OVERSTRAND MUNICIPALITY

EXECUTIVE SUMMARY

WATER SERVICES DEVELOPMENT PLAN FOR

2014/2015

DESCRIPTION **PAGE**

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ABBREVIATIONS AND DEFINITIONS

ACIP	Accelerated Community Infrastructure Programme
AMP	Asset Management Plan
BDS	Blue Drop System
CBO	Community Based Organisation
COD	Chemical Oxygen Demand
CRC	Current Replacement Cost
DMO	Destination Marketing Organisation
DRC	Depreciated Replacement Cost
DWA	Department of Water Affairs
EC	Electrical Conductivity
EHP	Environmental Health Practitioners
EIA	Environmental Impact Assessment
EMS	Environmental Management Services
GAMAP	General Accepted Municipal Accounting Practices
HL	Higher Level
IAMP	Infrastructure Asset Management Plan
IDP	Integrated Development Plan
ILI	Infrastructure Leakage Index
KPI	Key Performance Indicator
l/s	Litres per second
LED	Local Economic Development
LL	Lower Level
m^3/a	Cubic metre per year
MAP	Mean Annual Precipitation
MAR	Mean Annual Runoff
MBH	Monitoring Borehole
Ml	Mega litre
Ml/d	Mega litre per day
MP	Master Plan
NGO	Non-Governmental Organisations
O&M	Operation and Maintenance
OMAF	Overstrand Municipal Advisory Forum
OREIA	Overstrand Rehabilitation and Educational Institute for Adolescents
ORIO	Facility for Infrastructure Development
P&G	Preliminary and General
PAT	Progress Assessment Tool
PDD	Peak Daily Demand
PRV	Pressure Reducing Valve
PS	Pump Station
RBIG	Regional Bulk Infrastructure Grant
RDP	Reconstruction and Development Programme
RPMS	Regulatory Performance Management System

ABBREVIATIONS AND DEFINITIONS / Continue

RUL	Remaining Useful Life
SANS	South African National Standards
SDBIP	Service Delivery Budget Implementation Plan
SDF	Spatial Development Framework
SFWS	Strategic Framework for Water Services
SMME	Small Medium Micro Enterprise
TMG	Table Mountain Group
TWL	Top Water Level
WC/WDM	Water Conservation / Water Demand Management
WCNCB	Western Cape Nature Conservation Board
WDM	Water Demand Management
WSA	Water Services Authority
WSDP	Water Services Development Plan
WSP	Water Services Provider
WTW	Water Treatment Works
W_2RAP	Wastewater Risk Abatement Plan
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^{o}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: • 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, i.e. it involves a change of user. 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 • 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.

EXECUTIVE SUMMARY

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. The business elements included in the guidelines and addressed in detail in the three 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 2014/2015 WSDP of Overstrand Municipality consists of the following documents.

- Executive Summary document (For Council approval and Public Participation Process)
- Module1: Overview and assessment of the status of information and strategies on a WSA level.
- Module 2: Detailed information: Enabling factors compliancy supportive information.
- Module 3: Future plans and strategic supportive information.

The primary instrument of planning in the water services sector is the WSDP. The following principles apply to the WSDP:

- 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 DWA.

- A WSA must report annually and in a public way on progress in implementing the plan (Water Services Audit Report).

1. CRITICAL DEVELOPMENTS AND ASSOCIATED FACTORS THAT IMPACTS OUR AREA FOR THE IMMEDIATE FUTURE

1.1 Urban versus Rural Backlogs

There is no basic water and sanitation services backlog in the urban areas of Overstrand Municipality's Management Area. The 2011 Census data however indicated that there are still some households on the farms in the rural areas with existing service levels below RDP standard. Overstrand Municipality is however committed to work with the private landowners in order to ensure that basic services are provided to these households by the private landowners.

The Municipality's biggest challenge is to address the housing backlog in the urban areas and to ensure that the necessary bulk infrastructure is in place in order to meet the future demands. Various bulk infrastructure capital projects were completed over the last number of years in order to ensure that the bulk water infrastructure can meet the future demands for the various towns.

Adequate funds also need to be allocated to essential rehabilitation and maintenance of the existing infrastructure in addition to the need to extend services to poor communities as both are priorities which need to be addressed. The existing infrastructure is in a relative good state and therefore it is important for the Municipality to maintain the existing public investment. Overstrand Municipality is committed to allocate adequate funds for the rehabilitation and maintenance of their existing infrastructure. Such maintenance is however in competition with the need to extend services to the poor communities. The Municipality realises that the lack of adequate maintenance of existing assets could result in the total collapse of such service, with enormous economic consequences.

1.2 Reliance on Water Resources Available and Bulk Infrastructure

Overstrand Municipality investigated and implemented various augmentation options over the last few years for the various towns in order to meet the projected future water demands. A detail investigation was done of the water resources for the area from Rooi Els to Kleinmond and the recommendations from the Study will be implemented.

The Gateway, Camphill and Volmoed Well fields were developed by Overstrand Municipality as additional groundwater resources for the greater Hermanus Area. A detail feasibility study was also completed for the re-use of treated effluent from the Hermanus WWTW. Both the Preekstoel WTW and the Hermanus WWTW were upgraded with funding support from the DWA's Regional Bulk Infrastructure Grant.

New bulk supply pipelines were constructed for Stanford in order to connect the two newly drilled boreholes to the existing water reticulation network. The viability of irrigating the sports fields with treated effluent from the Stanford WWTW was also investigated.

A new Reverse Osmosis Filtration WTW was constructed in De Kelders in order to fully utilise the Klipgat and Grotte resources and improve the quality of the water. A new Pearly Beach WTW was also constructed.

Two new boreholes will be commissioned soon for the augmentation of Baardskeerdersbos' existing surface water source.

1.3 Links between Water Supply and Sanitation

The Water and Sewer Master Plans of Overstrand Municipality are linked to their SDF. The future development areas were identified as part of the SDF. Bulk water and sewer infrastructure and water and sanitation services are balanced with land usage and development planning. All service delivery is done in accordance with the availability of water and the capacities of the WTWs and WWTWs that are in place or that will be implemented.

1.4 Limited Implementation and Operating Capacity in Some Municipalities

Overstrand Municipality is currently busy with a Section 78 Investigation to review their current bulk water services delivery mechanism. The focus of the Section 78 assessment is how to optimise service delivery to the Overstrand community. The current debate is whether current arrangements can address the service delivery and community needs effective and efficiently in the longer term, given the expansion and upgrade of the WTWs and the WWTWs.

The municipal staff is however at a technical, operations and management level continuously exposed to training opportunities, skills development and capacity building in an effort to create a more efficient overall service to the users. Overstrand Municipality will also continue with their mentoring role for operators, ensuring an adequately trained and classified workforce with dedicated training programmes for supervisors and operators. Budgets need to be established 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.

1.5 Available funding

The estimated Capital Budget for Water and Sewerage Infrastructure are R26.8 million for 2014/2015, R39.28 million for 2015/2016 and R44.51 million for 2016/2017. Overstrand Municipality will also continue with the sourcing of all possible external sources of funding for their capital projects. An Asset Management Plan needs to be developed from the available Asset Register, which will indicate the real replacement values and service lives of the assets and the funds required to provide for adequate asset replacement.

1.6 Affordability of Service Levels (Operation and Maintenance Costs)

Both Water and Sanitation Services are currently managed by Overstrand Municipality in a financial sustainable manner. The Municipality operates a step water tariff system with drought tariffs that can also be implemented. The sewer tariffs are also linked to the water consumption. A surplus was generated from both the Water and Sewerage Services during the last three financial years.

1.7 Growing Backlog in Refurbishment of Existing Infrastructure

Overstrand Municipality has been one of the more proactive municipalities in the Western Cape Province in responding to the call from many quarters to improve the management of municipal infrastructure assets. An Infrastructure Asset Register is in place for all water and sanitation infrastructure. The depreciated replacement costs were calculated for the entire infrastructure, which indicated that 33.4% of the value of the water infrastructure has been consumed and 53.7% of the value of the sewerage network has been consumed.

It is essential for Overstrand Municipality to protect their assets by ensuring that an Infrastructure Asset Management Plan is developed and implemented. This plan is 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. 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.

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. A regime of planned preventative maintenance should be established for all infrastructure assets classified as critical and important in the Asset Register. Consideration is being given to the establishment of a maintenance management system to 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.

1.8 Major Economic Development

Investing in infrastructure creates an enabling environment for economic growth and is an important precondition for sustainable growth. Although Overstrand Municipality has a potential for growth at much higher rates, failure to ensure adequate rehabilitation and maintenance of the existing infrastructure poses a serious threat to the local economy. The deterioration of water and sewerage networks and rapid development, which is not always matched by growing capital expenditure, can further exacerbate the situation. Overstrand Municipality therefore needs to continue with the rehabilitation and maintenance of their existing infrastructure in order to ensure the medium to long term sustainability of the existing infrastructure.

1.9 Associated Population Growth and Water Demand

Overstrand Municipality's population growth over the period 2001 to 2011 was 3.73%. The detail future water demand projection models for each of the distribution systems were updated as part of the WSDP process. The Municipality also actively implements their WDM Strategy and various WDM activities in order to reduce their current percentage of non-revenue water as far as possible and to keep the future water demand as low as possible. Overstrand Municipality is also currently busy with the implementation of various augmentation options, in order to meet the future demands of the various towns.

2. 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.

The 2014/2015 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.

Community Participation: 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)

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

Table 2.1: Vision and Mission Statement of Overstrand Municipality
VISION STATEMENT
"To be a centre of excellence for the community"
MISSION STATEMENT
"Creation of sustainable communities by delivering optimal services to support economic, social and environmental goals in a politically stable environment"

3. DEMOGRAPHICS

3.1 Status Quo

Overstrand Municipality falls within the Breede-Gourtiz Management Area and covers areas such as Rooi Els, Pringle Bay, Betty's Bay, Kleinmond, Greater Hermanus, Stanford, Greater Gansbaai, Pearly Beach, Baardskeerdersbos, Buffeljags Bay and the farms in the rural areas.

The most significant challenges, from a Water Services perspective are the augmentation of the existing water sources, the replacement and upgrading of old 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 private 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.

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.

By protecting water resources, a system that is more resilient to the impact of climate change, such as floods and droughts will be ensured. In addition, a healthy functioning ecosystem can assist in mitigating some of the impacts of climate change on society. For example, well-functioning wetlands can minimise the impacts of floods and ensuring good riparian habitat can provide shading and minimise evaporation from the water resources. Groundwater aquifers can provide safe storage of water for use, if they are protected and not over-abstracted or polluted, for example, by untreated effluent.

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.

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.

An Environmental Management Services Section (EMS) was created to advise Council on environmental concerns. The EMS section addresses the concerns of environmental management policy, public participation, scientific decision support and compliance with the provisions of Environmental Legislation. This focus will guide and promote continual improvement in the management of the natural environment within the municipal region.

Demographic Perspective:

Economics: Overstrand Municipality was the fastest growing Municipality in the Overberg Region, growing at 6.8% per annum over the period 2000 – 2011 (Real GDPR growth rate). Overstrand- and Theewaterskloof Municipality have the largest municipal economies and combined accounted to close to 70% of the region-wide GDPR in 2011. Most of the economic activity is presently occurring in Hermanus with Gansbaai showing all the signs of fast growing economic activity. Manufacturing, wholesale and retail trade; catering and accommodation and finance and business services are the most important economic sectors.

The Overstrand Municipality's economy has shown positive growth signs in the past five years. It can be described as healthy and with great economic potential surpassing other municipalities in the region. This growth happened against the backdrop of the economic downturn and does not neglect the fact that some sectors suffered in the period.

There are two dominant features of the local economy that merit high level attention. First, the future of the Overstrand economy cannot be separated from the region's natural heritage. The physical beauty of the area is its single biggest asset, but the natural resource base may also limit growth if resources are not effectively managed. In Overstrand the economy and its ecology are inseparable. Overstrand Municipality has a fairly diversified economy and a great potential for tourism.

The second is the highly racialised and geographically concentrated poverty of the area. Economic forces (e.g. the decline in fishing and the seasonality of tourism and agriculture) impact negatively on the semi-skilled and unskilled workforce of Overstrand, while the growth sectors have benefited mainly the wealthy. In migration of poor and unskilled people to the area is associated with rising rates of poverty and inequality. Other than the formal safety nets of grants, the poor depend on informal work (construction) or on the third economy of illegal livelihoods (e.g. abalone poaching).

Social: The key human development issues facing the Municipality include poverty and unemployment. People migrating to the Overstrand have far reaching implications for the Municipality as it has a major effect on the economy. In-migration of people has an impact on the provision of housing and services, unemployment, poverty and the economy in general.

3.2 Gaps and Strategies

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:

Table 3.2.1: Six key strategies that should underpin all spatially related decision making (SDF)

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.

Table 3.2.1: Six key strategies that should underpin all spatially related decision making (SDF)	
Spatial Development Strategy	**Strategy**
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 economic development projects / drivers	Stimulate economic growth and development linked to the comparative locational advantage. 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.

4. SERVICE LEVELS

4.1 Status Quo

The current (2012/2013) residential water and sanitation service levels in Overstrand Municipality's Management Area are estimated as follows:

Table 4.1.1: Residential water and sanitation service levels

Service Level	Buffels River	Kleinmond	Greater Hermanus	Stanford	Greater Gansbaai	Pearly Beach	Baards-keerdersbos	Buffeljags Bay	Farms	Total
WATER SERVICE LEVELS										
Basic Need (RDP)	0	0	0	0	0	0	0	0	83	83
Housing Need (No Services)*	0	0	72	0	0	0	0	0	0	72
Housing Need (Communal Services)*	0	377	1 272	115	1 570	0	0	0	0	3 334
Adequate	3 198	3 898	16 060	1 537	4 441	670	64	29	1 712	31 609
Total	**3 198**	**4 275**	**17 404**	**1 652**	**6 011**	**670**	**64**	**29**	**1 795**	**35 098**
SANITATION SERVICE LEVELS										
Basic Need (RDP)	0	0	0	0	0	0	0	0	270	270
Housing Need (No Services)*	0	0	72	0	0	0	0	0	0	72
Housing Need (Communal Services)*	0	377	1 272	115	1 570	0	0	0	0	3 334
Adequate	3 198	3 898	16 060	1 537	4 441	670	64	29	1 525	31 422
Total	**3 198**	**4 275**	**17 404**	**1 652**	**6 011**	**670**	**64**	**29**	**1 795**	**35 098**

Note: * Informal areas with no services or communal services, exclude backyard dwellers on formal erven

4.2 Gaps and Strategies

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.

Water and Sanitation Service Level Policies for Overstrand Municipality are not yet in place, but the service levels to be provided by the Municipality to the consumers in their Management Area are however addressed 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 house 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 inside the houses (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.

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. 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.

5. SOCIO ECONOMIC BACKGROUND

5.1 Status Quo

The 2001 Census recorded the population in the Overstrand Municipality's Management Area at 55 770 (19 082 Households) and the 2011 Census data recorded the population at 80 430 (28 011 Households). The population of Overstrand Municipality is currently estimated at approximately 87 030 persons for 2012/2013.

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 demand projection models for each of the water distribution systems. The estimated current population and the population growth rates for the various distribution systems are summarised in the table below.

Table 5.1.1: 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 2012/2013		Number of Residential Consumer Units for 2012/2013 + HH in Informal Areas
		Popula-tion	Number of Households	Persons / Household		Popula-tion	Number of Households (Permanent)	
Buffels River	4.15%	2 306	1 158	1.99	5.00%	2 542	1 277	3 192
					4.15%	2 501	1 257	
Kleinmond	2.50%	6 634	2 733	2.43	3.00%	7 038	2 896	3 435 + 377 = 3 812
					2.50%	6 970	2 868	
Greater Hermanus	4.45%	46 856	15 618	3.00	5.50%	52 152	17 384	13 701 + 1 344 = 15 045
					4.45%	51 119	17 040	
Stanford	2.65%	4 797	1 493	3.21	4.50%	5 238	1 632	1 119 + 115 = 1 234
					2.65%	5 055	1 575	
Greater Gansbaai	4.89%	13 319	4 658	2.86	5.50%	14 824	5 183	4 166 + 1 570 = 5 736
					4.89%	14 653	5 123	
Pearly Beach	2.11%	1 042	485	2.15	6.00%	1 171	545	659
					2.11%	1 086	505	
Baardskeerdersbos	0.05%	103	39	2.64	0.50%	104	39	63
					0.50%	104	39	
Buffeljags Bay	1.56%	5 373	1 827	2.94	0.50%	73	29	29
					0.50%	73	29	
Farms					1.56%	5 469	1 860	*1 860*
TOTALS	**4.04%**	**80 430**	**28 011**	**2.87**		**88 611**	**30 845**	**31 630**
					4.04%	**87 030**	**30 296**	

Overstrand Municipality had the highest number of households 4 585 in 2011 in the Overberg Region that received no income. The number of indigent households in Overstrand Municipality increased from 5 727 in September 2012 to 6 423 in August 2013. The number of people employed grew from 18 619 in 2001 to 27 260 in 2011, which represents an average annual increase of 3.89%. The overall unemployment rate increased from 22.7% to 23.3% over the same period. Overstrand Municipality plays a key role in assisting organisations delivering services to the most vulnerable groups in its communities.

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 biggest economic growth sectors over the period 2000 - 2011 were Finance, insurance, real estate and business services (10.8%), Transport, storage and communication (9.5%) and Construction (8.1%). The Overstrand economy has improved over the last few years and has experienced significant growth within specific sectors which is assisted with job creation. Tourism growth indicated positive signs, with growth in the number of visitors and attendance in locally organized events such as festivals.

5.2 Gaps and Strategies

Social: The Department of Communication, through the Grant-in-Aid provides financial assistance to qualifying organisations, while the LED Department assists the youth through the creation of employment opportunities and skills development. The Junior Town council assists in rolling out additional projects and programmes to the youth.

The Overstrand Rehabilitation & Educational Institute for Adolescents (OREIA) is a registered NGO that aims to establish a rehabilitation centre in the municipal area that will focus on counselling services, rehabilitation and education facilitation and skills development. The project, still in a conceptual phase, will be managed by an external role-player, with the Hawston Secondary School as a project partner.

A Sustainable Primary Healthcare Facility is planned in the Gansbaai area by the Desmond Tutu Tuberculosis Centre (DTTC), Facility of Health Services, at the University of Stellenbosch. The municipality is considering making land available at a nominal rate, due to the project's significant social benefit.

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. The Overstrand Municipality has compiled a comprehensive Five Year Human Settlement Strategy to guide and improve housing development and is specifically focussed on 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 proposed goals of Overstrand Municipality's economic development strategy are as follows:

- Increase economic growth to 6% per annum by 2014.
- Sustain the natural resource base for future generations
- Broaden participation in the economy.
- Halve official unemployment and poverty by 2014.
- Halve poverty by 2014
- Build the human capital of the residents of Overstrand, especially the poor, in line with the changing needs of the economy.

The LED Strategy comprises of the following eight strategic interventions:

- Facilitate the development of the priority economic sectors in Overstrand, by utilizing all resources at its disposal including sector development interventions being driven by other spheres of Government to grow the priority sectors identified as tourism, creative industries, fishing and agriculture.

- Facilitate connectivity between different types of communities, different interests and the various towns in the Overstrand with a focus on public transport.

- Develop the infrastructural capacity of the Overstrand and ensure an enabling spatial framework by utilising inter alia municipality assets.

- Develop "and deploy" a marketing strategy for the Overstrand. The Destination Marketing Organisation (DMO) was established during February 2008.

- Create an enabling environment for business development and growth with a focus on SMME support.

- Manage the natural resources and state assets with the assistance of other spheres of government in a manner that ensures the long-term transformation and sustainability of the economy.

- Promote the development of the economies of the poor through job creation programmes.

- Assist with developing the human resource and skills base of the people of Overstrand with the creation of training capacity.

6. INFRASTRUCTURE

6.1 Status Quo

Overstrand Municipality is responsible for the operation and maintenance of all the water and sewerage infrastructure summarised in the table below.

Table 6.1.1: Water and Sewerage infrastructure for which Overstrand Municipality is responsible

Component	Description of the main functional tasks
Dams (5)	Bulk raw water storage.
Bulk supply pipelines (71 km)	Bulk water supply to urban areas.
WTW: Buffels River	Chemical dosing (Alum and Soda Ash), flocculation, sedimentation, filtration (Rapid gravity sand filters), stabilization (Soda Ash) and disinfection (Chlorine Gas).
WTW: Disakloof (Not in use)	Filtration (Rapid gravity sand filters) and disinfection (Chlorination).
WTW: Kleinmond	Chemical dosing (Alum and Lime), flocculation, sedimentation, filtration (Rapid gravity sand filters), stabilization (Soda Ash) and disinfection (Chlorine Gas).
WTW: Preekstoel	Chemical dosing (Alum, Poly-electrolyte and Lime), flocculation, sedimentation, filtration (Rapid gravity sand filters), stabilization (Lime) and disinfection (Cl Gas or HTH Granules as back-up).
WTW: Hermanus Groundwater (Temporary)	Pre-oxidation, chemical dosing (Caustic Soda and Potassium Permanganate) and disinfection (Chlorine Gas).
WTW: Franskraal	Chemical dosing (Alum, Poly-electrolyte, Soda-Ash), flocculation, sedimentation, filtration (Rapid gravity sand filters), disinfection (Cl Gas) and stabilization (Soda-Ash).
WTW: De Kelders	Reverse Osmosis Plant and Disinfection (Chlorine Gas). The plant was commissioned in 2011/2012.
WTW: Pearly Beach	Ultra Filtration and disinfection (Cl Gas)
WTW: Baardskeerdersbos	Filtration (Pressure sand filters) and disinfection (Cl Gas). New ultra filtration plant is under construction.
WTW: Buffeljags Bay	Disinfection (Cl gas)
Water Reticulation (709 km)	Water distribution to consumers
Potable Water Pump stations (23)	Ensure adequate pressure and supply to specific areas

Table 6.1.1: Water and Sewerage infrastructure for which Overstrand Municipality is responsible	
Component	**Description of the main functional tasks**
Reservoirs (44)	Balancing peak demands and providing some emergency storage
Water Towers (1)	Ensure adequate pressure for high lying areas, balancing peak demands and providing some emergency storage.
Sewer Reticulation (346 km)	Collecting sewerage
Sewer Pump Stations (40)	Pumping sewerage to WWTWs
WWTWs (5)	Activated Sludge Systems at Kleinmond, Hawston, Hermanus and Stanford. Nereda system at Gansbaai.

A new oxidation pond WWTW is planned 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.

Water Infrastructure: The current and depreciated replacement cost of the water infrastructure of Overstrand Municipality is summarised in the table below (June 2013):

Table 6.1.2: CRC and DRC of the water infrastructure			
Asset Type	**CRC**	**DRC**	**% DRC/CRC**
Dams	R 19 799 712	R 7 457 459	37.7%
Boreholes	R 19 968 474	R 2 922 590	14.6%
Monitoring Boreholes	R 2 620 410	R 1 224 412	46.7%
Bulk Water Pipelines	R 112 318 262	R 75 979 958	67.6%
Pump Stations	R 30 635 014	R 20 851 400	68.1%
Reservoirs	R 143 346 185	R 70 544 837	49.2%
Water Reticulation Pipelines	R 507 272 851	R 399 471 844	78.7%
Consumer Connections	R 247 919 000	R 237 379 386	95.7%
Buffels River WTW	R 41 355 727	R 33 290 289	80.5%
Kleinmond WTW	R 15 384 719	R 13 078 887	85.0%
Preekstoel WTW	R 123 357 558	R 26 869 340	21.8%
Franskraal New WTW	R 32 879 243	R 7 082 465	21.5%
Franskraal Old WTW	R 46 544 546	R 6 275 690	13.5%
Buffeljags Bay WTW	R 99 275	R 14 584	14.7%
Baardskeerdersbos WTW	R 75 903	R 15 180	20.0%
Pearly Beach WTW	R 907 754	R 154 412	17.0%
Stanford WTW	R 99 075	R 19 815	20.0%
De Kelders WTW	R 12 017 612	R 301 568	2.5%
Totals	**R 1 356 601 325**	**R 902 934 116**	**66.6%**

The above table means that 33.4% of the value of the water supply network has been consumed.

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

Table 6.1.3: RUL by facility type for the water infrastructure (CRC)					
Asset Type	**0 – 5 yrs**	**5 – 10 yrs**	**10 – 15 yrs**	**15 – 20 yrs**	**> 20 yrs**
Remaining Useful Life					
Dams	R 80 000	R 225 000	R 426 594	R 316 234	R 18 751 884
Boreholes	R 1 119 199	R 1 655 640	R 2 510 852	R 661 815	R 14 020 969
Monitoring Boreholes	R 150 000	R 1 150 000	R 0.00	R 0.00	R 1 320 410
Bulk Water Pipelines	R 0.00	R 50 567 593	R 9 966 955	R 3 448 611	R 48 335 103
Pump Stations	R 4 638 715	R 18 537 318	R 2 501 929	R 936 846	R 4 020 207
Reservoirs	R 2 408 224	R 14 506 400	R 15 884 797	R 30 811 846	R 79 734 918
Water Reticulation Pipelines	R 0.00	R 362 865 043	R 25 618 431	R 0.00	R 118 789 377
Consumer Connections	R 221 991 000	R 25 928 000	R 0.00	R 0.00	R 0.00
Buffels River WTWs	R 0.00	R 33 720 452	R 601 352	R 149 849	R 6 884 074

Table 6.1.3: RUL by facility type for the water infrastructure (CRC)					
Asset Type	**0 – 5 yrs**	**5 – 10 yrs**	**10 – 15 yrs**	**15 – 20 yrs**	**> 20 yrs**
Kleinmond WTW	R 2 281 194	R 9 563 824	R 253 925	R 197 492	R 3 088 285
Preekstoel WTW	R 5 640 097	R 27 430 020	R 2 386 466	R 25 731 147	R 62 169 828
Franskraal New WTW	R 1 363	R 9 568 880	R 7 692 791	R 0	R 15 616 209
Franskraal Old WTW	R 4 351 854	R 172 669	R 426 594	R 870 042	R 40 723 388
Buffeljags Bay WTW	R 0.00	R 69 997	R 0.00	R 0.00	R 29 278
Baardskeerdersbos WTW	R 0.00	R 75 903	R 0.00	R 0.00	R 0.00
Pearly Beach WTW	R 176 450	R 0.00	R 731 304	R 0.00	R 0.00
Stanford WTW	R 0.00	R 99 075	R 0.00	R 0.00	R 0.00
De Kelders WTW	R 0.00	R 50 000	R 0.00	R 0.00	R 11 967 612
Totals	**R 242 838 095**	**R 556 185 814**	**R 69 001 991**	**R 63 123 882**	**R 425 451 543**

The average water asset renewal needs over the next 10 years is R79.902 million per year and the reinvestment required is R242.838 million in the first 5 years and R556.186 million in the second 5 year period.

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

Table 6.1.4: Age distribution by facility type for the water infrastructure (CRC)					
Asset Type	**0 – 5 yrs**	**5 – 10 yrs**	**10 – 15 yrs**	**15 – 20 yrs**	**> 20 yrs**
Age distribution by Facility Type					
Dams	R 92 780	R 0.00	R 771 932	R 305 000	R 18 630 000
Boreholes	R 17 989 671	R 863 889	R 830 485	R 0.00	R 284 430
Monitoring Boreholes	R 0.00	R 0.00	R 1 320 410	R 0.00	R 1 300 000
Bulk Water Pipelines	R 11 188 709	R 11 624 495	R 0.00	R 13 085 419	R 76 419 639
Pump Stations	R 5 137 232	R 2 582 544	R 11 338 795	R 1 149 612	R 10 426 832
Reservoirs	R 20 209 940	R 7 750 650	R 9 197 312	R 6 033 451	R 100 154 833
Water Reticulation Pipelines	R 45 595 483	R 7 372 680	R 26 649 008	R 25 339 749	R 402 315 932
Consumer Connections	R 0.00	R 0.00	R 0.00	R 0.00	R 247 919 000
Buffels River WTW	R 2 599 775	R 5 683 902	R 284 396	R 0.00	R 32 787 654
Kleinmond WTW	R 267 410	R 0.00	R 253 925	R 0.00	R 14 863 385
Preekstoel WTW	R 80 211 457	R 18 865 087	R 3 515 356	R 4 495 693	R 16 269 967
Franskraal New WTW	R 32 877 880	R 1 363	R 0.00	R 0.00	R 0.00
Franskraal Old WTW	R 37 695 007	R 8 849 539	R 0.00	R 0.00	R 0.00
Buffeljags Bay WTW	R 99 275	R 0.00	R 0.00	R 0.00	R 0.00
Baardskeerdersbos WTW	R 75 903	R 0.00	R 0.00	R 0.00	R 0.00
Pearly Beach WTW	R 785 870	R 0.00	R 121 884	R 0.00	R 0.00
Stanford WTW	R 99 075	R 0.00	R 0.00	R 0.00	R 0.00
De Kelders WTW	R 12 017 612	R 0.00	R 0.00	R 0.00	R 0.00
Totals	**R 266 943 079**	**R 63 594 149**	**R 54 283 501**	**R 50 408 924**	**R 921 371 671**

Sewerage Infrastructure: The current and depreciated replacement cost of the sewerage infrastructure of Overstrand Municipality is summarised in the table below (June 2013):

Table 6.1.5: CRC and DRC of the sewerage infrastructure			
Asset Type	**CRC**	**DRC**	**% DRC/CRC**
Sanitation Pump Stations	R 65 287 917	R 32 423 019	50%
Sewer Reticulation Pipelines	R 325 000 751	R 86 339 462	27%
Sewer Consumer Connections	R 177 085 000	R 169 556 705	96%
Septic Tanks	R 99 028	R 1 981	2%
Ablution Blocks	R 155 636	R 3 891	3%
Stanford WWTW	R 13 572 411	R 6 689 362	49%
Hermanus WWTW	R 79 855 551	R 18 373 328	23%
Hawston WWTW	R 10 857 652	R 5 062 663	47%
Kleinmond WWTW	R 9 095 887	R 2 806 754	31%
Gansbaai WWTW	R 28 061 815	R 6 958 920	25%

Table 6.1.5: CRC and DRC of the sewerage infrastructure			
Asset Type	**CRC**	**DRC**	**% DRC/CRC**
Betty's Bay – Conservancy Tanks	R 281 000	R 20 919	7%
Klipfontein – Conservancy Tank	R 146 335	R 29 267	20%
Totals	**R 709 498 984**	**R 328 266 270**	**46.3%**

The information in the previous table means that 53.7% 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 6.1.6: RUL by facility type for the sewerage infrastructure (CRC)					
Asset Type	**0 – 5 yrs**	**5 – 10 yrs**	**10 – 15 yrs**	**15 – 20 yrs**	**> 20 yrs**
RUL					
Sanitation Pump Stations	R 26 352 975	R 10 313 343	R 7 745 326	R 1 165 425	R 19 710 848
Sewer Reticulation Pipelines	R 0.00	R 0.00	R 0.00	R 0.00	R 325 000 751
Sewer Consumer Connections	R 158 565 000	R 18 520 000	R 0.00	R 0.00	R 0.00
Septic Tanks	R 0.00	R 0.00	R 0.00	R 0.00	R 99 028
Ablution Blocks	R 0.00	R 0.00	R 0.00	R 0.00	R 155 636
Stanford WWTW	R 3 329 140	R 3 095 027	R 1 921 677	R 447 067	R 4 779 501
Hermanus WWTW	R 6 536 085	R 9 425 211	R 6 304 735	R 2 816 939	R 54 772 581
Hawston WWTW	R 3 319 880	R 46 900	R 3 083 638	R 32 500	R 4 374 734
Kleinmond WWTW	R 0.00	R 3 063 806	R 847 675	R 0.00	R 5 184 406
Gansbaai WWTW	R 3 058 783	R 6 772 326	R 2 085 000	R 0.00	R 16 145 706
Betty's Bay – Conservancy Tanks	R 0.00	R 0.00	R 0.00	R 0.00	R 281 000
Klipfontein – Conservancy Tank	R 0.00	R 0.00	R 0.00	R 0.00	R 146 335
Totals	**R 201 161 863**	**R 51 236 612**	**R 21 988 051**	**R 4 461 931**	**R 430 650 528**

The asset renewal needs for the sewerage infrastructure assets over the next 10 years is R25.240 million per year. The reinvestment required is R201.162 million in the first 5 years and R51.237 million in the second 5 year period.

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

Table 6.1.7: Age distribution by facility type for the sewerage infrastructure (CRC)					
Asset Type	**0 – 5 yrs**	**5 – 10 yrs**	**10 – 15 yrs**	**15 – 20 yrs**	**> 20 yrs**
Age distribution by Facility Type					
Sanitation Pump Stations	R 9 400 522	R 8 989 753	R 40 072 064	R 1 834 582	R 4 990 996
Sewer Reticulation Pipelines	R 30 083 999	R 10 486 660	R 24 370 068	R 244 119 120	R 15 940 905
Sewer Consumer Connections	R 0.00	R 0.00	R 0.00	R 0.00	R 177 085 000
Septic Tanks	R 99 028	R 0.00	R 0.00	R 0.00	R 0.00
Ablution Blocks	R 155 636	R 0.00	R 0.00	R 0.00	R 0.00
Stanford WWTW	R 2 564 059	R 2 455 468	R 4 292 840	R 135 600.00	R 4 124 445
Hermanus WWTW	R 52 075 649	R 2 988 540	R 12 677 531	R 2 176 320	R 9 937 512
Hawston WWTW	R 1 401 479	R 0.00	R 9 456 173	R 0.00	R 0.00
Kleinmond WWTW	R 1 442 644	R 7 155 568	R 497 675	R 0.00	R 0.00
Gansbaai WWTW	R 20 258 872	R 824 059	R 2 813 084	R 0.00	R 4 165 800
Betty's Bay – Conservancy Tanks	R 281 000	R 0.00	R 0.00	R 0.00	R 0.00
Klipfontein – Conservancy Tank	R 146 335	R 0.00	R 0.00	R 0.00	R 0.00
Totals	**R 117 909 223**	**R 32 900 048**	**R 94 179 434**	**R 248 265 622**	**R 216 244 658**

The age of 30.5% of the sewerage infrastructure assets is greater than 20 years.

6.2 Gaps and Strategies

The Water and Sewer Master Plans (July 2012) 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 6.2.1: Summary of the future water and sewer infrastructure requirements for Overstrand Municipality, as included in the latest Water and Sewer Master Plans

Zone / Area	Water Infrastructure	Sewerage Infrastructure	Total
Buffels River System	R23 060 000	R146 334 000	R169 394 000
Kleinmond	R7 838 000	R31 811 000	R39 649 000
Greater Hermanus	R117 491 000	R76 307 000	R193 798 000
Stanford	R6 179 000	R13 686 000	R19 865 000
Greater Gansbaai	R94 831 000	R130 367 000	R225 198 000
Pearly Beach	R3 731 000	R23 498 000	R27 229 000
Total	**R253 130 000**	**R422 003 000**	**R675 133 000**

Note: 2011 Values, which include P&Gs, Contingencies and Fees, but exclude EIA studies, registration of servitudes and / or land acquisition and VAT.

WATER TREATMENT WORKS INFRASTRUCTURE

Buffels River WTW: The plant is operated below its design capacity, and is only in operation for 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 for the foreseeable future. The recommendations included in the 2013 Process Audit Report were as follows:

- A Maintenance Logbook must be kept on site reflecting the "Plant Man" software information applicable to the Buffelsrivier WTW.
- Chemicals for coagulation are not dosed evenly over the full width of the inflow water stream. Distribution troughs are required to ensure instantaneous mixing of chemicals with all incoming water.
- A chlorine audit must be arranged, which will indicate whether the chlorine facilities comply with the legal requirements. The audit must include training, chlorine building, dosing equipment, safety equipment, chlorine handling, procedures to display signage and internal transport and emergency showers.
- All personnel handling chlorine must have undergone appropriate accredited chlorine handling training.

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 May 2012. The recommendations included in the 2013 Process Audit Report were as follows:

- A Maintenance Logbook must be kept on site reflecting the "Plant Man" software information applicable to the Kleinmond WTW.
- The existing Operation and Maintenance Manual must be kept on site and followed meticulously.
- Frequent cleaning of lime dosing equipment is required.
- A chlorine audit must be arranged, which will indicate whether the chlorine facilities comply with the legal requirements. The audit must include training, chlorine building, dosing equipment, safety equipment, chlorine handling, procedures to display signage and internal transport and emergency showers.
- All personnel handling chlorine must have undergone appropriate accredited chlorine handling training.

Preekstoel WTW: The WTW was upgraded from 24 Ml/d to 28 Ml/d during the 2011/2012 financial year. A new 10 Ml/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 Ml/d. The distribution system received a Blue Drop award in May 2012. The recommendations included in the 2013 Process Audit Report were as follows:

- A Maintenance Logbook must be kept on site reflecting the "Plant Man" software information applicable to the Preekstoel WTW.
- The existing Operation and Maintenance Manual is outdated and must be adapted to describe present operation procedures, e.g. separate treatment De Bos and borehole water.
- Incident management procedures and contact list must be displayed on site.
- Construction work and associated disruptions negatively reflects on the overall appearance. Special care must be taken to avoid permanent damage.
- Chemicals for coagulation are not dosed evenly over the full width of the inflow water stream. Distribution troughs are required to ensure instantaneous mixing of chemicals with all incoming water.
- Frequent cleaning of lime dosing equipment is required.
- Dosing pipeline for Potassium permanganate leaks frequently and requires proper maintenance.
- A chlorine audit must be arranged, which will indicate whether the chlorine facilities comply with the legal requirements. The audit must include training, chlorine building, dosing equipment, safety equipment, chlorine handling, procedures to display signage and internal transport and emergency showers.
- All personnel handling chlorine must have undergone appropriate accredited chlorine handling training.

Stanford WTW: The raw water complies with SANS 0241:2011 standards. A new chlorination facility was however constructed in order to eliminate potential risks, which includes a telemetry connection to the Franskraal WTW. The recommendations included in the 2013 Process Audit Report were as follows:

- A Maintenance Logbook must be kept on site.
- The Operation and Maintenance Manual must be updated and the Manual must be present on site.
- The incident management procedures / contact list must be displayed on site.
- Basic monitoring equipment for determining free chlorine should be kept on site.
- Ablution facilities are required at the fountain source. The building and surrounds also need attention, both structurally and aesthetically.
- Booster pumps and surrounds need attention regarding physical appearance, and leakage of glands.

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. It received two consecutive Blue Drop awards and also received an award for being the best small WTW in the country from DWA. The recommendations included in the 2013 Process Audit Report were as follows:

- A Maintenance Logbook must be kept on site reflecting the "Plant Man" software information applicable to the Franskraal WTW.
- The existing Operation and Maintenance Manual must be kept on site and followed meticulously.
- A chlorine audit must be arranged, which will indicate whether the chlorine facilities comply with the legal requirements. The audit must include training, chlorine building, dosing equipment, safety equipment, chlorine handling, procedures to display signage and internal transport and emergency showers.
- All personnel handling chlorine must have undergone appropriate accredited chlorine handling training.

De Kelders WTW: This new Reverse Osmosis WTW was constructed during 2011 at De Kelders. The recommendations included in the 2013 Process Audit Report were as follows:

- The installation must be classified and Registration certificates must be displayed on site.
- A Maintenance Logbook must be kept on site reflecting the "Plant Man" software information applicable to the De Kelders WTW.
- Operation and Maintenance Manuals must be put in place and kept on site.
- The present system is very sophisticated and caters for a variety of treatment options. The quality of the feed water does not constantly require all unit processes and operation as installed. Very careful consideration of treatment method must be applied for each blend of raw water allowed to the plant. Processes and operations not required to the moment must be carefully maintained to ensure on / off operation under all circumstances.

Pearly Beach WTW: The Pearly Beach WTW is a new treatment plant that was recently constructed, and uses state-of-the-art ultrafiltration membrane technology to ensure a high quality final effluent. The distribution system obtained Blue Drop status in May 2012. The recommendations included in the 2013 Process Audit Report were as follows:

- The present system is very sophisticated and caters for a variety of treatment options. The quality of the feed water does not constantly require all unit processes and operation as installed. Very careful consideration of treatment method must be applied for each blend of raw water allowed to the plant. Processes and operations not required to the moment must be carefully maintained to ensure on / off operation under all circumstances.
- Uncontrolled overflow from sludge pond must be properly adhered to.

Baardskeerdersbos WTW: The plant operates well within its design capacity. The recommendations included in the 2013 Process Audit Report were as follows:

- Classification and Registration certificates must be obtained and carried in a special folder by the operator.
- A Maintenance Logbook must be kept and filed into the special folder carried by the operator.
- The Operation and Maintenance Manual must be present at the site or carried by the operator, as well as an Operational Monitoring Logbook.

- The unit processes and operations must be reconsidered and appropriate technology applied.

- Office and ablution facilities are required and the security measures need upgrading.

Buffeljags Bay WTW: The chlorine installation is new and care was taken to ensure that all the safety requirements are met. The recommendations included in the 2013 Process Audit Report were as follows:

- Classification and Registration certificates must be obtained and carried in a special folder by the operator.

- A Maintenance Logbook must be kept and filed into the special folder carried by the operator.

- The Operation and Maintenance Manual must be present at the site or carried by the operator, as well as an Operational Monitoring Logbook.

- Office and ablution facilities are required and the security measures need upgrading at the borehole.

- Step-irons at reservoir to be secured and safety protection to be provided to step-irons.

BULK WATER INFRASTRUCTURE

The Water Master Plan (July 2012) 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.

- Upgrading of the 300mm dia bulk pipeline from Buffels River WTW to Betty's Bay Voorberg reservoir (The upgrading of this pipeline can be postponed if a booster pump station is constructed on the pipeline before the draw-off point to the Pringle Bay reservoir).

Kleinmond: The existing bulk water supply system has sufficient capacity to supply the future water demands for the fully occupied scenario and the additional future development areas. No future feeder mains are required.

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.

- Replace the existing 300mm dia bulk pipeline with a 500mm dia pipeline when the existing 300 and 400mm dia bulk pipes reaches capacity.

- New 200mm dia parallel reinforcement of the existing 160mm dia bulk supply pipeline to the Onrus reservoir in order to augment supply to the reservoir.

- Replace the existing 300mm dia bulk pipeline with a 500mm dia pipeline when the existing 300 and 350mm dia bulk pipes reaches capacity.

- New 550mm dia parallel reinforcement of the existing 250mm dia pipeline when the existing 250mm dia bulk pipe reaches capacity.

- New 500mm dia parallel reinforcement of the existing 150mm dia bulk supply pipeline to the Hawston LL reservoir in order to augment supply to the reservoir.

- New 200mm dia parallel reinforcement of the existing 250mm dia bulk supply pipeline to the Fisherhaven LL reservoir in order to augment supply to the reservoir.

- New 250mm dia parallel reinforcement of the existing 200mm dia bulk supply pipeline to the Fisherhaven LL 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.

The following new feeder mains will be required in future.

- New 335mm dia bulk supply pipeline from the Hawston LL reservoir to the proposed Hawston HL reservoir when it is constructed.

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: The existing bulk water supply system has sufficient capacity to supply the future water demands for the fully occupied scenario and the additional future development areas. No 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.

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 315mm dia pipeline when the existing 200mm and 355mm dia bulk pipes reaches capacity.

- New 200mm dia parallel reinforcement of the existing 150mm dia bulk supply pipeline to the Kleinbaai reservoir in order to augment supply to the reservoir.

- New 315mm dia parallel reinforcement of the existing 250mm dia bulk supply pipeline in order to augment supply to the Gansbaai and De Kelders reservoirs.

- 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 a bulk supply pipeline to the De Kelders reservoirs. This item is 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 450mm dia bulk supply pipeline from the Franskraal WTW to the Franskraal reservoirs.

Pearly Beach: The existing bulk water supply system has sufficient capacity to supply the future water demands for the fully occupied scenario and the additional future development areas. No future feeder mains are required.

WATER PUMP STATIONS

The Water Master Plan (July 2012) has indicated that based on the most likely land-use development scenario, it will be necessary for the following water pump stations:

Table 6.2.2: Future water pump stations required

Distribution System	Recommendations included in the Water Master Plan	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	10	25	0.559
	Required to augment bulk supply to Voorberg reservoir	70	10	0.655
	Required to sustain pressure in the Voorberg reservoir zone network	15	150	0.154
Kleinmond	Verify duty point of PS for modelling purposes	3	45	-
	Verify duty point of PS for modelling purposes	7	30	-
	Required when future area KM4 develops	15	30	0.596
Greater Hermanus	When Hawston High level reservoir is constructed	130	57	2.050
	When supply problems to Fisherhaven HL reservoir occur, investigate existing capacity first	20	50	0.707
	To augment bulk water supply when existing supply reaches capacity (upgrade PS)	310	20	0.756
	To augment bulk water supply when existing supply reaches capacity	100	20	0.920
Stanford	No future pump stations are required	-	-	-
Greater Gansbaai	New bulk PS to supply bulk water to Kleinbaai, Gansbaai and De Kelder reservoirs	55	35	0.906
	When Franskraal PS reaches capacity, after MP items OGW.B4 & OGW.B5 is implemented	140	40	0.657
	When Franskraal PS reaches capacity, after MP items OGW.B2 & OGW.B3 is implemented	210	45	0.731
	New bulk PS to supply bulk water to De Kelders reservoirs	40	60	0.993
	Required when Franskraal HL reservoir is constructed	70	65	1.443
Pearly Beach	No future pump stations are required	-	-	-
Total				**11.127**

RESERVOIR INFRASTRUCTURE

Overstrand Municipality's overall storage factors of the reservoirs for the various towns, based on 1 x PDD (24 hours storage capacity), are 1.21 for Buffels River, 1.59 for Kleinmond, 2.10 for Greater Hermanus, 1.90 for Stanford, 1.55 for Greater Gansbaai, 2.08 for Pearly Beach, 1.58 for Baardskeerdersbos and 4.00 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 (July 2012) and indicated in the table below:

Table 6.2.3: Future reservoirs required

Distribution System	Recommendations included in the Water Master Plan	Capacity (Ml)	Cost (R Million)
Buffels River	Required to increase reservoir storage for Rooi Els (Implemented)	-	-
	Required to increase reservoir storage for Pringle Bay (TWL = 67m).	2.500	5.478
	Required to increase reservoir storage for Betty's Bay (TWL = 66m).	3.000	6.132
Kleinmond	No future reservoirs are required	-	-
Greater Hermanus	Required to increase reservoir storage for Fisherhaven (TWL = 60m).	2.500	5.478
	Required to increase reservoir storage for Hawston (TWL = 66m).	3.000	6.132
	New reservoir for higher lying future development areas in Hawston (TWL = 120m).	5.000	8.820
	Required to increase reservoir storage for Hawston HL Zone (TWL = 120m).	5.000	8.820
	Required to increase reservoir storage for Onrus (TWL = 78m).	1.500	3.872
	Required to increase reservoir storage for Kidbrooke Place (Cost to developer) (TWL = 85m).	0.300	0.000
	Required to increase reservoir storage for Sandbaai (TWL = 65m).	3.000	6.132
	Required to increase reservoir storage for Northcliff zone (TWL = 75m).	0.300	1.361
	Required when future areas GH25 & GH26 develop (TWL = 144m).	0.500	1.884
	Required when future area GH1 develops (TWL = 108m).	1.000	2.954
	Required to increase reservoir storage for Mount Pleasant (TWL = 87m).	0.500	1.884
Stanford	A new reservoir is proposed at the existing Stanford reservoir site to augment reservoir storage for Stanford in order to accommodate anticipated future development areas (TWL = 85m)	1.500	3.872
Greater Gansbaai	Required to increase reservoir storage for Franskraal (TWL = 59m)	1.500	3.872
	Abandon existing 0.300 Ml reservoir when new Franskraal 1.500 Ml reservoir is constructed (TWL = 59m)	-	-
	Abandon existing 0.225 Ml reservoir when new Franskraal 1.500 Ml reservoir is constructed (TWL = 59m)	-	-
	Required to increase reservoir storage for Kleinbaai (TWL = 61m)	4.000	7.616
	Required to increase reservoir storage for Gansbaai (TWL = 63m)	5.000	8.820
	Required to increase reservoir storage for De Kelders (TWL = 98m)	0.500	1.884
	Additional reservoir storage capacity for Franskraal LL zone when future areas GC31 & GC33 develop (TWL = 59m)	7.000	11.368
	New Franskraal HL reservoir when future areas GG32 and higher lying erven of GG33 develop (TWL = 120m)	5.500	9.472
Pearly Beach	No new reservoirs are required	-	-
Total		**53.100**	**105.851**

WATER AND SEWER RETICULATION INFRASTRUCTURE

The Water Master Plan (July 2012) has indicated that based on the most likely land-use development scenario, the following future water reticulation infrastructure components will be necessary.

Table 6.2.4: Future water reticulation infrastructure required

BUFFELS RIVER

Proposed distribution zones

- 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

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.

- 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

- The Protearand reservoir zone is increased to accommodate future development areas within the zone.
- A new PRV zone is proposed in order to reduce the high static pressures of the lower lying erven within the existing Protearand reservoir zone.
- Three new booster pumping zones are proposed for higher lying future development areas KM-1, KM-2 and KM-4.
- The existing Protearand reservoir zone is rezoned in order to accommodate the higher lying erven within the Over Hills suburb in the proposed booster pumping zone No.3.

Proposed future system and required works

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.

- 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 KM-2, 3 and 4 develop.
- A new pipeline and valves are proposed in order to implement the Kleinmond booster zone No.3

GREATER HERMANUS

Proposed distribution zones

- A new Hawston HL reservoir zone is proposed to accommodate future development area GH-5.1 as well as the existing higher lying erven in Hawston that are currently supplied from the Fisherhave HL reservoir. This zone should be supplied from a new reservoir with a TWL of 120m.
- A new Hawston HL PRV zone (supplied from the proposed Hawston HL reservoir zone via a PRV) is proposed to accommodate future development areas GH-6.1 and 6.3. The setting of the PRV should be set at 63m.
- 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 Hermanus Heights reservoir zone are increased to accommodate erven that are currently supplied directly from the Hermanus bulk pipeline as well as the higher lying erven in the North Western part of Voëlklip that are currently supplied from the Voëlklip LL reservoir.
- The boundaries of the existing reservoir zones are increased to accommodate future development areas in Greater Hermanus.

Proposed future system and required works

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

- 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 LL reservoir is proposed as an emergency connection when future development area GH-3 develops.
- A new non-return valve on the 200mm dia supply pipeline from the Fisherhaven HL reservoir to the proposed Hawston HL reservoir zone is proposed in order to prevent inflow during the night from the Hawston HL reservoir zone into the Fisherhaven HL reservoir.
- A new PRV in the future Hawston HL reservoir zone is proposed in order to manage static pressures in this future zone.
- Rezoning between the Northcliff reservoir and Hermanus reservoir zones and between the Hermanus Heights reservoir, Direct Feed and Voëlklip LL reservoir zones is proposed.

Table 6.2.4: Future water reticulation infrastructure required
STANFORD
Proposed distribution zones • 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.
Proposed future system and required works • 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 SF-1 to 3 and SF-7 to 9 develop.
GREATER GANSBAAI
Proposed distribution zones • A new De Kelders booster zone is proposed to accommodate the higher lying erven of future development area GG-1. • The boundaries of the existing reservoir zones are increased to accommodate future development areas in Greater Gansbaai.
Proposed future system and required works 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. • 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 services with a formal water network, a secondary pipeline between Birkenhead and the existing Kleinbaai network is constructed along the coast line in order to improve network redundancy and conveyance in the area.
PEARLY BEACH
Proposed distribution zones • The boundaries of the existing distribution zones are increased to accommodate future development areas in Pearly Beach.
Proposed future system and required works 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. • 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 (July 2012) has indicated that based on the most likely land-use development scenario, the following future sewer reticulation infrastructure components will be necessary.

Table 6.2.5: Future sewer reticulation infrastructure required
BUFFELS RIVER
• 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 four new future pumping station drainage areas are proposed that pumps the sewage of Rooi Els locally and eventually to a proposed Pringle Bay Main bulk pumping station. • In Pringle Bay three new future pumping station drainage areas are proposed that pumps the sewage of Pringle Bay locally and eventually to a proposed Pringle Bay Main bulk pumping station. • In Betty's Bay eight new future pumping station drainage areas are proposed that pumps the sewage of Betty's Bay locally and eventually to three proposed Betty's Bay Main bulk pumping stations. 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 WWTW.
KLEINMOND
• The boundaries of the existing drainage areas in Kleinmond are increased to accommodate proposed future development and existing unserviced erven that fall within these drainage areas. • A new future pumping station K1 drainage area is proposed for the existing unserviced erven in the south western areas of Kleinmond areas and future development areas KM-6 and KM-7. A new pumping station and rising main should be constructed for this new drainage area that discharges into the existing Kleinmond PS4 drainage area. • Upgrading of the Kleinmond PS No.4 is proposed when the existing pumping station 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 unserviced erven in Kleinmond.

Table 6.2.5: Future sewer reticulation infrastructure required
GREATER HERMANUS
• The boundaries of the existing drainage areas in the Hermanus WWTW and Hawston WWTW sewer systems are increased to accommodate proposed future development areas and existing unserviced erven that fall within these drainage areas. • In Fisherhaven new future pumping station drainage areas GH1 and GH2 are proposed for the areas in Fisherhaven that cannot gravitate to the existing Fisherhaven PS. New pumping stations and rising mains should be constructed for these new drainage areas that discharge into the existing Fisherhaven PS drainage area. • New future pumping station GH3, GH4, GH5, GH6, GH7 and GH8 drainage areas and proposed for future development areas GH-4, GH-6.1, GH-6.2, GH-6.3, GH-24, a small portion of GH-5.1 and the existing unserviced erven in Hawston that cannot gravitate to the existing Hawston WWTW drainage area. New pumping stations and rising mains should be constructed for these new drainage areas. Future pumping stations GH5 and GH7 should discharge into the proposed future PS GH4 drainage area. Future pumping stations GH4 and GH8 should discharge into the existing Hawston WWTW drainage area and future pumping stations GH3 and GH6 should pump directly into the existing Hawston WWTW. • A new future pumping station GH11 drainage area is proposed for the lower lying erven of future development area GH-1 that cannot gravitate to the existing Hawston WWTW drainage area. A new pumping station and rising main should be constructed for this new drainage area that discharges into the existing Hawston WWTW drainage area. • In Hermanus new future pumping station GH9 and GH10 drainage areas are proposed for the existing unserviced erven in Westcliff that cannot gravitate to the existing infrastructure of the Hermanus sewer reticulation system. New pumping stations and rising mains should be constructed for these 2 new drainage areas. Future pumping station GH10 should discharge into the proposed future PS GH9 drainage area and future pumping station GH9 should discharge into the existing Whale Rock PS drainage area. • Upgrading of the Fisherhaven, Onrus Main, Sandbaai, Mosselrivier, Hermanus No.1 and Hermanus No.4 pumping stations are proposed when the existing pumping stations 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 unserviced erven in the Greater Hermanus area.
STANFORD
• The boundaries of the existing drainage areas in Stanford are increased to accommodate proposed future development areas and existing unserviced erven that fall within these drainage areas. • New future pumping station S1 and S2 drainage areas are proposed for the existing unserviced erven in Stanford that cannot gravitate to the existing infrastructure of the Stanford sewer reticulation system. New pumping stations and rising mains should be constructed for these 2 new drainage areas. Future pumping station S1 should discharge into the existing Stanford Gravity drainage area and future pumping station S2 should discharge into the existing Stanford PS drainage area. • A new future pumping station S3 drainage area is proposed for future development area SF-2 and a portion of future development area SF-3. A new pumping station and rising main should be constructed for this new drainage area that discharges into the existing Stanford PS drainage area. • Upgrading of the existing Stanford pumping station is proposed when the existing pumping station 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 unserviced erven in Stanford.
GREATER GANSBAAI
• 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 five new future pumping station drainage areas are proposed that pumps the sewerage of De Kelders locally and eventually to a proposed De Kelders Main bulk pumping station. • In Gansbaai new future pumping station GB1 and GB4 drainage areas are proposed for the existing unserviced erven in Gansbaai that cannot gravitate to the existing infrastructure of the existing Gansbaai sewer reticulation system. New pumping stations and rising mains should be constructed for these two new drainage areas. Future pumping station GB1 should discharge into the existing Gansbaai Hawe PS drainage area and future pumping station GB4 should discharge into the existing Gansbaai WWTW gravity drainage area. • A new future pumping station GB2 drainage area is proposed for future development area GG-9. A new pumping station and rising main should be constructed for this new drainage area that discharges directly into the existing Kolgans No.2 pumping station. • A new future pumping station GB3 drainage area is proposed for future development area GG-10 and GG-11. A new pumping station and rising main should be constructed for this new drainage area that discharges into the existing Gansbaai WWTW gravity drainage area. • In Kleinbaai new future pumping station KB1, KB2 and KB3 drainage areas are proposed. It is proposed that the existing conservancy tanks are decommissioned in the future. Conservancy tank No.1 should be accommodated in the future pumping station KB1 drainage area and conservancy tanks No.2 and 3 in future pumping station KB2 drainage area. New pumping stations and rising mains should be constructed for these new drainage areas. Future pumping stations KB1 and KB3 should discharge into the future pumping station KV2 drainage area and future pumping station KB2 should pump the sewage of Kleinbaai to a proposed Kleinbaai Main bulk pumping station. • New future pumping station KB4 and KB5 drainage areas are proposed for future development area GG-25 (Birkenhead area). New pumping stations and rising mains should be constructed for these new drainage areas. Future pumping station KB5 should

Table 6.2.5: Future sewer reticulation infrastructure required
discharge into the future pumping station KB4 drainage area and future pumping station KB4 should discharge into the future pumping station KB1 drainage area in Kleinbaai.
GREATER GANSBAAI / Continue
• In Franskraal three new future pumping station drainage areas are proposed that pumps the sewage of Franskraal locally and eventually to the proposed Kleinbaai Main bulk pumping station. • The boundaries of the existing drainage areas in Gansbaai and Kleinbaai are increased to accommodate proposed future development areas and existing unserviced erven that fall within these drainage areas. • Upgrading of the existing Kolgans No.2 pumping station is proposed when the existing pumping station 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 unserviced 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 WWTW. Upgrading of the Gansbaai Hawe pumping station is proposed when sewage is pumped from De Kelders to Gansbaai.
PEARLY BEACH
• The boundaries of the existing Pearly Beach PS drainage area are increased to accommodate future development area PB-2. • New future pumping station P1, P2 and P3 drainage areas are proposed for the existing unserviced erven in Pearly Beach and future development areas PB-1, PB-3 and PB-4. New pumping stations and rising mains should be constructed for these new drainage areas. Future pumping station P1 should discharge into the future PS P2 drainage area, future pumping station P2 should discharge into the future PS P3 drainage area and future pumping station P3 should discharge into the existing Pearly Beach conservancy tank. • New outfall sewers are proposed to accommodate future development areas and to service the existing unserviced erven in Pearly Beach.

SEWER PUMP STATIONS

The Sewer Master Plan (July 2012) has indicated that based on the most likely land-use development scenario, it will be necessary for the following sewer pump stations:

Table 6.2.6: Future sewer pump stations required			
Drainage System	**Recommendations included in the Sewer Master Plan**	**Capacity (l/s)**	**Cost (R Million)**
Buffels River	New Future Rooi Els No.1 pump station	5	0.343
	New Future Rooi Els No.2 pump station	8	0.399
	New Future Rooi Els No.3 pump station	15	0.516
	New Future Rooi Els No.4 pump station	5	0.343
	New Future Pringle Bay No.1 pump station	35	0.785
	New Future Pringle Bay No.2 pump station	17	0.546
	New Future Pringle Bay No.3 pump station	5	0.343
	New Future Betty's Bay No.1 pump station	5	0.343
	New Future Betty's Bay No.2 pump station	45	0.907
	New Future Betty's Bay No.3 pump station	20	0.590
	New Future Betty's Bay No.4 pump station	8	0.399
	New Future Betty's Bay No.5 pump station	5	0.343
	New Future Betty's Bay No.6 pump station	5	0.343
	New Future Betty's Bay No.7 pump station	20	0.590
	New Future Betty's Bay No.8 pump station	5	0.343
	New Rooi Els Main pump station (Pump to Pringle Bay)	20	0.590
	New Pringle Bay Main pump station (Pump to Betty's Bay)	55	1.020
	New Betty's Bay Main pump station No.1 (Pump to Kleinmond WWTW)	100	1.402
	New Betty's Bay Main pump station No.2 (Pump to Kleinmond WWTW)	115	1.522
	New Betty's Bay Main pump station No.3 (Pump to Kleinmond WWTW)	140	1.710
Kleinmond	Upgrade existing Harbour PS when it reaches capacity	10	0.144
	Upgrade Kleinmond 4 PS	95	0.434

Table 6.2.6: Future sewer pump stations required			
Drainage System	**Recommendations included in the Sewer Master Plan**	**Capacity (l/s)**	**Cost (R Million)**
	Upgrade Kleinmond 5 PS	10	0.130
Greater Hermanus	New PS when existing Fisherhaven PS reaches capacity	18	0.165
	New PS for Fisherhaven	5	0.343
	New PS for Fisherhaven	9	0.417
	New PS when future area GH49 develops (Cost for Developer)		-
	New PS when future area GH4 develops	30	0.724
	New PS for Hawston	10	0.436
	New PS for Hawston	5	0.343
	New PS when future area GH6.2 develops	4	0.343
	New PS when future areas GH6.1 and HG6.4 develop	55	1.020
	Upgrade existing Onrus Main PS when it reaches capacity	60	0.334
	Upgrade existing Sandbaai PS when it reaches capacity	32	0.109
	Upgrade existing Mossel River PS when it reaches capacity	28	0.206
	Upgrade existing Hermanus No.1 PS when it reaches capacity	14	0.148
	Upgrade existing Hermanus No.2 PS to reach scouring velocity through rising main	11	0.149
	New PS for Hermanus	7	0.380
	New PS for Hermanus		0.343
	Upgrade existing WWTP Main PS when it reaches capacity. Investigate existing capacity and operation of system from WWTW Main PS to Hermanus WWTW first.	78	0.391
	New PS when lower lying erven of future area GH1 develops (Cost for Developer)		-
	Upgrade existing Hermanus No.4 PS when it reaches capacity. Verify existing capacity first	65	0.368
	Upgrade existing Meerensee No.3 PS when it reaches capacity. Investigate existing capacity first.	8	0.136
	Upgrade existing Whale Rock PS in order to reach scouring velocity through rising main.	38	0.261
	New PS when future areas GH43 and GH44 develop	15	0.516
	New PS when future area GH43 develop	5	-
	New PS when future areas GH43 and GH44 develop	5	0.343
Stanford	New PS for Stanford South	5	0.343
	New PS for Stanford North	9	0.417
	New PS for Stanford North	5	0.343
	New PS for Stanford North	5	0.343
	New PS for Stanford North	5	0.343
Greater Gansbaai	New PS for De Kelders	4	0.343
	New PS for De Kelders	15	0.516
	New PS for De Kelders	25	0.659
	New PS for De Kelders	30	0.724
	New PS for De Kelders	5	0.343
	New PS for Gansbaai	5	0.343
	New PS for Gansbaai	4	0.343
	Upgrade existing Kolgans No.2 PS when it reaches capacity, verify existing pump capacity first.	15	0.166
	New PS when future areas GG10 and GG11 develop	15	0.516
	New PS for Gansbaai	5	0.343
	New PS for Kleinbaai	20	0.590
	New PS for Kleinbaai	50	0.964
	New PS for Franskraal	35	0.785
	New PS for Franskraal	25	0.659
	New PS for Franskraal	15	0.516
	New PS for Birkenhead drainage area	7	0.380
	New PS for Birkenhead drainage area	4	0.343

Table 6.2.6: Future sewer pump stations required			
Drainage System	**Recommendations included in the Sewer Master Plan**	**Capacity (l/s)**	**Cost (R Million)**
	New PS when lower lying erven of Perlemoenpunt develop	10	0.436
	New PS when future areas GG10.2 and GG11.2 develop	7	0.380
	New PS for Franskraal	10	0.436
	New PS for Franskraal	5	0.343
	New PS when future area GG31 develops	20	0.590
	New PS when future area GG31 develops	10	0.436
	New PS when future area GG32 and GG33 develop	85	1.278
	New PS when future area GG33 develops	80	1.235
	New PS required to pump sewage from Kleinbaai and Franskraal to Gansbaai WWTP	140	1.710
	New PS required to pump sewage from De Kelders to Gansbaai Hawe PS	50	0.964
	Upgrade existing PS when sewage from De Kelders is pumped to Gansbaai	85	0.392
Pearly Beach	New PS for Pearly Beach	5	0.343
	New PS for Pearly Beach	20	0.590
	New PS for Pearly Beach	30	0.724
	New PS for Pearly Beach	35	0.785
	New PS for Pearly Beach	5	0.343
Total			**42.867**

WASTE WATER TREATMENT INFRASTRUCTURE

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

Table 6.2.7: Existing capacities and flows at each of the WWTWs (Ml/d)				
WWTW	**Existing Hydraulic Capacity**	**Peak Month Average Daily Flow**	**Average Daily Flow (July 2012 – June 2013)**	**Average Wet Weather Flow (Jun, Jul, Aug)**
Kleinmond	2.000	1.377	1.038	1.094
Hawston	1.000	0.429	0.328	0.362
Hermanus	12.000	7.284	4.597	4.962
Stanford	0.500	0.548	0.421	0.462
Gansbaai	2.000	1.911	1.376	1.334

The capacity of the Hermanus WWTW was upgraded from 7.3 Ml/d to 12 Ml/d. 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 2016/2017.

Overstrand Municipality revises on an annual basis the capacity and suitability of the WWTWs to meet the requirements of DWA 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 increase, 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.

ASSET MANAGEMENT ASSESSMENT

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.

7. OPERATION AND MAINTENANCE

7.1 Status Quo

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 W_2RAP for the various WWTWs is also in place. The W_2RAP 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 comprehensive O&M Manuals, which were developed for each of the WTWs and WWTWs, will further assist the Municipality to ensure that the necessary control measures for the effective operation of the WTWs and WWTWs are in place.

An Incident Response Management Protocol is in place and forms part of Overstrand Municipality's Water Safety Plan and W_2RAP. 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.

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

The blue drop performance of Overstrand Municipality is summarised as follows in the DWA's 2012 Blue Drop Report (May 2012):

Table 7.1.1: Blue drop performance of Overstrand Municipality, as included in DWA's 2012 Blue Drop Report (May 2012)	
Municipal Blue Drop Score	**96.82%**

Regulatory Impression: The Overstrand Local Municipality can again take pride in the commitment of all officials that are responsible for the remarkable Blue Drop performance during this audit cycle. In spite of losing out on one certification (Stanford Oog) the Blue Drop tally improved three in 2011 to five in 2012 and this is reflected in the overall Blue Drop score which increased for 90.56% (2011) to 96.82% (2012). The improvement of drinking water quality management in all systems is commendable and it is trusted that this performance will be sustained.

1. Water loss figures were not reported and this is a concerning factor which requires attention since consumption figures for the Buffels River system is rather excessive in comparison with other volumes used in other supply systems. Even though drinking water quality management in this particular system is deemed excellent when measured against the stringent criteria set, this certification will be reviewed should the Municipality fail to supply the Department with meter readings that prove the contrary or an acceptable plan to improve water use efficiency.
2. The improvement in the chemical compliance is another commendable feat since this was noted in the previous cycle as an area of concern. Further improvement in this regard is expected for the system of Baardskeerdersbos.

Site Inspection Report: Buffelsrivier WTW - 62.6% - It was proven that the on-site situation improved since the audit, making this score no longer relevant. **Franskraal WTW - 90.6% -** The on-site audit at Franskraal confirmed that the water supply system of the Greater Gansbaai is worthy of its Blue Drop certification status. It is however trusted that the risks posed by not having a spare chlorinator and the difficulty of cleaning the sedimentation tanks will be given the required attention.

Performance Area	Greater Hermanus	Buffels River	Kleinmond	Stanford	Greater Gansbaai	Buffeljags Bay	Baardskeer-dersbos	Pearly Beach
Water Safety Planning	**98**	**98**	**100**	**91**	**97**	**93**	**91**	**97**
Treatment Process Management	**85**	**65**	**65**	**65**	**90**	**65**	**65**	**65**
DWQ Compliance	**100**	**100**	**100**	**100**	**100**	**100**	**91**	**100**
Management, Accountability	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**
Asset Management	**100**	**87**	**87**	**87**	**91**	**91**	**91**	**91**
Bonus Scores	0.50	1.58	1.15	1.76	0.91	1.50	2.66	1.51
Penalties	0	0	0	0	0	0	0	0
Blue Drop Score (2012)	**97.93%**	**95.00%**	**95.27%**	**92.73%**	**97.12%**	**93.81%**	**91.57%**	**95.22%**
Blue Drop Score (2011)	87.23%	95.07%	93.09%	95.15%	95.10%	75.37%	93.68%	94.31%
Blue Drop Score (2010)	75.31%	63.83%	60.06%	Not Assessed	63.81%	Not Assessed	Not Assessed	Not Assessed
System Design Capacity (Ml/d)	28.000	5.500	5.800	0.259	6.500	2.064	3.600	1.440
Operational Capacity (% i.t.o. Design)	32.14%	50.91%	43.10%	96.53%	55.38%	4.17%	0.56%	24.31%
Population Served	42 824	3 037	9 822	5 315	15 924	290	229	897
Average daily consumption (l/p/d)	210.16	921.96	254.53	47.04	226.07	296.55	87.34	390.19
Microbiological Compliance (%)	**99.0%**	**99.0%**	**99.0%**	**99.0%**	**99.0%**	**99.0%**	**99.0%**	**99.0%**
Chemical Compliance (%)	**99.5%**	**99.0%**	**99.0%**	**99.0%**	**99.7%**	**99.0%**	**96.1%**	**99.0%**

The DWA also completed their Second Order Assessment of Municipal Waste Water Treatment Plants, DWA's Green Drop Report for 2011, which provides a scientific and verifiable status of municipal waste water treatment. Green drop status is awarded to those WWTWs that comply with 90% criteria on wastewater quality management. The green drop performance of Overstrand Municipality is summarised as follows in the DWA's 2011 Green Drop Report:

Table 7.1.2: Green drop performance of Overstrand Municipality, as included in DWA's 2011 Green Drop Report

Average Green Drop Score	**88.8%**

Regulatory Impression: Overstrand Municipality achieved Green Drop certification for Hermanus and even though the Municipality did not achieve Green Drop certification for the other four (4) wastewater systems, the lowest Green Drop score was 75.8%.

The Municipality need to give priority to process optimisation to ensure that effluent quality compliance is improved in order to achieve the expected excellent levels which are an essential requirement that prevented the allocation of Green Drops to the other four (4) systems. In addition, Stanford's system has reached the design capacity and requires appropriate infrastructure investment.

Green Drop Findings:

1. The key area of concern remains the two (2) treatment plants that do not comply with the specified effluent quality limits.
2. Low effluent compliance is reached although both plants are operated within their design capacity. This suggests that process control need to be optimised.
3. Kleinmond monitoring regime must be expanded.
4. Asset Management need to improve in the areas where the municipality could not provide sufficient evidence.
5. Data credibility needs to be addressed, as the scientific element lag slightly behind the requirement of the tested criteria.
6. The site inspection score for Greater Gansbaai was 90%, Stanford 57% and Hermanus 80%.

Criteria	Hermanus	Hawston	Stanford	Gansbaai	Kleinmond
Process Control, Maintenance and Management Skill	100	100	80	100	90
Monitoring Programme	80	80	100	100	80
Credibility of Sample Analysis	83.5	83.5	83.5	83.5	83.5
Submission of results	100	100	100	100	100
Wastewater Quality Compliance	88	75	48	20	48
Failure Response Management	100	100	100	100	100
Bylaws	100	100	100	100	100
Treatment and Collector Capacity	100	100	97	100	100
Asset Management	90	88	87	88	88
Bonus Scores	0	0	3.7	2.4	3.7
Penalties	0	0	0	0	0
Green Drop Score (2011)	**92.1%**	**87.9%**	**83.0%**	**75.8%**	**82.5%**
Green Drop Score (2009)	66%	57%	61%	66%	66%
Treatment Capacity (Ml/d)	13.000	1.000	0.500	2.000	2.000
Operational % i.t.o. Capacity	56%	45%	100%	43%	50%
Cumulative Risk Rating (CRR)	8	6	8	7	8
% i.t.o. Maximum Risk Rating	34.7%	33.3%	44.4%	38.9%	44.4%

The 2012 Green Drop Risk Profile Progress Report of the DWA 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 compare 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 July 2010 to June 2011, which represents the year immediately following the Green Drop 2011 assessment period.

The results for Overstrand Municipality were summarised as follows in DWA's 2012 Green Drop Risk Profile Progress Report.

Table 7.1.3: Green drop performance of Overstrand Municipality, as included in DWA's 2012 Green Drop Risk Profile Progress Report

Assessment Area	Hermanus	Kleinmond	Stanford	Gansbaai	Hawston
Technology	Activated Sludge Solar / Thermal drying beds / Belt Press	Activated Sludge Lagoons	Activated Sludge Centrifugal Dewatering	Nereda System Solar / Thermal drying beds	Activated Sludge Solar / Thermal drying beds / Centrifugal dewatering
Design Capacity (Ml/d)	7.300	2.000	0.500	2.000	1.000
Operational % i.t.o. Design Capacity	68.5%	50.0%	80.0%	47.5%	40.0%
Microbiological Compliance	67.0%	33.0%	67.0%	100.0%	50.0%
Chemical Compliance	89.8%	79.0%	87.5%	89.8%	52.3%
Physical Compliance	66.7%	100.0%	100.0%	86.0%	80.7%
Annual Average Effluent Quality Compliance	**74.5%**	**70.7%**	**84.8%**	**91.9%**	**61.0%**
Wastewater Risk Rating (% CRR / CRR_{max})	**45.5%**	**41.2%**	**29.4%**	**29.4%**	**47.1%**
Highest Risk Area	Effluent quality	Effluent quality	Effluent quality	Effluent quality	Low flow, effluent quality
Risk Abatement Process	Draft W_2RAP	Draft W_2RAP	Draft W_2RAP	Draft W_2RAP	Draft W_2RAP
Capital & Refurbishment expenditure in 2010/2011	R17.29 million	R0	R0	R0	R0
Description of Projects' Expenditure	Refurbishment and upgrading of WWTW (7.3 Ml/d to 12 Ml/d). Upgrade include total refurbishment of plant, inlet works, all new aerators, new anaerobic and anoxic tanks, one new settling tank, new mechanical sludge dewatering, new chlorine building, etc.	Planning mechanical sludge dewatering for 2012/2013	Mechanical sludge dewatering press for the sludge and a reed bed for the final effluent water was constructed in previous financial year	Reed bed was constructed during previous financial year	Mechanical dewatering was installed during previous financial year

7.2 Gaps and Strategies

The Water Safety Plan and W_2RAP Teams of Overstrand Municipality are committed to meet regularly to review the implementation of all the aspects of the Water Safety Plan and W_2RAP 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 W_2RAP 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.

It is important for Overstrand Municipality to classify all 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.

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 Overstrand Municipality to compile a Legal Compliance Audit of their WTWs and WWTW, which will provide the management of Overstrand Municipality with the necessary information to establish whether the Municipality is in compliance with the legislation or not.

Overstrand Municipality is committed to work with the DWA and the other role-players in order to further improve on their 2012 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 Overstrand Municipality to comply with the permitted standards and in so doing intends to work towards green drop status for their other WWTWs aswell.

Overstrand Municipality is committed to work with the DWA and the other role-players in order to improve on their 2011 Green Drop Score for the various WWTWs and to get the Municipality ready for the next round of assessments. The W_2RAP 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;
- Operate and maintain the WWTWs within design- and equipment specifications;
- Have trained, qualified and registered staff in place;
- Get mentoring / coaching contracts in place where there is a great demand for adequately skilled process controllers and supervision;
- 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.

8. ASSOCIATED SERVICES

8.1 Status Quo

All the schools, hospitals and clinics in Overstrand Municipality's Management Area are supplied with a higher level of water and sanitation services.

8.2 Gaps and Strategies

The environmental health function is currently with the Overberg District Municipality. Typical functions of the Overberg District Municipality, with regard to health services, include the following:

- Households to meet the minimal health safety requirements
- Monitoring water quality (Including recreational waters)
- Waste management

- Food control
- Schools to meet health requirements
- Contagious disease control
- Community development: Making communities aware of environmental health issues and communicates with farm workers regarding sanitation services.

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 exist between the Overberg District Municipality and OM with regard to environmental health issues and that that a good communication protocol is followed between the District Municipality and Overstrand Municipality.

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.

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 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.

9. CONSERVATION AND DEMAND MANAGEMENT

9.1 Status Quo

Overstrand Municipality is committed to reduce the current percentage of non-revenue water for the various distribution systems to 17% by June 2017 (SDBIP). The Municipality's WDM Strategy and Action Plan include the following key activities (September 2013 progress in brackets):

- Sourcing of funding for implementation of water reclamation for potable purposes (applications for RBIG and ORIO grant funding have been submitted to the Department of Water Affairs (DWA));
- Continue with pipe replacement in priority areas with old reticulation networks and history of frequent pipe failures (first of two tenders to close on 11 October 2013);
- Implementation of intelligent pressure management in specific areas, and further investigation of potential for pressure management in other areas (Stanford and Kleinmond completed. Betty's Bay planning in progress);
- Phased pro-active replacement of older water meters (new contract awarded in August 2013);
- 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);
- Perform focused leak detection and repair programs in areas with highest minimum night flows (new leak detection contract awarded);
- Continue with leak repairs at indigent households and installation of water management devices (new contract awarded in August 2013 – with water meters);
- 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 (water and waste water quality published in local media in September 2013);
- 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 DWA RBIG, Masibambane and ACIP programs, ORIO, Green Fund, and Disaster Reduction Program (ORIO and RBIG applications submitted to DWA for Hermanus Waste Water Reclamation Scheme);

- Tariffs structured to discourage excessive use of water, including implementation of volumetric sewerage tariffs; specific water restriction tariffs implemented for specific dam levels (implemented and on-going);

- Continue with removal of alien vegetation in catchment areas (existing Work for Water program – on-going);

- Maximum use of treated effluent for irrigation (implemented in Hermanus and Gansbaai).

A gradual decline in the percentage of non-revenue water is visible over the past number of years, although the recent water restrictions may have skewed the picture, due to an "un-natural" decrease in metered consumption, whereas the unaccounted volume is likely to remain more constant. The table below gives a summary of the non revenue water for the various distribution systems in Overstrand Municipality's Management Area.

Table 9.1.1: Non revenue water and ILI for the various distribution systems

Description	Unit	12/13	Record : Prior (Ml/a)				
			11/12	10/11	09/10	08/09	07/08
Buffels River	Volume	540.123	463.088	513.972	543.764	653.503	630.007
	Percentage	59.7%	55.0%	56.1%	56.2%	59.2%	57.8%
	ILI	5.45	5.07	5.06	6.69		
Kleinmond	Volume	283.500	239.492	198.745	268.918	212.481	213.977
	Percentage	34.2%	30.1%	25.1%	31.1%	24.6%	24.3%
	ILI	2.49	2.58	2.17	4.09		
Greater Hermanus	Volume	324.189	317.241	594.352	593.867	805.122	311.620
	Percentage	9.0%	9.7%	15.6%	13.3%	16.6%	7.9%
	ILI	0.85	0.98	1.50	2.22		
Stanford	Volume	91.388	142.029	128.297	194.486	163.496	123.058
	Percentage	30.8%	37.5%	35.5%	41.6%	36.4%	30.9%
	ILI	2.9	5.90	5.67	11.08		
Greater Gansbaai	Volume	405.799	435.335	457.525	457.580	438.158	402.311
	Percentage	31.2%	32.0%	32.8%	31.5%	30.8%	27.5%
	ILI	3.15	3.46	3.71	2.07		
Pearly Beach	Volume	67.435	45.689	36.511	21.683	27.326	34.163
	Percentage	41.9%	32.3%	26.3%	19.7%	21.6%	25.7%
	ILI	4.79	3.02	2.41	3.20		
Baardskeerdersbos	Volume	4.000	2.778	4.085	2.722	4.915	2.869
	Percentage	36.3%	29.3%	37.3%	25.9%	39.4%	31.3%
	ILI	0.75					
Buffeljags Bay	Volume	0.090	0.019	0	0	0.112	0.360
	Percentage	2.63%	0.5%	0%	0%	4.4%	12.3%
	ILI	0.46					
TOTAL	**Volume**	**1 716.524**	**1 645.671**	**1 933.486**	**2 083.020**	**2 305.113**	**1 718.365**
	Percentage	**24.20%**	**24.17%**	**26.06%**	**24.96%**	**26.12%**	**21.72%**
	ILI	2.26	2.02	2.33	2.94		

Note: 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 (Hermanus).

Category B = No urgent action required although should be monitored carefully (Kleinmond, Pearly Beach and Greater Gansbaai).

Category C = Requires attention (Stanford and Buffels River)

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.

9.2 Gaps and Strategies

Overstrand Municipality is committed to continue with the active implementation of their WDM Strategy in order to reduce the water losses within the various distribution systems as follows:

Table 9.2.1: Committed reduction in total Non-Revenue Water (Include bulk distribution, treatment and internal distribution)

Distribution System	12/13 (%/a)	2017 (%/a)	2037 (%/a)
Buffels River	62.0%	35.0%	25.0%
Kleinmond	41.8%	20.0%	15.0%
Greater Hermanus	12.0%	15.0%	15.0%
Stanford	30.8%	20.0%	15.0%
Greater Gansbaai	39.8%	25.0%	20.0%
Pearly Beach	41.9%	20.0%	15.0%
Baardskeerdersbos	36.3%	20.0%	15.0%
Buffeljags Bay	2.63%	15.0%	15.0%

PRVs were installed in Kleinmond and Stanford. 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 repairs 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.

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 meters installations during the foundation inspections at construction / building sites. This information is also implemented and captured on EMIS by the Building Inspectorate.

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.

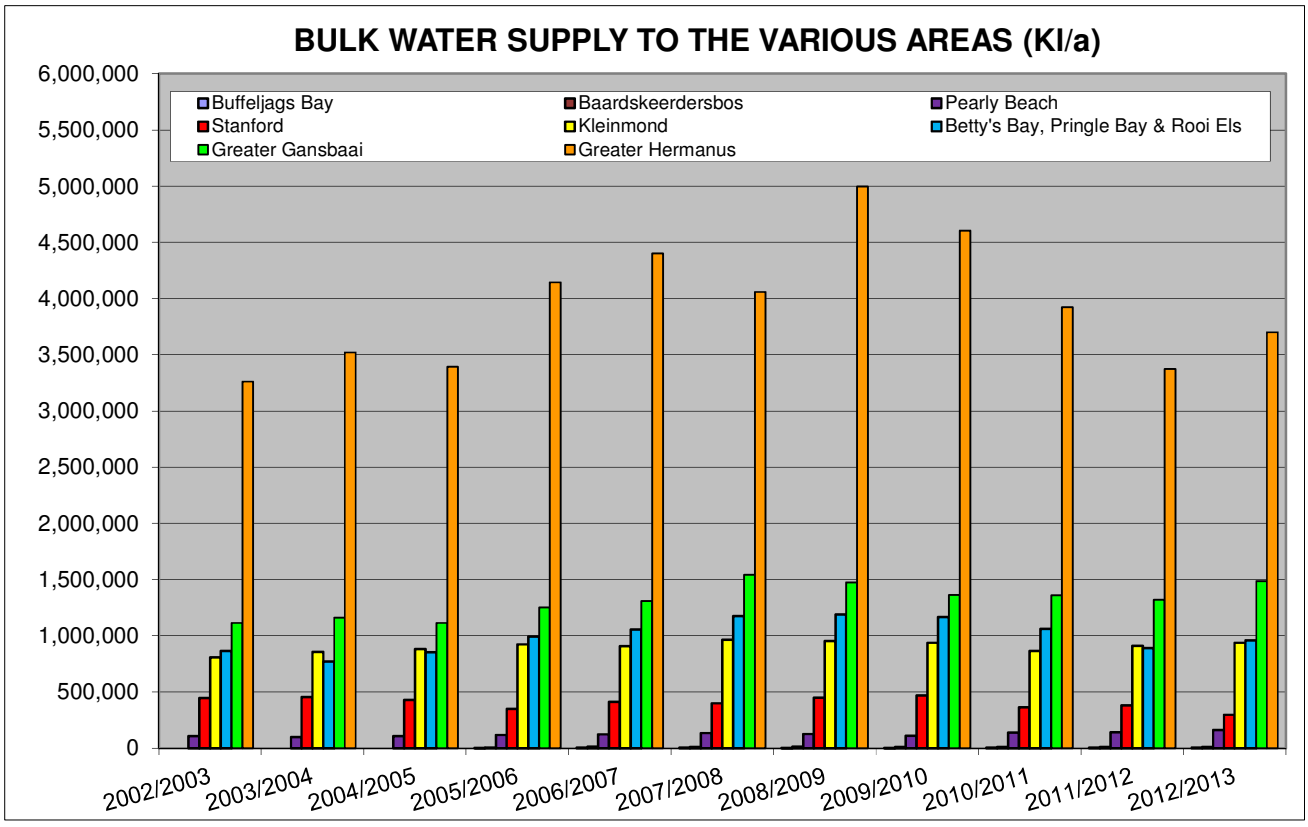
Overstrand Municipality's current water information database appears adequate from a water services management perspective. Overstrand Municipality is committed to continue with the metering of all the influent received at their WWTWs, the quantity of treated effluent re-used and the quantity of treated effluent returned to the Water Resource System. This information is critical for planning purposed 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 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.

10. WATER RESOURCES

10.1 Status Quo

The graph below gives a summary of the total bulk water supply to the various towns within Overstrand Municipality's Management Area.



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 DWA'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 percentage compliance and the additional monitoring required by Overstrand Municipality for determinands identified during the risk assessment exceeding the numerical limits in SANS 241-1:2011 are as follows (Water quality samples taken over the period July 2012 to June 2013).

Table 10.1.1: Percentage compliance of the water quality samples for the period July 2012 to June 2013		
Performance Indicator	**Performance Indicator categorised as unacceptable Yes / No (Table 4 of SANS 241-2:2011)**	**% Sample Compliance according to DWA's 2014 Blue Drop Limits**
Buffels River		
Acute Health – 1 Chemical	No (Excellent)	100.0%
Chronic Health	No (Excellent)	96.5%
Aesthetic	No (Excellent)	99.2%
Risk assessment defined Health (Acute or Chronic)	No (Excellent)	97.6%
Operational Efficiency	No (Excellent)	98.3%
Kleinmond		
Acute Health – 1 Chemical	No (Excellent)	100.0%
Chronic Health	No (Good)	94.9%
Aesthetic	No (Excellent)	100.0%
Risk assessment defined Health (Acute or Chronic)	No (Excellent)	96.4%
Operational Efficiency	No (Excellent)	97.7%
Greater Hermanus		
Acute Health – 1 Chemical	No (Excellent)	99.1%
Chronic Health	No (Excellent)	98.3%
Aesthetic	No (Excellent)	98.8%
Risk assessment defined Health (Acute or Chronic)	No (Excellent)	98.7%
Operational Efficiency	No (Excellent)	93.3%
Stanford		
Acute Health – 1 Chemical	No (Excellent)	100.0%
Chronic Health	No (Excellent)	95.7%
Aesthetic	No (Excellent)	100.0%
Risk assessment defined Health (Acute or Chronic)	No (Excellent)	96.6%
Operational Efficiency	No (Excellent)	97.3%
Greater Gansbaai		
Acute Health – 1 Chemical	No (Excellent)	98.8%
Chronic Health	No (Excellent)	100.0%
Aesthetic	No (Excellent)	97.6%
Risk assessment defined Health (Acute or Chronic)	No (Excellent)	99.6%
Operational Efficiency	No (Excellent)	96.8%
Pearly Beach		
Acute Health – 1 Chemical	No (Excellent)	100.0%
Chronic Health	No (Excellent)	98.4%
Aesthetic	No (Excellent)	94.1%
Risk assessment defined Health (Acute or Chronic)	No (Excellent)	98.8%
Operational Efficiency	No (Excellent)	99.3%
Baardskeerdersbos		
Acute Health – 1 Chemical	No (Excellent)	100.0%

Table 10.1.1: Percentage compliance of the water quality samples for the period July 2012 to June 2013		
Performance Indicator	**Performance Indicator categorised as unacceptable Yes / No (Table 4 of SANS 241-2:2011)**	**% Sample Compliance according to DWA's 2014 Blue Drop Limits**
Chronic Health	No (Excellent)	98.4%
Aesthetic	Yes (Unacceptable)	69.1%
Risk assessment defined Health (Acute or Chronic)	No (Excellent)	98.8%
Operational Efficiency	Yes (Unacceptable)	81.4%
Buffeljags Bay		
Acute Health – 1 Chemical	No (Excellent)	100.0%
Chronic Health	No (Excellent)	100.0%
Aesthetic	Yes (Unacceptable)	89.1%
Risk assessment defined Health (Acute or Chronic)	No (Excellent)	100.0%
Operational Efficiency	Yes (Unacceptable)	89.8%

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

Table 10.1.2: Five 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 - 1	Routinely quantifiable determinand that poses an immediate unacceptable health risk if consumed with water at concentration values exceeding the numerical limits specified in SANS 241.
Acute Health - 2	Determinand that is presently not easily quantifiable and lacks information pertaining to viability and human infectivity which, however, does pose immediate unacceptable health risks if consumed with water at concentration values exceeding the numerical limits specified in 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

Effluent quality: The overall Microbiological, Chemical and Physical compliance percentages of the final effluent samples taken over the period July 2012 to June 2013, for the various WWTWs, are as follows:

Table 10.1.3: Microbiological, chemical and physical compliance percentages of the final effluent taken at the various WWTW over the period July 2012 to June 2013										
WWTW	**Micro-biological**	**Chemical**					**Physical**			
	Faecal Coliforms	**Ammonia**	**Nitrates & Nitrites**	**COD Filtered**	**Ortho-Phosphates**	**Overall**	**pH**	**EC**	**SS**	**Overall**
Kleinmond	58.3%	75.0%	75.0%	100%	91.7%	88.3%	100.0%	100.0%	100.0%	100%
Hawston	83.3%	50.0%	100%	75.0%	75.0%	66.7%	100.0%	50.0%	83.3%	77.8%
Hermanus	83.3%	75.0%	100%	100.0%	75.0%	88.3%	100.0%	8.3%	100.0%	69.4%
Stanford	91.7%	83.3%	58.3%	100.0%	100%	86.6%	100.0%	100.0%	100.0%	100%
Gansbaai	91.7%	83.3%	75.0%	91.7%	91.7%	86.7%	91.7%	41.7%	100.0%	77.8%
Total	**81.7%**	**73.3%**	**81.7%**	**93.3%**	**86.7%**	**83.3%**	**98.3%**	**61.7%**	**96.7%**	**85.6%**

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. 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).

10.2 Gaps and Strategies

Metering of all water demand 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 table below gives an overview of the years in which the annual water demand is likely to exceed the sustainable yield from the various resources.

Table 10.2.1: Years in which the annual water demand will exceed the sustainable yield from the various resources

Distribution System	Total sustainable Yield (x 10^6 m^3/a)	Annual Growth on 2012/2013 Demand (2%, 3% or 4%)	Annual Growth on 2012/2013 Demand (4%, 5% or 6%)	WSDP Projection Model
Buffels River	1.717	2031 (3%)	2023 (5%)	> 2037
Kleinmond	2.589	> 2037 (3%)	2032 (5%)	> 2037
Greater Hermanus	6.012*	2028 (4%)	2023 (6%)	2027
Stanford	1.950	> 2037 (3%)	> 2037 (5%)	> 2037
Greater Gansbaai	2.768	2027 (4%)	2022 (6%)	2031
Pearly Beach	0.307	2033 (3%)	2025 (5%)	2028
Baardskeerdersbos	0.405	> 2037 (2%)	> 2037 (4%)	> 2037
Buffeljags Bay	0.028	> 2037 (2%)	> 2037 (4%)	> 2037

Note * With Gateway, Camphill and Volmoed Well Fields fully operational. The Water Use Licenses for Camphill and Volmoed are however not yet issued and the values were therefore estimated.

The DWA also completed their Reconciliation Strategy during 2010/2011 and the table below gives an overview of the recommended potential future water resources as included in the Strategies (**Corrections by Municipality**):

Table 10.2.2: Potential future water resources for the various towns (DWA's Reconciliation Strategy)

Distribution System	Option	Potential
Betty's Bay, Rooi Els and Pringle Bay	Re-use of water	• 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	• 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 m^3/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 m^3/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	• 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 2017. Rooi Els River is also another river considered for investigation if the Palmiet River may not be a good choice.
	Other Sources	• 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	**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:** • WC/WDM strategies to reduce water losses (Busy with Implementation) • Abstraction from the Palmiet River

Table 10.2.2: Potential future water resources for the various towns (DWA's Reconciliation Strategy)		
Distribution System	**Option**	**Potential**
		• Groundwater development • Abstraction from the Rooi Els River • Raising of Buffels River dam wall
Kleinmond	Re-use of water	• 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	• 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	A study was carried out on the Palmiet River by DWA for further development of the surface water resources with the following recommendations: • Transferring water from the Kogelberg Dam to the Steenbras Dams and this was implemented the same year and provided 22.5 Mm^3/a at 1:50 year assurance. • Raising of the current Eikenhof Dam to increase its capacity from 22.5 Mm^3/a to 30 Mm^3/a and this would provide additional yields of 4.5 Mm^3/a. The total storage would be only 27% of the MAR of 301.8 Mm^3, but the ecological freshwater flow requirements of the Palmiet River would limit further development.
	Other Sources	• Rainwater harvesting can be a suitable option for the area, considering the mean annual precipitation is acceptable for rainwater harvesting.
	Summary	**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:** • WC/WDM strategies to reduce water losses (Busy with Implementation) • Increase allocation from the Palmiet River • Groundwater development • Regional scheme with Overberg Water for bulk supply from Theewaterskloof Dam or the Palmiet River extended.
Hermanus	Re-use of water	• Currently treated water is used for irrigation purposes at the golf course and several schools. Direct and indirect potable water re-use is currently not planned. • The cost of utilising treated water has been estimated in Hermanus. A limited cost saving could be obtained should the treated water be incorporated directly in the existing supply system because dormant capacity in the existing system can be used more effectively. The cost of this system will mainly depend on the volume of water supplied. • Selected water users could be supplied with up to 4 Mm^3/a by 2030, assuming that 50% of the bulk water consumption is available for re-use.
	Groundwater	• PSPs were appointed to proceed with groundwater investigation and exploration projects. Five target options for potential TMG well field 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) • Construction of infrastructure connecting the Camphill and Volmoed well fields to municipal supply is planned for 2012. The Gateway monitoring programme is also applied at Camphill and Volmoed well field and results are presented to the monitoring committee. The two well fields are currently not pumped whilst pipeline infrastructure is completed and monitoring intends to establish baseline data. • The three well fields together can provide an additional 2.62 Mm^3/a, equivalent to 37% of the required yield in 2035 under the medium growth scenario.
	Surface Water	• The only feasible option identified in the Western Overberg Coastal Zone Water Supply Study (DWA, 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 are currently being developed. • Regional scheme with Overberg Water for bulk supply from Theewaterskloof Dam or from the Palmiet River.
	Other Sources	• 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

Table 10.2.2: Potential future water resources for the various towns (DWA's Reconciliation Strategy)		
Distribution System	**Option**	**Potential**
		implementation when required.
	Summary	• Full implementation of the WC/WDM Strategy (Busy with Implementation) • Full implementation of the Gateway well field (Implemented) • Development of the Camphill and Volmoed well fields. (Implemented) • Potable and or direct use of treated effluent. (Busy with Planning) • Regional scheme with Overberg Water for bulk supply from Theewaterskloof Dam or from the Palmiet River. • Desalination plant • Construction of Hartebeest River Dam and supply to Hermanus via the De Bos Dam (**?**).
Stanford	Re-use of water	• 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	• Further groundwater development is seen as a potential future source for the town. The Overstrand Municipality developed the Kouevlakte Wellfield south of the town, which augments the supply to the Stanford area. (Implemented)
	Surface Water	• 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 Stanford.
	Other Sources	• Rainwater harvesting cannot be a suitable option for Stanford, considering the mean annual precipitation is too low for rainwater harvesting.
	Summary	**The current water sources have adequate supply to cater for the medium and longer term future water requirements, if the WC/WDM Strategy is fully implemented. The following sources are identified as potential sources to augment the water supply:** • WC/WDM strategies to be implemented to reduce water losses. (Busy with Implementation) • Kouevlakte Wellfield development (Implemented)
Greater Gansbaai	Re-use of water	• The existing WWTW is in a good physical condition, but the waste water will need further treatment to potable standard.
	Groundwater	• 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 (Class 0-1).
	Surface Water	• 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 Sources	• Rainwater harvesting can be a suitable option for the area, considering the mean annual precipitation is acceptable for rainwater harvesting.
	Summary	**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:** • WC/WDM strategies to be implemented to reduce water losses. (Busy with Implementation) • Abstraction from Franskraal Dam (Implemented, water supplied from Kraaibosch Dam) • Allocation from De Kelder springs. (Used to its full potential) • Groundwater development
Pearly Beach	Re-use of water	• The re-use of water for Pearly Beach will not be a feasible option because the town does not have a WWTW and is only serviced by septic tanks. Private WWTW at Resort and developing oxidations ponds for the Municipality.

Table 10.2.2: Potential future water resources for the various towns (DWA's Reconciliation Strategy)		
Distribution System	**Option**	**Potential**
	Groundwater	Three groundwater options exist for Pearly Beach to meet future annual shortfalls. • 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 2035, where an additional 10 l/s borehole may be required.
	Surface Water	• 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.
	Other Sources	• Rainwater harvesting cannot be a suitable option for Pearly Beach, considering the mean annual precipitation is too low for rainwater harvesting.
	Summary	**The current water sources have adequate supply to cater for the medium and longer term future water requirements up to 2020. The following sources are identified as potential sources to augment the water supply:** • WC/WDM implementation to reduce water losses. (Busy with Implementation) • Groundwater development in the TMG Aquifer. • Linking Pearly Beach supply system with the Kraaibosch Dam • Linking the Pearly Beach supply with the Gansbaai supply system
Baardskeer-dersbos	Re-use of water	• The re-use of water is not a suitable supply option for Baardskeerdersbos, as there is no formal sewerage system and WWTW available.
	Groundwater	• 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. The town is not expected to have any water shortfalls up to 2035, after commissioning of the new borehole; however if water is required the Peninsula Formation can be further explored along the fault with similar yields.
	Surface Water	Potential future surface water sources for the town, as identified in the Breede WMA ISP (DWA, 2004), are the utilisation of: • A tributary of the Boesmans River, and • The Uilkraals River
	Other Sources	• None
	Summary	**The current water sources have adequate supply to cater for the medium and longer term future water requirements, with the commissioning of the new borehole. If the town may require alternative water resource options in the future, the following sources are identified as potential sources to augment the water supply:** • WC/WDM Strategies(Busy with Implementation) • Further groundwater development (Implemented) • Abstraction from Uilkraals River to augment the supply
Buffeljags Bay	Re-use of water	• The re-use of water is not a feasible option for the town.
	Groundwater	• The town is currently supplied by one borehole, which can sustainably supply 0.019 Mm³/a. Both have been 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

Table 10.2.2: Potential future water resources for the various towns (DWA's Reconciliation Strategy)		
Distribution System	**Option**	**Potential**
		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	• There is no surface water sources in close proximity to Buffeljags Bay
	Other Sources	• Rainwater harvesting is not a feasible option due to the low annual rainfall. • Desalination of seawater could be an option, if no other sources are available.
	Summary	**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 the water supply:** • WC/WDM Strategies (Busy with Implementation) • Further groundwater development (Implemented) • Desalination of seawater

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.

Greater Hermanus Area: The Gateway, Camphill and Volmoed wellfields were developed by Overstrand Municipality as additional groundwater resources for the greater Hermanus Area. The Gateway 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. A new pipeline from the Camphill and Volmoed boreholes to the Preekstoel WTWs was constructed and the new boreholes were incorporated into the system. The Municipality further applied for a License review to the DWA which may include an increased yield from 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.

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 dam efficiently. Other future resource options include groundwater development and the possible Kraaibosch scheme.

Baardskeerdersbos: Two new boreholes will be commissioned soon 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 source is adequate to supply the medium- and long-term future water requirements.

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 DWA. 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.

11. FINANCIAL

11.1 Status Quo

Capital Budget: Overstrand Municipality's proposed Water and Sewerage Capital Budget for 2014/2015 is R13.8 million and R13.0 million respectively. The updated Water and Sewer Master Plans (July 2012) recommends upgrades to the values indicated in the table below in the foreseeable future in order to accommodate development and population growth according to the SDF (2011 Values, which include P&Gs, Contingencies and Fees, but exclude EIA studies, registration of servitudes and / or land acquisition and VAT).

Table 11.1.1: Future Water and Sewerage Infrastructure required

System	Water Infrastructure				Sewerage Infrastructure		
	Reticulation	Reservoirs and Pump Stations	WDM	Total	Reticulation	Pump Stations	Total
Buffels River	R8.594	R12.978	R1.488	R23.060	R132.957	R13.377	R146.334
Kleinmond	R6.390	R0.596	R0.852	R7.838	R31.103	R0.708	R31.811
Greater Hermanus	R65.021	R51.770	R0.700	R117.491	R68.832	R7.475	R76.307
Stanford	R1.924	R3.872	R0.383	R6.179	R11.897	R1.789	R13.686
Greater Gansbaai	R46.569	R47.762	R0.500	R94.831	R113.634	R16.733	R130.367
Pearly Beach	R3.631	R0.000	R0.100	R3.731	R20.713	R2.785	R23.498
Totals	**R132.129**	**R116.978**	**R4.023**	**R253.130**	**R379.136**	**R42.867**	**R422.003**

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

Operational Budget: The table below gives a summary of the total operating costs and income for water and sanitation services for the various years.

Table 11.1.2: Summary of Operational and Maintenance expenditure and income budgets for water and sanitation services					
Description	**Actual**	**Record Prior (Audited)**			
	12/13	**11/12**	**10/11**	**09/10**	**08/09**
Total operating expenditure for Water	R85 498 520	R83 115 289	R73 321 373	R72 496 148	R48 040 492
Total operating income for Water	-R96 578 920	-R104 938 998	-R79 588 700	-R74 598 682	-R66 998 742
Nett Surplus / Deficit	**-R11 080 400**	**-R21 823 709**	**-R6 267 327**	**-R2 102 534**	**-R18 958 250**
Total operating expenditure for Sanitation	R51 607 042	R45 790 334	R40 666 933	R37 715 839	R25 170 346
Total operating income for Sanitation	-R64 291 003	-R74 623 658	-R50 911 542	-R36 160 168	-R32 056 044
Nett Surplus / Deficit	**-R12 683 961**	**-R28 833 324**	**-R10 244 609**	**R1 555 671**	**-R6 885 698**

Tariff and Charges: The first six (6) kl of water is provided free to all 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-subsidies consumers who use up to six (6) kilolitres per month.

Overstrand Municipality's current four (4) block step tariff system discourages the wasteful or inefficient use of water. It is expected that this tariff structure will continue to be implemented 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 30 kl per household per month. Punitive tariffs are in place for excessive water consumption.

11.2 Gaps and Strategies

Capital Budget: 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 33.4% of the water infrastructure and 53.7% 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 R931.1 million (an average of R46.6 million per year) and for sewerage infrastructure the value is R278.8 million (an average of R13.9 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 R799.0 million and R252.4 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.

Overstrand Municipality's 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 projects are form 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 IAMPs 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.

- OM will start with the investigation of alternative ways of providing the services. Business Process Re-engineering reviews will be undertaken to identify both more efficient and cost-effective ways of delivering services.

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.

An IAMP 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.

Overstrand Municipality's implementation strategies with regard to operational budgets are as follows:

- Develop an IAMP, 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, inked to a ring-fenced asset replacement fund.

- 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.

Table 11.2.1: Comments on Overstrand Municipality's step block water tariff system

Block (Kl / month)	12/13	11/12	10/11	Comments
0 - 6	R0-00	R0-00	R0-00	Free Basic Water
7 - 20	R7-46	R7-02	R6-48	Low volume use
21 - 30	R12-00			Typical use volume, including garden irrigation
31 - 60	R18-60	R17-55	R16-20	Above average use, including garden irrigation
61 - 100	R25-18	R23-69	R21-60	Wasteful use and / or severe garden irrigation
> 100				Significant waste and / or unnecessary garden irrigation

OM will continue with the implementation of their step block tariff system for water services. Wasteful or inefficient use of water is discouraged through increased tariffs. Overstrand Municipality also started in 2010/2011 with the implementation of volumetric sewerage tariffs. The 2012/2013 general residential sewerage tariff is R8-77 per kl per unit per month (Based on 70% of 50 kl water usage). 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.

It is suggested that 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 could be 60 kl/month, above which residential water use could be 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.

12. WATER SERVICES INSTITUTIONAL ARRANGEMENTS

12.1 Status Quo

Overstrand Municipality acts as both WSA and WSP to the consumers in their Municipal Management Area and therefore does not manage other WSPs. 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.

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. Submissions were also made to the DWA 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 2013/2014 is in place.

12.2 Gaps and Strategies

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 (Water Services Audit), as part of Overstrand Municipality's Annual Report.

It is important for Overstrand Municipality to report annually on the KPIs as listed in the SFWS, included in DWA's Water Services Regulation Strategy and required by DWA's RPMS. The RPMS is one of the programmes under DWA's Directorate Water Services Regulation. The DWA is changing the manner in which they regulate WSAs by becoming more proactive in their processes. A new risk- and incentive based process will be followed, which will focus on the four strategic areas of financially viable business, Customer Satisfaction, Effective Institution and Technical Efficiency.

Overstrand Municipality's current water services are delivered by way of an internally operated and managed mechanism. Overstrand Municipality is currently busy with a Section 78 Investigation to review their current bulk water services delivery mechanism for the following reasons:

- The expansion of its operations and addition of WTWs and WWTWs that materially impacts on the operational responsibility of the municipality. This triggered a s78 process (Section 77(a)(i) of the Municipal Systems Act indicates that a Section 78 Assessment should be done when a municipal service is upgraded, extended or improved upon). Highly skilled experienced personnel are needed to operate the new plants due to the technology being used, currently Service Level Agreements are in place with Contractors to operate three of the plants;

- The overall treatment capacity of the existing WTWs will be increased from 42.75 Ml/d to 58.84 Ml/d within the next three years, which is an increase of 37.6 %. The overall treatment capacity of the existing WWTWs was increased from 12.8 Ml/d to 17.5 Ml/d and will be further increased to 20.3 Ml/d within the next four years, which is an increase of 58.6%;

- The Municipality's key focus currently is that of re-active maintenance and the preventative maintenance is lacking behind, because of the limited budgets for preventative maintenance; and

- To give effect to the obligation to take progressive steps to ensure that municipal services are delivered as effectively and efficiently as possible, in the interests of the community being served.

The focus of the Section 78 assessment is on how to optimise service delivery to the Overstrand community. The current debate is whether current arrangements can address the service delivery and community needs effective and efficiently in the longer term, given the expansion and upgrade of the WTWs and the WWTWs.

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 Overstrand Municipality to compile a Legal Compliance Audit of the WTWs and WWTWs in Overstrand Municipality's Management Area, which will provide the management of Overstrand Municipality with the necessary information to establish whether the Municipality is in compliance with the legislation or not.

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 Water and Sewer Master Plans.

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.

The training of Overstrand Municipality's personnel involved in the management of water and sanitation services is the most important factor that determines the ability of Overstrand Municipality to deliver safe and reliable water and to treat the effluent at the WWTWs to an acceptable standard. Training of all staff involved in water supply and sanitation services on matters related to treatment processes and quality monitoring and control is essential because their actions (or failure to act) will have a major impact on the well-being of the communities and the environment.

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, Operation and Maintenance Manuals 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.

13.SOCIAL AND CUSTOMER SERVICE REQUIREMENTS

13.1 Status Quo

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 Municipality has maintained a high and a very consistent level of service to its urban water consumers.

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 13.1.1: Water and sanitation indicators monitored by Overstrand Municipality with regard to customer services and maintenance work

Service	Definition	Gansbaai				Hermanus				Kleinmond				Stanford				Total			
		12/13	11/12	10/11	09/10	12/13	11/12	10/11	09/10	12/13	11/12	10/11	09/10	12/13	11/12	10/11	09/10	12/13	11/12	10/11	09/10
Sewerage connection	Provision of connection or inspection of existing connections	24	1	25	65	86	67	63	71	1	-	3	3	1	-	3	1	**112**	**68**	**94**	**140**
Sewer blockages	Repair blockages on main sewer pipelines up to connection points	69	68	65	13	1 389	1 283	1 332	526	202	132	127	62	28	18	35	33	**1688**	**1501**	**1 559**	**634**
Investigate sewer reticulation network	Investigate network	-	-	19	0	-	-	11	10	-	-	2	1	-	-	1	0	**0**	**0**	**33**	**11**
Manholes sewer reticulation	Inspection and installation of manholes	-	-	6	0	-	-	1	1	-	-	7	2	-	-	-	0	**0**	**0**	**14**	**3**
Other sewer reticulation	Any other sewer reticulation inspections	49	54	28	3	44	78	16	4	6	7	5	0	29	36	4	0	**128**	**175**	**53**	**7**
PDA toilets repairs	Previously disadvantaged toilets repaired	134	132	102	Community members were appointed to carry out the repairs	5	5	1	Community members were appointed to carry out the repairs	-	-	-	Community members were appointed to carry out the repairs	-	-	2	Community members were appointed to carry out the repairs	**139**	**137**	**105**	Community members were appointed to carry out the repairs
Pipeline sewer	Installation of sewer pipelines or repair of pipelines	-	-	2	1	1	4	10	1	-	1	6	0	-	-	1	1	**1**	**5**	**19**	**3**
Investigate sewer reticulation pump stations	Work carried out at sewer pump stations	-	3	3	1	21	36	42	12	6	10	2	2	3	2	-	2	**30**	**51**	**47**	**17**
Test water meter	Testing of water meter for accuracy	-	2	4	0	27	23	29	1	-	8	10	2	-	-	1	1	**28**	**33**	**44**	**4**
Disconnect water connection	Disconnect supply	3	6	3	Managed Externally (Debt Pack)	17	10	6	Managed Externally (Debt Pack)	12	11	6	Managed Externally (Debt Pack)	5	1	4	Managed Externally (Debt Pack)	**37**	**28**	**19**	Managed Externally (Debt Pack)
Install drip system	Installation and inspection of drip systems	1	1	-	Managed Externally (Debt Pack)	-	-	2	Managed Externally (Debt Pack)	4	-	1	Managed Externally (Debt Pack)	-	-	1	Managed Externally (Debt Pack)	**5**	**1**	**4**	Managed Externally (Debt Pack)
Inspect water connections	Inspect connections	20	78	71	27	52	79	184	114	44	150	154	17	35	42	77	27	**151**	**349**	**486**	**185**
New water connections	New water connections	56	92	68	44	84	74	23	27	35	60	38	20	9	60	13	23	**184**	**286**	**142**	**114**
Other water connections	Inspections and work carried out at water connections	127				18				79				13				**237**			
Pipelines water	Installation or repair of water pipelines	-	8	5	3	2	1	5	6	7	11	11	4	12	59	13	18	**21**	**79**	**34**	**31**
Pressure	Complaints with regard to pressure in the system	21	28	28	8	13	20	44	78	46	29	18	18	3	2	-	7	**83**	**79**	**90**	**11**
Water Pump Stations	Inspections and work carried out at water pump stations.	-	8	-	1	-	15	4	4	8	35	31	1	8	3	-	0	**16**	**61**	**35**	**6**
Repair pipe bursts	Repair of burst water pipelines	43	61	61	35	130	88	151	91	210	232	255	104	6	16	13	12	**389**	**397**	**480**	**242**
Reservoirs	Inspection of reservoirs and work carried out at reservoirs	2	-	1	2	3	7	18	40	37	89	2	50	1	7	-	1	**43**	**103**	**21**	**93**
Water Routine Inspections	Any water related inspections	174	199	92	0	-	5	13	2	4	6	7	0	159	83	1	3	**337**	**293**	**113**	**5**
Water Valves	Inspection of valves and work carried out on valves	2	6	7	5	3	8	3	9	6	15	12	2	1	2	1	2	**12**	**31**	**23**	**18**

13.2 Gaps and Strategies

Access to safe drinking water is essential to health and is 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).
- Correct operation and maintenance of WTWs (Coagulation, flocculation, sedimentation and filtration). A new Reverse Osmosis plant was constructed at De Kelders Grotte.
- 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 OM 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.

14. NEEDS DEVELOPMENT PLAN

14.1 Status Quo

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, in consultation with the Municipality's town planning consultants. 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 existing Water and Sewer Master Plans of Overstrand Municipality were last updated during July 2012. The recommended projects from these 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

The needs identified through the WSDP process, which needs to be addressed in the future, are summarised in the table below for the different Topics:

Table 14.1.1: Needs identified through the WSDP process and possible improvements / projects

Topic	Short Coming	Possible Improvements / Projects
Administration	Key issues raised in the WSDP need to be taken to the IDP	Ensure Executive Summary of WSDP is included in the IDP.
Demographics	-	-
Service Levels	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.
Socio Economic	-	-
Water Services Infrastructure	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.
	Ensure that an appropriate maintenance and rehabilitation plan (IAMP) is developed and implemented.	Develop an Infrastructure Asset Management Plan (IAMP) 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.
	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.
	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 assets.
Operation and Maintenance	It is important for Overstrand Municipality to classify all 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.	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 Overstrand Municipality to compile a Legal Compliance Audit of their WTWs and WWTWs, which will provide the management of Overstrand Municipality with the necessary information to establish whether the Municipality is in compliance with the legislation or not.	Compile an Occupational Health and Safety Audit at all the WTWs and WWTWs.
	Shortcomings were identified as part of the Water Safety Plans and W_2RAPs.	Implement Improvement / Upgrade Plans of Water Safety Plans and W_2RAPs
	Shortcomings were identified as part of the WTW and WWTW Process Audits.	Implement recommendations from detail WTW and WWTW Process Audits

Table 14.1.1: Needs identified through the WSDP process and possible improvements / projects		
Topic	**Short Coming**	**Possible Improvements / Projects**
Associated Services	-	-
Conservation and Demand Management	Reduce the percentage of Non-Revenue Water.	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).
	Repair leaks at all the indigent households	Continue with the repairing of leaks at all the indigent households.
	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.
	Continue with the implementation of 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.	Continue to support schools with WDM initiatives (Especially during Water Week)
	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.
Water Resource	Registration of water use with the DWA.	Ensure all bulk water abstraction from the various sources is registered with the DWA and legalised.
	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.
Financial Profile	Develop IAMPs for all water and sewer infrastructure, which will indicate the real replacement values, the service life of the assets and the funds required to provide for adequate asset replacement.	Develop an IAMP
Institutional Arrangements	All critical vacant water and sanitation positions as indicated on the approved Organogram needs to be filled as soon as possible. Overstrand Municipality needs to review the skills needed at each of the WTWs and WWTWs according to the classification of the WTWs and WWTWs and need to align resources to these needs as well as reviewing the total staff numbers necessary to meet all the objectives in the National Water Act.	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.
	Continue with the 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.
	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	Overstrand Municipality's internal reports such as the Water Safety Plan, W_2RAP, Operation and Maintenance Manuals and this WSDP have the necessary information on which the in-house courses can be based. This will assist Overstrand

Table 14.1.1: Needs identified through the WSDP process and possible improvements / projects		
Topic	**Short Coming**	**Possible Improvements / Projects**
	organizational knowledge and systems requirements.	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.
	Highly skilled experienced personnel are needed to operate the new WTWs and WWTWs due to the technology being used. The Municipality's key focus currently is that of re-active maintenance and the preventative maintenance is lacking behind, because of the limited budgets for preventative maintenance.	Continue with Section 78 investigation, in order to review the current bulk water services delivery mechanism.
Social and Customer Service Requirements	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.

14.2 Gaps and Strategies

Overstrand Municipality's proposed key 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).
- Construction of new reservoirs for Mount Pleasant and Sandbaai
- Upgrading of "Die Oog" pump station building and refurbishment of the Buffels River Dam Bridge and Tower and Palmiet River Weir.
- Continue with the implementation of WDM measures (Meter replacements, pipeline replacements, pressure management, etc.)
- Upgrading of Gateway, Camphill and Volmoed Well Fields.
- Upgrade and extension of various sections of the bulk sewer pipelines and internal drainage networks, as recommended by the Sewer Master Plans.
- Upgrade of the Stanford WWTW.
- Upgrade some of the sewer pump stations.

The table below gives more detail of the individual projects, as included in the proposed Three Year Capital Budget for 2014/2015.

Table 14.2.1: Water and sewerage capital projects, as included in the proposed Three Year Capital Budget for 2014/2015					
Project name	**Local Area**	**Project type (e.g. bulk, reticulation, etc.)**	**Schedule Date, Estimated Cost**		
			14/15	**15/16**	**16/17**
WATER					
Replacement of Overstrand water pipes	Overstrand	Reticulation	R13 800 000	R12 500 000	R11 000 000
Upgrading of "Die Oog" pump station building	Stanford	Pump Station	-	-	R500 000
New bulk water reservoir	Sandbaai	Reservoir	-	-	R6 300 000
Upgrading of Franskraal – Kleinbaai – Gansbaai pipelines	Kleinbaai	Bulk Pipeline	-	R7 000 000	R2 500 000
Upgrading of Gateway, Camphill and Volmoed Well Fields	Hermanus	Sources	-	-	R2 000 000

Table 14.2.1: Water and sewerage capital projects, as included in the proposed Three Year Capital Budget for 2014/2015					
Project name	**Local Area**	**Project type (e.g. bulk, reticulation, etc.)**	**Schedule Date, Estimated Cost**		
			14/15	**15/16**	**16/17**
Refurbish Buffels River Dam Bridge and Tower and Palmiet River Weir	Kleinmond	Bulk Infrastructure	-	R2 000 000	-
New 1 Ml Reservoir OHW.B31	Mount Pleasant	Reservoir	-	R2 800 000	-
200mm dia Bulk watermain OHW8.1	Mount Pleasant	Bulk Pipeline	-	R1 000 000	-
250mm dia Bulk watermain HOW.B14	Mount Pleasant	Bulk Pipeline	-	R520 000	-
160mm dia Bulk watermain OHW8.3	Mount Pleasant	Bulk Pipeline	-	R300 000	-
160mm dia Bulk watermain OHW9.9	Zwelihle	Bulk Pipeline	-	R490 000	-
160mm dia Bulk watermain OHW9.10	Zwelihle	Bulk Pipeline	-	R200 000	-
Hawston: Bulk Water	Hawston	Bulk Pipeline	-	-	R5 000 000
Hawston: Bulk water upgrade for housing project	Hawston	Bulk Pipeline	-	-	R3 611 000
New 500mm dia Water pipeline	Hawston	Bulk Pipeline	-	-	R2 100 000
Total			**R13 800 000**	**R26 810 000**	**R33 011 000**
SEWERAGE					
Upgrading of pump stations	Overstrand	Pump Station	-	-	R2 000 000
Sewer network extension	Stanford	Drainage Network	R2 000 000	R2 000 000	-
Sewer network extension	Kleinmond	Drainage Network	-	R2 000 000	R2 000 000
CBD Sewer network extension	Gansbaai	Drainage Network	-	R3 000 000	R3 000 000
Upgrading of Kidbrooke pipeline	Onrus	Bulk Pipeline	R2 900 000	-	-
Upgrade WWTW	Stanford	WWTW	-	-	R4 500 000
Bulk sewerage for housing project	Eluxolweni	Bulk Pipeline	R8 100 000	-	-
Upgrade existing sewerage pump station OHS19.2	Zwelihle	Pump Station	-	R750 000	-
Bulk sewerage rising main 355mm dia OHS19.1	Zwelihle	Bulk Pipeline	-	R1 620 000	-
Bulk sewerage main 200mm dia OHS 13.3	Zwelihle	Bulk Pipeline	-	R1 000 000	-
Bulk sewerage outfall line 525mm dia OHS13.2	Zwelihle	Bulk Pipeline	-	R2 100 000	-
Total			**R13 000 000**	**R12 470 000**	**R11 500 000**

Overstrand Municipality's implementation strategies, with regard to new water and sanitation 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.

- To update the existing Water Master Plans and to 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 sewer infrastructure.

- Assign a high priority to the provision of basic water and sanitation services in the rural areas.

- 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.

- 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.