OVERSTRAND MUNICIPALITY

EXECUTIVE SUMMARY

WATER SERVICES DEVELOPMENT PLAN FOR

2012/2013

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ABBREVIATIONS AND DEFINITIONS

BDS	Blue Drop System
BHL	Borehole
BWP	Bulk Water Pipeline
CBO	Community Based Organisation
CC	Consumer Connection
COD	Chemical Oxygen Demand
CRC	Current Replacement Cost
CRR	Cumulative Risk Ratio
DMO	Destination Marketing Organisation
DRC	Depreciated Replacement Cost
DWA	Department of Water Affairs
ECD	Early Childhood Development
EHP	Environmental Health Practitioners
EMS	Environmental Management Services
GAMAP	General Accepted Municipal Accounting Practices
IAMP	Infrastructure Asset Management Plan
IDP	Integrated Development Plan
ILI	Infrastructure Leakage Index
Kl/a	Kilolitre per year
KPI	Key Performance Indicator
l/s	Litres per second
LED	Local Economic Development
LFPR	Labour Force Participation Rate
LL	Lower Level
LLPP	Local Labour Promotion Project
m^3/a	Cubic metre per year
Mm^3/a	Million cubic metre per year
MAP	Mean Annual Precipitation
MAR	Mean Annual Runoff
MBH	Monitoring Borehole
MIG	Municipal Infrastructure Grant
Ml	Mega litre
Ml/d	Mega litre per day
MNF	Minimum night flow
NDPG	Neighbourhood Development Programme
NGO	Non-Governmental Organisations
O&M	Operation and Maintenance
OM	Overstrand Municipality
OMAF	Overstrand Municipal Advisory Forum
PDD	Peak Daily Demand
PRV	Pressure Reducing Valve
RDP	Reconstruction and Development Programme

RES	Reservoir
RM	Rand Million
RPMS	Regulatory Performance Management System
RUL	Remaining Useful Life
SANS	South African National Standards
SDBIP	Service Delivery Budget Implementation Plan
SDF	Spatial Development Framework
SMME	Small Medium Micro Enterprise
SPS	Sanitation Pump Station
SRP	Sewer Reticulation Pipeline
STW	Sanitation Treatment Works
TMG	Table Mountain Group
TWL	Top Water Level
WC	Western Cape
WC/WDM	Water Conservation / Water Demand Management
WDM	Water Demand Management
WPS	Water Pump Station
WRP	Water Reticulation Pipeline
WSA	Water Services Authority
WSDP	Water Services Development Plan
WSP	Water Services Provider
WTP	Water Treatment Plant
WTW	Water Treatment Works
WWTW	Waste Water Treatment Works
YAC	Youth Advisory Centre

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.
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.
IDP	A municipal plan as defined in the Municipal Systems Act.
MIG	A conditional grant from national government to support investment in basic municipal infrastructure.
RUL	The time remaining over which an asset is expected to be used.
Strategic Framework for Water Services	The Strategic Framework provides a comprehensive summary of policy with respect to the water services sector in South Africa and sets out a strategic framework for its implementation over the next ten years.
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.

TERM	INTERPRETATION
WSP	A Water services provider is • Any person who has a contract with a water services authority or another water services provider to sell water to, and/or accept wastewater for the purpose of treatment from, that authority or provider (bulk water services provider); and / or • Any person who has a contract with a water services authority to assume operational responsibility for providing water services to one or more consumers (end users) within a specific geographic area (retail water services provider); or • A water services authority which 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 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 DWA has developed a new set of WSDP guidelines (October 2010) to assist WSAs with the WSDP process and to provide a framework for the capturing of the data. The business elements included in the guidelines and addressed in detail in the three Modules of OM'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 2012/2013 WSDP of OM 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.

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

Urban versus Rural Backlogs:

There is no basic water and sanitation services backlog in the urban areas of OM's Management Area. It is however estimated that there might still be some households on the farms in the rural areas with existing service levels below RDP standard. OM 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 are currently being implemented 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. OM 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.

Reliance on Water Resources Available and Bulk Infrastructure

OM investigated 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.

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

The Municipality explored for Stanford the groundwater potential of the Kouevlakte area since 2009, through exploration borehole siting and drilling. Two newly drilled boreholes will be put into operation and the Municipality is currently busy with the construction of the new bulk supply pipelines in order to connect the two newly drilled boreholes to the existing water reticulation network.

A new Nano Filtration WTW was constructed in Gansbaai 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.

A new borehole will be commissioned in the near future for the augmentation of Baardskeerdersbos existing surface water source.

Links between Water Supply and Sanitation

The Water and Sewer Master Plans are linked to OM's SDF. The future development areas were identified as part of the SDF. Water supply 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.

Limited Implementation and Operating Capacity in Some Municipalities

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.

OM will also continue with their mentoring role for operators ensuring and 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.

Available funding

The estimated Capital Budget for Water and Sanitation Services are R70.581M for 2012/2013, R36.990M for 2013/2014 and R44.000M for 2014/2015. OM 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.

Affordability of Service Levels (Operation and Maintenance Costs)

Both Water and Sanitation Services are currently managed by OM in a financial sustainable manner. The Municipality implements a step water tariff system with the sewer tariffs linked to the water consumption.

Growing Backlog in Refurbishment of Existing Infrastructure

OM 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 all the infrastructure, which indicated that 74.1% of the value of the water infrastructure has been consumed and 45.3% of the value of the sewage supply network has been consumed.

It is essential for OM 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 should be given to the establishment of a maintenance management system to enable OM 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.

Major Economic Development

Investing in infrastructure creates an enabling environment for economic growth and is an important precondition for sustainable growth. Although OM 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 sewer networks and rapid development, which is not always matched by growing capital expenditure, can further exacerbate the situation. OM 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.

Associated Population Growth and Water Demand

The detail future water demand projection models 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. OM is also currently busy with the implementation of various augmentation options, in order to meet the future demands of the various towns.

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 2012/2013 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 district 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 OM are as follows:

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"

DEMOGRAPHICS

Status Quo:

OM falls within the Breede Management Area and covers areas such as Rooi Els, Pringle Bay, Betty's Bay, Kleinmond, Greater Hermanus, Stanford, Greater Gansbaai, Pearly Beach, Baardskeerdersbos and Buffeljags Bay. OM, like all other WSAs countrywide, faces a series of challenges namely:

- Provision of basic services on a sustainable basis.
- Stimulating local economic development.
- Sound management of its financial affairs.
- Strengthening continued community participation in the affairs of Local Government.
- Provision of subsidised / low cost housing.
- Development of a social strategy.
- Growing population, unemployment and poverty.
- Continued reformation in local government.
- Backlog in infrastructure.

From a Water Services perspective, the most significant challenges are the augmentation of the existing water sources, the replacement and upgrading of old infrastructure to accommodate development, the provision of sustainable basic services to informal settlements and to ensure the provision of basic services to rural communities located on private 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.

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.

Due to the uncertainty associated with the impact of climate change on water demand and on water resources, it would be prudent to adopt the precautionary principle. The following scenario is likely:

- As a result of decreased rainfall, all resources, especially surface water resources, will be under pressure and will have lower safe yields.
- Due to increased heat units water demand from agriculture, as well as from towns (approximately 62% of all water) will rise sharply.
- Even in the event that average annual rainfalls would not reduce much, it is anticipated that much greater variability of rainfall will occur within a year and also between years due to more extreme climatic conditions.

It is therefore advisable for OM 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.

The functional strategies of the EMS Section are as follows:

- Biodiversity planning;
- Promotion of cooperative governance;
- Development of management plans & implementation schedules;
- Environmental management auditing;
- Promotion of a better understanding of the natural environment;
- Initiation of environmental management projects to address threats to the environment.

Demographic Perspective:

Economics: 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 OM'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 act 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. OM 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.

Gaps and Strategies:

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

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

SERVICE LEVELS

Status Quo:

The current residential water and sanitation service levels in OM's Management Area are as follows (Consumer Units):

Area	Buffels River	Kleinmond	Greater Hermanus	Stanford	Greater Gansbaai	Pearly Beach	Baardskeer-dersbos	Buffeljags Bay	Farms	Total
WATER SERVICE LEVELS										
Basic Need (RDP)	0	0	0	0	0	0	0	0	199	**199**
Housing Need (No Services)*	0	0	0	0	0	0	0	0	0	**0**
Housing Need (Communal Services)*	0	365	1 346	137	1 601	0	0	0	0	**3 449**
Adequate	3 051	2 971	13 306	1 072	4 175	1 088	57	33	1 450	**27 203**
Total	**3 051**	**3 336**	**14 652**	**1 209**	**5 776**	**1 088**	**57**	**33**	**1 649**	**30 851**
SANITATION SERVICE LEVELS										
Basic Need (RDP)	0	0	0	0	0	0	0	0	389	**389**
Housing Need (No Services)*	0	0	0	0	0	0	0	0	0	**0**
Housing Need (Communal Services)*	0	365	1 346	137	1 601	0	0	0	0	**3 449**
Adequate	3 051	2 971	13 306	1 072	4 175	1 088	57	33	1 260	**27 013**
Total	**3 051**	**3 550**	**14 643**	**1 214**	**5 788**	**1 088**	**57**	**33**	**1 649**	**30 851**

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

Gaps and Strategies:

As a priority it is the responsibility of OM 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.

A Water and Sanitation Service Level Policy is not yet in place. The water service levels to be provided by the Municipality to the consumers in their Management Area are however addressed to some extent in the Water Services By-laws. All water and sanitation services provided by OM to consumers within the Municipal Management Area are linked to the Municipality's Tariff Policy and Rates Policy and poor households are incorporated through OM's Indigent Policy.

The large number of residents in the lowest income groups (living in informal areas) places a major challenge on OM to provide suitable housing. OM 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 OM'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. OM 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.

OM 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.

OM 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 correct 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 OM.
- Subsidising the operating and maintenance costs. If the basic service is to be provided free to the poor then OM must ensure that the costs of providing the service are covered by the local government equitable share and / or through cross-subsidies within OM'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 OM's Management Area have adequate and safe water supply and sanitation services. All the schools in OM's Management Area also have adequate and safe water supply and sanitation services. It is important for the schools in OM's Management Area to focus on Water Demand Management activities and for OM to support the schools with a WDM programme.

SOCIO ECONOMIC BACKGROUND

Status Quo:

The 2001 Census recorded the population in the Overstrand. Municipality's Management Area at 55 770 (19 082 Households) and the 2007 Community Survey recorded the 2007 population at 74 574 (21 953 Households). The population of OM is currently estimated at approximately 92 180 persons for 2011/2012.

Due to the high levels of uncertainty projecting the current and future population of OM 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 projected present population and the estimated current population growth rates for the various distribution systems are therefore as follows:

Distribution System	Census 2001			2001 - 2011	Projections for 2011/2012		Number of Residential Consumer Units (Detail Water Meter Audit)
	Population	Number of Households	Persons / Household	Growth %/a	Population	Number of Households (Permanent)	
Buffels River	1 524	715	2.13	9.0%	3 608	1 693	3 051
				4.4%	2 344	1 100	
Kleinmond	6 400	2 393	2.67	5.5%	10 932	4 088	3 336
				2.7%	8 354	3 129	
Greater Hermanus	30 113	10 086	2.99	4.5%	46 765	15 663	14 652
				2.2%	37 434	12 520	
Stanford	3 463	970	3.57	5.5%	5 915	1 657	1 209
				2.7%	4 520	1 266	
Greater Gansbaai	8 603	2 983	2.88	8.0%	18 573	6 440	5 776
				3.9%	12 613	4 380	
Pearly Beach	485	245	1.98	8.0%	1 047	529	1 088
				3.9%	711	359	
Baardskeerdersbos	5 182	1 690	3.07	-	488	57	57
				-	314	57	
Buffeljags Bay				-	170	33	33
				-	116	33	
Farms				0.3%	4 682	1 649	*1 649*
TOTALS	**55 770**	**19 082**	**2.92**	**5.15%**	**92 180**	**31 809**	**30 851**
				2.46%	**71 088**	**24 493**	

The number of Residential Consumer Units in the previous table was determined through the detail water meter audit and includes the households in the informal areas, but excludes backyard dwellers on formal erven.

The potentially economically active population in OM's Management Area increased from 37 525 people in 2001 to 47 561 people in 2007, which means that the potentially economically active population increased with 10 036 new entrants over the six-year period. The labour force increased at an annual average rate of 5.7% over the period 2001 to 2007, with the labour force participation rate (LFPR) increasing from 64.2% to 70.6% from 2001 to 2007.

The number of people employed grew from 18 619 in 2001 to 25 470 in 2007, which represents an average annual increase of 5.4%. The unemployment rate increased from 22.7% to 24.1% over the same period.

The biggest employment contributors were Construction (15.8%), Wholesale and Retail Trade (14.7%) and Community, social and personal services (12.6%). The Manufacturing sector provided employment for 11% of the employed workers which makes it a significant sector in the municipal area.

Gaps and Strategies:

Social: OM plays a key role in the early childhood development of the children through various projects. During the last financial year an audit of ECD services in the Overstrand Municipality's Management Area was carried out. The audit was developed and initiated by the Municipality while data collection was done by the ECD assistants appointed by the Overberg WCD Service Provider Forum. The audit collected information from 7 ECD centres across Overstrand. The information will be used to inform the Municipality's ECD policy, which is currently being developed.

Funding proposals were prepared for the Hawston Care Centre (For assistance with the expansion of their facility) and the Poverty Forum (For the construction of a night shelter for the homeless).

The Municipality also acknowledges its role in the lives of the youth and in support of the aged, by supporting projects and capacity building initiatives of various Non-Governmental Organisations (NGO's) and Community Based Organisations (CBO's).

The Enlighten Education Trust, an Overstrand based non-governmental organization, is facilitating the Junior Council as an educational project on behalf of the Overstrand Municipality. These learners are also exposed to leadership camps where leadership qualities are strengthened.

The municipality has entered into a partnership with the Fund to establish a Youth Advisory Centre (YAC) to assist young people to gain access to resources including entrepreneurial opportunities. Through this programme the youth will be well prepared to take advantage of services and resources available to them to improve their livelihoods.

The Local Labour Promotion Project (LLPP) of the OM was initiated with the view to reduce outstanding municipal debt and provides income opportunities to communities with high unemployment and poverty levels. This is achieved by allowing the unemployed, those who are in service payment arrears and other needy groups within the communities to be part of the delivery of municipal services and the construction of new public facilities.

This project was devised as a means of effecting socio-economic upliftment, as part of the local authority's strategy to bring about poverty alleviation through job creation whilst enhancing the prospects of reducing outstanding municipal consumer debt. This concept embarked on an initiative in terms of which debtors, particularly those who were unemployed, were targeted for participation in a local capital project aimed at addressing a communal back log in terms of facilities. Participants would earn a weekly wage whilst contributing financially towards the reduction of their outstanding municipal debts. The municipality also repairs water leakages on the users side at indigent households to prevent high water accounts and to ensure that the waste of the water resource be limited.

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.

Economic: The proposed goals of OM'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 along with the LED process plan is completely reviewed yearly and being implemented by OM. The LED Strategy is built around commitment to develop a climate in which economic development and economic growth can prosper and growth is shared. The LED Strategy identifies various issues and strategic areas for intervention, as summarised in the table below:

Strategic Areas	Description
Infrastructure Development	Infrastructure development is important to the efforts of the Municipality in accelerating growth. Efforts are made to ensure adequate water service including good quality water and road infrastructure.
Marketing	Developing a broad image for the Municipality is key to enhancing economic and tourism growth in the Overstrand. A variety of strategic approaches has been explored and is to be included and turned into a marketing strategy.
Enabling business environment	Small to medium enterprises constitute a large percentage of businesses in the Overstrand; therefore the Municipality has to always ensure that an enabling environment is created for businesses to prosper. The strategy identifies trade and retail, business services sector as the backbone of the current economy along with tourism.
Resource and asset management	The Kogelberg Biosphere a well renown biodiversity site is situated in the Overberg – this is coupled by a vast resource of natural resource heritage, beautiful landscapes and a lot hast of environmentally sensitive resources. Managing this in a sustainable manner is key to long-term retention of Overstrand's competitive advantage.
Economies of the poor	Integrating economies of the poor within the main economic hub to ensure participation and shared growth. Ensure availability of developmental services and access to infrastructure and facility that promotes trade. Township development activities aimed at promoting investment, transport hub including informal trading and beautification of townships.
Human resource development	Addressing skills shortage to bolster economic growth, ensuring availability of important services. Skills training aimed at meeting market demands for long term sustainable human development. Skills development initiatives.

The proposed interventions to propel Local Economic Development include the following (The interventions are comprehensively discussed in OM's IDP):

- Tourism sector support
- Creative industries sector support
- Fishing industry sector support
- Agriculture
- Connectivity (Bridging the divisions between places and people)
- Infrastructure development
- Marketing
- Enabling business environment
- Resource and asset management
- Economies of the poor
- Human resource development

Overstrand Municipality also identified partnership programmes with high potential impact on provision of job opportunities, small enterprise development and skills development, which include the following Special projects:

- Poverty alleviation initiatives (Education, sustainable jobs, connecting)
- The Neighbourhood Development Programme Grant (NDPG)
- Cape Whale Coast (Festivals, Seasonality, Main attractions, Focus Areas)
- Youth Advisory Centre (YAC)
- Job Creation and Emerging Contractor Empowerment Programme
- LED Projects to stimulate economic growth

INFRASTRUCTURE

Status Quo:

OM is responsible for the O&M of all the water and sewer infrastructure summarised in the table below.

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	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: Groundwater	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	Nano Filtration Plant and Disinfection (Chlorine Gas). The plant will be commissioned in 2011/2012.
WTW: Pearly Beach	Ultra Filtration and disinfection (Cl Gas)
WTW: Baardskeerdersbos	Filtration (Pressure sand filters) and disinfection (Cl Gas)
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
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.

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 OM is summarised in the table below (June 2010):

Asset Type	GIS ID	CRC	DRC	% DRC/CRC
Dams	DAM	R18 935 000	R12 507 990	66.1
Boreholes	BHL	R5 295 080	R4 282 403	80.9
Monitoring Boreholes	MBH	R1 300 000	R229 635	17.7
Bulk Water Pipelines	BWP	R101 463 687	R28 838 111	28.4
Pump Stations	PST	R27 443 778	R10 322 743	37.6
Reservoirs	RES	R134 305 108	R73 839 700	55.0
Water Reticulation Pipelines	WRP	R481 640 341	R77 581 952	16.1
Consumer Connections	CC	R247 919 000	R18 900 378	7.6
Buffels River WTWs	WTP 04	R38 771 556	R7 417 329	19.1
Kleinmond WTWs	WTP 03	R15 113 385	R2 666 011	17.6
Preekstoel WTWs	WTP 02	R41 994 344	R23 614 532	56.2
Franskraal New WTWs	WTP 01	R33 189 585	R32 177 002	96.9
Franskraal Old WTWs	WTP 01	R9 050 902	R6 628 009	73.2
Totals		**R1 156 421 766**	**R299 005 794**	**25.9**

The above table means that 74.1% of the value of the water supply network has been consumed.

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

Asset Type	GIS ID	0 – 5 yrs	5 – 10 yrs	10 – 15 yrs	15 – 20 yrs	> 20 yrs
RUL						
Dams	DAM	R80 000	R0	R225 000	R0	R18 630 000
Boreholes	BHL	R210 000	R1 175 574	R2 698 716	R160 000	R1 050 790
Monitoring Boreholes	MBH	R450 000	R150 000	R700 000	R0	R0
Bulk Water Pipelines	BWP	R60 587 042	R0	R22 933	R0	R40 853 712
Pump Stations	PST	R11 719 724	R10 255 658	R3 722 796	R165 000	R1 580 600
Reservoirs	RES	R8 216 362	R2 607 508	R9 248 785	R13 943 778	R100 288 675
Water Reticulation Pipelines	WRP	R373 252 613	R0	R5 160 852	R0	R103 226 876
Consumer Connections	CC	R195 517 000	R26 474 000	R25 928 000	R0	R0
Buffels River WTWs	WTP 04	R33 087 654	R932 798	R0	R0	R4 751 104
Kleinmond WTWs	WTP 03	R9 437 722	R2 576 040	R0	R0	R3 099 623
Preekstoel WTWs	WTP 02	R4 882 413	R20 145 650	R7 186 788	R1 403 988	R8 375 505
Franskraal New WTWs	WTP 01	R0	R207 000	R17 354 671	R0	R15 627 914
Franskraal Old WTWs	WTP 01	R0	R4 543 060	R0	R0	R4 507 842
Totals		**R697 440 530**	**R69 067 288**	**R72 248 541**	**R15 672 766**	**R301 992 641**

Asset Type	GIS ID	0 – 5 yrs	5 – 10 yrs	10 – 15 yrs	15 – 20 yrs	> 20 yrs
Age distribution by Facility Type						
Dams	DAM	R0	R0	R8 000	R6 266 000	R12 589 000
Boreholes	BHL	R3 568 146	R1 323 184	R0	R0	R403 750
Monitoring Boreholes	MBH	R0	R0	R0	R0	R1 300 000
Bulk Water Pipelines	BWP	R0	R607 248	R24 102 666	R5 651 276	R71 102 497
Pump Stations	PST	R6 067 870	R8 041 276	R2 717 120	R1 172 796	R9 444 716
Reservoirs	RES	R11 617 928	R8 746 892	R12 882 064	R24 683 744	R76 374 479
Water Reticulation Pipelines	WRP	R11 665 271	R8 173 026	R43 937 690	R12 802 162	R405 062 192
Consumer Connections	CC	R0	R0	R0	R0	R247 919 000
Buffels River WTWs	WTP 04	R5 683 902	R0	R0	R0	R33 087 654
Kleinmond WTWs	WTP 03	R0	R0	R0	R0	R15 113 385
Preekstoel WTWs	WTP 02	R19 571 875	R1 631 809	R4 520 693	R14 505 750	R1 764 217
Franskraal New WTWs	WTP 01	R33 189 585	R0	R0	R0	R0
Franskraal Old WTWs	WTP 01	R0	R9 050 902	R0	R0	R0
Totals		**R91 364 577**	**R37 574 337**	**R88 168 233**	**R65 081 728**	**R874 160 890**

The condition grading per water facility type is summarised in the table below:

Asset Type	GIS ID	Very Good	Good	Fair	Poor	Very Poor
Dams	DAM	R0	R16 452 000	R2 003 000	R400 000	R80 000
Boreholes	BHL	R3 227 794	R990 819	R576 823	R289 644	R210 000
Monitoring Boreholes	MBH	Unknown	Unknown	Unknown	Unknown	Unknown
Bulk Water Pipelines	BWP	R11 624 495	R18 736 695	R7 043 911	R3 448 611	R60 609 975
Pump Stations	PST	R3 952 508	R3 423 977	R3 762 570	R5 739 339	R10 565 384
Reservoirs	RES	R11 220 969	R35 770 171	R56 792 643	R25 097 082	R5 424 243
Water Reticulation Pipelines	WRP	R38 436 238	R38 428 226	R1 094 852	R25 267 560	R378 413 465
Consumer Connections	CC	Unknown	Unknown	Unknown	Unknown	Unknown
Buffels River WTWs	WTP 04	R4 751 104	R932 798	R0	R0	R33 087 654
Kleinmond WTWs	WTP 03	R0	R0	R3 099 623	R2 576 040	R9 437 722
Preekstoel WTWs	WTP 02	R406 788	R34 090 837	R1 579 569	R1 310 985	R4 606 165
Franskraal New WTWs	WTP 01	R33 189 585	R0	R0	R0	R0
Franskraal Old WTWs	WTP 01	R0	R4 507 842	R4 543 060	R0	R0
Totals		**R106 809 481**	**R153 333 365**	**R80 496 051**	**R64 129 261**	**R502 434 608**

About 80.2% of the water supply network (Bulk and Reticulation Water Pipelines) is in a poor and very poor condition and the condition backlog is in the order of R567M. The bulk of the backlog is made up of bulk water pipeline and water reticulation pipeline assets.

Sanitation Infrastructure: The current and depreciated replacement cost of the sanitation infrastructure of OM is summarised in the table below:

Asset Type	GIS ID	CRC	DRC	% DRC/CRC
Sanitation Pump Stations	SPS	R46 566 690	R26 856 558	57.7
Sewer Reticulation Pipelines	SRP	R306 422 671	R240 834 979	78.6
Sewer Consumer Connections	CC	R177 085 000	R13 500 270	7.6
Stanford WWTWs	STW02	R11 051 703	R6 817 751	61.7
Hermanus WWTWs	STW03	R32 146 838	R18 402 452	57.2
Hawston WWTWs	STW04	R8 564 664	R4 566 997	53.3
Kleinmond WWTWs	STW05	R7 405 568	R5 854 421	79.1
Gansbaai WWTWs	STW06	R20 070 512	R16 559 715	82.5
Totals		**R609 313 646**	**R333 393 143**	**54.7**

The information in the previous table means that 45.3% of the value of the sewage supply network has been consumed.

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

Asset Type	GIS ID	0 – 5 yrs	5 – 10 yrs	10 – 15 yrs	15 – 20 yrs	> 20 yrs
RUL						
Sanitation Pump Stations	SPS	R3 933 063	R30 525 150	R6 218 222	R576 250	R5 314 005
Sewer Reticulation Pipelines	SRP	R0	R0	R0	R0	R306 422 671
Sewer Consumer Connections	CC	R139 655 000	R18 910 000	R18 520 000	R0	R0
Stanford WWTWs	STW02	R27 119	R5 777 489	R653 398	R347 100	R4 246 597
Hermanus WWTWs	STW03	R6 717 556	R7 499 730	R3 163 767	R3 938 057	R10 827 728
Hawston WWTWs	STW04	R3 826 780	R0	R0	R1 072 000	R3 665 884
Kleinmond WWTWs	STW05	R165 600	R3 148 206	R0	R0	R4 091 762
Gansbaai WWTWs	STW06	R0	R3 328 783	R4 614 552	R172 080	R11 955 097
Totals		**R154 325 118**	**R69 189 358**	**R33 169 939**	**R6 105 487**	**R346 523 744**

Asset Type	GIS ID	0 – 5 yrs	5 – 10 yrs	10 – 15 yrs	15 – 20 yrs	> 20 yrs
Age distribution by Facility Type						
Sanitation Pump Stations	SPS	R14 324 405	R26 074 466	R1 135 662	R3 652 292	R1 379 865
Sewer Reticulation Pipelines	SRP	R21 992 579	R24 370 068	R244 119 120	R15 940 904	R0
Sewer Consumer Connections	CC	R0	R0	R0	R0	R177 085 000
Stanford WWTWs	STW02	R3 233 276	R3 574 740	R0	R3 997 620	R246 067
Hermanus WWTWs	STW03	R9 104 289	R10 928 717	R2 094 960	R4 847 368	R5 171 504
Hawston WWTWs	STW04	R0	R0	R8 564 664	R0	R0
Kleinmond WWTWs	STW05	R7 405 568	R0	R0	R0	R0
Gansbaai WWTWs	STW06	R12 465 949	R3 438 763	R0	R2 150 800	R2 015 000
Totals		**R68 526 066**	**R68 386 754**	**R255 914 406**	**R30 588 984**	**R185 897 436**

The condition grading per sanitation facility type is summarised in the table below:

Asset Type	GIS ID	Very Good	Good	Fair	Poor	Very Poor
Sanitation Pump Stations	SPS	R6 859 000	R11 094 810	R23 948 392	R3 187 148	R1 477 340
Sewer Reticulation Pipelines	SRP	R46 362 647	R260 060 025	R0	R0	R0
Sewer Consumer Connections	CC	Unknown	Unknown	Unknown	Unknown	Unknown
Stanford WWTWs	STW02	R777 808	R6 563 088	R3 582 188	R128 619	R0
Hermanus WWTWs	STW03	R6 145 749	R6 580 944	R7 757 733	R8 173 433	R3 488 979
Hawston WWTWs	STW04	R86 040	R4 651 844	R0	R3 819 880	R6 900
Kleinmond WWTWs	STW05	R4 091 762	R3 148 206	R165 600	R0	R0
Gansbaai WWTWs	STW06	R12 403 849	R3 416 939	R4 249 724	R0	R0
Totals		**R76 726 855**	**R295 515 856**	**R39 703 637**	**R15 309 080**	**R4 973 219**

About 3.4% of the sewage network is in a poor and very poor condition and the condition backlog is in the order of R20.3M. The bulk of the backlog is made up of sewer pump stations and sewage treatment works assets.

Gaps and Strategies:

BULK WATER INFRASTRUCTURE

The Water Master Plan (January 2011) 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 (3 335m x 315mm dia parallel reinforcement of main pipe). 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 design 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 water 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 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. Overall conclusions / recommendations included in the 2011 Process Audit Report were as follows:

- The treatment plant appears to be poorly designed within the building, but is capable of producing a good quality final water that complied with all the quality parameters of SANS 241 during 2011.

- Safe access should be provided to all sections in the treatment plant. General housekeeping and safety conditions should be improved.

Plant refurbishments are required as a matter of urgency to address the above shortcomings currently existing on the treatment plant.

- The plant is well-managed, with motivated process controllers who appears passionate about their work.

- The operational monitoring programme has been extended and improved in November 2011 with the purchase of new measuring instruments (colorimeter, turbidimeter, pH meter).

- The plant is currently the holder of a Blue Drop award, but refurbishment and improvements are required, especially to housekeeping and safety matters, to retain this achievement.

Kleinmond WTW: The plant operates well within its design capacity. The Kleinmond WTW is generally operated and maintained satisfactorily, but a number of challenges and shortcomings exist. The most important of these are the occasional high aluminium levels in the final water. Considerable attention is already given to this, and tests are run in order to reduce the occurrence of Al in the final water. Other shortcomings relate to the condition of the chemical dosing facilities, the filtered water acceptance facilities and storage of dry chemicals (lime and sod-ash bags).

Overall conclusions / recommendations included in the 2011 Process Audit Report for refurbishment and improvement of these points were as follows:

- Provide hoppers at the bottom of the settling tanks to improve sludge disposal.
- Improve the installation and arrangement of chemical dosing facilities (to provide facilities similar to that at Preekstoel WTW).
- Provide better clarity boxes for the rapid sand filters to replace the redundant existing filter boxes.
- Provide a storage building for treatment chemicals to allow safe storage of these chemicals.
- Improve the condition of the access road to the plant.
- Improve the operational monitoring programme by applying more frequent on-plant sampling and measurements, and using the Operational Information Tool spreadsheets to communicate the results to the Engineering Department.

Preekstoel WTW: The Municipality started with the upgrading of the capacity of the Preekstoel WTW from the current 24 Ml/d to 28 Ml/d through refurbishment. The lime dosing equipment at the WTW was also upgraded recently. A new 10 Ml/d biological WTW for iron and manganese removal will also be constructed at the Preekstoel WTW, 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 overall conclusions / recommendations included in the 2011 Process Audit Report were as follows:

- It is recommended that a comprehensive plant audit be carried out when the construction work has been completed and the new filters commissioned.
- The existing lay-out cannot be changed and should be accepted as a give; however, it should be assured that all access points, staircases and walkways are kept in a safe condition for the plant personnel, i.e. sufficient lighting, slip-resistant, accessible.
- It is recommended that the laboratory equipment suppliers provide comprehensive training to the superintendents on the use, calibration and maintenance of the equipment, so as to ensure optimal use. This should be accompanied by training on water quality control, interpretation and communication of monitoring results.
- It is also important that all operational personnel are aware of the procedures contained in the Process Audit Report for the Preekstoel Water Treatment Plant and the incident management protocol, and know how to apply this.
- In order to change the mindset of the operating personnel to participate and contribute to this improved maintenance programmes, it is recommended that they receive high-quality training in maintenance of water treatment plant, and in particular on the operation and maintenance on mechanical and electrical equipment. This should include the ever-important aspects of good housekeeping and safety management.

Stanford WTW: A new chlorination facility is currently being provided, which includes telemetry connection to the Franskraal WTW. No specific other recommendations are included in the 2011 Process Audit Report.

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.

De Kelders WTW: This new Nano filtration WTW was constructed during 2011 at De Kelders.

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. No specific recommendations were identified in the 2011 Process Audit Report.

Baardskeerdersbos WTW: The plant operates well within its design capacity. The recommendations included in the 2011 Process Audit Report were as follows:

- Improve reliability of automated operation (backwashing).
- Security fencing and a lockable gate should be provided around the treatment system.
- Due to the elevated colour and iron concentrations, an investigation should be done to consider options for upgrading the treatment system to include processes for colour and iron removal (e.g. ultrafiltration).
- Contract a local resident on a part time basis to inspect the treatment plant on a daily basis, and to measure free chlorine residual.
- Depending on the quality of the raw water, the chlorine dosage rate should be checked and adjusted if necessary to give the desired free chlorine residual at the final water sampling point.
- The contracted local resident can also asses the condition of the treatment equipment on a regular basis, thereby improving maintenance efficiency.

Buffeljags Bay WTW: The chlorine installation is new and care was taken to ensure that all the safety requirements are met.

WATER PUMP STATIONS

The Water Master Plan (January 2011) has indicated that based on the most likely land-use development scenario, it will be necessary for the following water pump stations:

Distribution System	Recommendations included in the Water Master Plan	Capacity (l/s)	Head (m)	Cost (RM)
Buffels River	A new booster pump station for the higher lying areas in the Voorberg reservoir zone is proposed.	10	25	0.651
Kleinmond	A new booster pump station for the higher lying areas in future development area KM-1 and the existing Over Hills suburb is proposed.	10	45	0.748
	A new booster pump station for the higher lying areas in future development area KM-2 is proposed.	15	30	0.748
	A new booster pump station for the higher lying areas in future development area KM-4 is proposed.	10	30	0.748
Greater Hermanus	A new booster pump station to augment water supply through the Coastal bulk pipeline.	140	57	3.317
	Upgrading of the existing Fisherhaven HL pump station is proposed	20	50	0.280
	New bulk pump station to augment bulk water supply when existing supply reaches capacity	370	25	3.549
Stanford	No future pump stations are required	-	-	-
Greater Gansbaai	A new booster pump station to augment water supply through the Franskraal bulk pump system – Phase 1	53	35	1.365
	Upgrading of the Franskraal bulk pump system – Phase 2	140	30	0.420
	Upgrading of the Franskraal bulk pump system – Phase 3	195	40	0.420
	New Gansbaai bulk pump station in order to augment bulk water supply to De Kelders	60	70	2.028
Pearly Beach	Upgrade the Pearly Beach pump system	65	45	1.036
Total				**15.310**

RESERVOIR INFRASTRUCTURE

OM's overall storage factors of the reservoirs for the various towns, based on 1 x PDD (24 hours storage capacity), are 1.09 for Buffels River, 1.70 for Kleinmond, 1.97 for Greater Hermanus, 1.37 for Stanford, 1.73 for Greater Gansbaai, 2.37 for Pearly Beach, 1.52 for Baardskeerdersbos and 3.84 for Buffeljags Bay.

Even though the town's overall storage capacity might be adequate there might be some distribution zones within the town's network with inadequate storage capacity, as identified through the Water Master Plan (January 2011) and indicated in the table below:

Distribution System	Recommendations included in the Water Master Plan	Capacity (Ml)	Cost (RM)
Buffels River	A new reservoir is proposed at the existing Rooi Els reservoir site to augment reservoir storage for Rooi Els (TWL = 65.3m).	0.500	2.033
	A new reservoir is proposed at the existing Pringle Bay reservoir site to augment reservoir storage for Pringle Bay (TWL = 66.5m).	2.500	5.915
	A new reservoir is proposed at the existing Voorberg reservoir site to augment reservoir storage for Betty's Bay (TWL = 65.5m).	3.000	6.632
Kleinmond	No future reservoirs are required	-	-
Greater Hermanus	A new reservoir is proposed at the existing Fisherhaven LL reservoir site to augment reservoir storage for the Fisherhaven LL reservoir and PRV zones (TWL = 60m).	4.000	8.848
	A new reservoir is proposed at the existing Hawston LL reservoir site to augment reservoir storage in Hawston TWL = 66m).	5.500	10.472
	A new reservoir is proposed for the new future development areas in Hawston that cannot be accommodated in the Hawston LL reservoir zone (TWL = 120m).	10.000	15.960
	A new reservoir is proposed at the existing Onrus reservoir site to augment reservoir storage in Onrus (TWL = 78m).	1.500	4.767
	Additional reservoir storage is proposed for the Kidbrook Place private development (The cost of additional storage is for the account of the private development)	0.300	0.000
	A new reservoir is proposed at the existing Sandbaai reservoir site to augment reservoir storage in Sandbaai (TWL = 64.9m).	4.000	8.848
	A new reservoir is proposed at the existing Northcliff reservoir site to augment reservoir storage in the Northcliff reservoir zone (TWL = 75m).	0.300	1.475
	A new reservoir is proposed at the existing Onrus Manor reservoir site to augment reservoir storage in the Onrus Manor reservoir zone (TWL = 143.8).	1.000	3.178
	A new reservoir is proposed at the existing Fisherhaven HL reservoir site to augment reservoir storage in the Fisherhaven HL reservoir zone (TWL = 108m).	1.000	3.178
	A new reservoir is proposed at the existing Mount Pleasant reservoir site to augment reservoir storage in the Mount Pleasant reservoir zone (TWL = 87m).	0.600	2.436
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 = 85.4m)	3.000	6.632
Greater Gansbaai	A new reservoir is proposed at the existing Franskraal reservoir site to augment reservoir storage for Franskraal (TWL = 59.4m)	1.000	3.178
	A new reservoir is proposed at the existing Kleinbaai reservoir site to augment reservoir storage for Kleinbaai (TWL = 60.5m)	2.000	5.040
	A new reservoir is proposed at the existing Gansbaai reservoir site to augment reservoir storage for Gansbaai (TWL = 62.5m)	5.000	9.520
	A new reservoir is proposed at the existing De Kelders reservoir site to augment reservoir storage for De Kelders (TWL = 97.5m)	2.500	6.300
Pearly Beach	No new reservoirs are required	-	-
Total		**47.700**	**104.412**

WATER AND SEWER RETICULATION INFRASTRUCTURE

The Water Master Plan (January 2011) has indicated that based on the most likely land-use development scenario, the following further water reticulation infrastructure components will be necessary.

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.

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 (January 2011) has indicated that based on the most likely land-use development scenario, the following further sewer reticulation infrastructure components will be necessary.

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 form the Betty's Bay Main PS No. 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.

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

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 (January 2011) has indicated that based on the most likely land-use development scenario, it will be necessary for the following sewer pump stations:

Drainage System	Recommendations included in the Sewer Master Plan	Capacity (l/s)	Cost (RM)
Buffels River	New Future Rooi Els No.1 pump station	5	0.336
	New Future Rooi Els No.2 pump station	8	0.336
	New Future Rooi Els No.3 pump station	15	0.581
	New Future Rooi Els No.4 pump station	5	0.336
	New Future Pringle Bay No.1 pump station	31	0.650
	New Future Pringle Bay No.2 pump station	17	0.430
	New Future Pringle Bay No.3 pump station	5	0.336
	New Future Betty's Bay No.1 pump station	5	0.336
	New Future Betty's Bay No.2 pump station	36	0.509
	New Future Betty's Bay No.3 pump station	17	0.430
	New Future Betty's Bay No.4 pump station	7	0.430
	New Future Betty's Bay No.5 pump station	5	0.336
	New Future Betty's Bay No.6 pump station	5	0.430
	New Future Betty's Bay No.7 pump station	17	0.430
	New Future Betty's Bay No.8 pump station	5	0.336
	New Rooi Els Main pump station	20	0.430
	New Pringle Bay Main pump station	55	0.650
	New Betty's Bay Main pump station No.1	95	1.217
	New Betty's Bay Main pump station No.2	110	0.896
	New Betty's Bay Main pump station No.3	130	1.384
Kleinmond	New future Kleinmond 1 pumping station	15	0.581
	Upgrade Kleinmond 4 pump station to a capacity of 90 l/s	90	0.404
	Verify the capacity of the Kleinmond PS 5, 6 and Tennisclub	-	0.042
Greater	Upgrade Fisherhaven pump station to a capacity of 60 l/s	60	0.180

Drainage System	Recommendations included in the Sewer Master Plan	Capacity (l/s)	Cost (RM)
Hermanus	New Future Greater Hermanus pump station No.1	5	0.336
	New Future Greater Hermanus pump station No.2	9	0.336
	New Future Greater Hermanus pump station No.3	7	0.336
	New Future Greater Hermanus pump station No.6	45	0.581
	New Future Greater Hermanus pump station No.4	15	0.509
	New Future Greater Hermanus pump station No.5	11	0.336
	New Future Greater Hermanus pump station No.7	4	0.336
	New Future Greater Hermanus pump station No.8	65	0.839
	Upgrade Onrus pump station to a capacity of 120 l/s	120	0.500
	Upgrade Sandbaai pump station 1 to a capacity of 50 l/s	50	0.238
	Upgrade Mosselrivier pump station to a capacity of 70 l/s	70	0.331
	Upgrade Hermanus pump station No.1 to a capacity of 1 l/s	21	0.160
	New Future Greater Hermanus pump station No.10	6	0.336
	New Future Greater Hermanus pump station No.9	9	0.336
	New Future Greater Hermanus pump station No.11 (Cost to the developer)	5	-
	Upgrade Hermanus pump station No.4 to a capacity of 60 l/s	60	0.313
Stanford	Upgrade Stanford pump station to a capacity of 42 l/s	42	0.160
	New future Stanford pumping station No.1	5	0.336
	New future Stanford pumping station No.2	7	0.336
	New future Stanford pumping station No.3	5	0.336
Greater Gansbaai	New future De Kelders pump station No.1	4	0.336
	New future De Kelders pump station No.2	30	0.509
	New future De Kelders pump station No.3	38	0.839
	New future De Kelders pump station No.4	50	1.116
	New future De Kelders pump station No.5	5	0.336
	New future Gansbaai pump station No.1	5	0.336
	New future Gansbaai pump station No.2	4	0.336
	Upgrade Kolgans 2 pump station to a capacity of 12 l/s	12	0.100
	New future Gansbaai pump station No.3	12	0.430
	New future Gansbaai pump station No.4	5	0.336
	New future Kleinbaai pump station No.1	13	0.336
	New future Kleinbaai pump station No.2	31	0.714
	New future Kleinbaai pump station No.3	5	0.336
	New future Franskraal pump station No.1	35	0.714
	New future Franskraal pump station No.2	26	0.509
	New future Franskraal pump station No.3	12	0.509
	New future Kleinbaai pump station No.4	7	0.336
	New future Kleinbaai pump station No.5	5	0.336
	New future Kleinbaai Main pump station	77	0.714
	New future De Kelders Main pump station	51	0.581
	Upgrade Gansbaai Hawe pump station to a capacity of 85 l/s	85	0.352
Pearly Beach	New future Pearly Beach pump station No.1	4	0.336
	New future Pearly Beach pump station No.2	14	0.430
	New future Pearly Beach pump station No.3	25	0.430
Total			**30.324**

WASTE WATER TREATMENT INFRASTRUCTURE

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

WWTW	Existing Hydraulic Capacity	Peak Month Average Daily Flow	Average Daily Flow (July 2010 – June 2011)	Average Wet Weather Flow (Jun, Jul, Aug)
Kleinmond	2.000	1.061	0.888	0.958
Hawston	1.000	0.363	0.313	0.314
Hermanus	7.300	5.519	4.097	5.108
Stanford	0.500	0.441	0.404	0.403
Gansbaai	2.000	1.157	0.921	0.894

OM is currently busy with the upgrading of the Hermanus WWTW from a capacity of 7.3 Ml/d to 12 Ml/d. The existing WWTW needed urgent refurbishment, especially with regard to the mechanical equipment. The upgrading include a new inlet works, refurbishment of the existing aeration and settling tanks, new anaerobic and anoxic basins and settling tank, mechanical sludge dewatering and new chlorination system.

OM 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.

OM needs to identify funds in advance for the proposed projects and should only approve new developments once the necessary bulk infrastructure and the upgrading of the existing infrastructure, as identified in the Master Plans, are in place. OM needs to prioritize from the list of projects those items which can be implemented from the available funding for a particular financial year. OM needs to undertake revised master planning at least every two to three years and use the master plans to list the desired infrastructure development requirements, and reflect these in the IDP.

It is important for OM to place a high priority on 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 (Implementation of the WDM Strategy).

It is also important for OM to balance land-use and development planning (SDFs) in accordance with the availability of water and the capacity of WTWs and WWTWs that are in place or that will be implemented.

It is important for OM to develop an AMP from the 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. OM must 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 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. 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.

OPERATION AND MAINTENANCE

Status Quo:

OM drafted their first Water Safety Plan during 2009/2010, which was updated during the 2010/2011 financial year. A qualified, dedicated team was established by OM to compile and update the Water Safety Plan. A detailed risk assessment was executed and the existing control measures implemented by Overstrand Municipality were summarised. An Improvement / Upgrade Plan was also developed with relevant Water and Safety Management Procedures. Each identified improvement was linked to one of the Water Safety Plan Team members to take responsibility for implementation together with an appropriate time frame for implementation of these controls.

An Operational and Compliance Monitoring Programme that meets the requirements of DWA, as stipulated in the Blue Drop Criteria, are implemented by the Municipality. Bacteriological and Chemical samples are taken on a monthly basis.

The DWA launched the blue and green drop certification, with regard to drinking water quality and the quality of treated effluent discharged from WWTWs, at the Municipal Indaba during September 2008. Blue drop status is awarded to those towns that comply with 95% criteria on drinking water quality management. The Blue Drop Certification programme is in its third year of existence and promises to be the catalyst for sustainable improvement of South African drinking water quality management in its entirety.

The blue drop performance of OM is summarised as follows in the DWA's 2011 Blue Drop Report (May 2011):

Municipal Blue Drop Score	**90.56%**

Regulatory Impression: Overstrand Municipality's Blue Drop performance is considered remarkable as the Municipality achieved Blue Drop Status for three (3) of their water supply systems which take commendable commitment. This dedication evidently goes beyond the objective of regulatory recognition for excellent drinking water quality management, but has been adopted as the norm for business henceforth. The Department wishes to applaud this approach.

There however remains room for improvement. It is required that attention is given to treatment optimisation in Greater Hermanus and Kleinmond to ensure that the chemical compliance trend improves towards the national standard expectation.

The technical verification (Preekstoel) revealed the following findings:

1. A good logbook system is being implemented but unfortunately selective recordings are made. Equipment failure and other events were not captured. In addition, all readings are not captured for the expensive in-line monitoring devices. No recordings on regular operation such as desludging, which is required to ensure effective treatment.
2. The efficiency of the sand-filtration at the Preekstoel Water Treatment Plant was weighed down by the back-up blowers not working and the filter media not being up to standard.

BLUE DROP REPORT CARD				
Criteria	**Greater Hermanus**	**Buffels River**	**Kleinmond**	**Stanford**
Water Safety Planning Process and Incident Response Management	88	90	90	89
Process Control, Maintenance and Management Skills	80	70	80	90
Monitoring Programme	96	93	93	69
Credibility of Sample Analyses	100	100	100	100
Submission of results	100	100	100	100
Drinking Water Quality Compliance	70	100	85	100
Performance Publication	100	100	100	100
Asset Management	67	88	93	93
Bonus Scores	5.5	2.1	3.0	2.1
Penalties	0.3	0	0.2	0
Blue Drop Score (2011)	**87.23%**	**95.07%**	**93.09%**	**95.15%**

BLUE DROP REPORT CARD				
Criteria	**Greater Hermanus**	**Buffels River**	**Kleinmond**	**Stanford**
Blue Drop Score (2010)	75.31%	63.83%	60.06%	NA
System Design Supply Capacity (Ml/d)	24	5.5	5.8	1.3
System Operational Capacity	54%	58%	43%	88%
Population served by System	42 800	3 000	9 800	5 300
Average daily consumption per capita (l)	302	> 500	254	215
Microbiological Compliance (12 months)	100.00%	100.00%	100.00%	100.00%
Chemical Compliance (12 months)	84.03%	96.91%	91.80%	100.00%

BLUE DROP REPORT CARD				
Criteria	**Greater Gansbaai**	**Buffeljags Bay**	**Baardskeerders-bos**	**Pearly Beach**
Water Safety Planning Process and Incident Response Management	90	**88**	**90**	**90**
Process Control, Maintenance and Management Skills	**89**	**90**	**89**	**90**
Monitoring Programme	**85**	70	70	**100**
Credibility of Sample Analyses	**100**	**100**	**100**	**100**
Submission of results	**100**	**100**	**100**	**85**
Drinking Water Quality Compliance	**100**	**20**	**100**	**100**
Performance Publication	**100**	**100**	**100**	**100**
Asset Management	**81**	**85**	78	93
Bonus Scores	2.1	7.5	2.7	2.4
Penalties	0	0	0	0.2
Blue Drop Score (2011)	**95.10%**	**75.37%**	**93.68%**	**94.31%**
Blue Drop Score (2010)	63.81%	NA	NA	NA
System Design Supply Capacity (Ml/d)	6.5	0.08	0.15	1.5
System Operational Capacity	62%	100%	17%	24%
Population served by System	15 900	290	230	900
Average daily consumption per capita (l)	253	275	110	400
Microbiological Compliance (12 months)	99.04%	93.33%	100.00%	100.00%
Chemical Compliance (12 months)	100.00%	100.00%	100.00%	100.00%

Notes: * Compliance determined from Municipal Overview

All the WWTWs were classified with the DWA. The Process Controllers and Supervisors for the various WWTWs were also registered and classified. The Municipality is currently busy compiling Wastewater Risk Abatement Plans for all the WWTWs.

An Operational and Compliance Effluent Monitoring Programme that meets the requirements of DWA as stipulated in the Green Drop Criteria are implemented by the Municipality. Operational samples are taken on a daily basis at all the WWTWs. The compliance samples that are taken on a monthly basis at all the WWTWs are analysed at an accredited laboratory and monthly monitoring and inspection reports are compiled by an accredited service provider for all the WWTWs.

An incident response protocol is implemented, in which certain reactive procedures are followed when an incident occurs (Normally when a malfunction of the treatment processes occur due to power failures, faulty equipment, adverse weather conditions or human error).

A set of Compliance Alert Levels, corresponding to the requirements of the General Standard (at present) has been drawn up as part of the Operation and Maintenance Manuals and the Wastewater Risk Abatement Plans. For continuously improving the performance of the various WWTWs, a set of operational alert levels has also been drawn up and followed by the Process Controllers.

There are two levels of incident management, firstly when final effluent is discharged that does not meet the requirements of the Water Act, and secondly when an event takes place causing a major pollution event for which emergency response is required. For serious incidents or emergency situations, additional actions and notifications are required, including notification of DWA and the media / public.

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 WSAs that comply with 90% criteria on key selected indicators on waste water quality management.

The green drop performance of OM is summarised as follows in the DWA's 2011 Green Drop Report:

Average Green Drop Score	**88.8%**

Regulatory Impression: Overstrand Municipality achieved Greed 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 needs 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.

The site inspection score for Greater Gansbaai was 90%, Stanford 57% and Hermanus 80%.

GREEN DROP REPORT CARD					
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	1	0.5	2	2
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

Gaps and Strategies:

The Water Safety Plan Team of OM is committed to meet regularly to review all aspects of the Water Safety Plan to ensure that they are still accurate. In addition to the regular three year review, the Water Safety Plan 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 water quality incident.

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

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

OM is committed to work with the DWA and the other role-players in order to improve on their 2011 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 OM to continue with the upgrading of WWTWs when necessary, in order to reduce the risk of source contamination. This is a clear priority in the next few years based on the budget. WWTWs will be managed and operated by OM to comply with the permitted standards and in so doing intends to work towards green drop status for their other WWTWs aswell.

An Incident Response Management Protocol is in place and implemented by OM. The Incident Response Management Protocol was also incorporated into the Wastewater Risk Abatement Plans. The purpose of the Incident Response Management Protocol is to plan for failures at the WWTWs and subsequent methods to address such failures.

A set of Operational and Compliance Alert Levels, corresponding to the requirements of the General Standard (at present), were also drawn up as part of the O&M Manuals for the WWTWs. These operational alert levels will further assist the Municipality with continuous improvement of the performance of the various WWTWs.

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

OM 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. OM is currently busy with the finalization of the Wastewater Risk Abatement Plans for all their WWTWs in order to reduce their 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 unorthodox methods to ensure enhancement of effluent quality.

ASSOCIATED SERVICES

Status Quo:

All the schools, hospitals and clinics in OM's Management Area have adequate water and sanitation services.

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
- 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 a proper communication system between the District Municipality and OM be developed.

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. Where specific problems are encountered these are prioritised for addressing.

The most vulnerable groups within OM'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.

OM 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.

OM 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.

CONSERVATION AND DEMAND MANAGEMENT

Status Quo:

OM is committed to reduce the current percentage of non revenue water for the various distribution systems as indicated in the WSDP. The Municipality's WDM Strategy and Action Plan include the following key activities.

- Implementation of re-use of treated effluent as potable water source. Pre-feasibility study for the potential re-use of treated wastewater for potable purposes is in progress.
- Continue with their pipeline replacement programme for the priority areas with old reticulation networks and frequent pipe failures. The projects in the Hermanus and Rooi-Els areas were completed.
- Continue with the identification of specific areas for the implementation of pressure management. Pressures and flows were logged in Kleinmond, Fisherhaven, Vermont and Stanford for the installation of PRVs in the areas with the highest potential during 2011/2012.
- A detail water meter audit was carried out in all the towns in OM's Management Area. The purpose of the audit was to determine the age of the meters and to identify the un-metered erven. The audit also assisted with the identification of un-metered fire water connections which are being used by commercial and other users for non fire-fighting purposes.
- Part of the meter audit was also to review and improve the efficiency of bulk and zone metering in all areas and link properties with distribution zones in the financial data base, in order to do water balances for the smaller areas.
- A focused leak detection and repair programme was commenced in the Buffels River area.
- Started with the process of installing water meters at all the unmetered erven and replacing all the water meters older than eight years, as identified through the detail water meter audit. The Municipality is busy with a phased pro-active replacement of water meters.
- Improved public awareness on water demand management issues, e.g. the watering of gardens as determined by the new Water Services Bylaws. Leaflets on rain water harvesting and water wise gardening are made available to the public. Numerous newspaper articles and WC/WDM information are displayed on the Municipality's website, posters are placed on lamp posts and a new De Bos Dam billboard was put up.
- Continue with the upgrading of the telemetry system, to act as an early warning system for e.g. pipe failures and reservoir overflows.
- Review and improve efficiency of remote monitoring of minimum night flows in all zones. Focused leak detection and repair programs will be performed in areas with highest minimum night flows.
- Identify users on the financial data base with regular abnormal high or abnormal low water use and physically inspect the causes. This activity is implemented by the Finance Department. The owners of high water consumption properties are phoned by the Municipality.
- Continue with leak repairs at indigent households and the installation of flow limiters.
- Source all potential external sources of funding to assist with the implementation of the WC/WDM measures, for example leak repairs on properties in indigent areas.
- The Municipality's current tariff structure discourages excessive use of water. The Municipality did implement volumetric sewerage tariffs. The Municipality also got separate water restriction tariffs (Two levels).

- Continue with the removal of alien vegetation in the catchment areas (Working for Water Programme).

- Investigate further options for the use of final treated effluent for irrigation purposes and other purposes (e.g. industrial use). The New Curro School will be connected to the treated effluent irrigation systems soon.

- Building inspectors include the inspection of the water meter installations during the foundation inspections at construction / building sites. This information is implemented and captured on EMIS from 2010/2011 by the Building Inspectorate.

OM will start the process logging the Minimum Night Flows (MNF) for the implementation of pressure management. Pressures and flows will be logged in Kleinmond, Fisherhaven, Vermont and Stanford. OM is therefore in the process of establishing comprehensive water management zones for the various distribution systems, in order to manage the non revenue water even better.

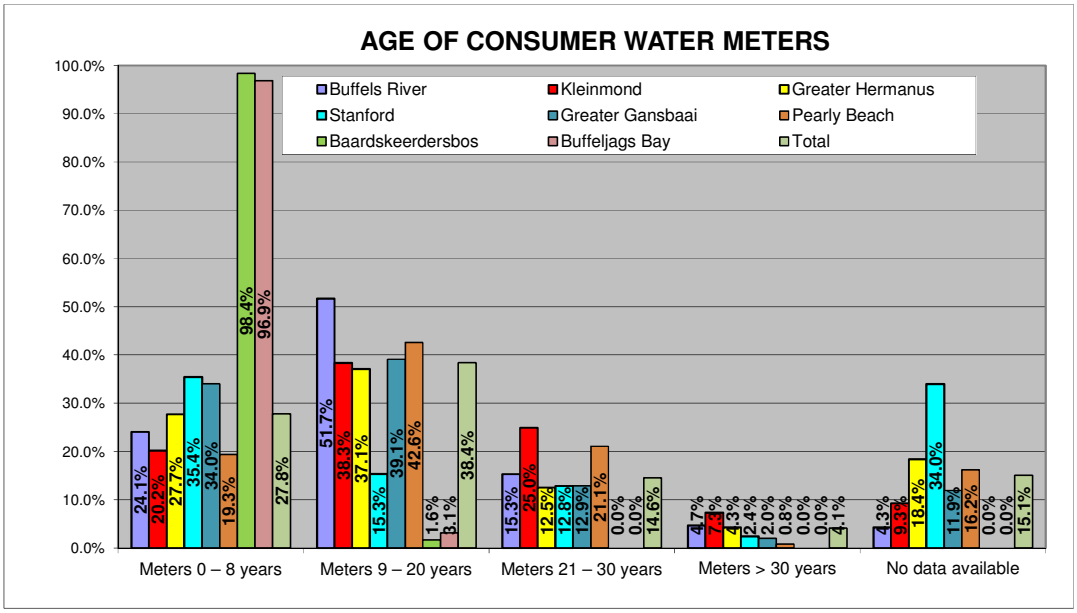
The Municipality started in 2010 with a detail water meter audit for all the towns in OM's Management Area. The purpose of the audit was to determine the age of the meters and to identify the un-metered erven. The audit also assisted with the identification of the un-metered fire water connections, which are being used by commercial and other users for non fire-fighting purposes. The table below summarise the results of the meter audit.

Description	Buffels River	Kleinmond	Greater Hermanus	Stanford	Greater Gansbaai	Pearly Beach	Baardskeer-dersbos	Buffeljags Bay	Total
Total Erven	5 241	3 602	18 269	1 596	6 172	1 138	155	35	36 208
Erven with meters surveyed	3 126	3 007	13 170	1 108	4 256	634	60	31	25 392
Vacant erven	2 095	555	4 447	475	1 882	481	95	4	10 034
Erven with meters not surveyed (No meter, no access, not found)	20	40	652	13	34	23	0	0	782
Age of meters									
Meters 0 – 8 years	759	619	3 735	397	1 498	123	60	31	7 222
Meters 9 – 20 years	1 628	1 177	4 997	172	1 723	271	1	1	9 970
Meters 21 – 30 years	481	766	1 683	144	568	134	0	0	3 776
Meters > 30 years	147	224	579	27	90	5	0	0	1 072
No data available	135	284	2 483	381	525	103	0	0	3 911
Leaks and Meters not Working									
Meters not working	27	22	14	3	4	0	0	0	70
Total leak installations	128	65	240	35	133	13	0	0	614
Leaking meter	111	38	47	17	35	0	0	0	248
Leaking stop-cock	110	38	201	25	103	13	0	0	490
Leaking meter and stop-cock	93	11	8	7	5	0	0	0	124
Meters to be replaced									
Meters older than 20 years	628	990	2 262	171	658	139	0	0	4 848
Meters not working	27	22	14	3	4	0	0	0	70
Meters leaking	111	38	47	17	35	0	0	0	248
Stop-cocks leaking	110	38	201	25	103	13	0	0	490

The age of the water meters also impact on the accuracy of the meter readings, as can be seen from the table below:

Meter age and accuracy	Good Water Quality	Poor Water Quality
Poor > 10 years	8%	10%
Average 5 – 10 years	4%	8%
Good < 5 years	2%	4%

The graph below gives an overview of the age of the consumer water meters for the various areas.



The table below gives a summary of the non revenue water for the various distribution systems in OM's Management Area.

Description	Unit	10/11	Record : Prior (Ml/a)				
			09/10	08/09	07/08	06/07	05/06
Buffels River	Volume	658.378	740.533	738.977	715.850	615.698	594.893
	Percentage	62.1%	63.6%	62.1%	60.9%	58.3%	59.9%
	ILI	5.06	6.69				
Kleinmond	Volume	272.814	341.031	302.473	296.338	229.620	270.590
	Percentage	31.5%	36.4%	31.7%	30.7%	25.4%	29.3%
	ILI	2.17	4.09				
Greater Hermanus	Volume	594.352	593.867	805.122	311.620	734.043	829.864
	Percentage	15.6%	13.3%	16.6%	7.9%	17.2%	20.7%
	ILI	1.50	2.22				
Stanford	Volume	128.297	194.486	163.496	123.058	140.626	100.437
	Percentage	35.5%	41.6%	36.4%	30.9%	34.1%	28.6%
	ILI	5.67	11.08				
Greater Gansbaai	Volume	423.030	365.547	492.048	482.079	194.253	301.124
	Percentage	31.1%	26.8%	33.3%	31.3%	14.9%	24.1%
	ILI	3.71	2.07				
Pearly Beach	Volume	36.511	21.683	27.326	34.163	24.281	15.536
	Percentage	26.3%	19.7%	21.6%	25.7%	19.7%	13.2%
	ILI	2.41	3.20				
Baardskeerdersbos	Volume	4.085	2.722	4.915	2.869	6.692	0.831
	Percentage	37.3%	25.9%	39.4%	31.3%	52.3%	17.9%
Buffeljags Bay	Volume	0	0	0.112	0.360	0.453	1.864
	Percentage	0%	0%	4.4%	12.3%	11.8%	87.0%
TOTAL	**Volume**	**2 117.467**	**2 259.869**	**2 534.469**	**1 966.337**	**1 945.666**	**2 115.138**
	Percentage	**27.85%**	**26.5%**	**28.0%**	**24.1%**	**24.0%**	**27.6%**
	ILI	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

Gaps and Strategies:

OM 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:

Distribution System	10/11 (%/a)	2015 (%/a)	2035 (%/a)
Buffels River	62.1%	35.0%	25.0%
Kleinmond	31.5%	20.0%	15.0%
Greater Hermanus	15.6%	15.0%	15.0%
Stanford	35.5%	20.0%	15.0%
Greater Gansbaai	31.1%	20.0%	15.0%
Pearly Beach	26.3%	20.0%	15.0%
Baardskeerdersbos	37.3%	20.0%	15.0%
Buffeljags Bay	0.0%	15.0%	15.0%
Total	**27.85%**	**18.90%**	**16.48%**

OM is busy with the installation of two PRVs in Kleinmond and one in Stanford. A phased approach will be followed for the investigation / implementation of pressure management in selected areas in the OM's Management Area. The phases that will be implemented are 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)

The proposed areas are Kleinmond, Hermanus (Fisherhaven and Vermont) and Stanford.

OM will continue with the repairing of leaks at all the indigent households. The following steps can be implemented by OM 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.
- Charge the owner for the plumbing repairs through the municipal account.
- If the consumption is maintained at a reasonable level for a period of six months and the current account is paid monthly and on time, the water arrears would be written off. The charge for the plumbing repair would be paid for by the project.

- 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.

OM started with the process of installing water meters at all the unmetered erven and replacing all the water meters older than eight years, as identified through the detail water meter audit. The Municipality is busy with the phased pro-active replacement of the old water meters. The meters not working and the meters with existing leaks, as identified through the detail water meter audit, will be replaced and the leaks will be 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 from 2010/2011 by the Building Inspectorate.

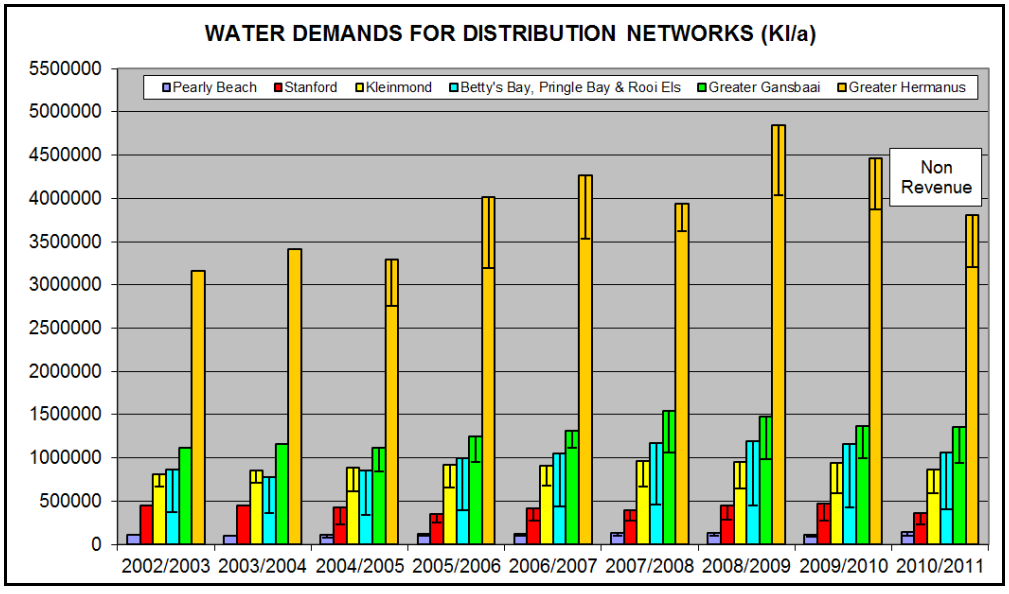
OM needs to ensure that adequate funding is allocated under their Capital and Operational budgets towards the implementation of the WC/WDM initiatives. All external funding that could be utilised by OM for this purpose should be sourced.

OM's current water information database appears adequate from a water services management perspective. OM 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.

OM 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 OM 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.

WATER RESOURCES

Status Quo: The graph below gives an indication of OM's total annual bulk water demands and non-revenue water.



Water Quality: OM makes use of a specialist subcontracting firm 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 OM for determinands identified during the Blue Drop risk assessment exceeding the numerical limits in SANS 241-1:2011 are as follows (Samples January 2011 to December 2011):

Performance Indicator	Performance Indicator categorised as unacceptable Yes / No (Table 4 of SANS 241-2:2011)	% Sample Compliance	Frequency of Additional Monitoring due to failure
Buffels River			
Risk Defined Health (Acute or Chronic)	No (Excellent)	100.0%	N/A
Risk Defined Operational (Final or distribution)	No (Excellent)	98.3%	N/A
Acute Health – 1 Microbiological (E. Coli or FC)	No (Excellent)	100.0%	N/A
Chronic Health	No (Excellent)	100.0%	N/A
Aesthetic	No (Excellent)	99.7%	N/A
Kleinmond			
Risk Defined Health (Acute or Chronic)	No (Excellent)	100.0%	N/A
Risk Defined Operational (Final or distribution)	No (Excellent)	94.4%	N/A
Acute Health – 1 Microbiological (E. Coli or FC)	No (Excellent)	100.0%	N/A
Chronic Health	No (Excellent)	100.0%	N/A
Aesthetic	No (Excellent)	100.0%	N/A
Greater Hermanus			
Risk Defined Health (Acute or Chronic)	No (Excellent)	99.5%	N/A
Risk Defined Operational (Final or distribution)	No (Excellent)	93.9%	N/A
Acute Health – 1 Microbiological (E. Coli or FC)	No (Excellent)	100.0%	N/A
Chronic Health	No (Excellent)	98.9%	N/A
Aesthetic	No (Excellent)	97.5%	N/A
Stanford			
Risk Defined Health (Acute or Chronic)	No (Excellent)	100.0%	N/A
Risk Defined Operational (Final or distribution)	No (Excellent)	98.8%	N/A
Acute Health – 1 Microbiological (E. Coli or FC)	No (Excellent)	100.0%	N/A
Chronic Health	No (Excellent)	100.0%	N/A
Aesthetic	No (Excellent)	100.0%	N/A
Greater Gansbaai			
Risk Defined Health (Acute or Chronic)	No (Excellent)	100.0%	N/A
Risk Defined Operational (Final or distribution)	No (Excellent)	97.8%	N/A
Acute Health – 1 Microbiological (E. Coli or FC)	No (Excellent)	100.0%	N/A
Chronic Health	No (Excellent)	100.0%	N/A
Aesthetic	No (Excellent)	99.0%	N/A
Pearly Beach			
Risk Defined Health (Acute or Chronic)	No (Excellent)	100.0%	N/A
Risk Defined Operational (Final or distribution)	No (Excellent)	96.8%	N/A
Acute Health – 1 Microbiological (E. Coli or FC)	No (Excellent)	100.0%	N/A
Chronic Health	No (Excellent)	100.0%	N/A
Aesthetic	No (Excellent)	93.8%	N/A
Baardskeerdersbos			
Risk Defined Health (Acute or Chronic)	No (Excellent)	100.0%	N/A
Risk Defined Operational (Final or distribution)	**Yes (Unacceptable)**	**85.6%**	**Weekly**
Acute Health – 1 Microbiological (E. Coli or FC)	No (Excellent)	100.0%	N/A
Chronic Health	No (Excellent)	100.0%	N/A
Aesthetic	**Yes (Unacceptable)**	**79.2%**	**Monthly**

Performance Indicator	Performance Indicator categorised as unacceptable Yes / No (Table 4 of SANS 241-2:2011)	% Sample Compliance	Frequency of Additional Monitoring due to failure
Buffeljags Bay			
Risk Defined Health (Acute or Chronic)	No (Excellent)	100.0%	N/A
Risk Defined Operational (Final or distribution)	No (Good)	91.7%	N/A
Acute Health – 1 Microbiological (E. Coli or FC)	No (Excellent)	100.0%	N/A
Chronic Health	No (Excellent)	100.0%	N/A
Aesthetic	No (Excellent)	98.6%	N/A

Effluent quality: The percentage compliances of the treated effluent released at the various WWTWs for the period July 2010 to June 2011, measured against the General Limits, were as follows:

WWTW	Faecal Coliforms	COD	Ammonia	Nitrate & Nitrite Nitrogen	TSS	Ortho Phosphate
Kleinmond	36.4%	91.7%	58.3%	83.3%	100.0%	83.3%
Hawston	45.5%	27.3%	18.2%	100.0%	100.0%	72.7%
Hermanus	66.7%	91.7%	58.3%	100.0%	100.0%	100.0%
Stanford	66.7%	100.0%	100.0%	50.0%	100.0%	100.0%
Gansbaai	100.0%	100.0%	90.9%	72.7%	100.0%	100.0%

The EMS Section of OM 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 OM's Management Area into the Municipality's sewer system are not yet monitored by OM. 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).

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. OM needs to continue with 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 total allocations.

Distribution System	Total sustainable Yield (x 10^6 m^3/a)	Annual Growth on 2010 Demand (3% or 4%)	Annual Growth on 2010 Demand (5% or 6%)	WSDP Projection Model
Buffels River	1.717	2026 (3%)	2020 (5%)	2026
Kleinmond	2.589	> 2035 (3%)	2032 (5%)	> 2035
Greater Hermanus	6.012*	2020 (4%)	2017 (6%)	2020
Stanford	1.950	> 2035 (3%)	> 2035 (5%)	> 2035
Greater Gansbaai	2.935	2029 (4%)	2023 (6%)	2025
Pearly Beach	0.307	> 2035 (3%)	2026 (5%)	2026
Baardskeerdersbos **	0.090	> 2035 (3%)	> 2035 (5%)	> 2035
Buffeljags Bay	0.013	> 2035 (3%)	> 2035 (5%)	> 2035

Note * With Gateway, Camphill and Volmoed Well Fields fully operational
** With development of new borehole during 2012/2013

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**):

Distribution System	Option	Potential
Betty's Bay, Rooi Els and Pringle Bay	Re-use of water	• The Buffels River area does not have it's 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 m³/a is abstracted from the Peninsula Formation, in order to prevent any large drawdowns in the environmentally sensitive recharge and discharge areas. Any groundwater use in this area should in turn be carefully managed and monitored. 0.5 – 1 M m³/a will only meet the low-growth scenario shortfalls up to 2035, and other water sources will be required to meet the medium and high-growth scenario future shortfalls.
	Surface Water	• 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 • Abstraction from the Palmiet River • 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 Mm³/a at 1:50 year assurance. • Raising of the current Eikenhof Dam to increase its capacity from 22.5 Mm³/a to 30 Mm³/a and this would provide additional yields of 4.5 Mm³/a. The total storage would be only 27% of the MAR of 301.8 Mm³, but the ecological freshwater flow requirements of the Palmiet River would limit further development.
	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 • Increase allocation from the Palmiet River • Groundwater development
Hermanus	Re-use of water	• Currently treated water is used for irrigation purposes at the golf course and one school. 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.

Distribution System	Option	Potential
		• Selected water users could be supplied with up to 4 Mm³/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 2011. 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 Mm³/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.
	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 implementation when required.
	Summary	• Full implementation of the WC/WDM Strategy • Full implementation of the Gateway well field • Development of the Camphill and Volmoed well fields. • **Potable and or direct use of treated effluent.** • 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 currently develops the Kouevlakte Well field south of the town, which will augment the supply to the Stanford area.
	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. • Kouevlakte Well field development
Greater Gansbaai	Re-use of water	• The existing WWTW is in a good physical condition, but the water quality it produces is of poor quality (**?**) and therefore it cannot be used for domestic use.
	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

Distribution System	Option	Potential
		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. • Abstraction from Franskraal Dam • Allocation from De Kelder springs • 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**
	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 the 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. • 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

Distribution System	Option	Potential
	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 • Further groundwater development • 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 together can sustainably supply 0.019 Mm^3/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 Buffelsjag Mountains. The Buffeljags Mountains are relatively elevated in comparison to the rest of the region and higher recharge into the unconfined Skurweberg Formation can be expected there in comparison to the deeper confined Peninsula Formation further south-west. • Higher yields of between 2-5 l/s can be expected (with a good water quality of Class 0-1), with a reduced risk of salt-water intrusion. Boreholes into the Klein Brak Formation and overlying Quaternary sediment are likely to have yields of 5 l/s, however Quaternary aquifers can be susceptible to over abstraction and anthropogenic contamination.
	Surface Water	• 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 • Further groundwater development (**Implemented**) • Desalination of seawater

Buffels River and Kleinmond Areas: OM completed a detail investigation during 2010/2011 of the water resources for the area from Rooi Els to Kleinmond. The recommendations from the report were as follows:

- Further studies and investigations be undertaken to reduce the non revenue water percentages to 20%. Demand management should include the pressure management of the Kleinmond reticulation system and further studies are required to evaluate the feasibility of pressure management of the Betty's Bay reticulation network. Telemetry should be provided for all reservoirs, WTW's flow meters, strategic pressure meters and the pressure reducing valve installations to increase efficiency in managing the system and reducing the time of identifying, locating and repairing leaks. Additional meters should be installed to correlate the sales data and identify areas with higher non revenue water (losses) percentages.

- Additional Water Resources and future water demand

  Environmental studies must be commissioned to further inform the decision on which resources should be further developed and should include the following for the Buffels River supply area:

  - The raising of the Buffels River dam,
  - Developing of boreholes; and
  - Disa Kloof- and Rooi Els Rivers

  Desalination and reclamation of WWTW effluent could be considered should the above options prove to be unsuccessful.

Environmental studies should also be commissioned for the Palmiet River to determine the maximum abstraction rate during the low flow periods and also to drill and equip additional boreholes.

Greater Hermanus Area: The Gateway, Camphill and Volmoed Well fields are being developed by OM as additional groundwater resources for the greater Hermanus Area. The Gateway boreholes are in production and the Municipality keep on implementing their Groundwater Monitoring Programme for all the well fields. The Municipality is also planning for the construction of a new pipeline from the Camphill and Volmoed boreholes to the Preekstoel WTWs (Seven boreholes will be put into operation).

A detail feasibility study was also completed during the 2010/2011 financial year for the re-use of treated effluent from the Hermanus WWTWs. The following five re-use schemes were initially considered.

Option	Description	Conclusion
Option A: Indirect re-use via De Bos dam	Polishing at Hermanus WWTW and pump to De Bos dam for dilution and natural polishing. Final treatment at Preekstoel WTW.	**Viable option**. Options A and C best options. Environmental approval for pipeline may delay implementation by one year.
Option B: Indirect re-use via Preekstoel WTW	Polishing at Hermanus WWTW and pumped to inlet works at Preekstoel WTW for final treatment.	**Viable option.** Adjudication matrix identified this as the least preferred of the three viable options.
Option C: Direct re-use via Preekstoel Clear Water Well (Polished and treated at Hermanus WWTW)	Complete polishing and treatment at Hermanus WWTW. Re-use water pumped directly into Preekstoel Clear water well	**Viable option.** Options A and C best options. Technically Option C will be the quickest to implement.
Option D: Direct re-use via Preekstoel Clear Water Well (Polished and treated at Preekstoel WTW)	Complete polishing and treatment on site at Preekstoel WTW. Re-use water pumped directly into Preekstoel Clear water well.	**Technical flaw** and not considered further. No space available at Preekstoel WTW.
Option E: Direct re-use via Hermanus Reservoir (Polished and treated at Hermanus WWTW)	Complete polishing and treatment at Hermanus WWTW. Re-use water pumped directly into Hermanus Reservoir	**Technical flaw** and not considered further. Reservoirs are dedicated to specific suburbs. Providing re-use water to specific areas will lead to social objections.

Both options A and C were found to be feasible, but due to the urgency of the augmentation options option C was considered to be the most appropriate re-use solution.

Some of the other bulk water sources that were considered are included in the table below.

Option	Description	Conclusion
Desalination: Side stream polishing of portion of sea water feed to abalone farm.	Desalination of side stream flow at abalone farm. The desal water is then pumped to Preekstoel WTW for blending and stabilisation.	**Technically feasible.** Cost / m^3 compared to other currently available water sources, makes it the most expensive water. The cost of desal water is energy intensive and sensitive to power cost increases. Feasible option in the future, when other sources are completely utilised.
Mossel River Transfer Scheme. Make use of existing water allocation from Mossel River (Fernkloof Dams)	Pump the allocated water from the three dams to Preekstoel WTW for treatment. Allocation of 230 Ml/a, an average of 0.630Ml/d.	**Technically feasible.** High capital cost of pipeline for relatively small water source, yields a high cost / m^3. This water would require treatment at Preekstoel WTW. This option has a very low energy consumption.
Fisherhaven Dam Transfer Scheme. Make use of existing water allocation from Fisherhaven Dam (Afdaks River)	Pump the allocated water from Fisherhaven Dam, over the watershed into De Bos dam. Allocation is 240Ml/a, an average of 0.658 Ml/d.	**Technically feasible.** High capital cost of pipeline for relatively small water source, yields a high cost / m^3. This water would require treatment at Preekstoel WTW. This option has a very low energy consumption.

The Municipality will also start investigating various desalination options in the nearby future. The desalination option was however found to be the most expensive scheme to operate, with a Unit Cost approximately 50% more expensive that the re-use schemes considered. It was therefore proposed that a re-use scheme be implemented to address the immediate demand for water.

Stanford: The Municipality explored the groundwater potential of the Kouevlakte area since 2009, through exploration borehole siting and drilling. Two newly drilled boreholes will be put into operation and the Municipality is currently busy with the construction of the new bulk supply pipelines in order to connect the two newly drilled boreholes to the existing water reticulation network.

Greater Gansbaai: A new Nano 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: OM is committed to manage the dam efficiently. Other resource options include the extension of the existing groundwater supply system and the Kraaibosch scheme.

Baardskeerdersbos: A new borehole will be commissioned in the near future and the supply from the stream and the new borehole will be adequate to meet the medium- and long-term future water requirements.

Buffeljags Bay: The current source is adequate to supply the medium- and long-term future water requirements. No further exploration work will be undertaken, as there is now a sufficient source of water to meet the future demand.

Industrial Consumers: A "Form of Application for Permission to Discharge Industrial Effluent into the Municipality's sewer" is included in OM'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 OM's sewer system were identified:

- 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.

OM 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 OM's sewer system in order to determine whether the quality comply with the standards and criteria

The industrial consumers in OM's Management Area are not yet monitored, with regard to the quality and volume of effluent discharged by them. OM 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 OM'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.

FINANCIAL

Status Quo:

Capital Budget: OM's estimated Water and Sewerage Capital Budget for 2012/2013 is R51.0M and R19.6M respectively. The updated Water and Sewer Master Plans (January 2011) for the various distribution systems in OM's Management Area recommends upgrades to the values indicated in the table below (Including 40% for P&G's, Contingencies, Fees and excluding VAT) in the foreseeable future in order to accommodate development and population growth according to the SDF.

System	Water				Sanitation		
	Reticulation	Reservoirs and Pump Stations	WDM	Total	Reticulation	Pump Stations	Total
Buffels River	R7 938 000	R21 926 000	R387 000	**R30 251 000**	R170 852 000	R10 819 000	**R181 671 000**
Kleinmond	R5 862 000	R2 243 000	R790 000	**R8 895 000**	R39 145 000	R1 027 000	**R40 172 000**
Greater Hermanus	R33 784 000	R114 565 000	R0	**R148 349 000**	R83 289 000	R6 003 000	**R89 292 000**
Stanford	R2 737 000	R6 632 000	R439 000	**R9 808 000**	R14 142 000	R1 168 000	**R15 310 000**
Greater Gansbaai	R19 497 000	R41 943 000	R0	**R61 440 000**	R119 542 000	R10 111 000	**R129 653 000**
Pearly Beach	R810 000	R1 036 000	R0	**R1 846 000**	R24 747 000	R1 196 000	**R25 943 000**
Totals	**R70 628 000**	**R188 345 000**	**R1 616 000**	**R260 589 000**	**R451 717 000**	**R30 324 000**	**R482 041 000**

The above 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.

Description	Actual	Record Prior (Audited)			
	10/11	09/10	08/09	07/08	06/07
Total operating expenditure for Water	R73 321 373	R72 496 148	R48 040 492	R30 485 239	R30 702 361
Total operating income for Water	-R79 588 700	-R74 598 682	-R66 998 742	-R43 820 071	-R41 210 880
Nett Surplus / Deficit	**-R6 267 327**	**-R2 102 534**	**-R18 958 250**	**-R13 334 832**	**-R10 508 519**
Total operating expenditure for Sanitation	R40 666 933	R37 715 839	R25 170 346	R25 091 607	R23 032 344
Total operating income for Sanitation	-R50 911 542	-R36 160 168	-R32 056 044	-R20 710 388	-R25 415 444
Nett Surplus / Deficit	**-R10 244 609**	**R1 555 671**	**-R6 885 698**	**R4 381 219**	**-R2 383 100**

Tariff and Charges: The first six (6) kl of water is provided free to all consumers. OM'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 OM'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.

OM'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.

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 OM's Management Area with 83.8% of the water reticulation network and 63.1% of the bulk water pipelines that are in a poor or very poor condition (As taken from the Asset Register). This is placing considerable strain on OM'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. The problem is not restricted to the reticulation and also includes the water pump stations.

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 R854.4M (an average of R42.7M per year) and for sanitation infrastructure the value is R262.7M (an average of R13.1M per year). The renewals burden is set to continue to increase sharply over the next 15 years, as is currently the case. Water and sanitation infrastructure assets with a total current replacement value of about R766.5M and R223.5M 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 sanitation 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 OM.

OM's implementation strategies with regard to capital funds are as follows:

- To focus strongly on revenue collection, because most of the funds for water and sanitation capital projects are form OM'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 three years to assist OM to address the huge capital infrastructure backlogs that exist in the various towns.

- Develop IAMPs for all water and sanitation 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. Consideration should be given to the establishment of a maintenance management system to enable OM 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.

OM'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.

Current gaps include unrealistically low depreciation charges, which have to be rectified and ring-fenced into an asset replacement fund, as well as additional budget requirements above inflation for infrastructure development.

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

Block (Kl / month)	11/12	10/11	09/10	Comments
0 - 6	R0-00	R0-00	R0-00	Free Basic Water
7 - 15	R7-02	R6-48	R6-00	Low volume use
16 - 30				Typical use volume, including garden irrigation
31 - 60	R17-55	R16-20	R15-00	Above average use, including garden irrigation
61 - 100	R23-69	R21-60	R20-00	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. OM also started in 2010/2011 with the implementation of volumetric sewerage tariffs. The 2011/2012 general residential sewerage tariff is R8-11 per kl per unit per month (Based on 90% of 50 kl water usage). The quantity of wastewater discharged from the industrial consumers into OM's sewer system needs to be metered and the quality needs to be monitored regularly by OM.

It is suggested that the following tariff structure characteristics should remain in OM'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 of high water use.
- The volumetric steps should be kept the same for all the areas within OM'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 were recently 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.

WATER SERVICES INSTITUTIONAL ARRANGEMENTS

Status Quo:

OM 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 OM's Management Area. The By-laws cover the provision of services for water supply, sanitation and industrial effluent.

OM got a comprehensive Performance Management System in place. 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 all the WTWs and WWTWs and the Process Controllers and Supervisors responsible for the management of these plants. A skill 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 2011/2012 is in place.

Gaps and Strategies:

OM 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 report annually and in a public way on progress in implementing the plan (Water Services Audit).

The Municipality will continue to report to the DWA on the KPIs for water and sewerage services through DWA's Regulatory Performance Management System (RPMS).

OM continues to undertake basic public awareness programmes. The education of users where sanitation facilities are upgraded to waterborne systems is ongoing. This is primarily focussed at informing users of the appropriate use of and routine maintenance of such facilities.

OM needs to focus strongly on the rehabilitation and the maintenance of the existing infrastructure, augmentation of their existing water sources and all planning for new services should be guided by the Water and Sewer Master Plans. Water and sanitation services are currently effectively managed by OM.

OM will also continue with their mentoring role for operators ensuring and 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.

SOCIAL AND CUSTOMER SERVICE REQUIREMENTS

Status Quo:

A comprehensive Customer Services and Complaints system is in place at OM 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. A Draft Consumer Care Charter is in place.

The table below gives a summary of the records that are kept by OM and the maintenance work that was carried out over the last three financial year.

Service	Definition	Gansbaai			Hermanus			Kleinmond			Stanford			Total		
		10/11	09/10	08/09	10/11	09/10	08/09	10/11	09/10	08/09	10/11	09/10	08/09	10/11	09/10	08/09
Sewerage connection	Provision of connection or inspection of existing connections	25	65	13	63	71	124	3	3	2	3	1	2	**94**	**140**	**141**
Sewer blockages	Repair blockages on main sewer pipelines up to connection points	65	13	46	1 332	526	1249	127	62	74	35	33	25	**1 559**	**634**	**1394**
Investigate sewer reticulation network	Investigate network	19	0	2	11	10	10	2	1	0	1	0	0	**33**	**11**	**12**
Manholes sewer reticulation	Inspection and installation of manholes	6	0	0	1	1	0	7	2	0	-	0	0	**14**	**3**	**0**
Other sewer reticulation	Any other sewer reticulation inspections	28	3	0	16	4	0	5	0	0	4	0	0	**53**	**7**	**0**
PDA toilets repairs	Previously disadvantaged toilets repaired	102	Community members were appointed to carry out the repairs		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		**105**	Community members were appointed to carry out the repairs	
Pipeline sewer	Installation of sewer pipelines or repair of pipelines	2	1	0	10	1	0	6	0	0	1	1	0	**19**	**3**	**0**
Investigate sewer reticulation pump stations	Work carried out at sewer pump stations	3	1	0	42	12	21	2	2	11	-	2	0	**47**	**17**	**32**
Test water meter	Testing of water meter for accuracy	4	0		29	1	-	10	2	-	1	1		**44**	**4**	
Disconnect water connection	Disconnect supply	3	Managed Externally (Debt Pack)		6	Managed Externally (Debt Pack)		6	Managed Externally (Debt Pack)		4	Managed Externally (Debt Pack)		**19**	Managed Externally (Debt Pack)	
Install drip system	Installation and inspection of drip systems	-	Managed Externally (Debt Pack)		2	Managed Externally (Debt Pack)		1	Managed Externally (Debt Pack)		1	Managed Externally (Debt Pack)		**4**	Managed Externally (Debt Pack)	
Inspect water connections	Inspect connections	71	27	659	184	114	467	154	17	323	77	27	112	**486**	**185**	**1 561**
Other water connections	Inspections and work carried out at water connections	68	44	69	23	27	167	38	20	35	13	23	93	**142**	**114**	**364**
Pipelines water	Installation or repair of water pipelines	5	3	1	5	6	11	11	4	1	13	18	1	**34**	**31**	**14**
Pressure	Complaints with regard to pressure in the system	28	8	26	44	78	80	18	18	15	-	7	5	**90**	**11**	**126**
Water Pump Stations	Inspections and work carried out at water pump stations.	-	1	0	4	4	21	31	1	11	-	0	0	**35**	**6**	**32**
Repair pipe bursts	Repair of burst water pipelines	61	35	60	151	91	243	255	104	49	13	12	14	**480**	**242**	**366**
Reservoirs	Inspection of reservoirs and work carried out at reservoirs	1	2	2	18	40	47	2	50	5	-	1	2	**21**	**93**	**56**
Water Routine Inspections	Any water related inspections	92	0	1	13	2	5	7	0	2	1	3	10	**113**	**5**	**18**
Water Valves	Inspection of valves and work carried out on valves	7	5	2	3	9	21	12	2	12	1	2	2	**23**	**18**	**37**

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. OM is therefore committed to ensure that their water quality always complies with national safety standards.

The Water Safety Plan of OM 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 OM 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 Nano Filtration 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.

NEEDS DEVELOPMENT PLAN

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 OM were last updated during January 2011. 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

Projects recorded in the table below refer to new infrastructure to be built or upgrading of existing infrastructure, as included in the draft capital budget of OM for 2012/2013.

Project name	Local Area	Project type (e.g. bulk, reticulation, etc.)	Schedule Date, Estimated Cost (RM)		
			12/13	13/14	14/15
WATER					
Upgrading of Preekstoel WTW	Hermanus	WTW	R27.351	-	-
Replacement of Overstrand water pipelines	Management Area	Reticulation	R13.500	R15.000	R15.000
Water Conservation / Loss control / Demand Management	Management Area	WDM	R1.000	R1.000	R1.000
Bulk water pipeline Franskraal WTW – Kleinbaai / Gansbaai	Kleinbaai / Gansbaai	Bulk Pipeline	R3.000	R3.500	R4.500
New bulk reservoir	Sandbaai	Reservoir	-	R2.300	R5.000
Bulk water supply upgrade	Baardskeer-dersbos	Source	R3.000	-	-
Augmentation of water sources Buffels River supply area	Buffels River	Source	-	R3.590	-
Water network extension Birkenhead area	Gansbaai	Reticulation	-	R0.100	-
New bulk water reservoir Rooi Els	Rooi Els	Reservoir	R2.800	-	-
Waste Water Re-use Plant (3.4 Ml/d)	Hermanus	Source	-	-	R10.000
Franskraal WTW: Chemical storage and guard house	Franskraal	WTW	R0.150	-	-
Upgrading of “Die Oog” pump station	Stanford	Pump Station	R0.200	-	-
Total			**R51.001**	**R25.490**	**R35.500**
SANITATION					
Hermanus WWTW upgrading	Hermanus	WWTW	R2.630	-	-
Kleinmond and Gansbaai WWTW sludge handling	Kleinmond & Gansbaai	WWTW	R3.800	-	-
Sewer network extension	Stanford	Reticulation	R2.000	-	-
Sewer network extension	Kleinmond	Reticulation	R2.000	R3.000	-
Sewer network extension	Gansbaai	Reticulation	-	R2.500	R3.000
Stanford WWTW upgrade	Stanford	WWTW	R0.250	R4.500	R4.500
Emergency power generator for Gansbaai WWTW	Gansbaai	WWTW	R0.650	-	-
Gansbaai WWTW: Tarring of access road	Gansbaai	WWTW	R0.150	-	-
Electrical supply and pump to bulk sewerage tank	Gansbaai	WWTW	R0.150	-	-
Sewer pump stations upgrading	Hermanus	Pump Stations	R1.500	R1.500	R1.000
Reroute sewer pipe: Abagold	Hermanus	Reticulation	R0.600	-	-
Hermanus sewer network extension - Fernkloof	Hermanus	Reticulation	R0.500	-	-
Hermanus sewer network extension - Fernkloof	Hermanus	Reticulation	R2.550		
New sewer line Beachclub Area	Hermanus	Reticulation	R1.000	-	-
Upgrading of pump stations	Management Area	Pump Stations	R1.800	-	-
Total			**R19.580**	**R11.500**	**R8.500**

Gaps and Strategies:

OM's key capital infrastructure projects for the next three years are as follows:

- Upgrading of the Preekstoel WTW.
- Continue with the implementation of WDM measures (Meter replacements, pipeline replacements, pressure management, etc.)
- Additional reservoir storage capacity for Sandbaai and Rooi Els.
- Construction of a new Waste Water Re-use Plant in Hermanus.
- Augmentation of the existing water sources for the Buffels River and Baardskeerdersbos systems.
- Upgrading of the bulk water supply pipeline from Franskraal WTW to Kleinbaai / Gansbaai.
- Upgrading of the Hermanus and Stanford WWTWs and the sludge handling at the Kleinmond and Gansbaai WWTW.
- Upgrading of the sewer pump stations and the sewer reticulation networks.

OM'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.
- 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 OM'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.