directly to the existing Meer-en-See PS 3 and that future PS GH6 should pump directly into the existing Hawston WWTP. • A new future PS GH11 drainage area is proposed for the lower lying erven of future development area GH1 that cannot gravitate to the existing Hawston WWTP drainage area. A new PS and rising main should be constructed for this new drainage area that discharges into the existing Hawston WWTP drainage area. • In Hermanus new future PS GH9 and GH10 drainage areas are proposed for the existing unserved erven in Westcliff that cannot gravitate to the existing infrastructure of the Hermanus sewer reticulation system. New PSs and rising mains should be constructed for these 2 new drainage areas. Future PS GH10 should discharge into the proposed future PS GH9 drainage area and future PS GH9 should discharge into the existing Whale Rock PS drainage area. • New future PS GH12, GH13 & GH14 drainage areas are proposed for future development areas GH30, GH44 & GH45. New PSs and rising mains should be constructed for these 3 new drainage areas. Future PSs GH13 and GH14 should discharge into the proposed future PS GH12 drainage area and future PS GH12 should discharge into the existing WWTP Main PS drainage area. • A new future PS GH15 drainage area is proposed for the lower lying erven of future development area GH6.1 that cannot gravitate to the existing Onrus Main PS drainage area. A new PS and rising main should be constructed for this new drainage area that discharges into the existing Onrus Main PS drainage area. • Upgrading of the Fisherhaven, Meer-en-See 3, Onrus Main, Sandbaai, Whale Rock and WWTP Main PSs are proposed when the existing PSs reaches capacity. • A few existing outfall sewers require upgrading by replacement with larger sized future sewers. • New outfall sewers are proposed to accommodate future development areas and to service the existing unserved erven in the Greater Hermanus area.
STANFORD
<ul style="list-style-type: none"> • The boundaries of the existing drainage areas in Stanford are increased to accommodate proposed future development areas and existing unserved erven that fall within these drainage areas. • New future PS S1, S2 and S4 drainage areas are proposed for the existing unserved erven in Stanford that cannot gravitate to the existing infrastructure of the Stanford sewer reticulation system. New PSs and rising mains should be constructed for these 3 new drainage areas. Future PS S1 should discharge into the existing Stanford Gravity drainage area, future PS S4 should discharge into the proposed drainage future PS S2 drainage area and future PS S2 should discharge into the existing Stanford PS drainage area.

Table C.17: Future sewer reticulation infrastructure required
<ul style="list-style-type: none"> • A new future PS S3 drainage area is proposed for future development area SF2 and a portion of future development area SF3. A new PS and rising main should be constructed for this new drainage area that discharges into the existing Stanford PS drainage area. • A few existing outfall sewers require upgrading by replacement with larger sized future sewers. • New outfall sewers are proposed to accommodate future development areas and to service the existing unserved erven in Stanford.
GREATER GANSBAAI
<ul style="list-style-type: none"> • A new sewer reticulation system is proposed for the towns of De Kelders and Franskraal in the Greater Gansbaai area, which are currently serviced by septic tanks. In Gansbaai and Kleinbaai only a portion of the existing erven are serviced with a full waterborne sanitation system, and new infrastructure is proposed to service these areas in future. • In De Kelders 5 x new future PS drainage areas are proposed that pumps the sewage of De Kelders locally and eventually to a proposed De Kelders Main bulk PS. • In Gansbaai new future PS GB1 and GB4 drainage areas are proposed for the existing unserved erven in Gansbaai that cannot gravitate to the existing infrastructure of the existing Gansbaai sewer reticulation system. New PSs and rising mains should be constructed for these 2 new drainage areas. Future PS GB1 should discharge into the existing Gansbaai Hawe PS drainage area and future PS GB4 should discharge into the existing Gansbaai WWTP Gravity drainage area. • A new future PS GB2 drainage area is proposed for future development area GG9. A new PS and rising main should be constructed for this new drainage area that discharges directly into the existing Kolgans no. 2 PS. • A new future PS GB3 drainage area is proposed for future development area GG10.1. A new PS and rising main should be constructed for this new drainage area that discharges into the existing Gansbaai WWTP Gravity drainage area. • In Kleinbaai new future PS KB1, KB2 and KB3 drainage areas are proposed. It is proposed that the existing conservancy tanks are decommissioned in future. Conservancy tank no. 1 should be accommodated in the future PS KB1 drainage area and conservancy tanks no. 2 & 3 in the future PS KB2 drainage area. New PSs and rising mains should be constructed for these new drainage areas. Future PSs KB1 and KB3 should discharge into the future PS KB2 drainage area and future PS KB2 should pump the sewage of Kleinbaai to a Kleinbaai Main bulk PS. • New future PS KB4 and KB5 drainage areas are proposed for future development area GG25 (Birkenhead area). New PSs and rising mains should be constructed for these new drainage areas. Future PS KB5 should discharge into the future PS KB4 drainage area and future PS KB4 should discharge into the future PS KB1 drainage area in Kleinbaai. • In Franskraal 3 x new future PS drainage areas are proposed that pumps the sewage of Franskraal locally and eventually to the proposed Kleinbaai Main bulk PS. • The boundaries of the existing drainage areas in Gansbaai and Kleinbaai are increased to accommodate proposed future development areas and existing unserved erven that fall within these drainage areas. • Upgrading of the existing Kolgans no. 2 PS is proposed when the existing PS reaches capacity. • A few existing outfall sewers in Gansbaai require upgrading by replacement with larger sized future sewers. • New outfall sewers are proposed to accommodate future development areas and to service the existing unserved erven in the Greater Gansbaai area. • A new bulk sewage pumping system is proposed for the Greater Gansbaai area where sewage from the proposed De Kelders Main PS is pumped to the existing Gansbaai Hawe PS and sewage from the proposed Kleinbaai Main PS is pumped directly to the Gansbaai WWTP. Upgrading of the Gansbaai Hawe PS is proposed when sewage is pumped from De Kelders to Gansbaai.
PEARLY BEACH
<ul style="list-style-type: none"> • The boundaries of the existing Pearly Beach PS1 drainage area are increased to accommodate future development area PB2. • New future PS P1, P2, P3 and P4 drainage areas are proposed for the existing unserved erven in Pearly Beach and future development areas PB1.3, PB3 and PB4. New PSs and rising mains should be constructed for these new drainage areas. • It is proposed that Future PS P2 and Future PS P3 discharge into the future PS P1 drainage area, and that sewage from the future PS P1 drainage area is pumped directly to the existing Pearly Beach oxidation ponds. • It is proposed that the existing Pearly Beach PS1 (which currently pumps to an existing conservancy tank) pumps sewage in future directly to the proposed future PS P4 drainage area. Sewage should then be pumped from the proposed Future PS P4 to the proposed future PS P3 drainage area. • New outfall sewers are proposed to accommodate future development areas and to service the existing unserved erven in Pearly Beach.
BAARDSKEERDESBOS
<ul style="list-style-type: none"> • A new sewer reticulation system is proposed for the town of Baardskeerdersbos, which are currently serviced by septic tanks. • It is proposed that sewer pipes gravitate to a proposed package plant or conservancy tank. A more detailed investigation will be required to determine the position of the proposed package plant or conservancy tank.
BUFFELJAGS BAY
<ul style="list-style-type: none"> • A new sewer reticulation system is proposed for the town of Buffeljags Bay, which are currently serviced by septic tanks. • It is proposed that sewer pipes gravitate to a proposed conservancy tank for Buffeljags Bay. A more detailed investigation will be required to determine the position of the proposed conservancy tank.

SEWER PUMP STATIONS

The Sewer Master Plan (June 2016) has indicated that based on the most likely land-use development scenario, it will be necessary for the following new sewer pump stations, as well as upgrading of the existing sewer pump stations:

Table C.18: Future sewer pump stations required			
Drainage System	Recommendations included in the Sewer Master Plan	Year	Cost (R Million)
Buffels River	New Future Rooi Els No.1 pump station	2030	0.480
	New Future Rooi Els No.2 pump station	2030	0.508
	New Future Rooi Els No.3 pump station	2030	0.545
	New Future Rooi Els No.4 pump station	2030	0.480
	New Future Pringle Bay No.1 pump station	2025	0.754
	New Future Pringle Bay No.2 pump station	2025	0.619
	New Future Pringle Bay No.3 pump station	2025	0.481
	New Future Betty's Bay No.1 pump station	2020	0.481
	New Future Betty's Bay No.2 pump station	2020	0.843
	New Future Betty's Bay No.3 pump station	2020	0.619
	New Future Betty's Bay No.4 pump station	2020	0.509
	New Future Betty's Bay No.5 pump station	2020	0.481
	New Future Betty's Bay No.6 pump station	2020	0.481
	New Future Betty's Bay No.7 pump station	2020	0.545
	New Future Betty's Bay No.8 pump station	2020	0.481
	New Rooi Els Main pump station (Pump from Rooi Els to Pringle Bay)	2030	0.573
	New Pringle Bay Main pump station (Pump from Pringle Bay to Betty's Bay)	2025	0.931
	New Betty's Bay Main pump station No.1 (Pump from Betty's Bay to Kleinmond WWTW)	2020	1.327
	New Betty's Bay Main pump station No.2 (Pump from Betty's Bay to Kleinmond WWTW)	2020	1.454
	New Betty's Bay Main pump station No.3 (Pump from Betty's Bay to Kleinmond WWTW)	2020	1.576
Kleinmond	Upgrade existing Harbour PS when it reaches capacity	2020	0.098
	Upgrade existing Harbour PS when it reaches capacity	2030	0.263
Greater Hermanus	Upgrade existing Fisherhaven PS when it reaches capacity	2030	0.159
	New PS for Fisherhaven	2020	0.481
	New PS for Fisherhaven	2020	0.518
	New PS when future area GH49 develops (Cost for Developer)	2020	-
	New PS when future area GH4 develops	2030	0.709
	New PS for Hawston	2025	0.709
	New PS for Hawston	2025	0.490
	New PS when future area GH6.2 develops	2020	0.385
	New PS when future areas GH6.1 and HG6.4 develop	2020	0.619
	Upgrade existing Onrus Main PS when it reaches capacity	2025	0.285
	Upgrade existing Sandbaai PS when it reaches capacity	2025	0.159
	New PS for Hermanus	2025	0.480
	New PS for Hermanus	2025	0.499
	Upgrade existing WWTP Main PS when it reaches capacity. Investigate existing capacity and operation of system from WWTW Main PS to Hermanus WWTW first.	2020	0.255
	New PS when lower lying erven of future area GH1 develops (Cost for Developer)	2035	-
	Upgrade existing Meerensee No.3 PS when it reaches capacity. Investigate existing capacity first.	2020	0.134
	Upgrade existing Whale Rock PS in order to reach scouring velocity through rising main.	2017	0.835
	New PS when future areas GH43 and GH44 develop	2030	0.573
	New PS when future area GH43 develop (Cost for Developer)	2030	-
	New PS when future areas GH43 and GH44 develop	2030	0.481
New PS when future area GH6.1 develop (Cost for Developer)	2021	-	
Stanford	New PS for Stanford South	2025	0.481
	New PS for Stanford North	2018	0.518
	New PS for Stanford North	2030	0.481

Drainage System	Recommendations included in the Sewer Master Plan	Year	Cost (R Million)
	New PS for Stanford North	2020	0.481
Greater Gansbaai	New PS for De Kelders	2025	0.385
	New PS for De Kelders	2025	0.527
	New PS for De Kelders	2020	0.664
	New PS for De Kelders	2020	0.799
	New PS for De Kelders	2025	0.481
	New PS for Gansbaai	2025	0.509
	New PS for Gansbaai	2025	0.385
	Upgrade existing Kolgans No.2 PS when it reaches capacity, verify existing pump capacity first.	2025	0.120
	New PS when future areas GG10 and GG11 develop	2018	0.573
	New PS for Gansbaai	2020	0.481
	New PS for Kleinbaai	2026	0.619
	New PS for Kleinbaai	2025	0.843
	New PS for Kleinbaai	2025	0.481
	New PS for Franskraal	2030	0.754
	New PS for Franskraal	2030	0.664
	New PS for Franskraal	2030	0.591
	New PS for Birkenhead drainage area	2030	0.499
	New PS for Birkenhead drainage area	2030	0.385
	New PS when lower lying erven of Perlemoenpunt develop	2030	0.527
	New PS when future areas GG10.2 and GG11.2 develop	2030	0.499
	New PS for Franskraal	2030	0.545
	New PS for Franskraal	2030	0.499
	New PS when future area GG31 develops	2035	0.619
	New PS when future area GG31 develops	2035	0.527
	New PS when future area GG32 and GG33 develop	2035	1.200
	New PS when future area GG33 develops	2035	1.156
New PS required to pump sewage from Kleinbaai and Franskraal to Gansbaai WWTP	2025	1.658	
New PS required to pump sewage from De Kelders to Gansbaai Hawe PS	2020	0.888	
Upgrade existing PS when sewage from De Kelders is pumped to Gansbaai	2025	0.240	
Pearly Beach	New PS for Pearly Beach	2025	0.709
	New PS for Pearly Beach	2025	0.481
	New PS for Pearly Beach	2030	0.619
	New PS for Pearly Beach	2030	0.545
Total			44.733

WASTE WATER TREATMENT INFRASTRUCTURE

The table below gives a summary of the existing capacities and current flows at each of the WWTWs (Ml/d).

WWTW	Existing Hydraulic Capacity	Peak Daily Flow (Dec 2015 / January 2016)	Peak Month Average Daily Flow	Average Daily Flow (July 2015 – June 2016)	Average Wet Weather Flow (Jun'16, Jul'15, Aug'15)
Kleinmond	2.000	1.827	1.645 (Aug'15)	1.233	1.425
Hawston	1.000	0.533	0.415 (Jun'16)	0.349	0.351
Hermanus	12.000	8.270	7.170 (Jul'16)	6.305	6.706
Stanford	0.500	0.793	0.677 (Jul'16)	0.593	0.630
Gansbaai	2.000	8.134	0.837 (Mar'16)	0.710	0.644
Eluxolweni	0.259	Flows not yet available			

The capacity of the Hermanus WWTW was upgraded from 7.3 Ml/d to 12 Ml/d at the end of 2012. The upgrading included a new inlet works, refurbishment of the existing aeration and settling tanks, new anaerobic and anoxic basins and settling tank, mechanical sludge dewatering and a new chlorination system. The sludge handling facilities at the Kleinmond and Gansbaai WWTW were also upgraded during 2012/2013. The capacity of the Stanford WWTW will be upgraded during 2017/2018.

Kleinmond WWTW: The 2013 Green Drop score for the WWTW was 77.61% and the wastewater risk rating decreased from 47.1% in 2013 to 41.2% in 2014. The recommendations included in the 2016 Process Audit Report for the Kleinmond WWTW were as follows:

- The flow meter should be calibrated annually and the Calibration Certificate should be kept on site.
- Install an outflow meter.
- Oxygen transfer tests should be conducted to establish the delivery of the aerators.
- All aerators should run for 24 hours per day at present loading rates.
- Control the MLSS concentration in the range 4000-6000 mg TSS/l, as at present.
- The Operator should monitor the sludge settleability daily and maintain a constant Mixed Liquor Suspended Solids concentration, as at present.
- The sludge mass must be controlled at the prescribed monthly recommendations.
- To successfully maintain a viable biological population and to maintain the proper concentration of solids, the system requires continuous observation and monitoring by the Operator, as at present.
- Repair the chlorine dosing system.
- Maintain 0.40 mg/l Free Chlorine in the final effluent at all times to ensure complete disinfection.
- Site should be fenced in.

Hawston WWTW: The WWTW received a Green Drop award in 2013 (Green Drop score of 90.03%). The wastewater risk rating increased from 29.4% in 2013 to 52.9% in 2014. The recommendations included in the 2016 Process Audit Report for the Hawston WWTW were as follows:

- The flow meters at the inlet and the outlet should be calibrated annually.
- The flow meter readings should be evaluated relative to the raw sewage pump hours and pump capacities.
- Oxygen Transfer Tests should be conducted to establish the delivery of the aerators and the inlet from meter readings should be confirmed in order to establish the exact organic load imposed on the system.
- Excess sludge should be wasted regularly in order to control the MLSS concentration in the range 4000-6000 mg TSS/l.
- The Operator should monitor the sludge settleability daily and maintain a constant mixed liquor suspended solids concentration.
- To successfully maintain a viable biological population and to maintain the proper concentration of solids, the system requires continuous observation and monitoring by the Operator.
- Increase sludge wastage and maintain an adequate sludge wastage programme.
- Replace sand on drying beds.
- Ensure 0.25 mg/l Free Chlorine in the final effluent at all times to ensure satisfactory disinfection.
- Investigate the origin of the high Conductivity in the influent.

Hermanus WWTW: The WWTW received two consecutive Green Drop awards in 2012 and 2013 (Green Drop score of 91.17% in 2013). The wastewater risk rating decreased from 45.5% in 2013 to 40.9% in 2014. The recommendations included in the 2016 Process Audit Report for the Hermanus WWTW were as follows:

- Investigate the high difference between the inlet and outlet flow meters.
- Investigate the origin of the high Conductivity in the influent.
- Maintain the present mode of operation.
- Excess sludge should be wasted regularly in order to control the MLSS concentration in the range 4000 – 6000 mg TSS/l.
- The Operator should monitor the sludge settleability daily and maintain a constant mixed liquor suspended solids concentration.
- Sludge age is typically about 20 – 30 days in activated sludge plants at high (>95%) COD removal efficiencies. A long sludge area is required, at which nitrification is generally assured and a relatively stable sludge is generated. Loading rates are inversely related to sludge age.
- To successfully maintain a viable biological population and to maintain the proper concentration of solids, the system requires continuous observation and monitoring by the Operator.
- Sludge management should receive attention. Increase sludge wastage and maintain an adequate sludge wastage programme.
- Replace sand on drying beds and remove all weeds from drying beds.
- Maintain 0.25 mg/l Free Chlorine at all times.
- All Process Controllers must be registered with DWS.
- A Visitors Register should be implemented.

Stanford WWTW: The WWTW received a Green Drop award in 2013 (Green Drop Score of 93.39%). The wastewater risk rating stayed the same at 29.4% in 2013 and 2014. The recommendations included in the 2016 Process Audit Report for the Stanford WWTW were as follows:

- Investigate the origin of the influent containing high Conductivities.
- Grit should be removed from the grit channels daily and disposed of at the landfill site.
- Investigate the operation of the outflow meter.
- Investigate the raw sewage pump's location.
- Oxygen transfer tests should be conducted to establish the delivery of the aerators.
- Increase the present ATML recycle programme to assist with denitrification.
- Sludge wastage should be controlled in order to maintain a sludge age of at least 20-25 days.
- Clean out the two sludge lagoons.
- Repair the sludge feed meter.
- Ensure 0.25 mg/l Free Chlorine in the final effluent at all times, as at present.
- Revamp the office / control room and ensure proper space / shelving for records.
- No Daily Maintenance or Incident Report file visible on site. This should be readily available.
- Register staff as Process Controllers with DWS.
- Ensure that a classified Process Controller is on site per shift.
- Implement a Visitors Register in order to control access to the WWTW.
- Keep safety minutes on site.

- Install an eye wash / shower facility.

Gansbaai WWTW: The WWTW received a Green Drop award in 2013 (Green Drop score of 91.76%). The wastewater risk rating increased from 35.3% in 2013 to 41.2% in 2014. The recommendations included in the 2016 Process Audit Report for the Gansbaai WWTW were as follows:

- Investigate the origin of the periodic high inlet Conductivity.
- The inlet and outlet flow meter should be calibrated annually and a Calibration Certificate should be kept on site.
- Maintain present mode of operation.
- Repair the brush aerators.
- The amount of sludge wasted should be recorded.
- Repair the unserviceable scale.
- Maintain 0.25 mg/l free chlorine at all times at the outlet of the contact tank in order to maintain complete disinfection.
- Register all staff with DWS as Process Controllers.
- Maintain present mode of operation.

Overstrand Municipality revises on an annual basis the capacity and suitability of the WWTWs to meet the requirements of DWS for the quality of the final effluent being discharged to the receiving water bodies. When the water quality requirements for the final effluent becomes stricter and / or when the inflow to the WWTW has increased to such an extent that the capacity of the plant needs to be increased, the Municipality appoints reputed consulting engineering firms to undertake feasibility studies to perform technical and economical evaluation of the different options available for upgrading or extending the capacity of the treatment works.

The Sewer Master Plan (June 2016) has indicated that based on the most likely land-use development scenario, it will be necessary for the following Waste Water Treatment Works.

Drainage System	Recommendations included in the Sewer Master Plan	Cost (R Million)
Baardskeerdersbos	New conservancy tank or package plant for the existing erven	0.730
Buffeljags Bay	New conservancy tank or package plant for the existing unserved erven	0.730
Total		1.460

ASSET MANAGEMENT ASSESSMENT

An Asset Management Policy is in place. Overstrand Municipality however needs to differentiate between budget allocated towards the operation and maintenance of the water and sewerage infrastructure and the budget allocated towards the replacement of the water and sewerage infrastructure. A budget of approximately 2% of the total asset value per annum should be allocated towards the replacement of the existing water and sewerage infrastructure. In the case of operations and maintenance of the system, a budget of approximately 1% to 2% of the value of the system is typically required to ensure that the system remains in good condition.

It is important for Overstrand Municipality to develop an AMP from their Asset Register. The objective of an AMP is to support the achievement of the strategic goals of the Municipality and facilitate prudent technical and financial decision-making. It is also a vehicle for improved internal communication and to demonstrate to external stakeholders the Municipality's ability to effectively manage its existing infrastructure as well as the new infrastructure to be developed over the next 20 years.

This plan must be based on the principle of preventative maintenance in order to ensure that, as far as this is practical, damage to assets is prevented before it occurs. Overstrand Municipality needs to ensure that the maintenance and rehabilitation plan is part of the WSDP and that the plan is implemented. Assets must be rehabilitated and / or replaced before the end of their economic life and the necessary capital funds must be allocated for this purpose. Priority should be given to rehabilitating existing infrastructure as this generally makes best use of financial resources and can achieve an increase in (operational) services level coverage's most rapidly. The preparation of maintenance plans and the allocation of sufficient funding for maintenance are required to prevent the development of a large condition backlog. The potential renewal projects for water and sanitation infrastructure need to be identified from the Asset Register. All assets with a condition grading of "poor" and "very poor" need to be prioritised.

Business Element 6: Water Services Infrastructure Management (O&M)

Table C.21: Business Element 6: Operation and Maintenance (Topic 6)					
Overview of Topic		Status Quo and Knowledge Interpretation Statistics			
This topic provides an overview of the sufficiency of resources and processes in place to effectively operate and maintain the water services. It reflects whether the municipality has an Operation and Maintenance Plan in place. The topic also illustrates whether the WSA has implemented good practice as directed in the Blue- and Green Drop certification processes	Item	Quality (%) assessment of current status against compliance requirements	Quantity (%) an indication of the representation of the total area to address the issue	Future Plan Assessment	Strategy Assessment
	Operation & Maintenance Plan	60.00	60.00	60.00	60.00
	Resources	60.00	50.00	58.78	58.75
	Information	60.00	50.00	58.78	58.75
	Activity Control & Management	60.00	50.00	58.78	58.75
	Water Supply & Quality	90.79	80.00	60.00	60.00
	Waste Water Supply & Quality	89.14	80.00	60.00	60.00
	TOTAL for Topic	69.99	61.67	59.39	59.38
Problem Definition Statements					
Nr	Statements - Short Comings	Possible Improvement / Project			
1	All treatment works and operators need to be classified along the lines of the regulations by establishing a programme for certification of works, operators, technicians and managers. The process will include reviewing the skills needed and aligning resources to these needs as well as reviewing total staff numbers necessary to meet all the objectives in the National Water Act.	Veolia is responsible to ensure that the number of process controllers at each of the WTWs and WWTW and the class of process controller complies with the required number of process controllers and class of process controller per plant. Overstrand Municipality will monitor Veolia's compliance with regard hereto.			
2	The Occupational Health and Safety Act contains provisions directing employers to maintain a safe workplace and to minimize the exposure of employees and the public to workplace hazards. It is therefore important for Veolia to compile a Legal Compliance Audit of the WTWs and WWTWs, which will provide them and the management of Overstrand Municipality with the necessary information to establish whether they are in compliance with the legislation or not.	Veolia is responsible for compliance with regard to the Occupational Health and Safety requirements at all the WTWs and WWTWs. Overstrand Municipality will monitor Veolia's compliance with regard hereto.			
3	Shortcomings were identified as part of the Water Safety Plans and W ₂ RAPs.	Implement Improvement / Upgrade Plans of Water Safety Plans and W ₂ RAPs			
4	Shortcomings were identified as part of the WTW and WWTW Process Audits.	Implement recommendations from detail WTW and WWTW Process Audits			
5	It is important to note that all operational manuals of treatment unit processes such as chemical dosing, coagulation sedimentation, filtration, disinfection etc. should contain operational limits, monitoring programmes, verification procedures and pre-determined corrective actions. Corrective actions identified for each control measure need to be adhered to as soon as critical limits have been exceeded. The corrective actions are an important component of the management aspects of the Water Safety Plan and W ₂ RAP and should be effective in restoring performance to acceptable levels when critical limits are exceeded.	Veolia needs to ensure that operational limits, monitoring programmes, verification procedures and pre-determined corrective actions are in place for all the WTW and WWTW treatment processes. Overstrand Municipality will monitor their compliance with regard hereto.			
6	Ensure proper asset management, operation and maintenance of the existing bulk water and sewerage infrastructure and the training of staff involved in the operation and maintenance of the infrastructure.	Asset management, the operation and maintenance of the existing bulk water and sewerage infrastructure and the training of staff involved in the operation and maintenance of the infrastructure forms part of the Veolia Contract. Overstrand Municipality will monitor Veolia's compliance with regard hereto.			

The Water Safety Plan and W₂RAP Teams of Overstrand Municipality are committed to meet regularly to review the implementation of all the aspects of the Water Safety Plan and W₂RAP to ensure that they are still accurate and to determine whether the field assessments need updates or modifications and whether the Incident Response Management Protocol is still adequate. In addition to the regular three year review, the Water Safety Plan and W₂RAP will also be reviewed when, for example, a new water source is developed, major treatment improvements are planned and brought into use, or after a major incident.

The Veolia Contract allows for the classification of all the treatment works and operators along the lines of the regulations by establishing a programme for certification of works, operators, technicians and managers. The process will include reviewing the skills needed and aligning resources to these needs as well as reviewing total staff numbers necessary to meet all the objectives in the National Water Act.

The Municipality needs to establish a mentoring role for operators ensuring an adequately trained and classified workforce with dedicated training programmes for supervisors and operators. Establish budgets to address the shortfall of skilled staff, rethink methods to retain qualified personnel and plan for succession and clear career paths for experienced staff. With such a program a source of specific resources of skilled operators, technicians and managers will be established.

The Occupational Health and Safety Act contain provisions directing employers to maintain a safe workplace and to minimize the exposure of employees and the public to workplace hazards. It is therefore important for Veolia Water Solutions & Technologies South Africa (Pty) Ltd to compile a Legal Compliance Audit of their WTWs and WWTW, which will provide the management of Veolia Water Solutions & Technologies South Africa (Pty) Ltd with the necessary information to establish whether they are in compliance with the legislation or not.

Overstrand Municipality and Veolia Water Solutions & Technologies South Africa (Pty) Ltd are committed to work with the DWS and the other role-players in order to further improve on the Municipality's 2014 Blue Drop Score for the various distribution systems. The Water Safety Plans, Process Audits that were carried out at all the WTWs and Operation and Maintenance Manuals which were compiled for all the WTWs will be used to improve the Municipality's performance. The Improvement / Upgrade Plan of the Water Safety Plan will also be implemented by the Municipality in order to address the potential risks identified through the Water Safety Plan process.

It is also important for Overstrand Municipality to continue with the upgrading of WWTWs when necessary, in order to reduce the risk of source contamination. WWTWs will be managed and operated by Veolia Water Solutions & Technologies South Africa (Pty) Ltd and Overstrand Municipality to comply with the permitted standards and in so doing intends to work towards green drop status for the Municipality's other WWTWs as well.

Veolia Water Solutions & Technologies South Africa (Pty) Ltd and Overstrand Municipality is committed to work with the DWS and the other role-players in order to improve on their 2013 Green Drop Score and to reduce the 2014 Wastewater Risk Ratings for the various WWTWs and to get the Municipality ready for the next round of assessments. The W₂RAPs that are in place for all the WWTWs will assist in reducing the current CRRs for the various WWTWs. The following will also further assist in the process of reducing the CRRs.

- Forward planning and upgrading / refurbishment of treatment plants to ensure adequate capacity for the flows received;
- Ensure sound management of the Water and Wastewater Treatment Operation Management Contract with Veolia Water Solutions & Technologies South Africa (Pty) Ltd;
- Monitoring of flow to- and from the plants;
- Sampling and monitoring of effluent quality;
- Appropriate authorisation in accordance with the National Water Act (36 of 1998); and / or
- Where plant is overloaded, introduce innovative methods to ensure enhancement of effluent quality.

Business Element 7: Associated Services

Table C.22: Business Element 7: Associated Services (Topic 7)					
Overview of Topic	Status Quo and Knowledge Interpretation Statistics				
This topic has been established to ensure adequate focus on the water services levels and needs of educational and health facilities. The water services planner will use this information to establish short-term solutions and to prioritize water services infrastructure projects to educational- and health facilities.	Item	Quality (%) assessment of current status against compliance requirements	Quantity (%) an indication of the representation of the total area to address the issue	Future Plan Assessment	Strategy Assessment
	Water services – Education	76.00	56.00	56.00	56.00
	Water services - Hospitals	80.00	60.00	60.00	60.00
	Water services – Health Centers	80.00	60.00	60.00	60.00
	Water services - Clinics	80.00	60.00	60.00	60.00
	Sanitation - Education	76.00	56.00	56.00	56.00
	Sanitation - Hospitals	80.00	60.00	60.00	60.00
	Sanitation – Health Centers	80.00	60.00	60.00	60.00
	Sanitation - Clinics	80.00	60.00	60.00	60.00
	TOTAL for Topic	79.00	59.00	59.00	59.00
Problem Definition Statements					
Nr	Statements - Short Comings	Possible Improvement / Project			
1	-	-			

Education: All education facilities in Overstrand Municipality's Management Area are provided with adequate water services and no specific strategies, with regard to the provision of water services to these facilities, were therefore identified. Overstrand Municipality is however committed to work with the Education Department to address any possible shortcomings with regard to the provision of water services that might exist at any school or tertiary education facilities.

Health: Overstrand Municipality will strive to continue to ensure that the minimum required SANS241:2015 water quality standards are met through proper management, operation and maintenance of their WTWs and the systematic upgrading of their WTWs when required. The monitoring of provision of basic minimum services to farm dwellers remains a challenge, in view of the limited funding and human resources. The environmental health function is currently with the Overberg District Municipality. The Municipal Health Services of the Overberg District Municipality also report monthly to the Department of Environmental Health on water quality. The quality of life of the people within a Municipality is influenced by the available health care. Various things influence the health conditions of people in any region, for example access to clean water, good sanitation, proper nutrition and adequate housing.

It is important that a co-operative relationship be maintained between the Overberg District Municipality and Overstrand Municipality with regard to environmental health issues and that a good communication protocol is followed between the District Municipality and Overstrand Municipality to report on health issues.

The health profile in relation to treated water is good. Within the urban context, drinking water throughout the municipal area is considered to be of a high quality. The most vulnerable groups within Overstrand Municipality's Management Area are the persons living in informal areas with shared services. It is therefore of outmost importance that the communal standpipes are properly maintained, to promote better health and hygiene among users. It is necessary to:

- keep the standpipe area clean and free from stagnant water;
- avoid water spillage by keeping the tap closed when not in use;
- report and rectify leakages immediately;
- keep straying animals away from standpipe area; and
- keep the tap outlet, standpipe slab and soak away clean.

Overstrand Municipality further needs to promote health and hygiene awareness amongst standpipe users by focusing on the following:

- users must use the standpipe only for the filling of containers;
- no body or clothes washing is allowed at standpipes;
- no house pipes or other objects may be attached to the standpipes;
- use clean containers and close containers with a suitable lid when transporting water;
- disinfect containers when necessary; and
- immediately report any irregularities, contamination, tampering or vandalism at standpipes

The rehabilitation and maintenance of the basic services in informal areas have also had positive results, in that the installations appear neater, a healthier environment has been created and less pollution than previously takes place. It is believed that this played a significant role in reducing disease previously caused by unhygienic conditions and absence of basic services.

The supply of basic sanitation services on the farms needs to be linked to the provision of health and hygiene education. Improved health requires behaviour change, which also cannot be achieved with a single health education talk given by an outside expert. Behaviour change requires sustained monitoring and promotion within the community. This is the key-function of the community health workers employed on sanitation projects.

Overstrand Municipality needs to continue to actively engage with service providers and NGO's in the fight against illnesses such as HIV/Aids and TB. A solution to the sustainability of the community health worker's position and employment within the community has been to link their position and function to the activities of the Department of Health. In addition support can be provided to the Community Health Workers through local clinics and through the programmes of the EHPs. Education on the HIV/Aids pandemic would play a key role in stemming the spread of the disease.

Overstrand Municipality will therefore endeavour to improve their efforts to foster partnership-driven development in planning and implementation where partnerships include community members, CBOs, NGOs, the private sector and other spheres of government. In this regard the Department of Health is considered a particularly important partner whose collaboration is much needed.

Business Element 8: Conservation and Demand Management

Table C.23: Business Element 8: Conservation and Demand Management (Topic 8.1)					
Overview of Topic		Status Quo and Knowledge Interpretation Statistics			
The topic provides an overview of the activities pursued by the WSA in the past financial year towards water conservation and demand management. It also contains an overview of the water sources of the WSA.	Item	Quality (%) assessment of current status against compliance requirements	Quantity (%) an indication of the representation of the total area to address the issue	Future Plan Assessment	Strategy Assessment
	Reducing unaccounted water and water inefficiencies	72.00	64.00	60.00	60.00
	Reducing high pressures for residential consumers	65.00	65.00	80.00	80.00
	Leak and meter repair programmes	66.67	66.67	66.67	66.67
	Consumer/end-use demand management	60.00	60.00	60.00	60.00
	TOTAL for Topic	65.92	63.92	66.67	66.67
Problem Definition Statements					
Nr	Statements - Short Comings	Possible Improvement / Project			
1	Further reduce the percentage of Non-Revenue Water and Water Losses.	Continue with the implementation of the WDM Strategy and Action Plan to reduce the non-revenue water for the various distribution systems to 17% by June 2017 (SDBIP).			
2	Repair leaks at all the indigent households	Continue with the repairing of leaks at all the indigent households.			
3	Old meters and meters that are not accurate should be replaced.	Continue with the phased pro-active replacement of the old water meters, as identified through the detail water meter audit.			
4	Implement an extensive schools WDM programme, which might also include annual competitions between schools (say with a prize for the lowest consumption, the lowest per capita consumption and for the best WDM-strategy poster design, etc.) Schools should be encouraged to make WDM programmes part of a long term project, where learners should be actively involved. A schools WDM programme should receive a high priority.	Support schools with WDM initiatives (Especially during Water Week)			
5	Overstrand Municipality needs to continue to focus on the installation of water saving devices (specific water efficient toilets). The Municipality also needs to focus on raising awareness regarding conservation projects and the installation of water efficient devices in order to reduce the water demand and their percentage of non-revenue water.	Raise awareness under the public of water efficient devices and water conservation projects.			

Table C.24: Business Element 8: Conservation and Demand Management - Water Balance (Topic 8.2 & 8.3)					
Overview of Topic		Status Quo and Knowledge Interpretation Statistics			
The topic provides an overview of the activities pursued by the WSA in the past financial year towards water conservation and demand management. It also contains an overview of the water sources of the WSA.	Item	Quality (%) assessment of current status against compliance requirements	Quantity (%) an indication of the representation of the total area to address the issue	Future Plan Assessment	Strategy Assessment
	Surface water purchased	80.00	80.00	80.00	80.00
	Surface water abstraction	80.00	80.00	80.00	80.00
	Ground water abstraction	80.00	80.00	80.00	80.00
	Raw water supplied	80.00	80.00	80.00	80.00
	Total Influent	80.00	80.00	80.00	80.00
	Total treated TW	80.00	80.00	80.00	80.00
	Potable water to other Neighbours	80.00	80.00	80.00	80.00
	Purchased Treated water	80.00	80.00	80.00	80.00
	Ground water not treated	80.00	80.00	80.00	80.00
	Authorised consumption	75.00	75.00	75.00	75.00
	Total losses	60.00	60.00	60.00	60.00
	Billed unmetered	80.00	80.00	80.00	80.00
	Apparent losses	60.00	60.00	60.00	60.00
	Waste water treatment works	60.00	60.00	60.00	60.00
	Recycled	60.00	60.00	60.00	60.00
	TOTAL for Topic	74.33	74.33	74.33	74.33
Problem Definition Statements					
Nr	Statements - Short Comings	Possible Improvement / Project			
1	-	-			

Overstrand Municipality's WDM Strategy and Action Plan was previously listed under Section A: Conservation and Demand Management of this Report. Overstrand Municipality is committed to continue with the active implementation of their WDM Strategy and Action Plan in order to reduce the NRW within the various distribution systems as follows:

Distribution System	15/16 (%/a)	2020 (%/a)	2040 (%/a)
Buffels River	50.0%	40.0%	30.0%
Kleinmond	32.9%	25.0%	15.0%
Greater Hermanus	22.6%	15.0%	15.0%
Stanford	40.7%	25.0%	15.0%
Greater Gansbaai	36.1%	25.0%	20.0%
Pearly Beach	28.1%	20.0%	15.0%
Baardskeerdersbos	56.5%	30.0%	15.0%
Buffeljags Bay	15.8%	15.0%	15.0%

PRVs were installed previously in Kleinmond, Stanford and Bettys Bay and no further PRVs were installed during the 2015/2016 financial year. A phased approach was followed for the investigation / implementation of pressure management in selected areas in the Overstrand Municipality's Management Area. The phases were as follows:

- Investigation and Logging (Desktop Study, Logging of pressures and flows, Analysis of data)
- Implementation (Design PRV Chambers, Pressure Management Implementation of new PRVs, Supply and installation of smart electronic pressure controllers for existing PRVs)
- Impact Assessment (Post pressure management logging to determine impact of new PRVs and / or installation of smart pressure controllers on existing PRVs)

Overstrand Municipality will continue with the repairing of leaks at all the indigent households. The following steps can be implemented by Overstrand Municipality to ensure that the project is sustainable.

- Identify areas with high minimum night flows. Record these flows before the project starts in order to ensure that the overall savings achieved by the project can be calculated.
- Visit properties occupied by indigent households on a priority basis (highest consumption first).
- Educate the customer about the project and water saving measures that can be implemented.
- Audit properties for any plumbing leaks and repair the leaks that are found.
- Meters found to be faulty must be replaced.
- Identify where there may be inefficient water usage and water wastage.
- Identify the number of people living at the property so as to determine a reasonable water usage.

Mechanisms to ensure that customers repair new water leaks, maintain an affordable consumption and does not build up arrears need to be addressed in the early stages of the project, in order to ensure the sustainability of the project.

Overstrand Municipality continues with the implementation of their pipeline replacement programme for all the priority areas with old reticulation networks and frequent pipe failures. It is important for Overstrand Municipality to also continue with the implementation of their Leakage Management Programme (Measure the volume of water that is lost, identify and qualify losses, conduct operational and network audits, improve performance: network upgrade, design action plans and sustain performance with good staffing / organization structures).

The Municipality is busy with the phased pro-active replacement of the old water meters, as identified through the detail water meter audit. The meters not working and the meters with existing leaks were also replaced and the leaks were repaired. The building inspectors include the inspection of the water meter installations during the foundation inspections at construction / building sites. This information is also implemented and captured on EMIS by the Building Inspectorate.

A rough estimate of the number of meters that need to be replaced every year is the number of meters divided by 12, assuming that the life of the meters is not more than 12 years. Although it is assumed that the average lifespan of a meter is 12 years for budgeting purposes, it is necessary to carry out research to determine the most optimal replacement of age for each type of meter in various circumstances. The research should identify the different types of meters, in different pressure zones and carry out accuracy tests for a number of samples at different ages. In this way a policy can be developed of when each type of meter under various circumstances should be replaced.

Overstrand Municipality needs to ensure that adequate funding is allocated under their Capital and Operational budgets towards the implementation of the WC/WDM initiatives. All external funding that could be utilised by Overstrand Municipality for this purpose should be sourced.

Overstrand Municipality's current water information database appears adequate from a water services management perspective (Metering of volume of water at source, WTWs, reservoirs and distribution zones). Overstrand Municipality is committed to continue with the metering of all the influent received at their WWTWs, the quantity of treated effluent re-used and the quantity of treated effluent returned to the Water Resource System. This information is critical for planning purposes with regard to WWTWs upgrading.

Overstrand Municipality is also committed to keep on updating the water balance models on a monthly basis in order to determine locations of wastage and to enable Overstrand Municipality to actively implement their WDM Strategy to reduce the percentage of NRW and water losses even further. The water balance will not directly lead to the reduction of the demand, but is an imperative management tool that will inform the implementation of demand- side management initiatives.

Business Element 9: Water Resources

Table C.26: Business Element 9: Water Resources (Topic 9)					
Overview of Topic	Status Quo and Knowledge Interpretation Statistics				
The volumes and sources of raw water supply to the WSA are presented in this topic, which also presents the status of the WSA's abstraction licenses and future needs. An overview of the WSA's monitoring programme for its raw water sources is presented. The topic also outlines the degree of industrial and 'raw' water use and effluent discharge within the WSA.	Item	Quality (%) assessment of current status against compliancy requirements	Quantity (%) an indication of the representation of the total area to address the issue	Future Plan Assessment	Strategy Assessment
	Sources and Volumes	75.00	75.00	-	-
	Monitoring	72.00	72.00	72.00	72.00
	Water Quality	70.00	70.00	70.00	70.00
	Wet Industries	60.00	20.00	40.00	40.00
	Raw Water consumers	80.00	80.00	80.00	80.00
	Industrial Consumer Units	40.00	20.00	40.00	40.00
	Permitted effluent releases	40.00	20.00	40.00	40.00
	TOTAL for Topic	62.43	51.00	57.00	57.00
Problem Definition Statements					
Nr	Statements - Short Comings	Possible Improvement / Project			
1	Registration of water use with the DWS.	Ensure all bulk water abstraction from the various sources is registered with the DWS and legalised.			
2	The safe yield of the existing resources supplying the Greater Hermanus with water will be exceeded in the nearby future.	Continue with the further augmentation of the Greater Hermanus water resources.			
3	The industrial consumers in Overstrand Municipality's Management Area are not yet monitored, with regard to the quality and volume of effluent discharged by them.	Ensure that all industries apply for the discharge of industrial effluent into the sewer system, to monitor the quality and volume of industrial effluent discharged and to implement the set of by-laws with regard to the discharge of industrial effluent into Overstrand Municipality's sewer system in order to determine whether the quality comply with the standards and criteria.			

Metering of all water consumption is one of the most significant steps in order to properly plan and manage water sources. Without metering no management is possible. Overstrand Municipality needs to continue with the monthly reading of all the existing bulk water meters.

The uncertainty in projected water-related climate change impacts is one of the biggest challenges facing water managers. The managers must understand how this uncertainty influences the management decisions to be made and that decisions must be appropriate to a possible range of scenarios. A critical tool in this regard is adaptive management, in which water resource systems are carefully monitored and management actions are tailored and revised in relation to the measured changes on the ground. One cannot predict climate change impacts with any certainty, and the recognition of this uncertainty must be built into all climate change response strategies.

Detail future water requirement projection models were developed for each of the distribution systems in Overstrand Municipality's Management Area. These models include the future projections up to 2040 and were calibrated by using historic billed metered consumption data and bulk metered abstraction data. The percentage NRW was determined for each of the distribution systems and growth in demand was based on agreed population and growth figures.

The projected future water requirements and the yield surplus or shortfalls are indicated in the table below for each of the systems.

Table C.27: Projected future water requirements and yield / licence surplus (+) / shortfall (-) based on WSDP model						
Distribution System	Model	PROJECTED FUTURE WATER REQUIREMENTS (Ml/a)				
		2020	2025	2030	2035	2040
Buffels River	3% Annual Growth	884.142	1 024.963	1 188.213	1 377.465	1 596.860
	5% Annual Growth	973.380	1 242.307	1 585.534	2 023.588	2 582.668
	WSDP Model	769.411	894.112	1 044.739	1 227.138	1 448.553
	Yield surplus (+) / shortfall (-)	+947.589	+822.888	+672.261	+489.862	+268.447
Kleinmond	3% Annual Growth	895.215	1 037.799	1 203.094	1 394.715	1 616.857
	5% Annual Growth	985.570	1 257.865	1 605.390	2 048.930	2 615.011
	WSDP Model	786.692	869.204	963.919	1 072.861	1 198.442
	Yield surplus (+) / shortfall (-)	+1 802.678	+1 720.166	+1 625.451	+1 516.509	+1 390.928
Greater Hermanus	4% Annual Growth	5 640.602	6 862.655	8 349.469	10 158.406	12 359.254
	6% Annual Growth	6 204.233	8 302.664	11 110.837	14 868.806	19 897.817
	WSDP Model	5 176.882	6 381.414	7 905.069	9 838.554	12 299.266
	Licence surplus (+) / shortfall (-)	+23.118	-1 181.414	-2 705.069	-4 638.554	-7 099.266
Stanford	3% Annual Growth	449.540	521.140	604.144	700.368	811.919
	5% Annual Growth	494.913	631.648	806.161	1 028.888	1 313.151
	WSDP Model	378.034	448.803	534.408	638.068	763.720
	Licence surplus (+) / shortfall (-)	+1 221.966	+1 151.197	+1 065.592	+961.932	+836.280
Greater Gansbaai	4% Annual Growth	1 838.436	2 236.738	2 721.334	3 310.919	4 028.239
	6% Annual Growth	2 022.139	2 706.078	3 621.343	4 846.174	6 485.274
	WSDP Model	1 598.890	1 958.054	2 407.057	2 969.706	3 676.325
	Yield surplus (+) / shortfall (-)	+1 169.091	+809.927	+360.924	-201.725	-908.344
Pearly Beach	3% Annual Growth	174.956	202.823	235.127	272.577	315.991
	5% Annual Growth	192.615	245.831	313.750	400.433	511.065
	WSDP Model	172.158	214.490	268.597	337.976	427.202
	Yield surplus (+) / shortfall (-)	+134.742	+92.410	+38.303	-31.076	-120.302
Baardskeerdersbos	2% Annual Growth	20.293	22.405	24.737	27.312	30.154
	4% Annual Growth	22.362	27.207	33.101	40.273	48.998
	WSDP Model	11.890	11.538	11.227	10.951	10.706
	Yield surplus (+) / shortfall (-)	+78.110	+78.462	+78.773	+79.049	+79.294
Buffeljags Bay	2% Annual Growth	5.992	6.615	7.304	8.064	8.904
	4% Annual Growth	6.603	8.033	9.774	11.891	14.467
	WSDP Model	5.513	5.654	5.799	5.949	6.103
	Yield surplus (+) / shortfall (-)	+22.869	+22.729	+22.583	+22.434	+22.279

The table below gives an overview of the years in which the annual water requirements is likely to exceed the sustainable yields from the various resources.

Table C.28: Years in which the annual water requirement will exceed the sustainable yields from the various resources				
Distribution System	Total sustainable Yield (x 10 ⁶ m ³ /a)	Annual Growth on 2015/2016 requirement (2%, 3% or 4%)	Annual Growth on 2015/2016 requirement (4%, 5% or 6%)	WSDP Projection Model
Buffels River	1.717	> 2040 (3%)	2031 (5%)	> 2040
Kleinmond	2.589	> 2040 (3%)	2039 (5%)	> 2040
Greater Hermanus	5.200*	2018 (4%)	2017 (6%)	2020
Stanford	1.600	> 2040 (3%)	> 2040 (5%)	> 2040
Greater Gansbaai	2.768	2030 (4%)	2025 (6%)	2033
Pearly Beach	0.307	2038 (3%)	2029 (5%)	2032
Baardskeerdersbos	0.090	> 2040 (2%)	> 2040 (4%)	> 2040
Buffeljags Bay	0.028	> 2040 (2%)	> 2040 (4%)	> 2040

Note * With Gateway, Camphill and Volmoed Well Fields fully operational according to the licensed volumes.

Overstrand Municipality continues with their groundwater monitoring programmes for Hermanus (Hemel & Aarde), Stanford, Buffeljags Bay and Baardskeedersbos. The DWS also updated their 2010/2011 All Towns Reconciliation Strategies during 2015 and the table below gives an overview of the recommended potential future water resources as included in the updated Strategies (**Comments by Mun.**):

Table C29: Potential future water resources for the various towns (DWS's All Towns Reconciliation Strategies)		
Distribution System	Option	Potential
Betty's Bay, Rooi Els and Pringle Bay	Re-use of water	<ul style="list-style-type: none"> The Buffels River area does not have its own WWTW and therefore the re-use water is not a feasible option for the area.
	Groundwater	<ul style="list-style-type: none"> Boreholes into the Peninsula Formation north of the Buffels River Dam are likely to yield between 5 – 10 l/s (provided the right structures are targeted), with good water quality (Class 0-1) being present. It is recommended that only 0.5 – 1 M m³/a is abstracted from the Peninsula Formation, in order to prevent any large drawdowns in the environmentally sensitive recharge and discharge areas. Any groundwater use in this area should in turn be carefully managed and monitored. 0.5 – 1 M m³/a will only meet the low-growth scenario shortfalls up to 2035, and other water sources will be required to meet the medium and high-growth scenario future shortfalls.
	Surface Water	<ul style="list-style-type: none"> The Buffels River Dam is currently supplying the towns of Betty's Bay, Rooi Els and Pringle Bay. It has a maximum safe yield of 1.617 million m³/a, which is sufficient for the current population as the current water requirement is only 0.925 million m³/a for the low-growth scenario and 0.943 million m³/a for the high-growth scenario. Betty's Bay is close to the lower Palmiet River making the river an obvious choice to supply the town when the water requirement exceeds the capacity of the current resources after 2040. The Rooi Els River is also another river considered for investigation if the Palmiet River may not be a good choice.
	Other Sources	<ul style="list-style-type: none"> Rainwater harvesting is a suitable option for the area, considering the MAP is acceptable for rainwater harvesting to be deemed feasible. This should be promoted for all new houses being built.
	Summary	<p>The current water sources have adequate supply to cater for the medium and longer term future water requirements. The following sources are identified as potential sources to augment the water supply (In order of priority and implementation sequence):</p> <ul style="list-style-type: none"> Continue with the implementation of the WC/WDM Strategy and measures. Groundwater development in the TMG Aquifer. Raising of Buffels River dam wall Abstraction from the Palmiet River Abstraction from the Rooi Els River
Kleinmond	Re-use of water	<ul style="list-style-type: none"> Re-use of water from the WWTW for domestic purposes can only be allowed if the existing works is upgraded to a suitable process technology that can provide a 95% assurance of supply in terms of quality requirements.
	Groundwater	<ul style="list-style-type: none"> Future groundwater targets should include the confined Peninsula Formation to the NE of the golf course along a NE-SW orientated normal fault, where high yields and good quality water (Class 0-1) can be expected. The unconfined Skurweberg Formation can also be targeted in the area, although the yields are likely to be lower and higher iron concentrations might be present.
	Surface Water	<p>A study was carried out on the Palmiet River by DWS for further development of the surface water resources with the following recommendations:</p> <ul style="list-style-type: none"> Transferring water from the Kogelberg Dam to the Steenbras Dams and this was implemented the same year and provided 22.5 Mm³/a at 1:50 year assurance. Raising of the current Eikenhof Dam to increase its capacity from 22.5 Mm³/a to 30 Mm³/a and this would provide additional yields of 4.5 Mm³/a for the Palmiet River area. <p>The total storage would be only 27% of the MAR of 301.8 Mm³, but the ecological freshwater flow requirements of the Palmiet River would limit further development.</p> <p>The Municipality is currently in discussions with Overberg Water to investigate the possibility of a regional scheme with Overberg Water for the bulk supply from the Theewaterskloof Dam to Kleinmond.</p>
	Other Sources	<ul style="list-style-type: none"> Rainwater harvesting can be a suitable option for the area, considering the mean annual precipitation is acceptable for rainwater harvesting.
	Summary	<p>The current water sources have adequate supply to cater for the medium and longer term future water requirements. The following sources are identified as potential sources to augment the water supply in the future if required (In order of priority and implementation sequence):</p>

Table C29: Potential future water resources for the various towns (DWS’s All Towns Reconciliation Strategies)		
Distribution System	Option	Potential
		<ul style="list-style-type: none"> Continue with the implementation of the WC/WDM Strategy and measures. Increase allocation from the Palmiet River, when required. Regional scheme with Overberg Water for possible bulk supply from the Theewaterskloof Dam.
Hermanus	Re-use of water	<ul style="list-style-type: none"> Treated effluent is currently used at the Hermanus WWTW for the irrigation of the Hermanus golf course, sports fields at the High School, the cricket club and Mount Pleasant, Bowling Club, Curro School and Zwelihle School. Water users could be supplied with up to 4 million m³/a by 2030, assuming that 50% of the bulk water consumption is available for re-use.
	Groundwater	<ul style="list-style-type: none"> PSPs were appointed to proceed with groundwater investigation and exploration projects. Five target options for potential TMG wellfield sites have been identified and three of these have been investigated and implemented to various stages of progress. Gateway Well field (Within the town of Hermanus) Camphill Well field (In the Hemel en Aarde Valley) Volmoed Well field (In the Hemel en Aarde Valley) A new pipeline from the Camphill and Volmoed boreholes to the Preekstoel WTW was constructed and the new boreholes were incorporated into the system. The licence for these two wellfields was also received. The Gateway monitoring programme is also applied at Camphill and Volmoed wellfield, and results are presented to the monitoring committee. The TMG in the greater Hermanus area is subdivided into hydraulically bound fault units. The Gateway wellfield targets “Structural Sub-Area 1” which receives recharge from “Structural Sub-Area 3” and these are disconnected from “Structural Sub-Area 2”, which Camphill and two boreholes of Volmoed penetrate. The total groundwater stored in the Peninsula within these sub-areas is 2 876 million m³ and 1 882 million m³ respectively. Base on the resource potential, an unexploited additional resource of 3.09 million m³/a is available from the Peninsula aquifer alone in the area.
	Surface Water	<ul style="list-style-type: none"> The only feasible option identified in the Western Overberg Coastal Zone Water Supply Study (DWS, 2000) was the construction of the Hartebeest River Dam. The feasibility study however showed that the costs were significantly higher than the identified groundwater options that were implemented by the Municipality. The Municipality is currently in discussions with Overberg Water to investigate the possibility of a regional scheme with Overberg Water for the bulk supply from the Theewaterskloof Dam or from the Palmiet River to Hermanus.
	Other Sources	<ul style="list-style-type: none"> Desalination of seawater is seen as a potential future supply source for Hermanus. A feasibility study was undertaken and the design for a pilot plant is available for implementation when required.
	Summary	<p>Hermanus will experience a shortfall by 2030 in water supply under all growth scenarios. This will increase to 2.874 million m³/a by 2040 under the low-growth scenario and to 8.632 million m³/a under the high-growth scenario. The following sources are identified as potential sources to augment the water supply in the future if required (In order of priority and implementation sequence):</p> <ul style="list-style-type: none"> Full implementation of the WC/WDM Strategy and measures. Develop groundwater to its full potential (Licenced volumes). Regional scheme with Overberg Water for possible bulk supply from the Theewaterskloof Dam or the Palmiet River. Direct and indirect potable water re-use. Desalination of seawater.
Stanford	Re-use of water	<ul style="list-style-type: none"> Re-use of water from the WWTW for domestic purposes can only be allowed if the existing works is upgraded to a suitable process technology that can provide a 95% assurance of supply in terms of quality requirements.
	Groundwater	<ul style="list-style-type: none"> The Municipality explored the groundwater potential of the Kouevlakte area since 2009, through exploration borehole siting and drilling. Two newly drilled boreholes were put into operation and new bulk supply pipelines were constructed during the 2011/2012 financial year in order to connect the two newly drilled boreholes to the existing water reticulation network. The Stanford Aquifer Licence authorises Overstrand Municipality to abstract up to 1.6 million m³/a groundwater from the Stanford Aquifer.
	Surface Water	<ul style="list-style-type: none"> The Klein River runs through Stanford into the Klein River Lagoon, which is a sensitive and protected environment. The low flow of the Klein River at Stanford is close to zero during summer, due to heavy irrigation abstractions upstream of the lagoon.
	Other Sources	<ul style="list-style-type: none"> Rainwater harvesting cannot be a suitable option for Stanford, considering the mean annual precipitation is too low for rainwater harvesting.
	Summary	<p>The current water sources have adequate supply to cater for the medium and longer term future water requirements, if the Municipality continues with the full implementation of</p>

Table C29: Potential future water resources for the various towns (DWS's All Towns Reconciliation Strategies)		
Distribution System	Option	Potential
		<p>their WC/WDM Strategy. The following sources are identified as potential sources to augment the water supply in the future (In order of priority and implementation sequence):</p> <ul style="list-style-type: none"> Continue with the implementation of the WC/WDM Strategy and measures. Further Kouevlakte Wellfield development, if required.
Greater Gansbaai	Re-use of water	<ul style="list-style-type: none"> The existing WWTW is in a good physical condition, but the wastewater will need further treatment to meet potable standards.
	Groundwater	<ul style="list-style-type: none"> The best groundwater targets in the area are the TMG and Bredasdorp Group. The unconfined Peninsula Formation could be targeted along the coastline, however there is a risk of saltwater intrusion, as well as groundwater pollution from the Gansbaai landfill site and WWTW (both of which are highly monitored at present). Gravels of the Klein Brak Formation (Bredasdorp Group) form a significant groundwater resource in the area, however abstraction from this unit could put the springs that are currently used by Gansbaai at risk. The Bredasdorp Group sediments are also highly susceptible to anthropogenic pollution and any future boreholes need to be monitored for contamination. The confined Peninsula Formation can be targeted at depth in the vicinity of the Franskraal and Kraaibosch dams. The risk of both salt-water (negligible at Kraaibosch Dam) and anthropogenic contamination is reduced in both cases, however monitoring of salt-water intrusion will still be essential at any borehole into the Peninsula Formation at Franskraal Dam. Borehole yields are likely to be in the range of 5 – 10 l/s and water quality is expected to be good.
	Surface Water	<ul style="list-style-type: none"> The small size of the rivers, the ecological freshwater flow requirements of the estuaries and the high salinity of the water in some of the rivers are limiting factors for further development of the surface water resources. Other current water sources for the town include the Franskraal Dam and the Klipgat and De Kelders springs. The new Kraaibosch Dam will provide for Gansbaai and environs until about 2030 and there is no need for additional water resources to be developed in the area.
	Other Sources	<ul style="list-style-type: none"> Rainwater harvesting can be a suitable option for the area, considering the mean annual precipitation is acceptable for rainwater harvesting.
	Summary	<p>The current water sources have adequate supply to cater for the medium and longer term future water requirements. The new Kraaibosch Dam will also provide for Gansbaai until 2030. The following sources are identified as potential sources to augment the water supply in the future if required (In order of priority and implementation sequence):</p> <ul style="list-style-type: none"> Continue with the implementation of the WC/WDM Strategy and measures. Groundwater development in the TMG Aquifer. Re-use of water
Pearly Beach	Re-use of water	<ul style="list-style-type: none"> The treated effluent from the oxidation pond system, once constructed, will be used for the irrigation of the sports fields. The provision of water for re-use for any other purpose than irrigation is not a feasible option within the short to medium term, considering the small quantities available.
	Groundwater	<p>Three groundwater options exist for Pearly Beach to meet future annual shortfalls.</p> <ul style="list-style-type: none"> Either the Peninsula Formation or the Skurweberg Formation could be explored along the Groenkloof Fault, however this may put the presently used springs at risk. The second TMG option would be the exploration of the Peninsula Formation in a semi-confined state to the east of the Kraaibosch Dam, if the dam is to be used to augment the supply to Pearly Beach. Yields of 5 – 10 l/s can be expected from the two TMG aquifers if either option is followed, with good water quality (Class 0-1). However, use of this resource adjacent to the dam may be in future competition with Gansbaai and surrounding areas that use Kraaibosch Dam. The most immediate groundwater option would be the exploration of the Bredasdorp Group sedimentary units and the area has the presence of the Klein Brak Formation palaeochannel gravel deposits. Thick palaeochannel deposits can yield boreholes of between 2 – 5 l/s. Two 10 l/s boreholes or four 5 l/s boreholes would meet all scenarios except the high shortfall scenario for 2040, where an additional 10 l/s borehole may be required.
	Surface Water	<ul style="list-style-type: none"> The Kraaibosch Dam is a potential option to augment the supply for Pearly Beach. This can be achieved by directly linking the Pearly Beach supply to the Kraaibosch Dam. Another option would be to link the Pearly Beach supply to the Gansbaai supply system. A Service Level Agreement is also in place for the supply of 0.26 Ml/day from the Koekemoer Dam free of charge to the Municipality. Raising of the Koekemoer Dam wall is

Table C29: Potential future water resources for the various towns (DWS's All Towns Reconciliation Strategies)		
Distribution System	Option	Potential
		being investigated' which may result in increased allocation to the Overstrand Municipality.
	Other Sources	<ul style="list-style-type: none"> Rainwater harvesting cannot be a suitable option for Pearly Beach, considering the mean annual precipitation is too low for rainwater harvesting.
	Summary	<p>The current water sources have adequate supply to cater for the medium and longer term future water requirements up to 2030. The following sources are identified as potential sources to augment the water supply in the future if required (In order of priority and implementation sequence):</p> <ul style="list-style-type: none"> Continue with the full implementation of the WC/WDM Strategy and measures. Groundwater development, if required.
Baardskeerdersbos	Re-use of water	<ul style="list-style-type: none"> The re-use of water is not a suitable supply option for Baardskeerdersbos, as there is no formal sewerage system and WWTW available.
	Groundwater	<ul style="list-style-type: none"> The best groundwater target option is the fractured sandstones and quartzites of the Peninsula Formation, in a confined or unconfined state along the Baardskeerdersbos Fault. Two boreholes were drilled in 2008 targeting the Peninsula Formation, with blow yields of 13.1 and 1.8 l/s. The higher yielding borehole was tested and a sustainable yield of 5 l/s over 24 hours or 8 l/s over 8 hours was determined. Shortfalls are not expected for the next 25 years in the town; however if water is required the Peninsula Formation can be further explored along the fault with similar yields.
	Surface Water	<p>Potential future surface water sources for the town, as identified in the Breede WMA ISP (DWS, 2004), are the utilisation of:</p> <ul style="list-style-type: none"> A tributary of the Boesmans River, and The Uilkraals River
	Other Sources	<ul style="list-style-type: none"> Rainwater harvesting is an appropriate option for the area, considering that the MAP is acceptable for rainwater harvesting to be feasible.
	Summary	<p>The current water sources have adequate supply to cater for the medium and longer term future water requirements. If the town may require alternative water resource options in the future, the following sources were identified as potential sources to augment future water requirements (In order of priority and implementation sequence):</p> <ul style="list-style-type: none"> Continue with the full implementation of the WC/WDM Strategy and measures. Further groundwater development, if required.
Buffeljags Bay	Re-use of water	<ul style="list-style-type: none"> The re-use of water is not a suitable option for the town, as there is no formal sewerage system and WWTW available.
	Groundwater	<ul style="list-style-type: none"> The town is currently supplied by one borehole, with a sustainably supply 0.028 million m³/a. Two other boreholes were also previously drilled into the Peninsula Formation near the shoreline and have low sustainable yields of 0.1 and 0.5 l/s. Two further groundwater target options for the town, if required, could be the shelly gravels of the Klein Brak Formation and the fractured quartzites and sandstones of the Skurweberg Formation in the Buffeljags Mountains. The Buffeljags Mountains are relatively elevated in comparison to the rest of the region and higher recharge into the unconfined Skurweberg Formation can be expected there in comparison to the deeper confined Peninsula Formation further south-west. Higher yields of between 2-5 l/s can be expected (with a good water quality of Class 0-1), with a reduced risk of salt-water intrusion. Boreholes into the Klein Brak Formation and overlying Quaternary sediment are likely to have yields of 5 l/s, however Quaternary aquifers can be susceptible to over abstraction and anthropogenic contamination.
	Surface Water	<ul style="list-style-type: none"> There are no surface water sources in close proximity to Buffeljags Bay
	Other Sources	<ul style="list-style-type: none"> Rainwater harvesting is not a feasible option due to the low annual rainfall. Desalination of seawater or brackish groundwater could be an option, if no other sources are available.
	Summary	<p>The current water sources have adequate supply to cater for the medium and longer term future water requirements. If the town may require alternative water resource options in the future, the following sources are identified as potential sources to augment future requirements (In order of priority and implementation sequence):</p> <ul style="list-style-type: none"> Continue with the full implementation of the WC/WDM Strategy and measures. Further groundwater development, if required.

Buffels River and Kleinmond Areas: Overstrand Municipality completed a detail investigation during 2010/2011 of the water resources for the area from Rooi Els to Kleinmond and the recommendations from the Study will be implemented.

The Municipality is also currently in discussions with Overberg Water to investigate the possibility of a regional scheme with Overberg Water for the bulk supply from the Theewaterskloof Dam to Kleinmond.

Greater Hermanus Area: The Gateway, Camphill and Volmoed wellfields were developed by Overstrand Municipality as additional groundwater resources for the greater Hermanus Area. These boreholes are in production and the Municipality keep on implementing their Groundwater Monitoring Programmes for all their wellfields, in order to comply with the License conditions. The Municipality further applied for a License review to the DWS, which may include amended license conditions for the Gateway Wellfield.

A detail feasibility study was also completed during the 2010/2011 financial year for the re-use of treated effluent from the Hermanus WWTWs. An ORIO application was prepared and submitted for the Hermanus Reclamation Project. The Municipality will also start investigating various desalination options in future.

The Municipality is also currently in discussions with Overberg Water for possible bulk supply from the Theewaterskloof Dam or the Palmiet River to Hermanus.

Stanford: The Municipality explored the groundwater potential of the Kouevlakte area since 2009, through exploration borehole siting and drilling. Two newly drilled boreholes were put into operation and new bulk supply pipelines were constructed during the 2011/2012 financial year in order to connect the two newly drilled boreholes to the existing water reticulation network. Irrigation of sports fields with treated effluent from the Stanford WWTW was also investigated.

Greater Gansbaai: A new Reverse Osmosis Filtration Plant was constructed during the 2010/2011 financial year in order to fully utilise the Klipgat and Grotte resources and improve the quality of the water.

Pearly Beach: Overstrand Municipality is committed to manage the dams efficiently. Other future resource options include groundwater development and the possible Kraaibosch scheme.

Baardskeerdersbos: Two new boreholes were recently commissioned and the supply will be adequate to meet the medium- and long-term future water requirements. The supply from the stream will only be utilised as a back-up supply when necessary.

Buffeljags Bay: The current supply from the borehole is adequate to supply the medium- and long-term future water requirements. Eskom completed a new electricity connection to the borehole.

Water Quality: The compliance of the E.Coli monitoring frequency in the water distributions systems of Overstrand Municipality is indicated in Table A.33, in terms of the minimum requirements of SANS: 241-2:2015. It can be noted from the table that the number of monthly microbiological samples taken by Overstrand Municipality for each of the distribution systems were adequate for the 2015/2016 financial year.

Operational monitoring of process indicators shall comply with the minimum requirement specified in SANS 241:2015 for characterising raw water quality, on-going levels of operational efficiency in a water treatment system and acceptable final water quality to the point of delivery, as summarised below.

Determinand	Raw Water	Final Water	Distribution System
Conductivity or total dissolved solids	Daily	Daily	Not applicable
pH value	Daily	Once per shift ^a	Fortnightly
Turbidity	Daily	Once per shift ^a	Fortnightly
Disinfectant residuals	Not applicable	Once per shift ^a	Fortnightly
E.Coli (or faecal coliforms) ^b	Not applicable	Weekly	Fortnightly but dependent on population served ^d
Heterotrophic plate count ^c	Not applicable	Weekly	Fortnightly
Treatment chemicals ^d	Not applicable	Monthly	Not applicable

Table C.30: Minimum monitoring frequency for process risk indicators (SANS241-2:2015: Table 1)			
Determinand	Raw Water	Final Water	Distribution System
a: A shift is defined as an eight-hour work period.			
b: If non-compliant with the numerical limits specified in SANS 241-1, implement corrective action and immediate follow-up sampling at an increased sampling frequency.			
c: If non-compliant with the numerical limits specified in SANS 241-1, implement corrective action and follow-up sampling.			
d: Includes all risk determinands that are added or formed as a result of the use of treatment chemicals (for example aluminium, iron and chlorine). If non-compliant with the numerical limits specified in SANS 241-1 in the final water, the distribution system monitoring frequencies of Table 3 in SANS241-2:2015 apply.			

Industrial Consumers: A “Form of Application for Permission to Discharge Industrial Effluent into the Municipality’s sewer” is included in Overstrand Municipality’s water services by-laws and all industries now need to formally apply for the discharge of industrial effluent into the sewer system.

The following gaps with regard to industrial consumers and their discharge of effluent into Overstrand Municipality’s sewer system were identified (although there are not many industries connected to Overstrand Municipality’s sewer systems):

- Industrial effluent discharge into the sewer system needs to be quantified.
- All industries need to formally apply for the discharge of industrial effluent into the sewer system.
- Regular sampling of the quality of industrial effluent discharged into the sewer system is necessary.
- Any returns from the industries direct to the Water Resource System needs to be metered.

Overstrand Municipality is committed to ensure that all industries apply for the discharge of industrial effluent into the sewer system, to monitor the quality and volume of industrial effluent discharged and to implement the set of by-laws with regard to the discharge of industrial effluent into Overstrand Municipality’s sewer system in order to determine whether the quality comply with the standards and criteria

The industrial consumers in Overstrand Municipality’s Management Area are not yet monitored, with regard to the quality and volume of effluent discharged by them. Overstrand Municipality needs to adopt an approach whereby the various parameters at all the industrial consumers are monitored, as well as volumetric monitoring at the larger users. Adaptation of procedures must be undertaken in accordance with any changes to the wastewater discharge criteria set by DWS. It will also be necessary to consider limits above which volumetric monitoring will be necessary at new industries and existing smaller industries, where expansion is likely to take place.

All current industrial consumers need to apply for discharge permits and they must supply and maintain a flow meter measuring the volume of water that is discharged into Overstrand Municipality’s sewerage system. It is also recommended that the accounts generated by the Municipality include for each cycle a summary of the COD and flow results to enable industries to keep a record and look at ways of improving where possible.

Business Element 10: Financial

Table C.31: Business Element 10: Financial Profile (Topic 10)					
Overview of Topic	Status Quo and Knowledge Interpretation Statistics				
The financial profile is aligned with the Water Services Standard Chart of Accounts [SCOA] which addresses the expenditure, revenue & capex for the water services function.	Item	Quality (%) assessment of current status against compliance requirements	Quantity (%) an indication of the representation of the total area to address the issue	Future Plan Assessment	Strategy Assessment
	Capital Expenditure	80.00	80.00	60.00	60.00
	Operation and Maintenance Budget	60.00	80.00	60.00	60.00
	Tariff & Charges	80.00	80.00	60.00	60.00
	Free Basic Services	80.00	80.00	80.00	80.00
	Metering, Billing, Income and Sales	80.00	80.00	80.00	80.00
	TOTAL for Topic	76.00	80.00	68.00	68.00
Problem Definition Statements					
Nr	Statements - Short Comings	Possible Improvement / Project			
1	Maintenance activities have been increasingly focused on reactive maintenance as a result of the progressive deterioration and failure of old infrastructure. Consequently, there has been dilution of preventative maintenance of other infrastructure. Expenditure on repairs and maintenance does not keep track with the increase in asset values as well as the ageing of the infrastructure.	An Integrated Maintenance Plan is necessary that optimises maintenance activities, appropriate to its specific needs and the local environment, and identifies the systems and resources required to support this. A regime of planned preventative maintenance should be established for all infrastructure assets classified as critical and important in the Asset Register. The maintenance management system will enable Overstrand Municipality to better manage its risks, and more effectively plan and prioritise the wave of renewals that are going to be required over the next 20 years.			
2	Monitoring of effluent discharged by industrial consumers and the billing of industrial consumers according to the quality of effluent discharged by them.	The quantity of wastewater discharged by the industrial consumers into Overstrand Municipality's sewer system needs to be metered and the quality needs to be monitored regularly by Overstrand Municipality. Industrial consumers need to be billed according to the quality of effluent discharged by them.			

The management of key financial and governance areas is achieved by focusing on the following:

- Reducing the levels of outstanding debt owed to the Municipality, to assist with service delivery spending and maintaining a healthy cash flow;
- Maintaining an unqualified audit for the Municipality by resolving audit findings and improving financial governance; and
- Maintaining a good credit rating to ensure favourable lending rates and terms.

The financial services challenges of Overstrand Municipality and the actions to address these challenges were indicated as follows in the Municipality's 2015/2016 Annual Report.

Table C.32: Financial viability challenges and actions to address these challenges	
Challenge	Actions to address challenge
Priorities in terms of Management Information Systems	An optimal solution, with reference to the Municipal Regulations on a Standard Chart of Accounts in terms of Notice 312 of 2014, Government Gazette No. 37577, which defines as follows: "minimum system requirements" means those specifications for an integrated software solution, incorporating an enterprise resource management system determined in terms of regulation 7.
Strategic considerations	A review of existing systems and procedures within the directorate is identified as a priority, in order to ensure increased productivity and efficiency.

Overstrand Municipality's financial viability performance in terms of the National Key Performance indicators is summarised in the table below (2015/2016 Annual Report).

Description	Basis of calculation	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016
Cost coverage	Available cash + Investments / Monthly fixed operational expenditure	5.83	3.49	2.31	2.47	3.84
Service debtors to revenue	Total outstanding service debtors / annual revenue received for services	13.3%	11.8%	10.4%	10.42%	10.43%
Debt coverage	Total Operating Revenue – Operating Grants Received / Debt service payments due within the financial year	17.63	16.37	16.76	16.97	17.77

Overstrand Municipality has implemented the following financial management reforms to ensure that resources are used efficiently and in order to achieve their financial objectives:

- Efficient costing of services and projects by identifying and managing the cost drivers.
- Active use of forecasts and projections to manage cash flow efficiently.
- Active monitoring of income and expenditure against pre-determined budget targets / projections.
- Set financial benchmarks and monitor performance against them.
- Development and implementation of a long term financial plan to ensure the financial viability of the municipality is maintained.

Capital Budget: The updated Water and Sewer Master Plans (June 2016) recommends upgrades to the values indicated in the tables below in the foreseeable future in order to accommodate development and population growth according to the SDF (2015/2016 Values, which include P&Gs, Contingencies and Fees, but exclude EIA studies, registration of servitudes and / or land acquisition and VAT).

System	Component	2017-2020	2021-2025	2026-2030	> 2030	Total
Buffels River	Reticulation	R4 676 420	R4 349 660	R540 540	R0	R9 566 620
	Reservoirs and Pump Stations	R19 480 720	R3 766 000	R0	R0	R23 246 720
	WDM	R317 460	R0	R0	R0	R317 460
	Total	R24 474 600	R8 115 660	R540 540	R0	R33 130 800
Kleinmond	Reticulation	R1 211 700	R2 253 440	R716 800	R522 060	R4 704 000
	Reservoirs and Pump Stations	R0	R0	R0	R5 914 440	R5 914 440
	WDM	R50 000	R0	R0	R0	R50 000
	Total	R1 261 700	R2 253 440	R716 800	R6 436 500	R10 668 440
Greater Hermanus	Reticulation	R19 233 480	R8 387 820	R8 412 320	R894 180	R36 927 800
	Reservoirs and Pump Stations	R39 014 080	R15 321 320	R27 462 680	R2 488 080	R84 286 160
	WDM	R700 000	R0	R0	R0	R700 000
	Total	R58 947 560	R23 709 140	R35 875 000	R3 382 260	R121 913 960
Stanford	Reticulation	R3 268 580	R0	R0	R310 660	R3 579 240
	Reservoirs and Pump Stations	R0	R4 949 000	R0	R0	R4 949 000
	WDM	R100 000	R0	R0	R0	R100 000
	Total	R3 368 580	R4 949 000	R0	R310 660	R8 628 240
Greater Gansbaai	Reticulation	R19 947 760	R9 838 780	R22 556 800	R1 877 120	R54 220 460
	Reservoirs and Pump Stations	R12 120 500	R18 340 700	R47 767 860	R5 984 300	R84 213 360
	WDM	R500 000	R0	R0	R0	R500 000
	Total	R32 568 260	R28 179 480	R70 324 660	R7 861 420	R138 933 820
Pearly Beach	Reticulation	R0	R166 460	R853 160	R528 640	R1 548 260
	Reservoirs and Pump Stations	R0	R0	R5 228 160	R0	R5 228 160
	WDM	R100 000	R0	R0	R0	R100 000

Table C.34: Future Water Infrastructure required (June 2016 Water Master Plan)						
System	Component	2017-2020	2021-2025	2026-2030	> 2030	Total
	Total	R100 000	R166 460	R6 081 320	R528 640	R6 876 420
Baardskeerdersbos	Reticulation	R0	R0	R0	R0	R0
	Reservoirs and Pump Stations	R0	R0	R0	R0	R0
	WDM	R0	R0	R0	R0	R0
	Total	R0	R0	R0	R0	R0
Buffeljags Bay	Reticulation	R0	R0	R0	R0	R0
	Reservoirs and Pump Stations	R0	R0	R0	R0	R0
	WDM	R0	R0	R0	R0	R0
	Total	R0	R0	R0	R0	R0
Total	R120 720 700	R67 373 180	R113 538 320	R18 519 480	R320 151 680	

Table C.35: Future Sewerage Infrastructure required (June 2016 Sewer Master Plan)						
System	Component	2017-2020	2021-2025	2026-2030	> 2030	Total
Buffels River	Drainage network	R80 975 200	R37 733 600	R10 949 000	R0	R129 657 800
	Pump Stations and Rising Mains	R8 153 500	R4 537 700	R2 922 200	R0	R15 613 400
	Bulk sewerage infrastructure	R37 480 400	R7 779 200	R5 067 000	R0	R50 326 600
	Total	R126 609 100	R50 050 500	R18 938 200	R0	R195 597 800
Kleinmond	Drainage network	R45 348 000	R2 355 200	R0	R0	R47 703 200
	Pump Stations and Rising Mains	R98 200	R0	R0	R0	R98 200
	Bulk sewerage infrastructure	R0	R0	R236 300	R0	R236 300
	Total	R45 446 200	R2 355 200	R236 300	R0	R48 037 700
Greater Hermanus	Drainage network	R43 715 200	R35 429 700	R10 438 100	R3 698 700	R93 281 700
	Pump Stations and Rising Mains	R4 088 400	R7 621 100	R7 506 500	R0	R19 216 000
	Bulk sewerage infrastructure	R0	R0	R0	R0	R0
	Total	R47 803 600	R43 050 800	R17 944 600	R3 698 700	R112 497 700
Stanford	Drainage network	R5 240 800	R4 974 500	R337 800	R0	R10 553 100
	Pump Stations and Rising Mains	R1 492 200	R658 700	R775 600	R0	R2 926 500
	Bulk sewerage infrastructure	R0	R0	R0	R0	R0
	Total	R6 733 000	R5 633 200	R1 113 400	R0	R13 479 600
Greater Gansbaai	Drainage network	R39 921 700	R33 592 600	R36 205 000	R13 615 200	R123 334 500
	Pump Stations and Rising Mains	R4 209 900	R7 383 800	R11 897 100	R8 812 200	R32 303 000
	Bulk sewerage infrastructure	R4 264 900	R7 072 600	R0	R0	R11 337 500
	Total	R48 396 500	R48 049 000	R48 102 100	R22 427 400	R166 975 000
Pearly Beach	Drainage network	R0	R7 305 500	R15 805 800	R0	R23 111 300
	Pump Stations and Rising Mains	R486 000	R2 605 000	R2 422 500	R0	R5 513 500
	Bulk sewerage infrastructure	R0	R0	R0	R0	R0
	Total	R486 000	R9 910 500	R18 228 300	R0	R28 624 800
Baardskeerdersbos	Drainage network	R0	R0	R2 957 100	R0	R2 957 100
	Pump Stations and Rising Mains	R0	R0	R0	R0	R0
	Bulk sewerage infrastructure	R0	R0	R730 800	R0	R730 800
	Total	R0	R0	R3 687 900	R0	R3 687 900
Buffeljags Bay	Drainage network	R0	R0	R300 800	R0	R300 800
	Pump Stations and Rising Mains	R0	R0	R0	R0	R0
	Bulk sewerage infrastructure	R0	R0	R730 800	R0	R730 800
	Total	R0	R0	R1 031 600	R0	R1 031 600
Total	R275 474 400	R159 049 200	R109 282 400	R26 126 100	R569 932 100	

The previous two tables are for the internal systems and exclude the bulk infrastructure needs (Augmentation of Water Sources, Bulk Pipelines and the upgrading of WTWs and WWTWs).

The water supply systems in most of the Municipalities are under increasing threat of widespread failure, due to inadequate rehabilitation and maintenance of the networks. This is also the case in Overstrand Municipality's Management Area with 49.0% of the water infrastructure and 37.2% of the sewerage infrastructure which has been consumed. This is placing considerable strain on Overstrand Municipality's maintenance operations. The real solution is for the Municipality to continue with their current commitment towards a substantial and sustained programme of capital renewal works (Rehabilitation and Maintenance of the existing infrastructure).

The replacement value of the water infrastructure that is expected to come to the end of its useful life over the next 20 years is around R660 million (an average of R33 million per year) and for sewerage infrastructure the value is R245 million (an average of R12.2 million per year). The renewals burden is set to continue to increase sharply over the next 15 years, as is currently the case. Water and sewerage infrastructure assets with a total current replacement value of about R575.5 million and R79.3 million will be reaching the end of their useful life over the next 10 years and will need to be replaced, rehabilitated or reconstructed.

It is therefore important for the Council to continue with their current committed capital renewal programme and to increase the budgets allocated towards the maintenance and rehabilitation of the existing infrastructure. The extent to which each type of water and sewerage infrastructure asset has been consumed was previously summarised. The Municipality's dedicated renewal programmes need to target the poor and very poor assets. If this is not done, there is a risk that the ongoing deterioration will escalate to uncontrollable proportions, with considerable impact on customers, the economy of the area and the image of Overstrand Municipality.

The recommended implementation strategies with regard to capital funds are as follows:

- To focus strongly on revenue collection, because most of the funds for the water and sewerage capital infrastructure projects are from Overstrand Municipality's own funding sources. Actively implement the Customer Care, Credit Control and Debt Collection Policy in order to minimize the percentage of non-payment of municipal services.
- To identify all possible sources of external funding over the next number of years to assist Overstrand Municipality to address the bulk infrastructure backlogs that exist in the various towns and to ensure adequate rehabilitation and maintenance of the existing infrastructure.
- Develop AMPs for all water and sewerage infrastructure, which will indicate the real replacement values, the service life of the assets and the funds required to provide for adequate asset replacement.
- To carefully balance cost and affordability of future capital budgets.

Operational Budget: Maintenance activities have been increasingly focused on reactive maintenance as a result of the progressive deterioration and failure of old infrastructure. Consequently, there has been dilution of preventative maintenance of other infrastructure. Expenditure on repairs and maintenance does not keep track with the increase in asset values as well as the ageing of the infrastructure.

An Integrated Maintenance Plan is necessary that optimises maintenance activities, appropriate to its specific needs and the local environment, and identifies the systems and resources required to support this. A regime of planned preventative maintenance should be established for all infrastructure assets classified as critical and important in the Asset Register. A maintenance management system was recently established, which enable Overstrand Municipality to better manage its risks, and more effectively plan and prioritise the wave of renewals that are going to be required over the next 20 years.

It is important to note that the maintenance budget requirements are going to increase over the next twenty years in real terms, in line with the envisaged pace of development and the upgrading of the bulk infrastructure. It is estimated that the budget requirements will double over this period.

The recommended implementation strategies with regard to operational budgets are as follows:

- Develop an AMP, which will indicate the real replacement values and service lives of the assets and the funds required to provide for adequate operation and maintenance of the infrastructure.
- The new depreciation charges will have to form part of the operating budget and subsequent tariffs, linked to a ring-fenced asset replacement fund.
- It is critical for Overstrand Municipality to ensure that sufficient funding is allocated towards an asset replacement fund, in order to ensure adequate rehabilitation and maintenance of the existing infrastructure.
- Water services operational surpluses have to be allocated to essential water services requirements.

Tariff and Charges: The table below gives an overview of the block step water tariffs of Overstrand Municipality (Vat Excluded), with some comments on the specific blocks.

Block (Kl / month)	16/17	15/16	14/15	13/14	Comments
0 – 6 *	R4-04	R3-62	R3-25	R3-07	Free Basic Water
7 - 18	R9-66	R9-12	R8-60	R8-11	Low volume use
19 - 20	R15-67	R14-79	R13-95	R13-16	
21 - 30					Typical use volume, including garden irrigation
31 - 45	R31-34	R22-76	R21-48	R20-26	Above average use, including garden irrigation
46 - 60	R31-34	R29-57	R27-90	R26-32	
61 - 100	R41-79	R39-43	R37-20	R35-09	Wasteful use and / or severe garden irrigation
> 100					Significant waste and / or unnecessary garden irrigation

Note: * Free basic water is only provided to indigent households from 2013/2014 onwards.

Overstrand Municipality will continue with their step block tariff system for water services. Wasteful or inefficient use of water is discouraged through increased tariffs. Overstrand Municipality's current block step water tariff structure adequately promotes the efficient use of water by consumers and discourages the wastage of water. Overstrand Municipality also started in 2010/2011 with the implementation of volumetric sewerage tariffs. The quantity of wastewater discharged from the industrial consumers into Overstrand Municipality's sewer system needs to be metered and the quality needs to be monitored regularly by Overstrand Municipality.

The following tariff structure characteristics should remain in Overstrand Municipality's Structure in order to ensure efficient water use.

- Maintain a rising block tariff structure.
- Keep number of blocks in the tariff to a minimum. One block to address free basic water (the first step) and another to address the "cut-off" volume where consumers are discouraged to use water above this monthly volume (highest block) are required. In addition another three blocks could be used to distinguish between low users, typical use or high water use.
- The volumetric steps should be kept the same for all the areas within Overstrand Municipality's Management Area.
- The cost of water in the maximum step should severely discourage use in this category. The volumetric use for the highest category is 60 kl/month, above which residential water use is considered to be wasteful or unnecessary. Garden use requiring in excess of this volume should be reduced in accordance with xeriscape practices.

The tariff codes of Overstrand Municipality were reviewed to differentiate between residential, commercial and industrial users. These codes can be further reviewed so that distinction can also be made between user types for Municipal Usage (e.g. parks, sports, fire-fighting, etc.). A code should also be used to uniquely describe the water usage by schools.

The MFMA Circular No.78 of 7 December 2015 stipulated the following w.r.t. the water and sanitation tariff increases:

Municipalities should consider the full cost of rendering the water and sanitation services when determining tariffs related to these two services. If the tariffs are low and result in the municipality not recovering their full costs, the municipality should develop a pricing strategy to phase-in the necessary tariff increases in a manner that spreads the impact on consumers over a period of time.

Municipalities are urged to design an Inclining Block Tariff structure that is appropriate to its specific circumstances, and ensures an appropriate balance between low income consumers and other domestic, commercial and business customers, and the financial interests of the municipality. While considering this structure, municipalities are advised to evaluate if the IBT system will be beneficial to them depending on consumption patterns in their areas.

In light of the current drought being experienced across large parts of the country, and to mitigate the need for water tariff increases, municipalities must put in place appropriate strategies to limit water losses to acceptable levels. In this regard municipalities must ensure that water used by its own operations is charged to the relevant service, and not simply attributed to water losses.

It is important for Overstrand Municipality to enforce their indigent qualification criteria rigorously in order to ensure that those who do not qualify are removed from the allocation list. The Municipality needs to determine whether the current Indigent Policy is not too generous and creates a situation where too many citizens in Overstrand Municipality's Management Area are making no monetary contribution toward the cost of delivering services to the community.

It is important for Overstrand Municipality to continue with the reading of all their bulk water meters. The bulk meters and meter chambers also need to be properly maintained and the meters need to be protected from vandalism.

Business Element 11: Water Services Institutional Arrangements

Table C.37: Business Element 11: Water Services Institutional Arrangements (Topic 11)					
Overview of Topic		Status Quo and Knowledge Interpretation Statistics			
The institutional arrangements profiles presents an overview of the WSA's compliance with respect to water services regulations and policy and as aligned also with the Regulatory Performance Monitoring System. It also provides an overview of the water services provider arrangements which are in place, including the WSA's perception of the sufficiency of WSP staffing levels.	Item	Quality (%) assessment of current status against compliancy requirements	Quantity (%) an indication of the representation of the total area to address the issue	Future Plan Assessment	Strategy Assessment
	Policy development	80.00	80.00	80.00	80.00
	Regulation and tariffs	75.00	75.00	75.00	75.00
	Infrastructure development (projects)	80.00	80.00	80.00	80.00
	Performance management and monitoring	60.00	60.00	60.00	60.00
	WSDP	80.00	80.00	80.00	80.00
	Bulk and Retail functions	60.00	60.00	60.00	60.00
	TOTAL for Topic	72.50	72.50	72.50	72.50
Problem Definition Statements					
Nr	Statements - Short Comings	Possible Improvement / Project			
1	Veolia was appointed on the 1st of November 2015 to effectively and efficiently operate and maintain the Municipality's bulk water and sewerage infrastructure. It is critical that the operation and maintenance work to be carried out by Veolia, as well as the compliance of Veolia with the set of KPIs be closely monitored by Overstrand Municipality.	Ensure adequate management and monitoring of Veolia, who was appointed for the Water and Wastewater Treatment Operation Management Contract.			
2	All critical vacant water and sanitation positions as indicated on the approved Organogram for the internal water reticulation networks and sewer drainage networks needs to be filled as soon as possible.	Filling the vacant positions will ensure the adequate operation and maintenance of the existing infrastructure. Aligning the career paths to the occupational categories will assist the personnel to understand levels within across teams. Simplification of job titles to conform to respective occupational categories will assist in developing compatible and comparable career paths within the different Departments. Occupational categories will provide differentiation between levels. This approach will allow for more specific job designations in organograms with explicit career path connotations.			
3	Overstrand Municipality will continue with their mentoring role for operational personnel ensuring an adequately trained and classified workforce with dedicated training programmes for supervisors and operational personnel. Budgets need to be established to address the shortfall of skilled personnel, rethink methods to retain qualified personnel and plan for succession and clear career paths for experienced staff.	Ensure all required water and sanitation training is included in the Municipality's Workplace Skills Plan. Establish budgets to address the shortfall of skilled personnel, rethink methods to retain qualified personnel and plan for clear career paths. With such a program a source of specific resources of skilled operational personnel, technicians and managers will be established.			
4	Overstrand Municipality can also continue to actively focus on in-house training, which requires the identification of trainers (from senior operators / officers / professional ranks) for the development and facilitation of courses which relate to specific organizational knowledge and systems requirements.	Overstrand Municipality's internal reports such as the Water Safety Plan, Wastewater Risk Abatement Plan and this WSDP have the necessary information on which the in-house courses can be based. This will assist Overstrand Municipality's Human Resource Department in general and the skills development facilitator in particular to develop and implement effective workplace skills plans relevant to Human Capacity Development requirements.			

Overstrand Municipality is committed to develop a new WSDP every five years and to update the WSDP as necessary and appropriate in the interim years. The Municipality will also continue to report annually and in a public way on progress in implementing the plan (WSDP Performance- and Water Services Audit Report), as part of Overstrand Municipality's Annual Report.

Mechanisms are in place to effectively monitor the compliance of consumers with regard to the Water Supply, Sanitation Services and Industrial Effluent By-laws.

It is important for Overstrand Municipality to allocate adequate funding for the rehabilitation and maintenance of the existing infrastructure and all forward planning for new infrastructure should be guided by the new Water and Sewer Master Plans. Water and sanitation services are currently effectively managed by Overstrand Municipality.

Overstrand Municipality will continue with their mentoring role for operational personnel ensuring an adequately trained and classified workforce with dedicated training programmes for supervisors and operational personnel. Budgets need to be established to address the shortfall of skilled personnel, rethink methods to retain qualified personnel and plan for succession and clear career paths for experienced staff. With such a program a source of specific resources of skilled operational personnel, technicians and managers will be established.

Aligning the career paths to the occupational categories will assist the personnel to understand levels within across teams. Simplification of job titles to conform to respective occupational categories will assist in developing compatible and comparable career paths within the different Departments. Occupational categories will provide differentiation between levels. This approach will allow for more specific job designations in organograms with explicit career path connotations. A Work Place Skills Plan for 2016/2017 is in place, which lists the training to be provided during the new financial year.

The effective management and monitoring of Veolia Water Solutions & Technologies South Africa (Pty) Ltd, who was appointed for the Water and Wastewater Treatment Operation Management Contract is the most important factor that will determines the ability of Overstrand Municipality to deliver safe and reliable water and to treat the effluent at the WWTWs to an acceptable standard. Monitoring the Contractor’s compliance with the KPIs related to treatment processes and quality monitoring and control is essential because the Contractor’s actions (or failure to act) will have a major impact on the well-being of the communities and the environment.

Overstrand Municipality will continue to actively focus on training, which requires the identification of trainers (from senior operators / officers / professional ranks) for the development and facilitation of courses which relate to specific organizational knowledge and systems requirements. Overstrand Municipality’s internal reports such as the Water Safety Plan, W₂RAP and this WSDP contain some information on which the courses can be based. This will assist Overstrand Municipality’s Human Resource Department in general and the skills development facilitator in particular to develop and implement effective workplace skills plans relevant to Human Capacity Development requirements.

Business Element 12: Social and Customer Service Requirements

Table C.38: Business Element 12: Social and Customer Service Requirements (Topic 12)					
Overview of Topic		Status Quo and Knowledge Interpretation Statistics			
This topic provides an overview of the quality of the water services provision function when considered from a customer perspective including the summary of the WSA’s responsiveness to customer complaints and queries.	Item	Quality (%) assessment of current status against compliancy requirements	Quantity (%) an indication of the representation of the total area to address the issue	Future Plan Assessment	Strategy Assessment
	Resources available to perform this function	80.00	80.00	80.00	80.00
	Attending to complaints for water	68.57	57.14	68.57	68.57
	Attending to complaints for Sanitation: Discharge to treatment works	65.71	54.29	65.71	65.71
	Attending to complaints for Sanitation: Pit/ tank pumping	60.00	52.00	60.00	60.00
	TOTAL for Topic	68.57	60.86	68.57	68.57
Problem Definition Statements					
Nr	Statements - Short Comings	Possible Improvement / Project			
1	All critical water and sanitation stats need to be kept up to date and monitored on a monthly basis (Number of complaints; pipe breakages; sewer blockages; meters tested, replaced and repaired; septic tanks pumped, etc.)	Ensure all water and sanitation stats are kept up to date and included in the Monthly Reports.			

Overstrand Municipality is committed to maintain the existing high levels of customer service in their urban areas and to record all the necessary information for the WSDP on an annual basis. The present Customer Services and Complaints System adequately allow for the recording and management of all water and sanitation related complaints. The Municipality is committed to ensure that all water and sanitation related complaints are recorded and that the complaints are addressed within the time period stipulated in the Client Service Charter.

Access to safe drinking water is essential to health and is a human right. Safe drinking water that complies with the SANS:241 Drinking Water specifications do not pose a significant risk to health over a lifetime of consumption, including different sensitivities that may occur between life stages. Overstrand Municipality is therefore committed to ensure that their water quality always complies with national safety standards.

The Water Safety Plan of Overstrand Municipality includes an Improvement / Upgrade Plan. The purpose of the Improvement / Upgrade Plan is to address the existing significant risks where the existing controls were not effective or absent. Barriers implemented by Overstrand Municipality against contamination and deteriorating water quality include the following:

- Participate in Catchment management and water source protection initiatives.
- Protection at points of abstraction such as river intakes and dams (Abstraction Management).
- Veolia Water Solutions & Technologies South Africa (Pty) Ltd was appointed to ensure the correct operation and management of all the WTWs and adequately skilled and experienced staff at each of the plants.
- Protection and maintenance of the distribution system. This includes ensuring an adequate disinfectant residual at all times, rapid response to pipe bursts and other leaks, regular cleaning of reservoirs, keeping all delivery points tidy and clean, etc.

Three other important barriers implemented by Overstrand Municipality against poor quality drinking water that are a prerequisite to those listed above are as follows:

- A well informed Council and municipal managers that understand the extreme importance of and are committed to providing adequate resources for continuous professional operation and maintenance of the water supply system.
- Competent managers and supervisors in the technical department who are responsible for water supply services lead by example and are passionate about monitoring and safeguarding drinking water quality.
- Well informed community members and other consumers of water supply services that have respect for water as a precious resource.

SECTION D: WATER SERVICES OBJECTIVES AND STRATEGIES

The recommended objectives, strategies and projects for each of the WSDP Business Elements were also discussed under Section C “Water Services Existing Needs Perspective” of this WSDP-IDP Water Sector Input Report and are therefore not repeated under this Section D.

The overall progress made to attain the 5 year water services targets are as follows (IDP 4th Review of 2012/17 cycle):

- Water Demand Management: Replacement of leaking water pipes, replacement of old and defective water meters, repairs of leaks in low income areas and the installation of pressure control valves: **Status:** Installation of PRVs in Bettys Bay 100% completed; 1989 water meters replaced in 2014/15; 1587 leaks repaired at indigent households in 2014/15; 15km of water reticulation was replaced over the last 2 years.
- Construction of new bulk water reservoirs in Rooi Els and Sandbaai: **Status:** The new Rooi-Els reservoir is 100% completed; new reservoir for Sandbaai is included in the municipal MTREF.

- Upgrade the bulk water supply in Baardskeerdersbos: Status: The project is 100% completed and commissioned (new boreholes and treatment plant).
- Upgrade the bulk water supply in Hermanus: new 10MI per day treatment facility for groundwater and the commissioning of the Camphill and Volmoed well fields: Status: The project is 100% completed and commissioned.
- Bulk water upgrades for Hawston, Eluxolweni, Stanford, Zwelihle and Mt Pleasant to accommodate low cost and gab housing developments: Status: These projects are phased in over several years with new housing developments.
- The maintenance and operation of the bulk water services were outsourced to a private company, following an investigation in terms of Section 78(1) of the Municipal Systems Act, with the main aims to improve efficiencies and to acquire and retain the necessary skills for the operation and maintenance of treatment facilities.

Challenges and remedies for the stated 5 year water services targets: All the IDP water services projects will be completed by the end of June 2017, except those that are phased over several years and need to continue, e.g. water pipe replacement, water meter replacement and projects linked to housing developments.

The overall progress made to attain the 5 year sanitation services targets are as follows (IDP 4th Review of 2012/17 cycle):

- Improved sludge handling facilities at the Kleinmond and Gansbaai Waste Water Works: Status: 100% completed.
- Upgrading of the Stanford Waste Water Works: Status: The project was included in the municipal MTREF and application was submitted for additional funding from the DWS ACIP program.
- Upgrading of the Hawston Waste Water Works: Status: The project will be implemented once the planning of new developments necessitate additional treatment capacity.
- Upgrading of various sewage pump stations: Status: Sandbaai and Mossel River completed in 2016/17.
- Construction of a WWTW (Oxidation ponds) at Pearly Beach to accommodate the low cost housing development at Eluxolweni: Status: 100% completed.

Challenges and remedies for the stated 5 year sanitation services targets: The Hawston WWTW upgrade will not be completed by end June 2017, as the capacity is still adequate to accommodate some development. The upgrading of the sewerage pump stations is a phased project, to continue over several years. The 2015/2016 and 2016/2017 phases will be completed by 30 June 2017 as planned. The upgrade of the Sanford WWTW will be done over 2 financial years, also depending on the contribution to be received from the DWS, and may be completed only after the 2016/17 financial year. The maintenance and operation of bulk sewerage services were outsourced to a private company, following an investigation in terms of Section 78(1) of the Municipal Systems Act, with the main aims to improve efficiencies and to acquire and retain the necessary skills for the operation and maintenance of treatment facilities.

The water services objectives and strategies presented below are however a summary of the KPIs developed from the water services situational analysis as summarised under Section C “Water Services Existing Needs Perspective” and as taken from the Municipality’s approved SDBIP and presents the 5-year Water Services Objectives and Strategies as established in the WSA’s WSDP.

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Table D.1: WSDP FY2017/18: Water Services Objectives and Strategies								
Nr	Objective Strategy	Key Performance Indicator	Baseline (FY2014/15 Target)	WSDP Year 1	WSDP Year 2	WSDP Year 3	WSDP Year 4	WSDP Year 5
				FY2015/16	FY2016/17	FY2017/18	FY2018/19	FY2019/20
				Target	Target	Target	Target	Target
WSDP Topic 1: Administration								
<i>Ensure integrated development and implementation of water services plans</i>								
21	The provision and maintenance of municipal services	Report on the implementation of the WSDP annually by the end of October.	<ul style="list-style-type: none"> • Compile Annual WSDP Performance- and Water Services Audit Report by October • Take Annual WSDP Performance- and Water Services Audit Report to Council for approval 	<ul style="list-style-type: none"> • Compile Annual WSDP Performance- and Water Services Audit Report by October • Take Annual WSDP Performance- and Water Services Audit Report to Council for approval 	<ul style="list-style-type: none"> • Compile Annual WSDP Performance- and Water Services Audit Report by October • Take Annual WSDP Performance- and Water Services Audit Report to Council for approval 	<ul style="list-style-type: none"> • Compile Annual WSDP Performance- and Water Services Audit Report by October • Take Annual WSDP Performance- and Water Services Audit Report to Council for approval 	<ul style="list-style-type: none"> • Compile Annual WSDP Performance- and Water Services Audit Report by October • Take Annual WSDP Performance- and Water Services Audit Report to Council for approval 	<ul style="list-style-type: none"> • Compile Annual WSDP Performance- and Water Services Audit Report by October • Take Annual WSDP Performance- and Water Services Audit Report to Council for approval
New	Elicit ownership of the WSDP	<ul style="list-style-type: none"> • Update WSDP every two to three years 	<ul style="list-style-type: none"> • Compile 2015/2016 updated WSDP. • Advertise for public comment. • Take WSDP to Council for approval (WSDP-IDP Water Sector Input Report) 	-	<ul style="list-style-type: none"> • Compile 2017/2018 updated WSDP. • Advertise for public comment. • Take WSDP to Council for approval (WSDP-IDP Water Sector Input Report) 	-	<ul style="list-style-type: none"> • Compile 2019/2020 updated WSDP. • Advertise for public comment. • Take WSDP to Council for approval (WSDP-IDP Water Sector Input Report) 	-
WSDP Topic 2: Demographics								
New	Sustainable Integrated Human Settlements	Implement SDF and Growth Management Strategy for each of the towns and ensure new developments are in line with these priority action plans.	Targets to be set by other Department					
WSDP Topic 3: Service levels								
35	The provision and maintenance of municipal services	Provision of water to informal households on the standard of 1 water point to 25 households.	-	-	126 Taps installed in relation to the number of informal households	126 Taps installed in relation to the number of informal households	126 Taps installed in relation to the number of informal households	126 Taps installed in relation to the number of informal households
36	The provision and maintenance of municipal services	Provision of cleaned piped water to all formal households within 200 m from households	28077 Formal households provided with piped water that meet agreed service standards	28077 Formal households provided with piped water that meet agreed service standards	32483 Formal households provided with piped water that meet agreed service standards	32483 Formal households provided with piped water that meet agreed service standards	32483 Formal households provided with piped water that meet agreed service standards	32483 Formal households provided with piped water that meet agreed service standards
40	The provision and maintenance of municipal services	Provision of free basic electricity, refuse removal, sanitation and water in terms of the equitable share requirements	6580 Households supported with free basic services	6580 Households supported with free basic services	7100 Households supported with free basic services	7100 Households supported with free basic services	7100 Households supported with free basic services	7100 Households supported with free basic services
42	The provision and maintenance of municipal services	The provision of sanitation services to informal households based on the standard of 1 toilet to 5 households	-	-	629 Toilet structures provided in relation to the number of informal households	629 Toilet structures provided in relation to the number of informal households	629 Toilet structures provided in relation to the number of informal households	629 Toilet structures provided in relation to the number of informal households
43	The provision and maintenance of municipal services	Provision of sanitation services to formal residential households	31202 Formal residential households provided with sanitation services	31202 Formal residential households provided with sanitation services	32483 Formal residential households provided with sanitation services	32483 Formal residential households provided with sanitation services	32483 Formal residential households provided with sanitation services	32483 Formal residential households provided with sanitation services

Table D.1: WSDP FY2017/18: Water Services Objectives and Strategies								
Nr	Objective Strategy	Key Performance Indicator	Baseline (FY2014/15 Target)	WSDP Year 1	WSDP Year 2	WSDP Year 3	WSDP Year 4	WSDP Year 5
				FY2015/16	FY2016/17	FY2017/18	FY2018/19	FY2019/20
				Target	Target	Target	Target	Target
New	Ensure all households on the farms are provided with at least basic water services, subject to DWS guidance.	Support all applications received for basic water services on the farms (Subject to availability of financial resources and sustainability of type of service)	-	-	-	100% of applications received are supported (Subject to availability of funding and sustainability of type of service)	100% of applications received are supported (Subject to availability of funding and sustainability of type of service)	100% of applications received are supported (Subject to availability of funding and sustainability of type of service)
New	Ensure all households on the farms are provided with at least basic sanitation services, subject to DWS guidance.	Support all applications received for basic sanitation services on the farms (Subject to availability of financial resources and sustainability of type of service)	-	-	-	100% of applications received are supported (Subject to availability of funding and sustainability of type of service)	100% of applications received are supported (Subject to availability of funding and sustainability of type of service)	100% of applications received are supported (Subject to availability of funding and sustainability of type of service)
WSDP Topic 4: Socio economic								
8	The promotion of tourism, economic and social development	Provide Reports on LED and Tourism initiatives to Council by end June	4 Reports to Council on LED and Tourism initiatives	4 Reports to Council on LED and Tourism initiatives	3 Reports to Council on LED and Tourism initiatives	3 Reports to Council on LED and Tourism initiatives	3 Reports to Council on LED and Tourism initiatives	3 Reports to Council on LED and Tourism initiatives
9	The promotion of tourism, economic and social development	Report to Executive Mayor on Grants to festival organisers through SLA by end July	2 Reports to LED Director	2 Reports to LED Director	1 Report to LED Director	1 Report to LED Director	1 Report to LED Director	1 Report to LED Director
10	The promotion of tourism, economic and social development	Support 30 SMME's into the SMME Development Programme by 30 June	30 SMME's Businesses supported	30 SMME's Businesses supported	30 SMME's Businesses supported	30 SMME's Businesses supported	30 SMME's Businesses supported	30 SMME's Businesses supported
11	The promotion of tourism, economic and social development	Raise funds for local economic development through financial and non-financial resources mobilisation	3 Resource mobilisation initiatives	3 Resource mobilisation initiatives	2 MOUs entered into and amounts generated	2 MOUs entered into and amounts generated	2 MOUs entered into and amounts generated	2 MOUs entered into and amounts generated
12	The promotion of tourism, economic and social development	Manager LED to report quarterly to Director LED on linkages established with other spheres of government, agencies, donors, SALGA and other relevant bodies for benefit of local area	4 Reports to LED Director on linkages established.	4 Reports to LED Director on linkages established.	4 Reports to LED Director on linkages established.	4 Reports to LED Director on linkages established.	4 Reports to LED Director on linkages established.	4 Reports to LED Director on linkages established.
13	The promotion of tourism, economic and social development	The number of job opportunities created through the EPWP programme and as per set targets.	287 Job opportunities created	287 Job opportunities created	421 Job opportunities created	421 Job opportunities created	421 Job opportunities created	421 Job opportunities created
45	The promotion of tourism, economic and social development	Compile an action plan to improve on the LED maturity assessment	2 Action plans completed	2 Action plans completed	1 Action plan completed	1 Action plan completed	1 Action plan completed	1 Action plan completed

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Table D.1: WSDP FY2017/18: Water Services Objectives and Strategies								
Nr	Objective Strategy	Key Performance Indicator	Baseline (FY2014/15 Target)	WSDP Year 1	WSDP Year 2	WSDP Year 3	WSDP Year 4	WSDP Year 5
				FY2015/16	FY2016/17	FY2017/18	FY2018/19	FY2019/20
				Target	Target	Target	Target	Target
WSDP Topic 5: Water Services Infrastructure								
New	The provision and maintenance of municipal services	% Of recommendations, as included in the WTW Process Audits, implemented.	-	-	-	50% of recommendations implemented	60% of recommendations implemented	70% of recommendations implemented
New	The provision and maintenance of municipal services	% Of recommendations, as included in the WWTW Process Audits, implemented.	-	-	-	50% of recommendations implemented	60% of recommendations implemented	70% of recommendations implemented
New	The provision and maintenance of municipal services	% Of recommendations, as included in the Improvement / Upgrade Plan of the Water Safety Plan, implemented.	-	-	-	50% of recommendations implemented	60% of recommendations implemented	70% of recommendations implemented
New	The provision and maintenance of municipal services	% Of recommendations, as included in the Improvement / Upgrade Plan of the W ₂ RAP, implemented.	-	-	-	50% of recommendations implemented	60% of recommendations implemented	70% of recommendations implemented
New	The provision and maintenance of municipal services	Ensure adequate storage capacity for all towns (At least 48hrs AADD)	-	-	-	All eight areas with an overall storage capacity above 48hrs AADD	All eight areas with an overall storage capacity above 48hrs AADD	All eight areas with an overall storage capacity above 48hrs AADD
New	Implement projects included in the Water Master Plan	Ensure adequate water pump station and water reticulation capacity.	-	-	-	Upgrade existing water pump stations and provide new pump stations as identified in the Water Master Plan. Upgrade water reticulation networks as proposed in the Water Master Plan.	Upgrade existing water pump stations and provide new pump stations as identified in the Water Master Plan. Upgrade water reticulation networks as proposed in the Water Master Plan.	Upgrade existing water pump stations and provide new pump stations as identified in the Water Master Plan. Upgrade water reticulation networks as proposed in the Water Master Plan.
New	Implement projects included in the Sewer Master Plan	Ensure adequate sewer pump station and drainage network capacity.	-	-	-	Upgrade existing sewer pump stations and provide new pump stations as identified in the Sewer Master Plan. Upgrade sewer drainage networks as proposed in the Sewer Master Plan.	Upgrade existing sewer pump stations and provide new pump stations as identified in the Sewer Master Plan. Upgrade sewer drainage networks as proposed in the Sewer Master Plan.	Upgrade existing sewer pump stations and provide new pump stations as identified in the Sewer Master Plan. Upgrade sewer drainage networks as proposed in the Sewer Master Plan.
New	The provision and maintenance of municipal services	Ensure all water and sewerage infrastructure assets are included in the Asset Register, with accurate CRC, DRC, RUL and Age.	-	-	-	Annual reporting to the Financial Department on water and sewerage assets not yet included in the Asset Register and assets for which the CRC, DRC, RUL and Age in the Asset Register is not correct.	Annual reporting to the Financial Department on water and sewerage assets not yet included in the Asset Register and assets for which the CRC, DRC, RUL and Age in the Asset Register is not correct.	Annual reporting to the Financial Department on water and sewerage assets not yet included in the Asset Register and assets for which the CRC, DRC, RUL and Age in the Asset Register is not correct.
New	The provision and maintenance of municipal services	Ensure a budget of at least 2% of the total value of the water and sewerage assets is allocated towards the replacement of existing infrastructure per annum.	-	-	-	A budget of 2% or more of the value of the water and sewerage assets is allocated towards the replacement of existing infrastructure.	A budget of 2% or more of the value of the water and sewerage assets is allocated towards the replacement of existing infrastructure.	A budget of 2% or more of the value of the water and sewerage assets is allocated towards the replacement of existing infrastructure.
New	The provision and maintenance of municipal services	Ensure a budget of at least 1% of the total value of the water and sewerage assets is allocated towards the annual O&M of the systems.	-	-	-	A budget of 1% or more of the value of the water and sewerage assets is allocated towards the O&M of the systems.	A budget of 1% or more of the value of the water and sewerage assets is allocated towards the O&M of the systems.	A budget of 1% or more of the value of the water and sewerage assets is allocated towards the O&M of the systems.

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Table D.1: WSDP FY2017/18: Water Services Objectives and Strategies								
Nr	Objective Strategy	Key Performance Indicator	Baseline (FY2014/15 Target)	WSDP Year 1	WSDP Year 2	WSDP Year 3	WSDP Year 4	WSDP Year 5
				FY2015/16	FY2016/17	FY2017/18	FY2018/19	FY2019/20
				Target	Target	Target	Target	Target
WSDP Topic 6: Operation and Maintenance								
3	The provision and maintenance of municipal services.	Quality of effluent comply 90% with General Limit in terms of Water Act	90% final effluent quality compliance	90% final effluent quality compliance	90% final effluent quality compliance	90% final effluent quality compliance	90% final effluent quality compliance	90% final effluent quality compliance
4	The provision and maintenance of municipal services.	Quality of potable water comply 95% with SANS 241	95% water quality compliance	95% water quality compliance	95% water quality compliance	95% water quality compliance	95% water quality compliance	95% water quality compliance
New	Proper water quality management.	Achieve Blue Drop Status	-	-	-	-	-	-
New	Proper wastewater quality management.	Achieve Green Drop Status	-	-	-	-	-	-
New	Reporting on water quality and wastewater quality compliance percentages.	Report at least annually on the percentage of water quality and wastewater quality compliance.	-	-	-	At least annual publication of water quality and wastewater quality compliance percentages.	At least annual publication of water quality and wastewater quality compliance percentages.	At least annual publication of water quality and wastewater quality compliance percentages.
WSDP Topic 7: Associated services								
-	-	-	-	-	-	-	-	-
WSDP Topic 8.1: Conservation and Demand management - Water Resource Management								
5	The provision and maintenance of municipal services	Limit unaccounted for water to less than 20%	Unaccounted for water less than 25%	Unaccounted for water less than 25%	Unaccounted for water less than 20%	Unaccounted for water less than 20%	Unaccounted for water less than 20%	Unaccounted for water less than 20%
WSDP Topic 8.2 & 8.3: Conservation and Demand management - Water Balance								
New	The provision and maintenance of municipal services	Ensure all bulk water is metered at source, at WTW (incoming and outgoing) and at bulk storage reservoirs and the meters are read and recorded on at least a monthly basis.	-	-	-	95% Of all sources metered and bulk water meters read and recorded at least monthly	98% Of all sources metered and bulk water meters read and recorded at least monthly	98% Of all sources metered and bulk water meters read and recorded at least monthly
New	The provision and maintenance of municipal services	Ensure all incoming and outgoing flow at WWTWs are metered, as well as final effluent re-used for irrigation purposes and that meters are read and recorded on at least a monthly basis.	-	-	-	95% of all flows at WWTW metered and meters read and recorded at least monthly	98% of all flows at WWTW metered and meters read and recorded at least monthly	98% of all flows at WWTW metered and meters read and recorded at least monthly
WSDP Topic 9: Water Resources								
New	The provision and maintenance of municipal services	% of Abstraction from sources registered and authorised by the DWS	-	-	-	70% Compliance	80% Compliance	90% Compliance
New	The provision and maintenance of municipal services	Ensure yields and allocations are adequate to meet at least the projected five year water requirements for all eight areas.	-	-	-	100% Adequate supply to meet water requirements for all eight areas	100% Adequate supply to meet water requirements for all eight areas	100% Adequate supply to meet water requirements for all eight areas
New	The provision and maintenance of municipal services	% Monitoring of effluent discharged by industrial consumers (Quantity and Quality)	-	-	-	10% Of all industrial consumers monitored wrt quality and quantity of effluent discharged by them	30% Of all industrial consumers monitored wrt quality and quantity of effluent discharged by them	50% Of all industrial consumers monitored wrt quality and quantity of effluent discharged by them

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Table D.1: WSDP FY2017/18: Water Services Objectives and Strategies

Nr	Objective Strategy	Key Performance Indicator	Baseline (FY2014/15 Target)	WSDP Year 1	WSDP Year 2	WSDP Year 3	WSDP Year 4	WSDP Year 5
				FY2015/16	FY2016/17	FY2017/18	FY2018/19	FY2019/20
				Target	Target	Target	Target	Target
WSDP Topic 10: Financial profile								
1	The provision of democratic accountable and ethical governance	98% of the operational conditional grant spent (Community Services)	98% of the operational conditional grant spent	98% of the operational conditional grant spent	98% of the operational conditional grant spent	98% of the operational conditional grant spent	98% of the operational conditional grant spent	98% of the operational conditional grant spent
15	Financial viability measured to the available cash to cover fixed operating expenditure.	Ratio achieved	Ratio of 1.2 achieved	Ratio of 1.2 achieved	Ratio of 1.5 achieved	Ratio of 1.5 achieved	Ratio of 1.5 achieved	Ratio of 1.5 achieved
16	Financial viability measured to the municipality's ability to meet its service debt obligations	Ratio achieved	Ratio of 17 achieved	Ratio of 17 achieved	Ratio of 17.2 achieved	Ratio of 17.2 achieved	Ratio of 17.2 achieved	Ratio of 17.2 achieved
17	Financial viability measured in terms of the outstanding service debtors.	Percentage Achieved	12% Achieved	12% Achieved	12.2% Achieved	12.2% Achieved	12.2% Achieved	12.2% Achieved
46	Achieve a debt recovery rate not less than 96%	95% Recovered	95% Recovered	95% Recovered	96% Recovered	96% Recovered	96% Recovered	96% Recovered
18	Financial statements submitted to the AG by 31 August	Financial Statement submitted	1 Financial Statement submitted	1 Financial Statement submitted	1 Financial Statement submitted	1 Financial Statement submitted	1 Financial Statement submitted	1 Financial Statement submitted
19	Review and submit a long term financial plan by the end of October	Submission of Long Term Financial Plan	1 Long Term Financial Plan submitted	1 Long Term Financial Plan submitted	1 Long Term Financial Plan submitted	1 Long Term Financial Plan submitted	1 Long Term Financial Plan submitted	1 Long Term Financial Plan submitted
41	The provision and maintenance of municipal services	Percentage of the municipality's capital budget actually spent on capital projects identified for a particular financial year in terms of the municipality's IDP by end December.	-	-	25% of Capital Budget spent	25% of Capital Budget spent	25% of Capital Budget spent	25% of Capital Budget spent
WSDP Topic 11: Institutional Arrangements profile								
22	The provision of democratic accountable and ethical governance	The percentage of a municipality's budget (training budget) actually spent on implementing its workplace skills plan	100% Of the training budget spent on impl. of WSP	100% Of the training budget spent on impl. of WSP	100% Of the training budget spent on impl. of WSP	100% Of the training budget spent on impl. of WSP	100% Of the training budget spent on impl. of WSP	100% Of the training budget spent on impl. of WSP
23	The provision of democratic accountable and ethical governance	Review the Municipal Organisational Staff Structure by the end of June	1 Review of the Municipal Organisational Staff Structure	1 Review of the Municipal Organisational Staff Structure	1 Review of the Municipal Organisational Staff Structure	1 Review of the Municipal Organisational Staff Structure	1 Review of the Municipal Organisational Staff Structure	1 Review of the Municipal Organisational Staff Structure
25	The provision of democratic accountable and ethical governance	90% Of the approved and funded organogram filled	90% Of the approved and funded organogram filled	90% Of the approved and funded organogram filled	90% Of the approved and funded organogram filled	90% Of the approved and funded organogram filled	90% Of the approved and funded organogram filled	90% Of the approved and funded organogram filled
WSDP Topic 12: Customer service requirements								
-	-	-	-	-	-	-	-	-

Note: All new KPIs in the above table refer to potential new KPIs and first need to be simplified and discussed further.

SECTION E: WATER SERVICES MTEF PROJECTS

The Water Services Medium-Term Expenditure Framework (MTEF) projects are presented below and outline the water services projects which are funded for implementation within the next three financial years. Table E.2a provides the projects identified for implementation in FY2016/17, Table E.2b provides the projects identified for implementation in FY 2017/18 and Table E.2c provides the projects identified for implementation in FY2018/19. The table below gives an overview of the water services projects, as included in the MTEF.

The draft 2017/2018 three year Capital Budget of Overstrand Municipality was not yet available when this report was compiled.

Project Main Category	FY2016/17		FY2017/18		FY2018/19		MTEF Total	
	Nr	Value (R'000)	Nr	Value (R'000)	Nr	Value (R'000)	Nr	Value (R'000)
Water Projects	8	R15,589	4	R12,800	7	R16,826	10	R45,215
Sanitation Projects	5	R14,849	5	R11,441	7	R13,000	11	R39,290
Combined Water & Sanitation Projects	13	R30,437	9	R24,241	14	R29,826	21	R84,505

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Table E.2a: Water Services MTEF Projects - FY2016/17 (1 st year MTEF period)																			
Nr	Project Reference Number (Dept)	Project Name	Description	Project Driver	Main Category "W" or "S"	Sub Category	Component type	Project Budget / Funding Sources										MTEF Project Source	
								Prev spent FY2015/16	Budget	FY2016/17									Total Cost
										Own	MIG	REG	ACIP	DR	MW/G	Other			
1. Infrastructure Projects								R9,606	R28,528									R38,134	
1.1	4620	Pearly Beach WTW Pre-Treatment	Upgrade Pre-Treatment Facility	Water Quality	Water	Bulk	WTW	R0	R1,650	R1,650							R1,650	WTW Process Audits	
1.2	4830	Upgrading of Franskraal-Kleinbaai-Gansbaai Pipeline	Upgrade bulk pipeline capacity	Bulk Pipeline Capacity	Water	Bulk	Bulk Pipeline	R0	R8,400	R8,400							R8,400	Water Master Plan	
1.3	4810	New 1ML/s Reservoir for Mount Pleasant (OHW.B31)	Additional reservoir storage capacity for Sandbaai	Adequate storage capacity	Water	Bulk	Reservoir	R3,402	R3,610	R500	R3,110						R7,012	WSDP and Water Master Plan	
1.4	4810	Bulk water upgrade for housing project Hawston	Upgrade bulk pipeline capacity	Water Requirement	Water	Bulk	Bulk Pipeline	R0	R500		R500						R500	Water Master Plan	
1.5	4810	Minor Assets: Water Distribution	Minor Assets	Operation	Water	Internal	Other	R5	R19	R19							R24	O&M	
1.6	3760	Upgrading of Pumpstations	Upgrade of sewer pump stations capacities	Pump Capacity	Sanitation	Bulk	Pump Station	R1,923	R6,124	R6,124							R8,047	Sewer Master Plan	
1.7	3770	Stanford - Sewer Network Extension	Sewer network extensions	Waterborne Sanitation	Sanitation	Drainage Network	Drainage Network	R3,568	R4,932	R4,932							R8,500	Sewer Master Plan	
1.8	N/A	Upgrading of Kidbrooke Pipeline	Upgrade bulk pipeline capacity	Waterborne Sanitation	Sanitation	Drainage Network	Bulk Pipeline	R708	R792	R792							R1,500	Sewer Master Plan	
1.9	3760	Bulk Sewerage Outfall Line 525 mm Ø OHS13.2	Upgrade bulk pipeline capacity	Waterborne Sanitation	Sanitation	Bulk	Bulk Pipeline	R0	R2,501		R2,501						R2,501	Sewer Master Plan	
2. Source Development Projects								R0	R0									R0	
									R0									R0	
3. Demand Management projects								R9,359	R294									R9,653	
3.1	4850	Replacement of Overstrand Waterpipes	Replacement of Reticulation Network	WC/WDM	Water	Reticulation	Reticulation	R9,359	R294	R294							R9,653	Water Master Plan	
4. O&M Commitments								R1,461	R1,616									R3,078	
Operations																			
4.1	0051	Water Pumps (Contingency)	Replace or additional Pumps	Operation	Water	Other	Operations	R154	R200	R200							R354	Operation	
4.2	0051	Sewer Pumps (Contingency)	Replace or additional Pumps	Operation	Sanitation	Other	Operations	R206	R500	R500							R706	Operation	
Maintenance																			
4.2	4800	Refurbish Buffels River Dam Tower & Plamiet River Weir	Refurbishment Work	Refurbishment	Water	Bulk	Source Infrastructure	R1,101	R916	R916							R2,017	Refurbishment	
5. Institutional								R0	R0									R0	
									R0									R0	
6. Water Services Programmes								R0	R0									R0	
Awareness Programs																			
									R0									R0	
WASH Programs																			
									R0									R0	
Total								R20,427	R30,437									R50,864	

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Table E.2b: Water Services MTEF Projects - FY2017/18 (2nd year MTEF period)																		
Nr	Project Reference Number (Dept)	Project Name	Description	Project Driver	Main Category "W" or "S"	Sub Category	Component type	Project Budget / Funding Sources									MTEF Project Source	
								Prev spent FY2015/16	Budget	FY2017/18								Total Cost
										Own	MIG	RBIG	ACIP	DR	MWIG	Other		
1. Infrastructure Projects								R0	R19,741								R19,741	
1.1	4810	New bulk reservoir for Sandbaai	Additional reservoir storage capacity for Sandbaai	Storage Capacity	Water	Bulk	Reservoir	R0	R6,000	R6,000							R6,000	WSDP and Water Master Plan
1.2	4810	Bulk water upgrade for housing project Hawston	Upgrade bulk pipeline capacity	Water Requirement	Water	Bulk	Bulk Pipeline	R0	R2,800		R2,800						R2,800	Water Master Plan
1.3	N/A	Sewer network extension for Kleinmond	Sewer network extensions	Waterborne Sanitation	Sanitation	Drainage Network	Drainage Network	R0	R3,600	R3,600							R3,600	Sewer Master Plan
1.4	N/A	CBD Sewer network extension for Gansbaai and completion of Stanford sewer network	Sewer network extensions	Waterborne Sanitation	Sanitation	Drainage Network	Drainage Network	R0	R3,560	R3,560							R3,560	Sewer Master Plan
1.5	N/A	Upgrade Stanford WWTW	Upgrade capacity of WWTW	Treatment Capacity	Sanitation	Bulk	WWTW	R0	R3,000	R2,000	R1,000						R3,000	WWTW Process Audits
1.6	3760	Bulk sewerage outfall line 525mm Ø OHS13.2	Upgrade bulk pipeline capacity	Waterborne Sanitation	Sanitation	Bulk	Bulk Pipeline	R0	R781	R340	R441						R781	Sewer Master Plan
2. Source Development Projects								R0	R0								R0	
									R0								R0	
3. Demand Management projects								R9,359	R3,800								R13,159	
3.1	4850	Replacement of Overstrand water pipes	Replacement of Reticulation Network	WC/WDM	Water	Reticulation	Reticulation	R9,359	R3,800	R3,800							R13,159	Water Master Plan
4. O&M Commitments								R360	R700								R1,060	
Operations																		
4.1	0051	Water Pumps (Contingency)	Replace or additional Pumps	Operation	Water	Other	Operations	R154	R200	R200							R354	Operation
4.2	0051	Sewerage Pumps (Contingency)	Replace or additional Pumps	Operation	Sanitation	Other	Operations	R206	R500	R500							R706	Operation
Maintenance																		
									R0								R0	
5. Institutional								R0	R0								R0	
									R0								R0	
6. Water Services Programmes								R0	R0								R0	
Awareness Programs																		
									R0								R0	
WASH Programs																		
									R0								R0	
Total								R9,719	R24,241								R33,961	

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Table E.2c: Water Services MTEF Projects - FY2018/19 (3 rd year MTEF period)																		
Nr	Project Reference Number (Dept)	Project Name	Description	Project Driver	Main Category "W" or "S"	Sub Category	Component type	Project Budget / Funding Sources										MTEF Project Source
								Prev spent FY2015/16	Budget	FY2018/19							Total Cost	
										Own	MIG	RBIG	ACIP	DR	MWIG	Other		
1. Infrastructure Projects								R2,631	R20,126								R22,757	
1.1	4810	New bulk reservoir for Sandbaai	Additional reservoir storage capacity for Sandbaai	Storage Capacity	Water	Bulk	Reservoir	R0	R3,500	R3,500							R3,500	WSDP and Water Master Plan
1.2	4810	Bulk water upgrade for housing project Hawston	Upgrade bulk pipeline capacity	Water Requirement	Water	Bulk	Bulk Pipeline	R0	R3,326		R3,326						R3,326	Water Master Plan
1.3	N/A	New Voorberg Booster Pump Station	Upgrade of water pump station capacity	Water Requirement	Water	Bulk	Pump Station	R0	R800	R800							R800	Water Master Plan
1.4	3760	Upgrading of pump stations	Upgrade of sewer pump stations capacities	Pump Capacity	Sanitation	Bulk	Pump Station	R1,923	R4,000	R4,000							R5,923	Sewer Master Plan
1.5	N/A	Sewer network extension for Kleinmond	Sewer network extensions	Waterborne Sanitation	Sanitation	Drainage Network	Drainage Network	R0	R1,500	R1,500							R1,500	Sewer Master Plan
1.6	N/A	Upgrading of Kidbrooke Pipeline	Upgrade bulk pipeline capacity	Waterborne Sanitation	Sanitation	Drainage Network	Bulk Pipeline	R708	R1,800	R1,800							R2,508	Sewer Master Plan
1.7	N/A	Upgrade Stanford WWTW	Upgrade capacity of WWTW	Treatment Capacity	Sanitation	Bulk	WWTW	R0	R1,000		R1,000						R1,000	WWTW Process Audits
1.8	N/A	Peach house & Whale Rock PS link with generators	Upgrade capacity of drainage network	Waterborne Sanitation	Sanitation	Drainage Network	Drainage Network	R0	R430	R430							R430	Sewer Master Plan
1.90	N/A	Rehabilitate main bulk sewer to WWTW: Phase 1	Upgrade bulk pipeline capacity	Waterborne Sanitation	Sanitation	Bulk	Bulk Pipeline	R0	R3,770	R3,770							R3,770	Sewer Master Plan
2. Source Development Projects								R0	R4,000								R4,000	
2.1	4810	Upgrade Hermanus Well Fields Phase 1	Groundwater Augmentation	Water Requirement	Water	Source	Source Development	R0	R4,000	R4,000							R4,000	WSDP
3. Demand Management projects								R9,359	R3,800								R13,159	
3.1	4850	Replacement of Overstrand water pipes	Replacement of Reticulation Network	WC/WDM	Water	Reticulation	Reticulation	R9,359	R3,800	R3,800							R13,159	WSDP
4. O&M Commitments								R1,461	R1,900								R3,361	
Operations																		
4.1	0051	Water Pumps (Contingency)	Replace or additional Pumps	Operation	Water	Other	Operations	R154	R200	R200							R354	Operation
4.2	0051	Sewerage Pumps (Contingency)	Replace or additional Pumps	Operation	Sanitation	Other	Operations	R206	R500	R500							R706	Operation
Maintenance																		
4.2	4800	Refurbish Buffels River Dam Tower & Plamiet River Weir	Refurbishment Work	Refurbishment	Water	Bulk	Source Infrastructure	R1,101	R1,200	R1,200							R2,301	Refurbishment
5. Institutional								R0	R0								R0	
6. Water Services Programmes								R0	R0								R0	
Awareness Programs																		
								R0								R0		
WASH Programs																		
								R0								R0		
Total								R13,452	R29,826								R43,278	

SECTION F: WSDP PROJECTS

The identification of projects necessary to ensure the provision of adequate levels of water and sanitation services is based primarily on the findings of the Water and Sewer Master Plans. Master Planning is typically based on a forward planning horizon of 20 years, but is usually updated every three to five years, taking into account improved water demand estimates and subsequent infrastructure developments which may have taken place. The recommended projects from the 2016 Master Plans were incorporated into the WSDP.

The Master Plans represent the ideal infrastructure development required to meet projected water demands over the next few years, while realistic capital investment in infrastructure projects is determined by budget availability. As a result, prioritization of projects is necessary to identify what can be done within the available and projected budget constraints. The prioritization of projects is done through the IDP and annual budget planning process.

Recommended infrastructure projects for implementation in the future will be based on the following plans and processes:

- Water and Sewer Master Plans and Water and Waste Water Treatment Works Master Plans.
- Infrastructure replacement needs (Asset Register)
- Budget proposals
- Asset Management Plans

Overstrand Municipality's key water and sewerage capital infrastructure projects for the next three years are as follows:

- Upgrade various sections of the bulk and internal water reticulation networks, as recommended by the Water Master Plans (Mount Pleasant, Zwelihle, Kleinbaai and Hawston). New Voorberg booster pump station and replacement of various pumps.
- Construction of new reservoir for Sandbaai.
- Continue with the implementation of WDM measures (Meter replacements, pipeline replacements, pressure management, etc.).
- Upgrade of the Hermanus Well Fields Phase 1.
- Upgrade and extension of various sections of the bulk sewer pipelines and internal drainage networks (Hermanus, Stanford, Kleinmond, Gansbaai), as recommended by the Sewer Master Plans.
- Upgrade of the Stanford WWTW.
- Upgrade some of the sewer pump stations and replacement of various pumps.

The new NWRS 2 list the following steps to raise the water profile in development planning:

- Water must be placed at the centre of integrated planning and decision-making, with a specific aim to respond to and support the achievement of national development and sector goals.
- Current budgets need to adequately provide for water, which might mean they have to be doubled to cater for the present needs.
- Current financial values need to appreciate water as a scarce resource and should thus reflect the real value of water. This requires a new value system across all sectors and stakeholders.
- Water efficiency and curbing water losses should be high on the agenda of each individual and institution in the country.
- Water management must be formally embedded in the sector businesses with associated accountability.

The DWS will insist in the future that all water infrastructure which they fund is value engineered against the life-cycle cost with a specific emphasis on energy costs. Evidence will be required that the technical design is appropriate for the nature of the resource and that operation and maintenance of the assets is reasonably within the capability of the responsible institution. New water resources infrastructure will also not be developed or authorized unless effective WC/WDM interventions have been put in place in the affected area.

Overstrand Municipality's recommended implementation strategies, with regard to new water and sewerage infrastructure, are as follows:

- Take the recommended projects, as identified through the Water and Sewer Master Plans and the WSDP, into account during the planning and prioritization process for new infrastructure. Prioritize from the desired list, those items which can be implemented from available funding in the particular financial year.
- Undertake revised master planning at least every two to three years and to use the Master Plans to list the desired infrastructure development requirements and reflect these in the IDP.
- Ensure adequate funds are allocated on an annual basis towards the rehabilitation and maintenance of the existing water and sewerage infrastructure.
- To adopt appropriate technology solutions for the water and sewerage infrastructure challenges. Techniques such as value engineering should also be adopted to ensure that investments in infrastructure and other solutions are cost effective over the full life-cycle and designed to be fit for purpose.
- To ensure adequate funding for the full lifecycle cost of the new water and sewerage infrastructure, which will include funds for the operation and maintenance of the infrastructure and regular refurbishment.
- Give attention to the provision of basic water and sanitation services in the rural areas, once clear National Policy guidelines are available.
- Assign a high priority to the implementation of Overstrand Municipality's WDM Strategy (Demand Management) in order to postpone additional capital investment for as long as possible, both from the water availability perspective as well as from the treatment of increased effluent volumes. The costs of physical water loss, the capital requirements for new water resources infrastructure, and the constraints of poor water availability on water dependent economic growth means that WC/WDM is a critical management priority for stretching the financial resources of the Municipality. WC/WDM is almost always a more cost-effective solution than the implementation of new infrastructure, and no new infrastructure should be developed until unauthorized water has been reduced to manageable volumes.
- Balance land-use and development planning (SDFs and Growth Management Strategy) in accordance with the availability of water and the capacity of WTWs and WWTWs that are in place or that will be implemented.

The current needs projects are estimated at R88.385 million of which 96% are funded, as included in the MTEF project list. It should however be emphasised that additional funding will be required to address the full achievement of the water services strategies as outlined in Section D, but that the extent of such additional funding can only be determined, once initial investigations and activities have been concluded.

Table F.1: WSDP FY2017/18: LIST OF CONCEPTUAL PROJECTS

Nr	Situation Assessment (Problem Definition)	Solution description as defined by topic situation assessment (Strategy)	Conceptual project	Is there an existing project addressing this problem?	Existing Projects Information			Does this current listed project address the problem totally?	Approved by Council, in project database and part of 5 year IDP cycle projects?	Project listed in 3yr MTEF - cycle?
					Project Number (Dept)	Project Title	Project Cost R'000			
CURRENT NEEDS										
Water Services Development Planning										
1.1	WSDP Performance and Water Services Audit Report needs to be drafted annually	Compile annual WSDP Performance and Water Services Audit Report	WSDP	Yes	O&M	Compile annual WSDP Performance and Water Services Audit Report	R175	Yes	Yes	Yes
1.2	Regular updating of WSDP	Update WSDP every two to three years	WSDP	Yes	O&M	Regular updating of WSDP	R400	Yes	Yes	Yes
Business Element 2: Demographics (Topic 2)										
	Done by other Department									
Business Element 3: Service Levels (Topic 3)										
3.1	Some households on the farms without basic water services.	Ensure all households on farms are provided with at least basic water services, subject to DWS guidance.	WSDP	No	WSDP	Provide basic water services on the farms in the rural areas without basic water services.	R664	Yes	No	No
3.2	Some households on the farms without basic sanitation services.	Ensure all households on farms are provided with at least basic sanitation services, subject to DWS guidance.	WSDP	No	WSDP	Provide basic sanitation services on the farms in the rural areas without basic sanitation services.	R2,160	Yes	No	No
Business Element 4: Socio-Economic Background (Topic 4)										
	Done by other Department									
Business Element 5: Water Services Infrastructure Management (Topic 5)										
5.1	Inadequate reservoir storage capacity	Additional reservoir storage capacity for Mount Pleasant	MTEF Project	Yes		New 1 Ml reservoir for Mount Pleasant (OHW.B31)	R3,610	Yes	Yes	Yes
5.2	Upgrade pre treatment facilities at Pearly Beach WTW	Ensure compliance with SANS241:2015 water quality standards	MTEF Project	Yes		Pearly Beach WTW Pre-Treatment	R1,650	Yes	Yes	Yes
5.3	Inadequate pressure and supply	Ensure adequate pressure and supply	MTEF Project	Yes		New Voorberg Booster Pump Station	R800	Yes	Yes	Yes
5.4	Capacities of existing sewer pump stations are inadequate	Upgrading of sewer pump stations capacities	MTEF Project	Yes		Upgrading of pump stations	R10,124	Yes	Yes	Yes
5.5	Not all areas connected to waterborne sewer network	Sewer network extensions	MTEF Project	Yes		Sewer network extension for Stanford	R4,932	Yes	Yes	Yes
5.6	Ensure pump capacity during power failures	Link sewer pump station with generators	MTEF Project	Yes		Peach House and Whale Rock PS link with Generators	R430	Yes	Yes	Yes
5.7	Bulk pipeline capacity is inadequate	Upgrade bulk pipeline capacity	MTEF Project	Yes		Rehabilitate main bulk sewer to Kleinmond WWTW Phase 1	R3,770	Yes	Yes	Yes
5.8	Bulk pipeline capacity is inadequate	Upgrade bulk pipeline capacity	MTEF Project	Yes		Bulk sewerage outfall line 525mm dia OHS13.2	R3,282	Yes	Yes	Yes
5.9	Bulk pipeline capacity is inadequate	Upgrade bulk pipeline capacity	MTEF Project	Yes		Upgrading of Franskraal-Kleinbaai-Gansbaai Pipelines	R8,400	Yes	Yes	Yes
5.10	Bulk pipeline capacity is inadequate	Upgrade bulk pipeline capacity	MTEF Project	Yes		Bulk water upgrade for housing project Hawston	R6,626	Yes	Yes	Yes
5.11	Capacity of WWTW is inadequate	Upgrade capacity of WWTW	MTEF Project	Yes		Upgrade Stanford WWTW	R4,000	Yes	Yes	Yes
5.12	Bulk pipeline capacity is inadequate	Upgrade bulk pipeline capacity, new PS and Rising Main.	MTEF Project	Yes		Upgrading of Kidbrooke Sewer Pipeline	R2,592	Yes	Yes	Yes
5.13	Existing storage capacity is inadequate	Additional reservoir storage capacity for Sandbaai	MTEF Project	Yes		New bulk reservoir for Sandbaai	R9,500	Yes	Yes	Yes
5.14	Not all areas connected to waterborne sewer network	Sewer network extensions	MTEF Project	Yes		Sewer network extension for Kleinmond	R5,100	Yes	Yes	Yes
5.15	Not all areas connected to waterborne sewer network	Sewer network extensions	MTEF Project	Yes		CBD Sewer network extension for Gansbaai	R3,560	Yes	Yes	Yes
5.16	Existing bridge, tower and weir need to be refurbished	Refurbishment of existing infrastructure	MTEF Project	Yes		Refurbish Buffels River Dam Tower	R2,116	Yes	Yes	Yes
Business Element 6: Operation and Maintenance (Topic 6)										
6.1	Inadequate pump capacity	Sustainable operation	MTEF Project	Yes		Water Pumps Contingency	R600	Yes	Yes	Yes
6.2	Inadequate pump capacity	Sustainable operation	MTEF Project	Yes		Sewer Pumps Contingency	R1,500	Yes	Yes	Yes
6.3	WTW Process Audits need to be done annually	Sustainable operation	WSDP	Yes	O&M	Annual WTW Process Audits	R150	Yes	No	No
6.4	WWTW Process Audits need to be done annually	Sustainable operation	WSDP	Yes	O&M	Annual WWTW Process Audits	R150	Yes	No	No

Table F.1: WSDP FY2017/18: LIST OF CONCEPTUAL PROJECTS

Nr	Situation Assessment (Problem Definition)	Solution description as defined by topic situation assessment (Strategy)	Conceptual project	Is there an existing project addressing this problem?	Existing Projects Information			Does this current listed project address the problem totally?	Approved by Council, in project database and part of 5 year IDP cycle projects?	Project listed in 3yr MTEF - cycle?
					Project Number (Dept)	Project Title	Project Cost R'000			
CURRENT NEEDS										
Business Element 7: Associated Services (Topic 7)										
	None									
Business Element 8: Conservation and Demand Management - Water Resource (Topic 8.1)										
8.1.1	Regular pipe bursts	Replacement of Reticulation Network to reduce NRW	MTEF Project	Yes		Replacement of Overstrand water pipes	R7,894	Yes	Yes	Yes
Business Element 8: Conservation and Demand Management - Water Balance (Topic 8.2 & 8.3)										
	Done internally									
Business Element 9: Water Resources (Topic 9)										
9.1	Yield of existing Hermanus resources is inadequate to meet future requirements.	Augmentation of Hermanus groundwater resources	MTEF Project	Yes		Upgrade Hermanus Well Fields Phase 1	R4,000	Yes	Yes	Yes
9.2	Industrial consumers not yet monitored wrt quality and quantity of effluent discharged	Ensure that all industrial consumers are monitored wrt the quality and quantity of effluent discharged by	WSDP	No	WSDP	Monthly monitoring of industrial effluent	R200	Yes	No	No
Business Element 10: Financial Profile (Topic 10)										
	Done by other Department									
Business Element 11: Water Services Institutional Arrangements (Topic 11)										
	Done internally									
Business Element 12: Social and Customer Service Requirements (Topic 12)										
	Done internally									
TOTAL: CURRENT NEEDS							R88,385			
	Funded						R84,505			
	% funded						96%			
FUTURE NEEDS										
Infrastructure										
F.1	Inadequate capacity of existing internal water reticulation networks	Ensure a adequate internal water reticulation capacity	Water Master Plan	No	Various	Future internal reticulation network items for Buffels River	R9,567	Yes	No	No
F.2			Water Master Plan	No	Various	Future internal reticulation network items for Kleinmond	R4,704	Yes	No	No
F.3			Water Master Plan	No	Various	Future internal reticulation network items for Greater Hermanus	R36,928	Yes	No	No
F.4			Water Master Plan	No	Various	Future internal reticulation network items for Stanford	R3,579	Yes	No	No
F.5			Water Master Plan	No	Various	Future internal reticulation network items for Greater Gansbaai	R54,220	Yes	No	No
F.6			Water Master Plan	No	Various	Future internal reticulation network items for Pearly Beach	R1,548	Yes	No	No
F.7	Inadequate capacity of existing bulk water infrastructure (Reservoirs, pump stations and bulk pipelines)	Ensure a adequate bulk water supply capacity	Water Master Plan	No	Various	Future reservoirs and pump stations for Buffels River	R23,247	Yes	No	No
F.8			Water Master Plan	No	Various	Future reservoirs and pump stations for Kleinmond	R5,914	Yes	No	No
F.9			Water Master Plan	No	Various	Future reservoirs and pump stations for Greater Hermanus	R84,286	Yes	No	No
F.10			Water Master Plan	No	Various	Future reservoirs and pump stations for Stanford	R4,949	Yes	No	No
F.11			Water Master Plan	No	Various	Future reservoirs and pump stations for Greater Gansbaai	R84,213	Yes	No	No
F.12			Water Master Plan	No	Various	Future reservoirs and pump stations for Pearly Beach	R5,228	Yes	No	No
F.13	Reduce NRW	Implementation of WDM measures	Water Master Plan	No	Various	Future WDM items for Overstrand	R1,767	Yes	No	No
F.14	Inadequate capacity of existing internal sewer drainage network	Ensure a adequate internal sewer drainage capacity	Sewer Master Plan	No	Various	Future internal sewer drainage network items for Buffels River	R129,658	Yes	No	No
F.15			Sewer Master Plan	No	Various	Future internal sewer drainage network items for Kleinmond	R47,703	Yes	No	No
F.16			Sewer Master Plan	No	Various	Future internal sewer drainage network items for Greater Hermanus	R93,282	Yes	No	No
F.17			Sewer Master Plan	No	Various	Future internal sewer drainage network items for Stanford	R10,553	Yes	No	No
F.18			Sewer Master Plan	No	Various	Future internal sewer drainage network items for Greater Gansbaai	R123,335	Yes	No	No
F.19			Sewer Master Plan	No	Various	Future internal sewer drainage network items for Pearly Beach	R23,111	Yes	No	No
F.20			Sewer Master Plan	No	Various	Future internal sewer drainage network items for Baardskeedersbos	R2,957	Yes	No	No
F.21			Sewer Master Plan	No	Various	Future internal sewer drainage network items for Buffeljags Bay	R301	Yes	No	No

Table F.1: WSDP FY2017/18: LIST OF CONCEPTUAL PROJECTS

Nr	Situation Assessment (Problem Definition)	Solution description as defined by topic situation assessment (Strategy)	Conceptual project	Is there an existing project addressing this problem?	Existing Projects Information			Does this current listed project address the problem totally?	Approved by Council, in project database and part of 5 year IDP cycle projects?	Project listed in 3yr MTEF - cycle?
					Project Number (Dept)	Project Title	Project Cost R'000			
FUTURE NEEDS										
F.22	Inadequate capacity of existing sewer pump stations	Ensure adequate bulk sewerage, pump station and rising mains capacity	Sewer Master Plan	No	Various	Future sewer pump stations and rising mains for Buffels River	R65,940	Yes	No	No
F.23			Sewer Master Plan	No	Various	Future sewer pump stations and rising mains for Kleinmond	R335	Yes	No	No
F.24			Sewer Master Plan	No	Various	Future sewer pump stations and rising mains for Greater Hermanus	R19,216	Yes	No	No
F.25			Sewer Master Plan	No	Various	Future sewer pump stations and rising mains for Stanford	R2,927	Yes	No	No
F.26			Sewer Master Plan	No	Various	Future sewer pump stations and rising mains for Greater Gansbaai	R43,641	Yes	No	No
F.27			Sewer Master Plan	No	Various	Future sewer pump stations and rising mains for Pearly Beach	R5,514	Yes	No	No
F.28	No sewer dainage network or plant	Ensure adequate treatment capacity	Sewer Master Plan	No	Various	New conservancy tank or package plant for existing erven	R731	Yes	No	No
F.29	No sewer dainage network or plant	Ensure adequate treatment capacity	Sewer Master Plan	No	Various	New conservancy tank or package plant for existing erven	R731	Yes	No	No
F.30	Capacity of existing WWTW is inadequate	Ensure adequate treatment capacity	WSDP	No	OS1415085	Hawston WWTW Upgrading	R6,500	Yes	No	No
F.31	Capacity of existing WWTW is inadequate	Ensure adequate treatment capacity	WSDP	No	OS1415037	Expand Gansbaai WWTW	R10,000	Yes	No	No
F.32	Capacity of existing WWTW is inadequate	Ensure adequate treatment capacity	WSDP	No	OS1415098	Upgrade Kleinmond WWTW	R8,000	Yes	No	No
F.33	Capacity of existing WWTW is inadequate	Ensure adequate treatment capacity	WSDP	No	OS1415099	Upgrade Kleinmond WWTW to 3.8 MI/d	R136,459	Yes	No	No
F.34	Capacity of bulk supply pipeline is inadequate to meet future water requirements.	Ensure adequate bulk water supply capacity	WSDP	No	OS1415040	Upgrade bulk supply from Franskraal Dam to Franskraal WTW	R3,500	Yes	No	No
F.35	Existing WTW needs to be refurbished	Ensure WTW remains fully operational	WSDP	No	OS1415097	Refurbishment of Kleinmond WTW	R5,000	Yes	No	No
F.36	Lack of adequate treatment of raw water	Ensure adequate treatment capacity	WSDP	No	OS1415131	New WTW for Buffeljags Bay	R1,500	Yes	No	No
F.37	Capacity of bulk supply pipeline is inadequate to meet future water requirements.	Ensure adequate bulk water supply capacity	WSDP	No	OS1415041	Upgrade bulk supply from Kraaibosch Dam to Franskraal Dam	R44,000	Yes	No	No
F.38	Existing WTW needs to be refurbished	Ensure WTW remains fully operational	WSDP	No	OS1415111	Refurbishment of Buffels River WTW	R5,000	Yes	No	No
F.39	Existing WTW needs to be refurbished	Ensure WTW remains fully operational	WSDP	No	OS1415117	Refurbishment of Pearly Beach WTW	R5,000	Yes	No	No
Resources										
F.40	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	WSDP	No	OS1415042	Augmentation of Greater Gansbaai existing sources	R30,000	Yes	No	No
F.41	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	WSDP	No	OS1415067	Re-use of treated effluent for potable use (3MI/day)	R60,000	Yes	No	No
F.42	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	WSDP	No	OS1415068	5MI/day Seawater desalination plant	R60,000	Yes	No	No
F.43	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	WSDP	No	OS1415116	Augmentation of Pearly Beach existing sources	R15,000	Yes	No	No
F.44	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	WSDP	No	OS1415087	Upgrading of Gateway, Camphill and Volmoed Well Fields	R15,000	Yes	No	No
F.45	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	WSDP	No	Not part of Overstrand Projects	Bulk provision to Hermanus by Overberg Water (Theewaterskloof Dam)	Not part of Overstrand Budget	Yes	Yes	No
TOTAL: FUTURE NEEDS							R1,295,043			