

OVERSTRAND MUNICIPALITY

EXECUTIVE SUMMARY

WATER SERVICES DEVELOPMENT PLAN FOR

2009/2010

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ABBREVIATIONS AND DEFINITIONS

BD	Backyard Dwellers
CAFES	Conserving, Adequate, Fair, Enforceable, Simple
CBO	Community Based Organisations
CCP	CAFES Cost and Pricing Strategy
CES	Community Engineering Services
DLG&H	Department of Local Government and Housing
DMO	Destination Marketing Organisation
DWAF	Department of Water Affairs and Forestry
DWQM	Drinking Water Quality Management
EC	Electric Conductivity
EHP	Environmental Health Practitioner
EMS	Environmental Management Services
EPWP	Expanded Public Works Programme
GDPR	Regional Gross Domestic Product
HL	High Level
IDP	Integrated Development Plan
ILI	Infrastructure Leakage Index
KPI	Key Performance Indicator
LED	Local Economic Development
LL	Low Level
LLPP	Local Labour Promotion Project
LMP	Leakage Management Programme
LOFLOS	Low Flow on Site
MIG	Municipal Infrastructure Grant
MI	Mega litre
NGO	Non Governmental Organisation
OM	Overstrand Municipality
RWW	Reuse of Waste Water
SDBIP	Service Delivery and Budget Implementation Plan
SDF	Spatial Development Framework
SFWS	Strategic Framework for Water Services
SMME	Small Medium Micro Enterprise
SPP	Socio-political Programme
STED	Septic tank effluent drainage
UARL	Unavoidable Annual Real Losses
WC	Water Conservation
WC/WDM	Water Conservation / Water Demand Management
WCP	Water Conservation Products

ABBREVIATIONS AND DEFINITIONS



WDM	Water Demand Management
WMA	Water Management Area
WR	Water Resource
WSA	Water Services Authority
WSDP	Water Services Development Plan
WSP	Water Services Provider
WTW	Water Treatment Works
WWTW	Waste Water Treatment Works

KEY TERMS	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.
WSA	A water services authority 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.

KEY TERMS	INTERPRETATION
WSP	<p>A Water services provider is</p> <ul style="list-style-type: none"> • 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
Water conservation	<ul style="list-style-type: none"> • The minimisation of loss or waste, the care and protection of water resources and the efficient and effective use of water.
Water Demand Management	<ul style="list-style-type: none"> • 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 DWAF has developed a new set of WSDP guidelines 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 Overstrand Municipality's (OM's) WSDP are as follows:

- Socio Economic Profile
- Service Level Profile
- Water Resources Profile
- Water Conservation / Demand Management Profile
- Water Services Infrastructure Profile
- Water Balance Profile
- Water Services Institutional Arrangements Profile
- Customer Services Profile
- Financial Profile

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

- All WSAs must develop a WSDP.
- A new plan must be developed every five years and the plan should be updated as necessary and appropriate in the interim years.
- The WSDP must be integrated with the IDP of the municipality, as required in terms of the Municipal System 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 be integrated 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 DWAF.
- A WSA must report annually and in a public way on progress in implementing the plan.

The primary purpose of the WSDP is to assist WSAs to carry out their mandate effectively. It is an important tool to assist the WSA to develop a realistic long-term investment plan which prioritises the provision of basic water services, promotes economic development and is affordable and sustainable over time.

VISION STATEMENT

TO BE A CENTRE OF EXCELLENCE FOR THE COMMUNITY

MISSION STATEMENT

TO DELIVER OPTIMAL SERVICES IN SUPPORT OF SUSTAINABLE ECONOMIC, SOCIAL AND ENVIRONMENTAL GOALS

The following Strategic Objectives forms the basis of OM's new IDP cycle

- Provision of democratic and accountable governance.
- Provision and maintenance of municipal services.
- Management and conservation of the natural environment.
- Creation and maintenance of a safe and healthy environment.
- Promotion of tourism, economic and rural development.

Functional Strategies to ensure efficient, affordable, economical and sustainable access to water services that promote sustainable livelihoods and economic development form an integrated part of OM's new IDP. Key Performance Areas and specific targets / indicators with regard to sustainable water services sub-goals, integrated water resource management sub-goals and efficient and effective institutional arrangement sub-goals are also included in OM's SDBIP.

This WSDP is for the 2009/2010 financial year and is an update of the previous WSDP. The WSDP is aligned and integrated with the 2009/2010 IDP of OM and forms an integrated part of the IDP public participation and consultation process. The IDP is predominantly strategic as opposed to the WSDP that are more operationally orientated.

Part of the WSDP is to identify strategic approaches that need to be developed to address the information shortfalls and other constraints, which impact on service delivery. The implementation strategies should not constitute a wish-list, but must be reasonable and achievable within the capital and operational budget and staff constraints of OM. The WSDP should be revised regularly, reporting the information for the previous five years and the projected future requirements. It is not a stagnant document, but rather a living process reliant on improvement and enhancement through the input provided by councillors, officials and technical assistants.

The 2009/2010 WSDP consists of two volumes. The first volume is the report section that was drafted following the DWAF's WSDP preparation guidelines (Revision 10), which was issued to all the WSAs to assist them with their WSDP process. The second volume contains all the Annexures (Maps, models, etc.). The Executive Summary of the WSDP was put together separately so that it can easily be submitted to Council for approval and issued to the public for their comment.

OM falls within the Breede Water Management Area (WMA) and OM's Management Area includes the towns Rooi Els, Pringle Bay, Betty's Bay, Kleinmond, Greater Hermanus, Stanford, Greater Gansbaai, Pearly Beach, Buffeljags Bay, Viljoenshof, Baardskeerdersbos and the farms in the rural areas. Hermanus is the administrative centre of the OM and makes a large economic contribution in terms of tourism, fishing, aquaculture and agriculture.

ESSENTIAL QUESTIONS

What are the backlogs and the cost to eradicate the backlogs? (Basic services):

Area	Water Needs to RDP Level			Sanitation Needs to RDP Level		
	Number of households below RDP standard	% of total households	Cost to provide Water Services	Number of households below RDP standard	% of total households	Cost to provide Sanitation Services
Towns	0	0	R0	0	0	R0
Farms	203	11.76	R1 218 000	382	22.13	R2 292 000
TOTAL	203	0.73	R1 218 000	382	1.37	R2 292 000

The Western Cape Sanitation Backlog Study (Final Report - January 2007) was undertaken by the DWAF and the DLG&H in order to determine the most critical service delivery backlogs to attend to. The backlogs for OM, as identified through this study, are included in the table below.

Name of town	Households					Growth as % of existing backlog
	Informal Housing with no access to basic sanitation (Excl. BD)	Informal housing with access to shared service (Excl. BD)	Backyard dwellers (BD) with access to shared service	Total existing backlog	Estimated future backlog due to growth	
Rooi Els	0	0	0	0	0	0
Pringle Bay	0	0	0	0	0	0
Betty's Bay	0	0	14	14	12	4
Kleinmond	0	20	600	620	620	5
Fisherhaven	0	0	0	0	0	0
Hawston	0	0	600	600	960	8
Vermont	0	0	0	0	0	0
Onrus	0	0	0	0	0	0
Sandbaai	0	0	0	0	0	0
Zwelihle	0	1 365	2 400	3 765	2 259	3
Hermanus	0	0	0	0	0	0
Voëlklip	0	0	0	0	0	0

Name of town	Households					Growth as % of existing backlog
	Informal Housing with no access to basic sanitation (Excl. BD)	Informal housing with access to shared service (Excl. BD)	Backyard dwellers (BD) with access to shared service	Total existing backlog	Estimated future backlog due to growth	
Stanford	0	177	254	431	690	8
Die Kelders	0	0	0	0	0	0
Gansbaai	0	1 020	781	1 801	2 880	8
Franskraal	0	0	0	0	0	0
Kleinbaai	0	0	0	0	0	0
Pearly Beach	0	101	100	201	80	4
TOTALS	0	2 683	4 749	7 432	7 501	

What is the status of supply to higher levels of service? (Higher levels of services)

Present service levels:

Area	Water		Sanitation	
	Basic RDP	Higher than RDP	Basic RDP	Higher than RDP
Towns	1 558	24 570	1 558	24 570
Farms	145	1 378	90	1 254
TOTAL	1 703	25 948	1 648	25 824

The Western Cape Sanitation Backlog Study indicated that the following capital funding is needed to address the basic services and housing backlogs in the towns in OM's Management Area.

Name of town	Total cost for water infrastructure	Total cost for sewer infrastructure	Total cost for internal water and sewer infrastructure	Total cost to eradicate sanitation backlog
Betty's Bay	R6 524 000	R50 000	R112 000	R6 686 000
Kleinmond	R11 730 000	R33 704 000	R4 960 000	R50 394 000
Hawston	R19 869 472	R10 798 933	R4 800 000	R35 468 405
Zwelihle	R5 557 888	R0	R30 120 000	R35 677 888
Stanford	R8 024 974	R16 412 000	R3 448 000	R27 884 974
Gansbaai	R33 252 382	R36 339 620	R14 408 000	R84 000 002
Pearly Beach	R3 126 600	R50 000	R1 608 000	R4 784 600
TOTALS	R88 085 316	R97 354 553	R59 456 000	R244 895 869

What is the strategy to eradicate backlogs?

All households in informal areas will be provided with minimum basic water and sanitation services (Communal standpipes and toilets shared between households) as a temporary solution. Appropriate health and hygiene education will be given to minimise the risk of health related problems.

OM is also committed to determine the current service levels (quality and quantity) on the farms and to ensure that once the number of households below RDP standard is known at least basic water and sanitation services are provided to these households by 2009 and 2010.

IMPACTING FACTORS

(Associated services, economic growth and social and environmental (health) issues).

OM, like all other WSAs countrywide, faces a series of challenges with respect to the delivery of efficient, affordable, economical and sustainable services:

- 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.
- Backlogs in infrastructure.

Associated services:

The Strategic Framework for Water Services (SFWS) places an appropriate focus on the imperative of ensuring universal access by households to at least a basic water supply and sanitation service. However, the provision of effective and efficient water services to meet the economic demand of all consumers (domestic and non-domestic) is equally important.

One of the visions of the Sector is that all people living in South Africa have access to adequate, safe, appropriate and affordable water and sanitation services, use water wisely and practise safe sanitation (SFWS).

One of the goals of the Sector is that water and sanitation services are provided (SFWS):

- Equitably (adequate services are provided fairly to all people);
- Affordably (no one is excluded from access to basic services because of their cost);
- Effectively (the job is done well);
- Efficiently (resources are not wasted);
- Sustainably (services are financially, environmentally, institutionally and socially sustainable); and
- Gender sensitively (taking into account the different needs and responsibilities of women and men with regard to water services and sanitation).

The following types of sanitation technology options will be investigated by OM when they develop their sanitation service level policy.

- VIP latrines and approved Eco-San dry, on-site sanitation systems.
- Low flow on site (LOFLOS) systems
- Septic tanks

- LOFLOS or septic tanks with solids-free sewers also referred to as septic tank effluent drainage (STED) systems.
- Full water-borne sanitation.

OM works towards providing all households in the towns with a water connection inside the yard or inside the house and connecting all households in the towns to a waterborne sanitation system in order to prevent any possible pollution of the groundwater and to prevent any future grey water problems that might occur.

Economic growth:

The region is internationally famous for the abundance of whales which visit Walker Bay on an annual basis to mate and calve. The Hermanus area has been given the tag of “The best land based whale-watching site in the world”. Internationally, it is now also increasingly becoming known for shark-cage diving in the Gansbaai area where Great White Sharks are a major attraction.

The Arabella luxury resort with the international championship Arabella golf course, international award winning AltiraSPA health spa and five star hotel is found at the Botrivier estuary.

The long coastline of the Overstrand is still an underutilized resource with great potential for aquaculture. The rapid decline in conventional fishing places emphasis on this alternative for the traditional fishing community. Commercial abalone farming has already made the Overstrand a leader in the field.

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 issues:

Social responsibility is demonstrated in the annual contributions given by OM to the National Sea Rescue Institute, Overstrand Conservation Foundation and several institutions working with skills development, adult education, the elderly, HIV/Aids victims, job creation, animal welfare, etc. The table below gives an overview of OM's Socio-economic trends and indicators.

Socio-economic indicators:	Overstrand Municipality	Overberg District
GDPR 2004	R1 billion	R3.3 billion
Unemployment rate 2001	21.7%	18.6%
Number of unemployed 2001	5 171	16 539
Proportion of households with no income 2001	11.7%	9.7%
Number of Households with no income 2001	2 202	5 686

Socio-economic indicators:	Overstrand Municipality	Overberg District
Education:		
Number of schools (Primary & High)	21	77
Percentage of illiterate people over 14 (less than grade 7)	19.0%	27%
Educator – learner ratio	39	37
Crime measures (reported crime):		
Number of police stations (2004/05)	4	13
Number of murders (2004/05)	31	118
Drug related crimes (2002/03)	176	843
Drug related crimes (2004/05)	459	1 976
Total number of cases reported (2004/05)	5 484	15 294
Number of rapes (2004/05)	74	272
Strengths	Challenges	
Fairly diversified economy and room for further growth.	Escalating drug-related crimes	
Potential for tourism growth.	High TB prevalence	
Room for capital expenditure	Growing population, unemployment and poverty	
Less exposed to agriculture	Limited human and natural resources	
Dependent on own revenue generation	Ageing infrastructure accompanied by backlogs	

Socio Economic Profile: Overberg District 2006: Provincial Treasury

The demand for low income housing is particularly driven by the lower income groups. OM's 2007 verified waiting housing list recorded 4051 persons. OM's know from their management of Informal Settlement Programme that they currently have 3039 squatters in ten informal settlements. It is estimated that a total backlog of 4 051 houses exist based on the 2007/08 Municipal Verification Process.

OM's Housing Plan aims to provide human settlement development, within the broader context of the promotion of social and economic development. The number of houses included in the 5-Year Master Housing Plan for new Housing Development is as follows (Sept 2008):

Category	Priority	Town	2008/2009	2009/2010	2010/2011
Low Income Projects	1	Hawston			
	2	Kleinmond		200	206
	3	Stanford: Ph 1		88	
	4	Betty's Bay	13		
	5	Betty's Bay			35
	6	Swartdam Corridor	50	860	
	7	Pearly Beach			100
Middle Income / GAP Housing Projects	1	Hawston			
	2	Upper MT Pleasant: Ph 1			
	3	Kleinmond		100	
	4	Gansbaai			70
	5	Upper MT Pleasant: Ph 2		70	
	6	Hawston			80
Social Housing Projects	1	Kleinmond		46	
	2	Swartdam Corridor		300	610
	3	Pearly Beach			10
Open Market, Business / Residential Option	1	Kleinmond		33	

Health issues:

The table below gives an overview of the health indicators in OM's Management Area, compared to the Overberg District.

Health Indicators	Overstrand Municipality	Overberg District
Number of medical facilities	11	47
Percentage births under 2,5 kg (National target < 10%)	12%	16%
TB prevalence per 100 000 people	1 092	1 142
HIV / Aids prevalence rate (2005)	4.5%	4.1%
Number of HIV/AIDS deaths (2005)	897	2 527
Nurse : patient ratio	37	29
Proportion under 1 with 1 st measles immunisation (National target: 90%)	80%	75%
TB Cure rate % (National target: 85%)	73%	74%
HIV/AIDS prevalence rate (2010)	5.2%	4.9%
Number of HIV/Aids deaths (2010)	1 168	3 108

Source: Department of Health (2005)

The number of Hospital and Clinic facilities within the OM's Management Area is as follows:

- Hermanus Hospital and District Hospital
- Clinics in Hermanus, Hawston, Mount Pleasant, Onrus, Zwelihle, Stanford, Gansbaai and Kleinmond.
- Satellite clinics in Baardskeerdersbos and Eluxolweni.

Strategic Gap: OM has identified the need for more hospitals and clinics. The following issues / actions were identified through engagements with the Department of Health.

Stanford	Gansbaai	Greater Hermanus	Kleinmond	Overstrand
New Clinic was recently build	No hospital facilities exist in Gansbaai and the need for at least a day hospital was registered for the past 10 years. No permanent ambulance services are available and the turn-out time from Hermanus is unacceptable.	Relocate Hermanus Clinic to Provincial Hospital Upgrading / additional clinic in Zwelihle HIV/Aids centre - Zwelihle	Hospital with 24 hours emergency service Extension of clinic service to include residents in Betty's Bay and Pringle Bay and upgrading of Kleinmond clinic	Need for more ambulances. Need for separate transport from the ambulance. The Department of Health is currently embarking on hiring more officials.

It is important that the backlogs that still exist on the farms, with regard to basic sanitation services, be eradicated by OM. 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 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.

Implementation Strategies: Emphasis is placed on infant care, family planning, HIV/Aids and TB treatment. Processes are in place to manage the transition as well as functioning of the health care sector in line with the laid down Provincial protocols and guidelines.

OM will 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 Environmental Health Practitioners.

Environmental issues:

The stretch of coastline includes three remarkable blue flag beaches, namely Kleinmond, Grotto and Hawston. The Grotto beach received the prestigious international "Blue Flag" award for four consecutive years.

The Management Area also includes the Kogelberg Biosphere Reserve which is only one of two such areas in the Republic. It is commonly referred to as the heart of the Cape floral kingdom as roughly one fifth of all known fynbos species occurs here.

The "Grootbos" nature reserve area is just outside of Gansbaai. As a result of its commitment to excellence and diversity this reserve has already received numerous National and International awards.

OM has delegated responsibility and accountability for the management of the natural environment within the Municipal region and accordingly created an Environmental Management Services Section (EMS) to advise Council on environmental concerns. The EMS section will address 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 EMS Section also strives towards sustainable development by means of environmental best practice. Accordingly, the section strives to coordinate, plan and manage all human activities in a defined environmental system to accommodate the broadest possible range of sustainable short and long term environmental, social and economic development objectives. The mission of the section is to promote the use of sound environmental management principles to ensure a healthy environment within OM's Management Area. 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.

Global warming: The risk of global warming that is likely to strike the Western Cape poses threats in rainfall amounts and changing seasonality of rain. Future projections of climate show that there is going to be fewer strong or deeper low-pressure systems in winter months (June, July and August) resulting in less rainfall. In addition to predicted decline in rainfall, increased temperatures in the Western Cape would further result in increased evaporation and an increase in irrigation requirements. Although this has no impact on current water requirement estimates, the impact of climate change must be taken into consideration when developing planning scenarios for future water requirements.

Shortage of rain or changing seasonal patterns will not only affect dam levels, but will also severely hamper agricultural production as crops currently produced are based on the current season of rain.

Water Management: The climate change has serious implications for the competing interests of environmental integrity and socio-economic development. It is therefore important for WSAs to develop coping strategies to increase efficiency in water use.

In order to ensure efficient and effective water services delivery, it is essential for OM to ensure adequate operation and maintenance of their existing infrastructure. The development and implementation of an Asset Management Plan is therefore critical.

WHAT IS THE STATUS OF ALL WATER INFRASTRUCTURE? (Effective water resource management)

The total replacement value for the water and sanitation infrastructure, as taken from the Water and Sewer Master Plans, are as follows:

Water Infrastructure (Replacement Cost - 2006)				
Distribution System	Bulk	Network	Reservoirs / Towers	Total
Buffels River - Rooi Els, Pringle Bay & Betty's Bay	R12 449 668	R54 338 830	R6 445 334	R73 233 832
Kleinmond	-	R27 841 674	R8 759 800	R36 601 474
Greater Hermanus	R38 829 623	R137 452 007	R40 824 868	R217 106 498
Stanford	-	R9 236 220	R1 767 500	R11 003 720
Greater Gansbaai	R10 797 171	R52 633 707	R14 344 050	R77 804 928
Pearly Beach	-	R10 286 850	R5 026 000	R15 312 850
Totals	R62 076 462	R291 819 288	R77 167 552	R431 063 302
Sanitation Infrastructure (Replacement Cost)				
Distribution Systems	Rising Mains	Gravity Sewers	Pump Stations	Total
Kleinmond	R9 053 000	R18 694 000	R1 285 000	R29 032 000
Greater Hermanus	R23 439 000	R202 517 000	R6 810 000	R232 766 000
Stanford	R986 000	R5 480 000	R586 000	R7 052 000
Greater Gansbaai	R429 000	R8 170 000	R406 000	R9 005 000
Totals	R33 907 000	R234 861 000	R9 087 000	R277 855 000

OM still needs to compile an Asset Management Plan to assist them with the adequate rehabilitation and maintenance of their existing infrastructure.

Effective management

The management of the existing water and sanitation services is being undertaken to the absolute best ability of OM, within the considerable financial and technical constraints which prevail. The most pressing need of OM is to improve capacity and access to finances in order to ensure adequate rehabilitation and maintenance of their existing infrastructure and funds to address the existing and future infrastructure backlogs.

The WSDP for the OM is a business plan setting out the way in which OM must effectively manage, plan and deliver services to individuals and businesses in its area of jurisdiction, as summarized in the water services business element summary below:

WATER SERVICES BUSINESS ELEMENT SUMMARY (Status quo, gaps and implementation strategies)

A summary of each of the ten business elements is provided below. Focus is placed on the status quo, current gaps and implementation strategies for each of the ten business elements. The Report and Annexure Sections of the WSDP need to be referred to for more detail.

SOCIO-ECONOMIC PROFILE

Status quo:

OM's population grew by 4% per annum compared to the District average of 2.5% (Socio Economic Profile: Overberg District 2006, Provincial Treasury) for the period 2001 to 2006. The 2008 population of OM is currently estimated at approximately 78 980 persons.

Total net migration in the OM's Management Area was high in 2003, but decline thereafter relatively steady but slow. This trend suggests that migration has already peaked and there are no expectations of any huge influxes of people into the OM's Management Area in the near future. Whites are projected to have the highest net migration numbers across the years, followed by Coloureds, whereas Black Africans are projected to show the lowest net migration (2001-2025). Net migration for Black Africans is expected to taper-off faster than the other racial groups (Socio Economic Profile, Overberg District 2006, Provincial Treasury).

Children form a large portion OM's population, with approximately 8.9% of the total population being under 4 years old. The youthful population trend is forecast to continue, but the population is expected to age marginally, reflecting a smaller proportion of people under the age of 25 by 2012. The youth (15-35 years) accounts for 30.1% of OM's total population, a ratio that is not dissimilar to that of the District's youth population proportion of 33% (OM's IDP Revision 2008/09).

The aged currently account for 12% of OM's population, reflecting the large number of retirees in the region. The age dependency ratio ($\frac{\text{Total number of 0-14 year olds plus 65+-year olds}}{\text{working-age population, i.e. number of 16-64 year olds}}$) for the Overstrand is projected to increase from 55.7% in 2001 to 57.81% in 2006 (the highest in the Overberg District), rising to 60.61% by 2010. The high dependence ratio implies that more than half the Municipality's population are too young and too old to look after themselves, thereby placing a huge burden on the working-age population.

OM has a very high proportion of people who are considered skilled (44.4%) and the proportion of highly skilled individuals is also fairly high (18.1%) for 2001. The high percentage of skilled workforce in OM can be attributed to the well-diversified economic base.

The contribution to GDP by individual sectors indicates that the Overstrand economy is well represented in the fastest growing services sectors in the Western Cape and is fairly well diversified. OM has very limited mining, and water and electricity sector activities though. The Agriculture, forestry and fishing sector is relatively small in the Overstrand, contributing only 6.2% to the GDP in 2004, compared to the District average of 21.1%. Major agricultural activities include mixed farming (production of crops and animals), fishing, fruits, beverage crops production and aquaculture.

Gaps:

It is important that the residential, commercial and industrial water usages and the number of consumer units for each of these categories be recorded separately under a unique tariff code in OM's financial system.

The negative trend in learner enrolment needs to be addressed as soon as possible, as the current crop of learners will become the future labour force of the region. Additionally, as the economy continues to develop, the emphasis on skilled labour will only increase, which will make it even more difficult for learners without appropriate qualifications to obtain employment.

Investing in infrastructure creates an enabling environment for economic growth and is an important precondition for sustainable growth. OM has harbours at Hermanus and Gansbaai that are predominantly used by small and medium-sized fishing vessels. These harbours are relatively underdeveloped but have the potential to boost economic growth in the Overstrand if they are further developed.

Although the Overstrand has a potential for growth at much higher rates, failure to improve the current state of infrastructure poses a serious threat to the local economy. The deterioration of networks in the coastal areas and rapid development, which is not matched by growing capital expenditure, further exacerbates the situation. Adequate rehabilitation and maintenance of the existing infrastructure is critical in order to ensure the medium to long term sustainability of the existing infrastructure. OM is currently also busy with the development of groundwater sources for the Greater Hermanus area, in order to address the water shortages threat of the area.

Implementation strategies:

OM acknowledges its role in the lives of the youth, by supporting projects and capacity building initiatives of various Non Governmental Organisations (NGOs) and Community Based Organisations (CBOs) – Junior Town Council. A special effort is made to engage the school-going youth through the Junior Council, which is fully representative of all Overstrand Communities. The Enlighten Education Trust, an Overstrand based non-governmental organization, is facilitating the Junior Council as an educational project on behalf of the OM. OM has entered into a partnership with the Umsobomvu Youth Fund to establish a Youth Advisory Centre 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. OM also support projects initiated in support of the aged by different NGOs and CBOs.

OM collaborated with the private sector and local non-profit organizations to provide needed skills at all levels, commissioned a skills audit and gap assessment and a skills development exercise focusing on specific priorities. The table below gives an overview of the various skills activities:

Skills Audit and GAP Assessment with specific focus on low skilled and less educated communities	Skills Development Plan and Strategy to address gaps – Roles and Responsibilities	Provision of priority skills focusing on upliftment and improvement of skills
<ul style="list-style-type: none"> • Existing skills and how they can be utilized • Skills needed and how they can be developed. • Private sector needs and future developments in terms of skills to be utilized. 	<ul style="list-style-type: none"> • Relevant partnerships as vehicles to deliver on skills development. • Private sector involvement to identify priorities, needs and funding thereof • Identifying the need for appropriate institutions – FET • Implementation plan to deal with 	<ul style="list-style-type: none"> • Vuna Awards money to provide priority needs. • Early childhood learning approach and support of ABET. • Sharing of outcomes with other institutions. • Department of Education building of

Skills Audit and GAP Assessment with specific focus on low skilled and less educated communities	Skills Development Plan and Strategy to address gaps – Roles and Responsibilities	Provision of priority skills focusing on upliftment and improvement of skills
<ul style="list-style-type: none"> Existing institutions (proximity, availability and potential) and provision of skills. Priority skills and provision thereof. 	outcomes of the audit.	needed schools. <ul style="list-style-type: none"> FET opportunity according to the market and skills

The Local Labour Promotion Project (LLPP) of OM, which started in 2005, 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 concept was devised in-house 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 backlog in terms of facilities. Participants earn a weekly wage whilst contributing financially towards the reduction of their outstanding municipal debts. The main objectives of the LLPP are as follows:

- Create employment.
- Reduce poverty.
- Reduce outstanding municipal debts.
- Transfer / develop skills.
- Create facilities, build infrastructure and improve service delivery.
- Draw people into the economy (opening bank accounts).
- Build pride of ownership in the community.
- Involve communities in developing their areas.

Various social upliftment projects are also executed as LLPPs e.g.

- Paving of cul-de-sacs in previously disadvantaged areas.
- Development of playparks.
- Paving of sidewalks.
- Beautification of residential areas through planting of trees etc.
- Improvement / development of informal trading areas.
- Upgrading of clubhouses, community halls and other public amenities.
- En-suite toilets for elderly people in Zwelihle.
- Toilets and wash-basins in informal settlements in Zwelihle.

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.
- Build the human capital of the residents of Overstrand, especially the poor, in line with the changing needs of the economy.

The LED Strategy comprises of the following eight strategic interventions:

- Facilitate the development of the priority economic sectors in Overstrand, by utilizing all resources at its disposal including sector development interventions being driven by other spheres of Government to grow the priority sectors identified as tourism, creative industries, fishing and agriculture.
- Facilitate connectivity between different types of communities, different interests and the various towns in the Overstrand with a focus on public transport.
- Develop the infrastructural capacity of the Overstrand and ensure an enabling spatial framework by utilising inter alia municipality assets.
- Develop “and deploy” a marketing strategy for the Overstrand. The Destination Marketing Organisation (DMO) was established during February 2008.
- Create an enabling environment for business development and growth with a focus on SMME support.
- Manage the natural resources and state assets with the assistance of other spheres of government in a manner that ensures the long-term transformation and sustainability of the economy.
- Promote the development of the economies of the poor through job creation programmes.
- Assist with developing the human resource and skills base of the people of Overstrand with the creation of training capacity.

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

OM 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:

- The Cape Film Commission
- Umthimkhulu Village {Kleinmond}
- The Development Agency
- Youth Advisory Centre
- LED Projects

SERVICE LEVEL PROFILE

Status quo:

The current service levels within OM's Management Area are as follows:

Water Service Levels						
Distribution System	1. None or inadequate	2. Communal water supply	3. Controlled volume supply	4. Uncontrolled volume supply: yard tap or house connection	5. Total served (2+3+4)	6. Total (1+5)
Buffels River	0	0	0	2 058	2 058	2 058
Kleinmond	0	350	0	2 139	2 489	2 489
Greater Hermanus	0	0	0	14 164	14 164	14 164
Stanford	0	100	0	880	980	980
Greater Gansbaai	0	1 008	0	4 951	5 959	5 959
Pearly Beach	0	100	0	378	478	478
Farms	203	145	0	1 378	1 523	1 726
Total	203	1 703	0	25 948	27 651	27 854

Sanitation Service Levels							
Distribution System	1. None or inadequate : below RDP : Pit	2. None or inadequate : below RDP : Bucket	3. Consumer installation : On site (Ablution Blocks)	4. Consumer installations: Wet (Septic tanks, digester or tanker desludge, etc.)	5. Discharge to water treatment works (intermediate or full waterborne)	6. Total served (3+4+5)	7. Total (1+2+6)
Buffels River	0	0	0	2 058	0	2 058	2 058
Kleinmond	0	0	350	1 020	1 119	2 489	2 489
Greater Hermanus	0	0	0	1 774	12 390	14 164	14 164
Stanford	0	0	100	611	269	980	980
Greater Gansbaai	0	0	1 008	4 027	924	5 959	5 959
Pearly Beach	0	0	100	378	0	478	478
Farms	255	127	90	1 254	0	1 344	1 726
Total	255	127	1 648	11 122	14 702	27 472	27 854

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.

Gaps:

OM has eradicated the existing water and sanitation backlogs that existed in their Management Area to a great extent and it is clear that the number of households with service levels below RDP standard is far less in OM than some of the other Municipalities in the Western Cape.

All the households in the urban areas of OM's Management Area are provided with water connections inside the houses. Informal areas are supplied with shared services as an intermediary measure. It is important for OM to determine the current service levels on the farms and to ensure that once the number of households below RDP standard is known at least basic water and sanitation services are provided to these households.

The current services backlogs (Below RDP standard) with regard to water and sanitation services in OM's Management Area are as follows:

Water: Towns – 0 Households Farms – 203 Households Overall Percentage – 0.73%

Sanitation: Towns – 0 Households Farms – 382 Households Overall Percentage – 1.37%

Sludge disposal: All the screenings grit and dried or dewatered sludges at the five WWTWs should be disposed of off-site. An investigation into a suitable treatment option for Betty's Bay, Pringle Bay and Rooi Els should be undertaken in the near future at an estimated cost of R250 000.

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. It is also important for OM to work with the large industrial water users to identify ways in which they can lower their current water demand by means of improved practices or re-use of waste water. Such processes can include the following:

- Good practices
- Grey water recycled to toilets (by means of biological sterilization)
- Wash water inside factory (by means of biological infiltration)

The following gaps with regard to industrial consumers and their discharge of effluent into OM's sanitation system were identified:

- Industrial effluent discharge into the sanitation system needs to be metered.
- All persons to formally apply for the discharge of industrial effluent into the sanitation system.
- Comprehensive set of by-laws, with regard to the discharge of industrial effluent into the sanitation system, needs to be put in place.
- Regular sampling of the quality of industrial effluent discharged into the sanitation system.
- Any returns from the industries direct to the WR System needs to be metered.

Implementation strategies:

OM's commitment with regard to the eradication of the current water and sanitation backlogs in their Management Area can be summarised as follows:

- To have a water and sanitation service level policy in place by 2009.
- Determine the current service levels on the farms (Water and Sanitation) and putting together an action plan to provide services to the households with service levels below RDP standards.
- Address the current water services backlogs that still exist in the Management Area, by 2009 (If sufficient support funds are made available).
- Address the current sanitation services backlogs that still exist in the Management Area by 2010 (If sufficient support funds are made available).

It is important for OM to promote WDM activities at the wet industrial and large commercial consumers in order for them to potentially lower their current water demand by means of improved practices or reuse of waste water. The revenue could potentially decrease as a result of re-use practices. It is suggested that a detailed financial analysis should be conducted as part of the investigation into wastewater re-use. OM can set up meetings with the large industrial and commercial water users, which should include the following:

- Explain the environmental benefits on water resources.
- Explain the financial benefits to the consumer.
- Be informative on the current water consumption status.
- Present the potential water saving.
- Cultivate a water saving awareness within each large user.
- Involve at least 50% of large users in the municipality.

OM can encourage the large users to implement suggested re-use practices by means of incentives, informative billing to communicate monthly water consumption and monitoring and communicating actual savings achieved.

OM needs to ensure that all persons apply for the discharge of industrial effluent into the sanitation system, to monitor the quality and quantity of industrial effluent and to get the following by-laws in place with regard to the discharge of industrial effluent into the OM's sanitation system:

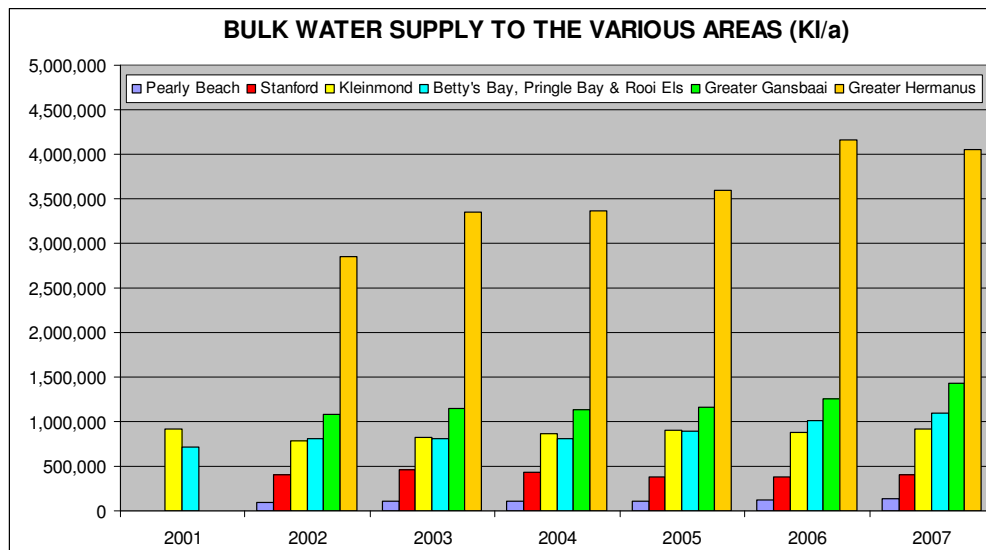
- Approval to discharge industrial effluent.
- Quality standards for disposal of industrial effluent.
- Conditions for discharge of industrial effluent.

A system needs to be adopted through which the various parameters at all industrial users are monitored, as well as volumetric monitoring at the larger users. Adaptation of the procedures must be undertaken in accordance with any changes to the wastewater discharge criteria set by DWAF. 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.

WATER RESOURCE PROFILE

Status quo:

Resources: The graph below gives an indication of OM's total annual bulk water supply over the last seven years to the various areas.



Detail water demand models were developed for every town. The models include the future projections up to 2033 and were calibrated by using historic consumption data and bulk abstraction data. Water losses were determined for each of the distribution systems and growth in demand was based on agreed population and growth figures.

The following reduction of water losses was taken into account for the future projected water demands:

Distribution System	Towns	2008 (%/a)	2013 (%/a)	2033 (%/a)
Buffels River	Betty's Bay, Pringle Bay & Rooi Els	63.0	35.0	25.0
Kleinmond	Kleinmond	33.0	20.0	15.0
Greater Hermanus	Greater Hermanus	17.5	10.0	10.0
Stanford	Stanford	28.7	20.0	15.0
Greater Gansbaai	Greater Gansbaai	26.1	20.0	15.0
Pearly Beach	Pearly Beach	10.4	10.0	10.0
Baardskeerdersbos	Baardskeerdersbos	10.4	10.0	10.0
Buffeljags Bay	Buffeljags Bay	17.6	10.0	10.0

Distribution System	Towns	PROJECTED FUTURE WATER DEMANDS FROM WSDP MODEL (Mℓ / year)				
		2013	2018	2023	2028	2033
Buffels River	Rooi Els, Pringle Bay & Betty's Bay	1 022.403	1 355.245	1 825.093	2 493.645	3 475.790
Kleinmond	Kleinmond	1 061.092	1 326.019	1 663.420	2 094.007	2 652.741
Greater Hermanus	Greater Hermanus	4 570.471	5 640.096	6 987.571	8 690.440	10 848.990
Stanford	Stanford	432.744	540.638	677.862	852.683	1 079.087

Distribution System	Towns	PROJECTED FUTURE WATER DEMANDS FROM WSDP MODEL (Mℓ / year)				
		2013	2018	2023	2028	2033
Greater Gansbaai	Greater Gansbaai	1 946.988	2 611.693	3 533.431	4 817.992	6 636.638
Pearly Beach	Pearly Beach	171.873	231.511	314.379	430.144	592.651
Baardskeerdersbos	Baardskeerdersbos	13.575	14.875	16.303	17.873	19.599
Buffeljags Bay	Buffeljags Bay	3.998	4.377	4.793	5.250	5.753

Water Quality: The percentage compliance of the water quality samples taken over the last twelve months (Nov 07 to Oct 08), as loaded onto DWAF's DWQM system, is as follows:

- E.Coli (Health), Sample Count 65, Compliance 98.5% (Western Cape Compliance 97.8%)
- Total Coliforms (Operational), Sample Count 64, Compliance 95.3% (Western Cape Compliance 93.3%)
- pH (Aesthetic / Operational), Sample Count 57, Compliance 91.2% (Western Cape Compliance 97.5%)
- Turbidity (Aesthetic / Operational / Indirect Health), Sample Count 57, Compliance 77.2% (Western Cape Compliance 77.5%)
- Electrical Conductivity (Aesthetic), Sample Count 57, Compliance 98.2% (Western Cape Compliance 99.8%)
- Aluminium (Health), Sample Count 57, Compliance 59.6% (Western Cape Compliance 84.1%)
- Iron (Aesthetic / Operational), Sample Count 57, Compliance 87.7% (Western Cape Compliance 83.6%)

The EMS Section of OM is currently undertaking an extensive water monitoring programme on recreational waters to determine the severity of faecal pollution in the Klein River Estuary. Data collected and assimilated from the monthly samples will form the basis of a monthly Water Quality Report which will be 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 and to recommend best practice in the management of these systems to ensure appropriate water quality.

Pollution Contingency Measures: OM has and will continue to undertake the following measures to prevent pollution of the WR Systems.

- Investigating all sewage pump stations to ensure that emergency storage capacities and backup generators are available at the sewage pump stations, to prevent any possible spillages.
- Timeous upgrading of the WWTWs, to handle both volume and nutrient loading, in order to reduce the risk of spills and sub-standard effluent.
- Regular monitoring of treated effluent discharged to the WR System at all the WWTWs.
- Water Services By-laws which include "Approval to discharge industrial effluent", "Quality standards for disposal of industrial effluent" and "Conditions for the discharge of industrial effluent". Industrial effluent discharged into the sewer system will be monitored regularly by OM.

A Formal Pollution Contingency Plan is not yet in place and OM is committed to draft a Plan for their Management Area by 2009.

Gaps:

Resources: The table below gives an overview of the years in which the annual water demand will exceed the sustainable yield from the various resources:

Distribution System	Total sustainable Yield (x 10 ⁶ m ³ /a)	4% Annual Growth on 2007 Demand	6% Annual Growth on 2007 Demand	WSDP Projection Model
Buffels River	1.617	2015	2012	2019
Kleinmond	2.589	2032	2024	2032
Greater Hermanus	7.06	2021	2016	2024
Stanford	0.396	2008	2008	2009
Greater Gansbaai	2.931	2025	2019	2019
Pearly Beach	0.212	2019	2015	2016
Baardskeerdersbos	90	2033	2033	2033
Buffeljags Bay	13	2033	2029	2033

The yield of the present resources and the historical measured annual demands for the period 2003 to 2008 can be summarised as follows (Ml/a):

Towns	Source	Yield	2008	2007	2006	2005	2004	2003
Rooi Els, Pringle Bay & Betty's Bay	Buffels River Dam	1 500	1 331	1 095	1 016	892	808	812
	Disakloof Cascades	117	7	7	7	7	7	7
Kleinmond	Palmiet River (Allocation)	2 246	910	867	821	856	849	758
	Dorpsfontein & Borehole	342	90	57	55	53	21	72
Greater Hermanus	De Bos Dam	2 800	3 859	4 060	4 169	3 599	3 367	3 357
	Peninsula Aquifer	4 260	-	-	-	-	-	-
Stanford	Spring	396	383	408	381	376	432	460
Gansbaai	Klipgat	469	566	528	491	469	503	514
	De Kelders Grotte	169	211	172	169	181	178	200
	Stanfords Bay	26	78	41	50	38	27	26
	Perlemoen Bay	50	43	59	61	50	55	59
	Klipfontein Borehole	82	96	82	3	0	0	0
	Franskraal Dam	2 135	614	546	481	426	366	354
Pearly Beach	Springs	212	128	131	117	102	109	103
Baardskeerdersbos	Stream & Borehole	90	8	12	8			
Buffeljags Bay	Borehole	13	2	3	3			

Water Quality: The DWAF also completed a Strategic Gap Analysis for all 30 WSAs in the Western Cape. The objective of the analysis was to determine the current status and gaps related to Drinking Water Quality Management at the WSAs. The focus of the analysis was on Water Legislation, Policies and Regulations, Water Resources and Water System Infrastructure, Drinking Water Quality Monitoring, Laboratories and Logistics, Human Resources, Management and Finances. The key issues identified were as follows:

- 1) Lack of awareness with respect to appropriate Drinking Water Quality Management Programme.
- 2) Lack of staff (numbers and skills)
- 3) Lack of adequate Drinking Water Quality Management Budget.

The status for OM is as follows:

- Water Legislation, policies and regulations – **Acceptable**
- Water resources and water supply system – **Acceptable**
- Drinking water quality monitoring, laboratories and logistics – **Acceptable**
- Human resources – **Poor**
- Management – **Acceptable**
- Finances - **Acceptable**

Pollution Contingency Measures: OM needs to develop a Formal Pollution Contingency Plan for all possible point and diffuse sources of pollution.

Implementation strategies:

Resources: The bulk water supply for the Buffels River, Kleinmond, Greater Gansbaai and Pearly Beach distribution systems will be adequate for the next five years, if OM actively implement their WC Programme and WDM Strategy in order to obtain the reduction in water losses as allowed for in the water balance models for the various systems.

Bulk water supply for the Stanford and Greater Hermanus distribution systems is the most critical at this stage. A ground water study has been commissioned to advise OM on possible solutions and alternatives for Stanford. Exploration boreholes were drilled during 2007/08 and production boreholes are scheduled for 2008/09. The groundwater study for Hermanus yielded encouraging results and the first three production boreholes was commissioned. A second wellfield, potentially at the Hemel-en-Aarde Valley, is envisioned to be commissioned during 2009, with a third wellfield, also potentially in the Valley, expected to be commissioned during 2011.

Stanford: Monitoring data will be analysed as part of the monitoring process and used to revise estimates of groundwater recharge rate, the sustainable yield from the “Eye” and any impact of the two boreholes at Birkenhead Brewery on flow from the “Eye”. In addition, Umvoto will revise its policy for data downloading and processing to ensure that any anomalies in groundwater level data are immediately dealt with. In order to better manage the Stanford Aquifer, further monitoring is required. The following actions were identified in the Stanford Monitoring Report, December 2008:

- Install weather station in Stanford;
- Install monitoring boreholes in the Kouevlakte area;
- Widen OM’s funded monitoring round; and
- Survey boreholes

Greater Hermanus Area: To ensure that the groundwater abstraction from the Peninsula Aquifer at the Gateway wellfield does not impact negatively on the Reserve, the environment and existing users, the following license conditions are considered necessary:

- Development of a numerical aquifer and wellfield model, which can simulate different scenarios and forms the basis for wellfield operation procedures. This needs to be based on a sound conceptual model and the data collected to date.

- The Monitoring Programme needs to be implemented prior to commencing full scale abstraction from the wellfield.
- The monitoring during operation needs to be automated as far as possible, to avoid unnecessary data gaps and unreliable data.

The following Resource Quality Objectives and threshold values need to become license conditions:

- The pumping capacity of the abstraction works need to be limited to 60 l/s and abstraction needs to be limited to 5 000 m³/day.
- Records need to be kept of, as specified in the Monitoring Programme:
 - Water levels in the abstraction boreholes at an hourly interval;
 - Water levels in specified monitoring boreholes at an hourly interval;
 - Pumping rates, pumping times and daily volumes abstracted;
 - Electric conductivity (EC) in the abstracted groundwater from each abstraction borehole separately at an hourly interval;
 - EC in specified monitoring boreholes at a daily to weekly interval;
 - Chemical analysis of water samples from abstraction and monitoring boreholes, as specified in the Monitoring Programme, at a monthly interval;
 - Weather data from automated weather stations in the vicinity of the wellfield at an hourly interval.
- The records, the data analysis and reporting need to be made available to the Responsible Authority and other relevant organisations.
- Pumping needs to be ceased automatically, using appropriate technology, if
 - The water level in the abstraction boreholes drops below 5m above mean sea level; or
 - The EC in the abstracted water increases above 200 mS/m
- Pumping needs to be ceased or reduced, if negative impacts on the environment or other existing users are encountered during monitoring.
- Pumping needs to be ceased or reduced, if the water quality decreases due to seawater intrusion or pollution from sewage works, landfill site or others.

During the Rapid and Intermediate Reserve Determination the following issues were identified, which need to be addressed and followed up with fieldwork:

- Groundwater use: A detailed hydrocensus needs to be undertaken to verify the groundwater use in the Hemel and Aarde Valley, as well as to update the hydrocensus results for the Hermanus area.
- Base flow: Spring hydrocensus along the escarpment to verify baseflow calculations, especially the groundwater discharge from the Peninsula Aquifer into the Mossel River; Use of environmental tracers and or isotopes to estimate the groundwater contribution to baseflow.

- Comprehensive Reserve Determination: A comprehensive Reserve Determination should be undertaken in resource units, once the applications for groundwater abstraction exceed 75% of the allocable water with respect to the classification of the desired ecological status.

OM is also currently busy with a study to assess the existing legal status of water supply and wastewater treatment to the various municipal service areas and to identify non-conformances.

Water Quality: The following commitments are set by OM with regard to water quality:

- Regular sampling and reporting on water quality, quality of treated sewage effluent and industrial effluent discharged into OM's system.
- Continue with the upgrading of WWTWs when necessary, in order to reduce the risk of source contamination. WWTWs will be managed and operated to comply with the permitted standards.
- OM is committed to manage and operate sewage pump stations effectively to prevent any possible spillages.
- To provide the necessary training to WWTWs operators and to ensure that fully qualified personnel are in control of the WWTWs and sewage pump stations.

WATER CONSERVATION AND DEMAND MANAGEMENT PROFILE

Status quo:

OM embarked on a WC Programme, when the water shortage in 1995 was predicted, which successfully reduced consumption by about 20%. The aim of the ongoing programme is a reduction of 30%. The twelve (12) components of the WC Programme are as follows:

- Intensive communication
- Education and water audits at schools
- Water loss management
- Clearing of invasive alien plants in the catchment area
- Water wise gardening
- Water wise food production
- Initiatives to save water in the home
- Water regulations
- Assurance of supply tariffs
- Informative billing approach
- Security / prepaid metering system

The following key water conservation principles have been practiced over recent years since the Council Resolution taken by the former Hermanus Municipality on a twelve point plan for Water Conservation:

- Owners of all building alterations and new buildings, as well as municipal buildings, are encouraged to equip with water conserving plumbing fittings (retrofitting of existing buildings at own choice).

- Waterwise gardening is promoted amongst consumers.
- 11 Step water tariffs, designed for water conservation has been applied.
- Municipal properties and caravan parks have been retrofitted with water saving conserving fittings.
- School water audits were promoted to educate the consumers.
- Aggressive communications and informative billing was key to improve public attitudes towards water conservation.

Further to OM's WC Programme the DWAF appointed Community Engineering Services Consulting in 2007 to compile a WDM Strategy for OM, by also taking into account future water saving at the end-user level. The study entails an overview of the current state of WDM Strategy in the OM's Management Area and an analysis of water consumption data by means of computer models to identify strategic areas of importance. The proposed WDM Strategy for OM comprises of the following five components:

- Leakage Management Programme
- CAFES-pricing policy programme
- Socio-political programme.
- Water Conservation products.
- Reuse of wastewater.

The goals of the proposed WDM Strategy are as follows:

- To reduce water loss.
- To achieve conservation oriented and fair water pricing.
- To promote social development and equity while influencing consumers to conserve water.
- To achieve water savings at point of use.

OM also compiled a Water Demand Management Strategic Implementation Plan during 2008, as summarized in the table below:

Mechanism		Driver	Actions
Tariffs		EHooneberg	Number of steps can be reduced in line with the CES WDM report.
Awareness Campaign		W Swanepoel	Media: Overstrand Conservation Forum Newsletter, Hermanus Times (Weekly), Overstrand Bulletin (With the monthly bills), Customer Relations Desk (Pamphlets etc.available)
Network Water Loss Management			
Enablers	Bulk meter consumption	J Frame	Status of bulk meters to be investigated
	Zoning and zone meters	J Frame	There is a R400 000 contract with Flotron to upgrade the meters and the telemetry system. Further zoning needs to be investigated.
	Low & zero Consumptions	G Steyn	Generate a list of low and zero consumption regularly. Identify those that have been low or zero for more than 6 months. Check usual usage pattern on IMQS. Replace meters at those properties outside the normal usage pattern and monitor.
	Properties without meters	G Steyn	Compare financial system with GIS and properties with electricity meters but no water meters and identify all properties that do not

Mechanism		Driver	Actions
			have meters.
	Meter replacement programme	P Burger	Identify all meters older than 10 years and start replacement program from the oldest to the youngest. Test meters for accuracy as they are removed to obtain information on accuracy versus age. Meters that are removed should be re-furbished, tested and re-used.
	Monthly water balance	J Frame	Get monthly water balances in place for all the distribution systems.
	Identify areas	J Frame	Prioritize areas and ensure that they have operating meters and loggers.
	Analysis of minimum night flows	J Frame	Analyze the night flows and determine the potential for pressure management. Prioritize areas of high night flow and ease of installation of pressure management. Log the pressures at supply and critical points and determine savings that can be achieved.
Water loss reduction	Pressure management	J Frame	Identify where PRVs can be installed and size them. Determine cost/benefit, budget, put out to tender and install.
	Network leak detection & repair	P Burger	Once areas for pressure management installation have been identified and there is a process in place to ensure that they will be installed, prioritize areas for leak detection and repair. Where there are areas of known poor network conditions and high losses but no or inadequate meters these areas can be prioritized.
Customer Water Wastage Management			
Enablers	Report on large users	CES WDM Report	List in CES WDM report
	High consumption list	G Steyn	Report generated from Financial system
	Indigent high consumption list	G Steyn	Report generated from Financial system
	Schools consumption	G Steyn	Report generated from Financial system
Wastage reduction	Team to visit large users		Follow up, raise awareness and take appropriate action on Large Water Users. The customers would need to be visited and encouraged to do water audits and look at ways to reduce their consumption.
	Team to visit high consumption properties	Debtpack	Follow up, raise awareness and take appropriate action on high domestic consumption. The customers would need to be visited and encouraged to look at ways to reduce their consumption. Where there are leaks the customer would be instructed to fix them immediately.
	Leak repair project	J Frame	Follow up, raise awareness, repair water leaks and institute mechanism to prevent future wastage at poor/indigent properties with consumption > 15Kl/month.
	Schools program		Schools must be encouraged to do water audits and look for ways of reducing consumption.
	Customer care and debt management	E Hooneberg	Effective customer care and debt management will lead to a reduction in water demand as those that pay their bills become more aware of what they are using.
Treated Effluent and Grey Water Recycling			
Enablers	Identify potential consumers	CES WDM Report	List in CES WDM report
	Visit potential consumers		Potential customers need to be visited to see if they are interested in recycling water. Municipality should lead by example.
Increase re-cycling	Extend pipelines and effluent recycling plant	Consultant & Contractor	An existing scheme feeds the golf course and schools and sports fields on-route. There is currently a process to get the schools and sports fields to use the water. Identify other potential users and prioritize those closest to the existing pipeline first.
	New connections	P Burger	Provide new connection as and when new infrastructure is in place.
Removal of Alien Vegetation		DWAF	The Municipality currently funds the alien vegetation removal project managed by DWAF

The Infrastructure Leakage Index (ILI) is the most recent and preferred performance indicator for comparing leakage from one system to another. It is a non-dimensional index representing the ratio of the current real leakage and the “Unavoidable Annual Real Losses” (UARL). A high ILI value indicates poor performance with large potential for improvement while a small ILI value indicates a well-managed system with less scope for improvement.

The table below gives a summary of the Infrastructure Leakage Index and the percentage and quantity water losses for the various distribution networks (MI/a):

Town (Infrastructure Leakage Index for 2007)	Losses	2008	Estimate 2013	Record : Prior				
				2007	2006	2005	2004	2003
Buffels River – Rooi Els, Pringle Bay & Betty's Bay (ILI = 5.60)	Treatment & Network	63.0%	35%	61.0%	58.5%	59.7%	55.2%	55.6%
		838.705	357.841	668.309	594.396	532.292	445.967	451.207
Kleinmond (ILI = 4.18)	Treatment & Network	33.0%	20%	30.2%	24.8%	31.7%	24.2%	17.0%
		329.925	212.218	278.597	217.243	287.805	210.213	141.073
Greater Hermanus (ILI = 1.78), 2008 losses estimated	Network	10.0%	10%	17.5%	15.7%	21.2%		
		385.924	435.283	711.088	653.182	762.943		
Stanford (ILI = 7.38)	Network	28.7%	20%	33.6%	32.2%	39.3%		
		109.915	86.549	137.055	122.839	147.886		
Greater Gansbaai (ILI = 3.63)	Treatment & Network	26.1%	20%	26.9%	14.5%	26.3%		
		416.764	389.398	384.425	181.361	306.060		
Pearly Beach (ILI = 3.62)	Treatment & Network	10.4%	10%	23.7%	11.3%	18.8%		
		13.350	17.187	31.023	13.226	19.205		
Baardskeedersbos	Treatment & Network	10.4%	10%	52.0%				
		0.782	1.358	6.288				
Buffeljags Bay	Treatment & Network	15%	10%	17.6%				
		0.349	0.400	0.608				
TOTAL		25.2%	16.7%	27.5%	22.8%	29.2%		
		2 095.712	1 498.476	2 217.393	1 782.247	2 056.191		

Notes: 2008 Water losses were projected for Buffels River and Kleinmond Distribution Systems from 6 months data, Stanford from 7 months data, Greater Hermanus, Greater Gansbaai, Pearly Beach, Baardskeedersbos and Buffeljags Bay from 8 months data.

Infrastructure Leakage Index, 2007 data (ILI) = 1 - Excellent, 2 - Good and >3 - Poor

Gaps:

Water is scarce and it is important that water be used wisely and that due attention be paid to water conservation and demand management. One of the visions of the Sector is that water is used effectively, efficiently and sustainably in order to reduce poverty, improve human health and promote economic development.

OM must actively implement the recent developed WDM Strategy. The priority areas, as included in the proposed WDM Strategy (CES, March 2008), can be summarised as follows:

Town	Tariff adjustment	Water loss management	Pressure Management	Schools WDM	Reuse of Wastewater
Betty's Bay	Medium	High	Medium	High	Low
Kleinmond		Medium	High		Low
Hermanus Line		Low	Medium		High
Coastal Line		Medium	Medium		High
Stanford		High	Low		Low
Greater Gansbaai		High	Low		Medium

Town	Tariff adjustment	Water loss management	Pressure Management	Schools WDM	Reuse of Wastewater
Rooi Els		Low	Low		Low
Pringle Bay		Low	Medium		Low
Pearly Beach		Low	Low		Low

Note: OM investigated the possibility of Pressure Management for Kleinmond, but it was found to be financially unviable.

The Strategy includes the following items:

COMPONENT	CHRONOLOGICAL STEPWISE APPROACH
CAFES cost and pricing strategy (CPP)	<ol style="list-style-type: none"> 1) Clean billing data, update SWIFT, verify / address metering and non-payment 2) Introduce IBR structure to all residential consumers, but limit price change 3) Set IBR structure = 6 blocks, min / max steps for 6 kl / month / 100 kl / month 4) Set price of water in max block (above 100 kl/month) to at least R15 / kl 5) Introduce informative billing
Leakage management programme (LMP)	<ol style="list-style-type: none"> 1) Measure water volume that is lost <ol style="list-style-type: none"> 1a) Raw water supply and treatment 1b) Distribution system 1c) End user meter problems 2) Identify and quantify losses <ol style="list-style-type: none"> 2a) Raw water supply and treatment 2b) Distribution system 2c) End user meter problems 3) Conduct operational and network audit <ol style="list-style-type: none"> 3a) Raw water supply and treatment 3b) Distribution system 3c) End user meter problems 4) Improve performance: upgrade network, design action plans 5) Sustain performance with good staffing / organisation structures
Socio-political programme (SPP)	<ol style="list-style-type: none"> 1) Schools WDM programme 2) Public awareness programme 3) Non-payment issues 4) Encourage users to implement WCP at their own expense
Water conservation products (WCP)	<ol style="list-style-type: none"> 1) Repair on-site (plumbing) leaks 2) Reduced toilet flush volume 3) Xeriscaping garden areas (water wise gardening) 4) Other methods to reduce consumption by changing human habits
Reuse of waste water (RWW)	<ol style="list-style-type: none"> 1) Identify large water consumers 2) Communicate advantages / incentives of reuse practice to large consumers 3) Information gathering on current status of reuse measures 4) Installation of reuse practice 5) Monitor future water consumption

Implementation strategies:

The following implementation procedure for WDM measures is proposed.

1. Address water use and waste at municipal properties and record savings achieved.
2. Initiate a WC/WDM communication campaign.
3. Conduct a detail financial analysis and implement proposed tariffs
4. Design and implement a water loss management programme.

5. Focus on relations with large water users to encourage re-use of wastewater practices.
6. Residential water users could be encouraged to implement water saving techniques by setting an example at Municipal properties (e.g. gardens and ablution facilities that are visible to the public or used by the public) and by focusing on the following WC/WDM measures in a communication campaign:
 - a. Xeriscape gardens (water wise gardening techniques).
 - b. Dual flush and/or low flow toilets.

The following implementation phases of the WDM Strategy are recommended:

IN PLACE	FIRST PHASE	SECOND PHASE	LATER
CPP1, CPP2	CPP3	CPP4	CPP5
LMP1, LMP2	LMP3	LMP4, LMP5	-
-	SPP1	SPP2	SPP3, SPP4
-	-	WCP1	WCP2, WCP3, WCP4
RWW1	RWW2, RWW3	RWW4	RWW5

The following items of the WDM Strategy are considered to hold significant promise. These items should receive priority and are the backbone of OM's WDM Strategy.

- Meter and record bulk water supply (monthly).
- Implement district metered areas (DMAs).
- Improve quality of data regarding consumer use (monthly).
- Initiate a WDM communication campaign to report on what the Municipalities have achieved (Lead by example).
- Implement a 24 hour, toll free leak reporting line.
- Immediately implement the CAFES-pricing policy programme for residential use by conducting a detailed price elasticity study.
- Extend the implementation of the CAFES-pricing policy by a) evaluating the impact of price changes in different Western Cape municipalities and b) implementing a new pricing / tariff structure where the first block is free and the last block is charged at a rate which severely discourages use above 100 kl/month.
- Implement a schools WDM programme.
- Implement water saving by individual large water users through reuse of wastewater.
- Monitor progress of the WDM process.

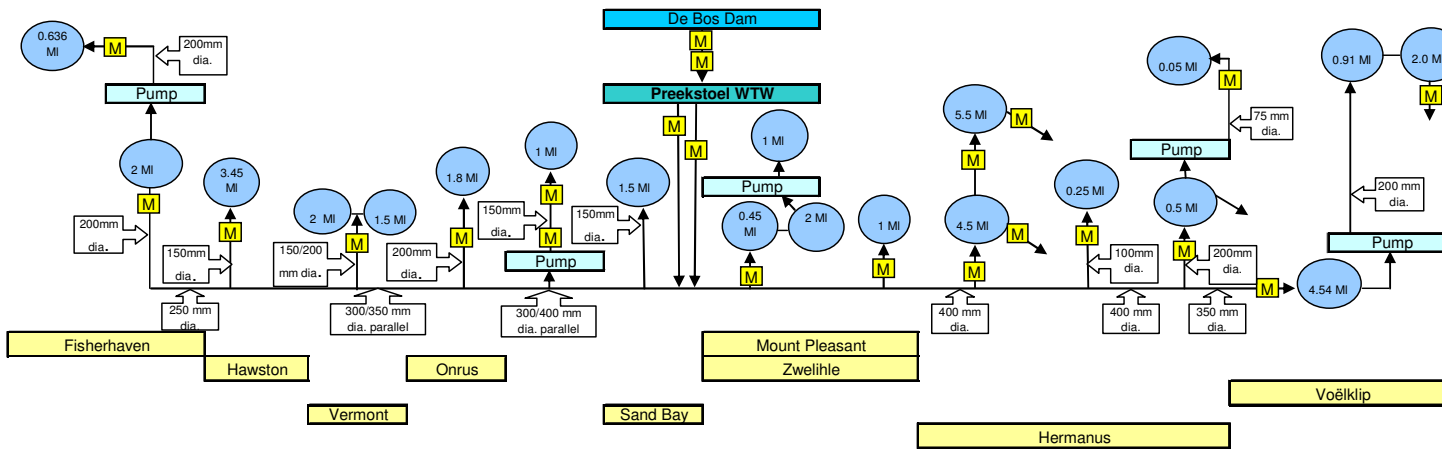
The WDM strategy can only be effective if it is implemented correctly and effectively. Institutional resources (Staff) and training are essential in this regard.

WATER SERVICES INFRASTRUCTURE PROFILE

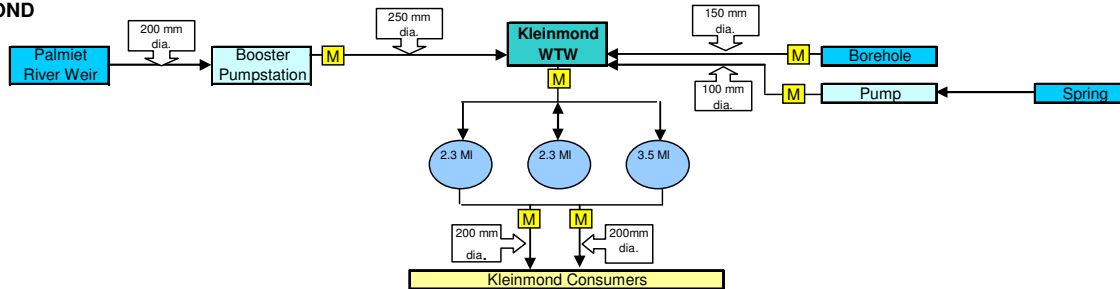
Status quo:

HERMANUS

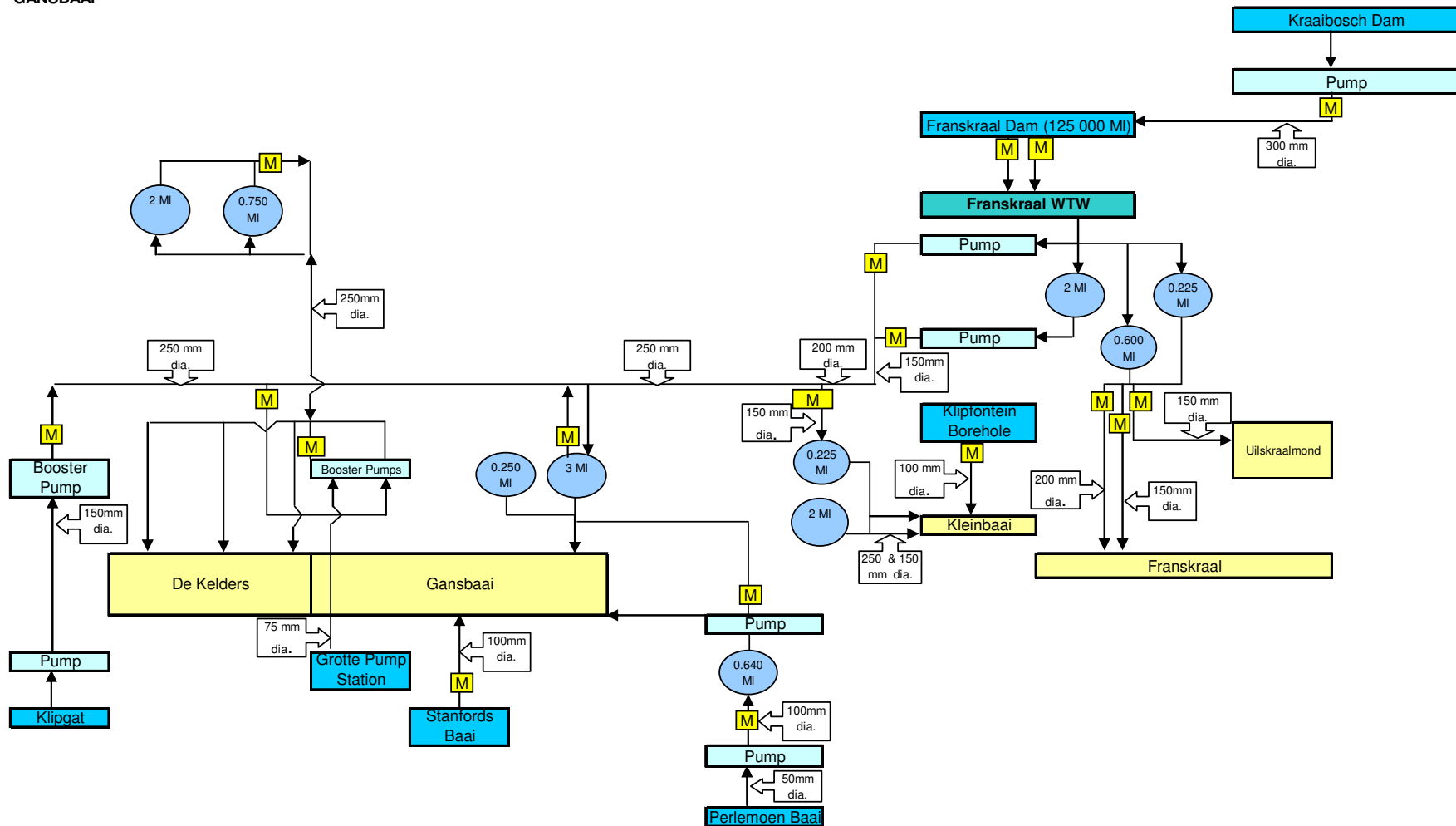
RESERVOIRS													
Fisherhaven HL	Fisherhaven LL	Hawston	Vermont 1 & 2	Onrus	Onrus Manor / Chanteclair	Kidbrooke	Sandbaai 2 & 3	Mount Pleasant	Hermanus Res 1 & 2	Northcliff	Hermanus Heights HL & LL	Voëlklip LL	Voëlklip HL
Coastal Line							Hermanus Line						



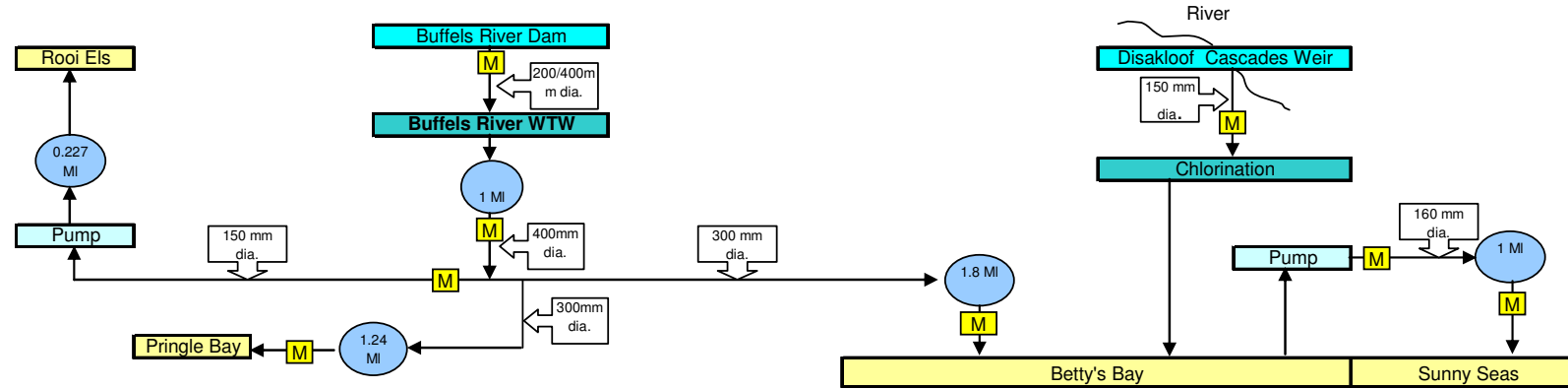
KLEINMOND



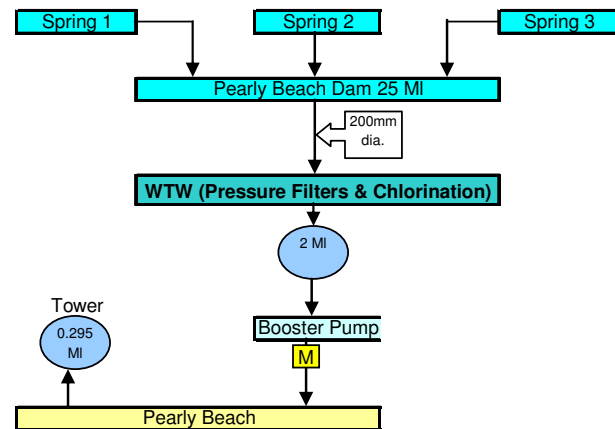
GANSBAAI



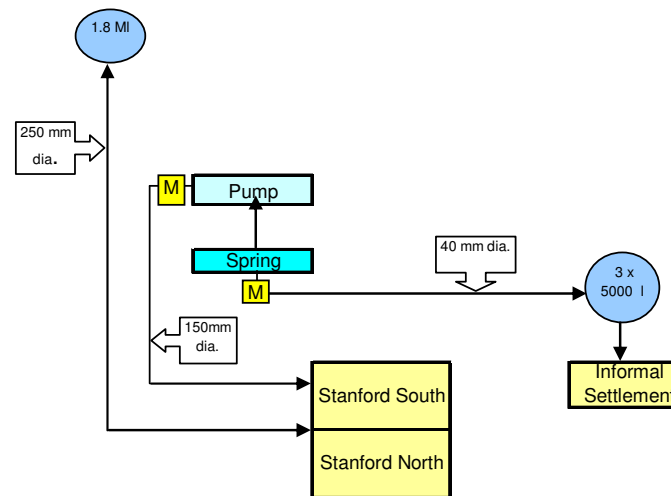
HANGKLIP



PEARLY BEACH



STANFORD



Asset Management: It is essential for any service delivery organisation to compile an Asset Management Plan (AMP) to ensure efficient, effective and optimal management, operation and maintenance of all assets – which includes treatment plants, reservoirs, structures, buildings, pipelines, sites, etc. The purpose of the AMP is to:

- Ensure the operation and maintenance functions are well planned.
- Demonstrate responsible management.
- Justify and communicate funding requirements.
- Service provisioning complies with regulatory requirements.

Gaps:

Water Treatment Works

The WTWs at Buffels River was upgraded in 2006/07 and now has sufficient capacity until 2013. Kleinmond WTWs has sufficient capacity until 2018. The Franskraal WTWs are being upgraded at the moment (2008/09), which will result in sufficient capacity until 2017. The Preekstoel WTWs currently operates at maximum capacity and needs to be upgraded.

The water for Stanford is obtained from a spring which is not chlorinated due to its excellent quality. Untreated spring water is also used in De Kelders. This water has no health risk but is aesthetically unacceptable to some residents.

Reservoirs

The condition of all the reservoirs in OM's Management Area is good and the reservoirs are well maintained. The table below gives a summary of the reservoir capacity requirement for the various distribution systems (Water Master Plans, March 2006)

Water District / Sub-District	Occupied Existing ADD	Future ADD	Reservoir Capacity (kl)					Comments
			Present	Required For		Spare Capacity For		
				Occupied Existing	Future	Occupied Existing	Future	
BUFFELS RIVER SYSTEM								
Betty' Bay Sunny Seas Reservoir	845	953	1 000	1 268	1 429	- 268	-429	Operated as tower
Betty's Bay Voorberg Reservoir	2 743	2 782	1 800	4 114	4 605	-2 314	-2 805	New Reservoir required
Proposed Betty's Bay Booster	n.a	288						
Pringle Bay Reservoir	2 050	2 109	1 240	3 074	3 164	-1 834	-1 924	New Reservoir required
Rooi Els Booster	13	13	227	600	623	-373	-396	Monitor situation
Rooi Els Reservoir	387	402						
PALMIET RIVER SYSTEM								
Kleinmond Protearand Reservoir	3 956	4 357	8 100	5 934	6 843	2 166	1 257	
Proposed Kleinmond Booster	n.a	205						
GREATER HERMANUS								
Fisherhaven LL Reservoir	999	1 572	2 000	1 498	2 358	502	-358	Monitor situation
Hawston Reservoir	1 299	6 545	3 450	1 948	10 773	1 502	-7 323	New Reservoir required
Proposed Hawston Booster	n.a	637						
Fisherhaven HL Reservoir	89	89	636	134	134	502	502	
Kidbrook Reservoir	250	250	208	375	375	-167	-167	Monitor situation
Vermont Reservoir	1 582	2 020	4 700	2 373	4 050	2 327	650	
Proposed Vermont Booster	n.a	680						
Onrus Reservoir	2 023	2 144	1 800	3 034	3 216	-1 234	-1 416	New reservoir required
Onrus Manor Reservoir	358	378	1000	536	567	464	433	

Water District / Sub-District	Occupied Existing ADD	Future ADD	Reservoir Capacity (kl)					Comments
			Present	Required For		Spare Capacity For		
				Occupied Existing	Future	Occupied Existing	Future	
Sandbaai Reservoir	2 278	2 691	2 200	3 416	4 036	-1 216	-1 836	New Reservoir required
Sandbaai Hemel & Aarde Reservoir	392	415	1 000	587	623	413	377	
Mount Pleasant Reservoir	580	608	1 000	871	912	129	88	
Zwelihle Hermanus 2 Reservoir	2 192	6 224	10 000	8 776	9 336	1 224	664	
Hermanus 1 Reservoir	3 659							
Northcliff Reservoir	225	528	250	337	792	-87	-542	Monitor situation
Hermanus Heights HL Reservoir	90	184	50	15	31	35	19	
Hermanus Heights LL Reservoir	566	1 533	500	849	2 630	-349	-2 130	Construct 2.5 ML Reservoir
Proposed Hermanus Heights LL Booster	n.a	220						
Voëlklip HL Reservoir	1 742	1 742	1 910	290	290	1 620	1 620	
Voëlklip LL Reservoir	3 329	2 931	4 500	4 993	4 397	-493	103	
Direct Feed	107	n.a						
STANFORD								
Stanford PRV	1 176	1 238	1 250	3 473	4 321	-2 223	-3 071	Construct 2 ML Reservoir
Stanford Reservoir	1 139	1 599						
Proposed Stanford Booster	n.a	43						
GREATER GANSBAAI								
De Kelders Reservoir	1 994	3 319	2 750	2 991	4 978	-241	-2 228	New Reservoir required
Gansbaai Reservoir	2 436	3 277	3 250	3 654	4 915	-404	-1 665	New Reservoir required
Kleinbaai Reservoir	910	2 124	1 225	1 365	3 186	-140	-1 961	New Reservoir required
Franskraal Reservoir	1 993	2 597	2 550	2 989	3 896	-439	-1 346	New Reservoir required
PEARLY BEACH								
Pearly Beach Tower / Booster	1 041	1 590	2 000	1 562	2 386	438	-386	Monitor situation

OM has the capacity to store 60ML of purified water. There is a shortage of 30 ML storage space to cater for peak demands, emergencies and future developments. Reservoir capacity at Kleinmond and Pringle Bay is sufficient, but shortages exist at Rooi Els and Betty's Bay. The shortage in reservoir storage capacity for the Greater Hermanus area is 13 ML. A second reservoir for Stanford is currently under construction. The shortage in reservoir storage capacity for the Greater Gansbaai is 7 ML. New reservoirs are required for De Kelders, Gansbaai, Kleinbaai and Franskraal.

Pump Stations and Water Reticulation Network (Potable)

Approximately 30% (230 km) of the water reticulation network is in a very poor condition (Betty's Bay, Pringle Bay, Fisherhaven, Onrusrivier, Hermanus Central and Voëlklip) and will have to be replaced in the foreseeable future. In certain areas there is a shortage of fire hydrants (Stanford). Various parts of the reticulation systems, as identified through the Water Master Planning process, need to be upgraded as new developments take place in the various urban areas.

The operational staff indicated the following operational problems during the Water Master Planning process:

- Greater Hermanus: The flow rate into the reservoirs is uncontrolled which results in high peak flows and resulting head losses in the main supply pipelines. The higher and furthest located reservoirs from the WTWs could therefore experience insufficient water supply.
- Low residual pressures are experienced in peak demand periods in various towns such as Pringle Bay, Hangklip, Betty's Bay, Kleinmond, Sandbaai, Hermanus, Gansbaai, Kleinbaai and Pearly Beach.

- The water reticulation systems consist mainly of 50 – 150 mm dia AC mains. Bursts occur mostly in the oldest areas and provision is annually made for replacement of those sections where serious problems are experienced.
- Currently there are open links between Voëlklip HL reservoir and the Voëlklip LL reservoir. The consequences of this are that the Voëlklip HL reservoir runs empty because the pump station filling it does not have the required capacity.

The table below gives an overview of the master planning items as calculated through the Water Master Planning process for the various distribution systems:

BUFFELS RIVER DISTRIBUTION SYSTEM
<ul style="list-style-type: none"> • It is recommended that the Disakloof Cascades Weir be decommissioned to decrease the risk of water quality problems. The present Buffels River WTW will then not meet the present peak week demand without the Disakloof Cascades Weir as an additional source. <p>In order to accommodate full development of existing stands and to implement the decommissioning of the Disakloof Cascades Weir (Item BR1.16) reinforcing of the water distribution system will be required.</p> <ul style="list-style-type: none"> • Items BR1.1 – BR1.6, BR1.9 – BR1.11 and BR1.15 are proposed parallel reinforcement of existing pipes and should be implemented to improve the supply to the Betty's Bay Voorberg Reservoir District when unacceptable low residual pressures occur in the district. • Booster pump (Item BR1.13) be implemented to improve the supply to the eastern part of the Betty's Bay Voorberg Reservoir District as well as the Sunny Seas Reservoir supply pump when the Disakloof Cascades Weir is decommissioned. The booster pump is also recommended to elevate the pressures in the higher lying areas in the eastern part, currently experiencing low residual pressures due to low static conditions. • Item BR1.7 is proposed to improve the supply to the eastern part of the Betty's Bay Voorberg Reservoir District as well as the Sunny Seas Reservoir supply pump. • It is proposed that a 2 MI and 3 MI Reservoir be constructed at the existing 1.24 MI Pringle Bay and at the existing 1.8 MI Voorberg Reservoirs respectively to accommodate the future water demands.
KLEINMOND RESERVOIR DISTRICT
<ul style="list-style-type: none"> • Items KM1.1 – KM1.4 are proposed parallel reinforcement of existing pipes and should be implemented to improve the supply to the Kleinmond Reservoir District when unacceptable low residual pressures occur in the district. It is further proposed to implement a new booster sub-district with booster pump (Item KM1.6) when higher lying future areas KM-A and KM-B develop.
GREATER HERMANUS DISTRIBUTION SYSTEM
<p>Hermanus Bulk Pipeline:</p> <ul style="list-style-type: none"> • Item GHB1.1 is a 200mm dia parallel reinforcement pipe to improve the supply to the Sandbaai Reservoir District. • Item GHB1.2 is a 2 MI reservoir to increase the storage capacity for the Sandbaai Reservoir District to accommodate the future water demands. • The 400mm dia reinforcement pipe (Item GHB1.3) is proposed to augment the supply to the Hermanus Reservoir District as well as the districts to the east of Hermanus. • Item GHB1.4 is a 2.5 MI reservoir to increase the storage capacity for the Hermanus Heights LL Reservoir District to accommodate the future water demand. The additional storage capacity is required to accommodate the Golf Course development as well as the area previously supplied directly from the Hermanus Bulk Pipeline. It is proposed that this area be disconnected from the bulk line and connected to the Hermanus Heights LL Reservoir through proposed Item HLLL1.4. • It is recommended that the Voëlklip HL pump station be upgraded (Item GHB1.5) and the status of the valves separating the Voëlklip LL Reservoir District be checked to ensure that a discrete zone is formed and that the Voëlklip HL Reservoir does not run empty. <p>Coastal Bulk Line</p> <ul style="list-style-type: none"> • Item GHB2.1 is a 200mm dia parallel reinforcement pipe to improve the supply to the Onrus Reservoir District. • Item GHB2.2 is a 2 MI reservoir to increase the storage capacity for the Onrus Reservoir District to accommodate the future water demands. • The booster pump (Item GHB2.3) is proposed to improve the supply to the Vermont, Hawston and Fisherhaven Reservoir Districts. • The 400mm dia reinforcement pipe (Item GHB2.4) is also proposed to augment the supply to the Hawston and Fisherhaven Reservoir Districts. • It is also recommended that 6.5 MI reservoir capacity be constructed at the existing 3.45 MI Hawston Reservoir to create additional storage capacity to accommodate the anticipated future developments. • Items GHB2.5 and GHB2.6 are proposed to supply the Fisherhaven HL Pump from the Fisherhaven LL Reservoir and not from bulk line directly. This will ensure that the suction head of the pump will not vary because of the proposed pump station at Vermont (GHB2.3).

Fisherhaven LL Reservoir District

- Item FH1.1 is proposed to augment the supply when anticipated future developments occur. Items FH1.2 – FH1.4 are proposed to serve the anticipated future developments.

Hawston Reservoir District

- The proposed items pertain to pipes required to serve anticipated future developments.

Vermont Reservoir District

- It is proposed that a new booster sub-district be implemented to serve the higher lying development GH-G in Vermont North. To implement this sub-district a booster pump (Item VM1.2) and a 200mm dia future main pipe will be required. Item VM1.3 will be required when low residual pressures occur.

Onrus Reservoir District

- Item ON11 is proposed to augment the supply when high flow velocities and low residual pressures occur.

Sandbaai Reservoir District

- All proposed items are required to augment the existing distribution system to serve anticipated densification and future developments.

Mount Pleasant Reservoir District

- Items MP1.1 and MP1.2 are proposed to augment existing pipes when high flow velocities and low residual pressures occur.

Hermanus / Zwelihle Reservoir District

- Items HM1.1 – HM1.3 are proposed parallel reinforcement of existing pipes and should be implemented to improve the supply to the Hermanus 1 Reservoir District when unacceptable low residual pressures occur in the district.
- Items ZW1.1 – ZW1.5 pertain to pipes required to augment the existing system when anticipated future developments occur.
- Item ZW1.6 is proposed to augment the existing system when low residual pressures occur in the northern part of Zwelihle.

Northcliff Reservoir District

- It is proposed that the higher lying areas in the Hermanus Reservoir District be included in the Northcliff Reservoir District to alleviate low residual pressures due to low static conditions. This can be implemented by changing the district boundaries by opening existing closed valves and closing of valves (Item NC1.2). Item NC1.1 will be required to augment supply when the new boundary is implemented.

Hermanus Heights HL Reservoir District

- Item HHHL1.1 is proposed to serve future development area GH-J.

Hermanus Heights LL Reservoir District

- Item HHLL1.1 – HHLL1.3 and HHLL1.6 are proposed to serve the future Golf Course development. Item HHLL1.6 is a variable speed booster pump to ensure acceptable residual pressures for the higher lying future area GH-K.

The two proposed changes to the existing district boundary are as follows:

- The area currently fed directly from the Hermanus Bulk Pipeline be incorporated with the Hermanus Heights LL Reservoir District through implementing Item HHLL1.4.
- The higher lying area of the Voëlklip LL Reservoir District currently experiencing low residual pressures be incorporated with the Hermanus Heights LL Reservoir District.

Voëlklip HL Reservoir District

- Items VKHL1.1 and VKHL1.2 are proposed to augment existing pipes when high flow velocities and low residual pressures occur.

Voëlklip LL Reservoir District

- The district boundary needs to be changed to incorporate a high lying area currently experiencing low residual pressures with the Hermanus Heights LL Reservoir District.

STANFORD RESERVOIR DISTRICT

- Items SF1.1 – SF1.9 and SF1.14 are required to reinforce the existing system. The only change to the operation of the existing system is to construct a new 350mm dia outlet/supply pipe (ItemSF1.2) from the existing 1.25 MI Stanford Reservoir to ensure that the existing 250mm dia inlet/outlet pipe from the Stanford Spring can be used as a dedicated supply to the Stanford Reservoirs. It is also proposed to construct a 2.5 MI Reservoir to increase the existing storage capacity to accommodate anticipated future water demands.

GREATER GANSBAAI DISTRIBUTION SYSTEM**De Kelders Water District**

- No changing of the existing distribution operation is proposed. Additional reservoir capacity of 2.2 MI will be required for the anticipated full development to accommodate the anticipated future water demand.

Gansbaai Water District

- No changing of the existing distribution operation is proposed. Additional reservoir capacity of 1.6 MI will be required for the anticipated full development to accommodate the anticipated future water demand.

Kleinbaai Water District

- Presently low pressure problems in the water distribution system occur already. Therefore, further development or occupancy of already developed vacant stands will require additional pipe and reservoir capacity to be established. All the items proposed are to augment the existing system to accommodate anticipated future water demands.

Franskraal Water District

- All the items proposed are to augment the existing system to accommodate anticipated future water demands.

PEARLY BEACH TOWER / BOOSTER DISTRICT

The available static head in areas in existing and potential future developments is as low as 9m, while supplied from the tower. Two options are available to increase the minimum head to 24m.

- Upgrade the existing pump station by installing 2 x variable speed pumps to deliver 45m head for flows up to 55 l/s. Operation of these pumps can be alternated to sustain pressures. For this option the tower should be decommissioned, as water will become stagnant.
- The second option is to upgrade the pump station as for Option 1, but to also supply Pearly Beach from the tower when the pump station is switched off during low flow periods when a head of 24m is not essential. In this case the flow should be controlled at the tower inlet. It is assumed that a non-return valve is installed on the outlet. This is required to sustain pressure in the system when the pumps are in operation.

The table below gives an overview of the required pumping capacity for the various distribution systems, as identified through the Water Master Planning Process:

Pumps	Water District / Sub – District / Location	Capacity (l/s) required for		Head (m)
		Fully Occupied Existing	Future	
BUFFELS RIVER SYSTEM				
Rooi Els Booster	Rooi Els Booster Sub-District	2	2	20
Betty's Bay Sunny Seas Reservoir Supply	Betty's Bay Sunny Seas Reservoir District	22	22	70
Proposed Betty's Bay Booster	Proposed Betty's Bay Booster District	n.a	30	30
PALMIET RIVER SYSTEM				
Proposed Kleinmond Booster	Proposed Kleinmond Booster Sub-District	n.a	10	50
GREATER HERMANUS				
Fisherhaven HL	Fisherhaven HL Reservoir District	2.5	2.5	55
Onrus Manor	Onrus Manor Reservoir District	8.5	10	90
Hermanus Heights HL	Hermanus Heights HL Reservoir District	2.5	9	20
Proposed Hermanus Heights HL Booster	Proposed Hermanus Heights LL Booster Sub-District	n.a	10.0	30
Voëlklip HL	Voëlklip HL Reservoir District	40	40	40
Hemel & Aarde	Sandbaai Hemel & Aarde Reservoir District	10	10	70
Proposed Vermont Booster	Proposed Vermont Booster Sub-District	n.a	25	55
Proposed Hawston Booster	Proposed Hawston Booster Sub-District	n.a	25	50
Proposed Bulk Supply Booster	Greater Hermanus Bulk Supply – Coastal Line	n.a	270	50
STANFORD				
Stanford Booster	Proposed Stanford Booster District	n.a	1.5	35
Stanford Supply	Stanford Reservoir Supply	54	70	55
PEARLY BEACH				
Pearly Beach Booster	Pearly Beach Supply	25	55	45

The proposed future distribution systems are indicated on Figures OVW 7.1.a to OVW 7.1.f under CES Water Plans in Annexure A of the Annexure Report. The required future works are also indicated on Figures OVW 7.2.a to OVW 7.2.f and the master plan items are summarised in Table A.1 in the same Annexure.

Sewer Reticulation Network

The sewerage reticulation network serves approximately 54% of the households in the OM's Management Area. The remaining 46% are serviced by conservancy and septic tanks. Due to concerns about groundwater pollution, it would be advisable to phase out conservancy and septic tanks systematically. It is however not feasible to implement waterborne systems everywhere. Alternative and innovative methods will have to be found to address the problem.

Anticipated full development and existing developed areas not currently served by a sewer reticulation system were incorporated into the existing sewer systems for each town or drainage area in the Sewer Master Plans. The items identified as part of the Sewer Master Planning process, to accommodate the anticipated future sewer flows, are summarised under Table A.2. in Annexure A of the Annexure Report.

Waste Water Treatment Works and Sewage Pump stations

The table below gives a summary of the capacity of the existing WWTWs (kl/day):

WWTWs	Existing Capacity	ADWF during the peak month (Aug. 07 to Jul. 08)	Future projected flow ADWF (Report on Overstrand Wastewater Treatment, SSI)
Kleinmond	2 000	995 (July 2008)	1 810
Hawston	1 000	385 (July 2008)	3 380
Hermanus	7 300	6 766 (August 2007)	11 400
Stanford	500	270 (SSI, Holiday Peak)	1 220
Gansbaai	4 000	729 (December 2007)	6 480

SSI was appointed by OM to prepare a report on the capacity of the WWTWs in OM's Management Area. The table below gives a summary of the effluent quality, operational problems and improvements required for each of the WWTWs.

Kleinmond WWTWs
Effluent Quality
The plant is not designed to remove nutrients. The final effluent COD and ammonia nitrogen exceeded the general standard during the period January to May 2008 due to two aerators being unserviceable. However subsequent to the repairs of the aerators the quality of the effluent has improved and is now complying with the general standard.
Operational Problems
<ul style="list-style-type: none"> The efficiency of the aerators should be investigated as they may require upgrading in order not to limit the treatment capacity of the Works. The supernatant from the sludge lagoons should be returned to the reactor for treatment. The tanker discharge structure at pump station No.5 is causing odour complaints and an enclosed discharge facility has been proposed.
Improvements Required (Should be budgeted for 08/09, amounts excl. VAT)
<ul style="list-style-type: none"> UV disinfection (Started commissioning in Nov 2008) R900 000. Upgrading tanker discharge facility R300 000. Pumping of supernatant from the sludge lagoons to the reactor for treatment R150 000. Investigation into the treatment options for Betty's Bay, Pringle Bay and Rooi Els R250 000.
Hermanus WWTWs
Effluent Quality
The plant has performed well over the past year. The ammonia concentration measured after settling has generally complied with the DWAF standard. The high ammonias in the final effluent are due to periods when the plant experienced power stoppages and untreated sewage was discharged into the maturation ponds. Sludge settle ability has been poor. Very high Diluted Sludge Volume Indices at times have been recorded, indicating bulking sludge.
Operational Problems
<ul style="list-style-type: none"> Inlet Works – Mechanical screen and the vortex degritting equipment have not been operating for a number of years and are beyond repair. Biological Reactor – The influent is under-aerated and effluent at the outlet is over-aerated causing the sludge to bulk. It may be necessary to split the inflow equally to each of the tanks in order to overcome this problem. The MCC board has been in service for eight years and requires a major overhaul (Aerators are tripping out continually). Only two of the settling tanks are operational. Repairs should be undertaken to the two larger unserviceable settling tanks to provide additional settling capacity. Waste sludge is presently being pumped into one of the maturation ponds. This practice cannot be continued for too long and alternative sludge disposal methods should be addressed.

<ul style="list-style-type: none"> In future all screenings, grit and dewatered sludge should be disposed of off-site.
Improvements Required (Should be budgeted for 09/10 & 10/11, amounts excl. 10% Contingencies, Prof fees and VAT)
<ul style="list-style-type: none"> Inlet Works – Mechanical screen, conveyor, washer and compactor, vortex degritters and associated equipment R2 000 000. Biological Reactor – Convert to parallel operation of tanks, aerators and mixers checked, overhauled where necessary and bolted to platforms, replace two aerator gear boxes and MCC overhauled R650 000. Settling Tanks – Civil and Mechanical repairs to settling tanks R600 000. Sludge Handling – Repairs to desludging valves, providing sludge thickening and dewatering facilities and dewatering shed and loading area R7 850 000.
Improvements Required (Should be budgeted for 11/12 & 12/13, amounts excl. 10% Contingencies, Prof fees and VAT)
<ul style="list-style-type: none"> Present day costs for upgrading the aeration and settling tank capacity to 12 000 m³/day is estimated to be R12 000 000
Hawston WWTWs
Effluent Quality
The plant was designed to comply with the general DWAF effluent quality standard. The average recorded loads are about 40% of the design loading and thus the ammonias should comply favourably with the required standard.
Operational Problems
<ul style="list-style-type: none"> The sludge concentration retained in the bioreactor has been excessive. Additional sludge beds are urgently required. The high sludge mass also affects the aeration capacity in the reactor and the settling capability of the settling tank. The high ammonias in the effluent indicate inadequate aeration which is probably a combination of the high mixed liquor concentration and inefficient oxygen transfer. The condition of the aerators should be investigated to establish if replacement is necessary. Screening, grit and dried sludges should be disposed of off-site.
Improvements Required (Should be budgeted for 09/10, amounts excl. 15% Contingencies, Prof fees and VAT)
<ul style="list-style-type: none"> Additional four drying beds R1 200 000. Replace impellers of surface aerators R160 000.
Stanford WWTWs
Effluent Quality
The treatment works has generally produced an effluent complying with the general standard required by DWAF. The odd occasions where the final effluent has not met the required standard the non-compliance has been due to failure of mechanical plant and equipment. The inlet pumping plant is being replaced at present which will give a more consistent operation. The power stoppages over the last year and a half have resulted in overflows of raw sewage into the adjacent water course.
Operational Problems
<ul style="list-style-type: none"> The new inlet works when commissioned, should improve the removal of rags and detritus from the influent particularly when the mechanical screen is installed. Unserviceable plant must be repaired as soon as possible in order to limit the affect on plant operation. OM proposes to replace the sludge lagoons with either drying beds or mechanical dewatering. If mechanical dewatering is undertaken, the lagoons could be retained and used for storage of raw sewage in the event of power failures or stoppages. Tanker discharges provide large pulse loads at the works which do not appear to have an effect on the effluent quality at this stage, but may do so in the future when the plant is operating at full capacity.
Improvements Required (Should be budgeted for 08/09 & 09/10, amounts excl. 15% Contingencies, Prof fees and VAT)
<ul style="list-style-type: none"> The sludge handling is presently under investigation and a mobile mechanical sludge dewatering plant has been proposed and could also be used as a temporary measure at the Gansbaai Works R1 500 000. Increase capacity of Tecrover plant R500 000. Converting quarry to reedbeds R250 000.
Gansbaai WWTWs
Effluent Quality
The existing plant was severely overloaded both hydraulically and organically resulting in poor quality effluent particularly with regard to COD and ammonia. The sludge mass in the Tecrover reactor was generally low resulting in low sludge ages and high ammonias in the effluent. The new Nereda Plant should result in a significant improvement in the quality of the effluent. The Nereda Plant is designed to comply with the DWAF general effluent discharge standard with the special soluble ortho-phosphates standard.
Operational Problems
<ul style="list-style-type: none"> It is essential that any problems with screening the effluent are given immediate attention by the site staff in order to prevent downstream blockages (Duty-standby screens have been provided). The vortex degritters have been oversized (duty/standby) in order to remove the expected high grit loads which is essential for the operation of the plant. Any problems with the grit removal system must be given immediate attention. The system must be monitored particularly regarding dissolved oxygen in the effluent and suspended solids.

- Waste sludge will be thickened in the existing Tecrover plant before discharge onto the drying beds. This operation will require supervision particularly in the wet periods when sludge drying is problematic.
- All screenings, grit and dried sludge should be disposed of off site.

Improvements Required (Should be budgeted for 10/11, amounts excl. 10% Contingencies, Prof fees and VAT)

- Sludge handling should be upgraded to an equivalent capacity of 5 000 m³/d. Cost for mechanical thickening and dewatering is estimated at R9 000 000.

Implementation strategies:

It is essential for OM to protect their assets by ensuring that an appropriate maintenance and rehabilitation plan is developed and implemented. 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.

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.

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 their WC Programme and 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 water care and wastewater treatment facilities that are in place or that will be implemented.

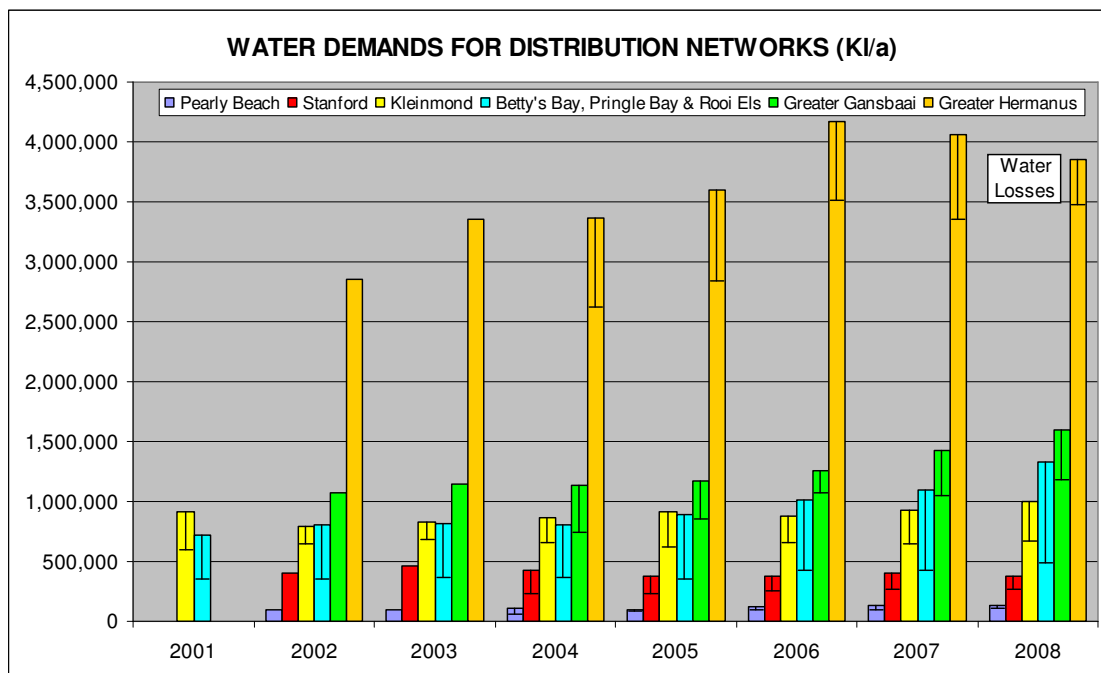
The infrastructure functional strategies of OM, as included under the “Functional Areas of Municipal Activities” chapter of the IDP, are as follows:

- Master planning of engineering infrastructure (Water, sewerage, roads, stormwater and electricity).
- Procurement of consulting and contracting services for infrastructure projects.
- Project management of infrastructure projects.
- Management of grant funding i.e. MIG, EPWP and LOTTO.
- Engineering comments on town planning and applications.
- Approval of engineering services designs and standards for new developments.
- Compilation of services agreements for new developments.
- Liaison with consultants, developers and contractors.
- In-house design and support for Local Labour Promotion Projects (LLPP).
- Special studies like desalination and groundwater.

WATER BALANCE PROFILE

Status quo:

The graph below indicates the amount of bulk water supplied to the various towns within the OM's Management Area and the total water losses.



The total physical water losses for OM for 2007 and 2008 were 2 210 MI (27.5%) and 2 095 MI (25.2%) respectively. OM will be able to reduce their water losses to 16.7% over the next five years, through the effective implementation of the recent developed Water Demand Strategic Implementation Plan and WDM Strategy. This is considered a realistic target for OM.

Gaps:

The Infrastructure Leakage Index (ILI) can be used by OM to determine an appropriate benchmark for managing the water losses according to their own specific circumstances. This ILI can also be compared with the averages for other towns within South Africa. The annual water losses within the various distribution networks are therefore important indicators of the performance of the water supply and distribution systems.

The current information database (Water Balance) is adequate from a water services management perspective. The primary gap is the availability and assurance of water supply to the farm dwellers residing on private land.

Implementation strategies:

OM is committed to keep record of all bulk meter readings, flows to WWTWs and to update 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. 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.

The following goals and strategies are set by OM with regard to their water balance.

- OM will keep record of all bulk water meter readings in order to enable them to update their water losses and water demand models on a monthly basis.
- The existing water losses will be reduced as far as possible through the implementation of the WC Programme, Water Demand Strategic Implementation Plan and the WDM Strategy.
- OM will ensure that all water utilized is metered (parks, standpipes, etc).
- OM will keep on monitoring the influent at all their WWTWs.

WATER SERVICES INSTITUTIONAL ARRANGEMENTS PROFILE

Status quo:

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

OM's Service Delivery and Budget Implementation Plan (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 will assist and guide the Executive Mayor, Councillors, Municipal Manager, Senior Managers and the community. The plan serves as an input to the performance agreements of the Municipal Manager and Directors. It also forms the basis for the monthly, quarterly, mid-year and the annual assessment report and performance assessments of the Municipal Manager and Directors.

The DWAF has developed the WSA Checklist as a tool to establish base line information regarding relative legislative compliance of Municipalities in terms of their water services authority functions. The second edition of the WSA Checklist was completed with GM on the 22th of November 2007 and the relative level of compliance for the various key functional areas is as follows:

- Policies and by-laws: 100%
- Planning: 100%
- Infrastructure 100%
- Reporting 86%
- Finance 75%
- Health and Environment 100%
- Water Services Regulation 80%
- Water Use 89%
- Overall Performance 90%

Gaps:

OM needs to focus strongly on the rehabilitation and the maintenance of the existing infrastructure, augmentation of their existing water sources (Greater Hermanus area) 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's progress with regard to the free basic services and institutional development and performance targets, as included in the SFWS, are as follows:

- The first 6kl of water usage per month is provided free of charge to all domestic consumers within OM's Management Area. Free basic water services are also linked to OM's Indigent Policy and basic water services are provided free of charge to all Indigent households.
- Free basic sanitation services are linked to OM's Indigent Policy and basic sanitation services are provided free of charge to all Indigent households.
- OM will report within four months after the end of each financial year on the implementation of their previous year's WSDP.
- OM will ensure that the set of KPIs, as included in the SFWS, are part of their Performance Management Contracts and is committed to report on these annually.

Implementation strategies:

It is important for OM to ensure that the KPIs as listed in the Strategic Framework for Water Services and included in DWAF's Water Services Regulation Strategy are incorporated in their Performance Management Contracts and to report on these KPIs annually.

The draft Water Services By-laws for OM Management Area needs to be approved and promulgated by the Council. The Water Services Act No.108 of 1997 requires Municipalities to make water services by-laws. By-laws are the legislative instrument through which Municipalities give effect to their policies and are a critical instrument in ensuring the Municipalities' sustainability.

The managerial priorities of OM, as included under the "Functional Areas of Municipal Activities" chapter of the IDP, are as follows:

- Capacity building of functional staff.
- Improvement of internal control measures and systems.
- Promote work ethics.
- Review and implementation of workflow processes.
- Review and implement effective policies and by-laws.

OM's functional strategies under the "Strategic Planning and Performance Management" Main Priority, are as follows:

- Assistance being rendered to managers.
- A performance management framework has been accepted.
- Responsible for the annual IDP consultation and compilation process.

- Process re-engineering enhancing competency training is being implemented throughout the organisation.
- Submission of business plans (SDBIP) as part of 2008/2009 budget and forth coming budgets.

CUSTOMER SERVICES PROFILE

Status quo:

OM developed help-desks at all 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 quality of potable water (Chemical & Biological) is monitored at the various locations within the water distribution systems by AL Abbott as well as the EHPs of Overberg DM.

Disruptions to water supply at the consumer's end are minimal, with an average of less than one disruption in water supply per annum. The only exception is the older areas of Betty's Bay, where due to the aged condition of the pipe reticulation, a consumer could experience as many as five disruptions per annum.

The table below gives a summary of the number of pipe bursts in Rooi Els, Pringle Bay, Betty's Bay and Kleinmond over the last few years (A – Rooi Els, B – Pringle Bay, C – Betty's Bay and D - Kleinmond).

Month	2008				2007				2006				2005			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Jan	2	4	11	6	0	16	20	4	0	13	19	5	1	4	9	9
Febr	1	10	29	10	0	3	27	2	0	1	19	0	1	2	8	7
Mar	0	11	27	8	0	1	7	1	1	0	9	4	1	0	8	3
Apr	0	10	17	4	0	2	6	2	0	0	5	1	0	9	25	4
May	0	6	21	3	2	6	10	5	0	0	2	4	0	0	4	0
Jun	1	2	8	3	0	0	8	2	0	0	0	0	0	1	7	9
Jul					0	2	5	10	0	3	10	11	1	3	11	4
Aug					1	3	31	2	0	5	21	8	1	14	17	5
Sept					0	3	11	6	0	5	1	8	0	4	16	3
Oct					1	4	6	5	0	0	6	3	0	1	2	2
Nov					2	0	7	2	0	5	13	9	0	1	9	1
Dec									0	11	8	4	1	4	6	2
TOTAL	4	43	113	34	6	40	138	41	1	43	113	57	6	43	122	49

Standby pumps and motors are kept in storage by OM in order to minimise the risk of interruption in water supply from pump stations over the peak seasons (Specific reference to De Kelders / Gansbaai / Kleinbaai)

Gaps:

OM's progress with regard to the quality of services provided and education and health performance targets, as included in the SFWS, are as follows:

Water quality and continuity of supply: All households in the urban areas receive water of an adequate drinking quality. It is estimated that approximately 11.78% of the households on the farms does not receive water of adequate quality and experience inadequate continuity of water supply. The figure is based on the 2001 Census data and will be verified once OM has completed a service level survey on the farms.

Hygiene education and the wise use of water are taught in all schools by 2005: Not yet in place.

Households with access to at least a basic sanitation facility know how to practise safe sanitation: The status with regard hereto is still unknown and needs to be verified. There are no households in the urban areas with sanitation services below RDP standard and it is estimated that approximately 22.14% of the households on the farms are still supplied with sanitation services below RDP standard.

Implementation strategies:

OM's implementation strategies with regard to customer services are to put the necessary systems in place to record the customer services information and to link the customer services KPIs to their Performance Management System, in order to ensure that the following goals are met:

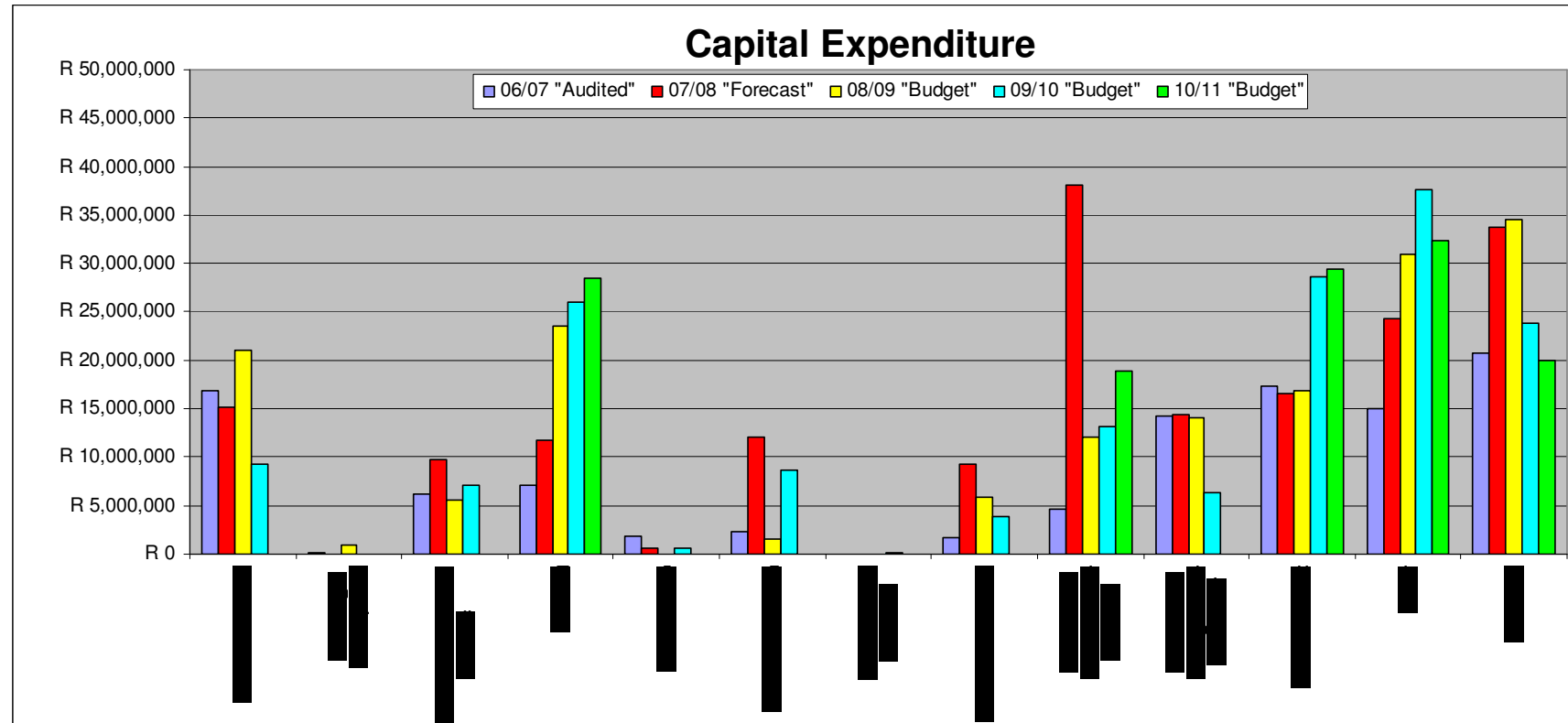
- To monitor the number of consumers experiencing greater than 7 day interruptions in water supply per year and also the number of consumers receiving a flow-rate of less than 10 litres per minute.
- To provide at least basic water services on the farms by 2009, once the current backlog with regard water services (quantity, quality and sustainability) on the farms is known. OM will then be in a better position to monitor the quality of services for water on the farms.
- To keep record of the number of water queries received and to monitor the number of complaints with regard to water quality and the number of major or visible leaks. To respond within 24 hours to all queries and to repair all leaks within 48 hours after being reported.
- To do a survey in order to verify the current service levels on the farms and to provide at least basic sanitation services for those households with current sanitation service levels below RDP standard. To eradicate all backlogs with regard to sanitation services by 2010.
- To keep record of the number of sanitation queries/complaints received per year, the number of blockages, number of calls received for pit/tank emptying and the number of calls received for emergency maintenance to pits/tanks. To respond within 24 hours to all sanitation complaints and to repair all sanitation blockages on the networks within 48 hours. To respond within 48 hours to all requests for pit/tank emptying.

- To evaluate the health and hygiene awareness and water education programmes and to incorporate these programmes in their future planning. To ensure that health and hygiene awareness is part of the process of providing VIPs on the farms, for those households with current sanitation facilities below RDP standard. To focus on public awareness and school education programmes through the implementation of their WC Programme and WDM Strategy.
- To have a Formal Pollution Contingency Plan for the Management Area by 2010 and to ensure that pollution awareness is part of the Plan.
- To focus on health and hygiene education on the farms, over the next two years, when basic sanitation facilities will be provided to those households with current sanitation services below RDP standard.

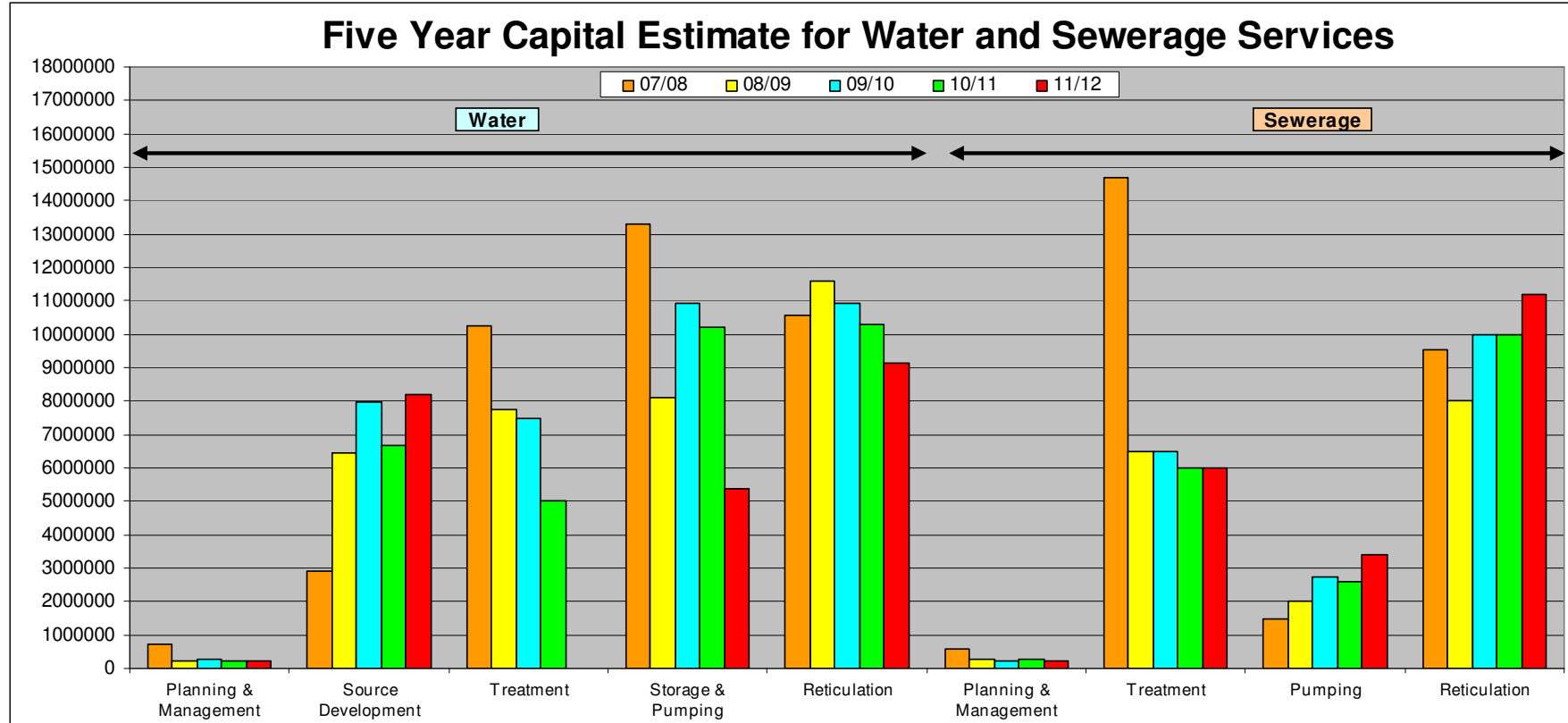
FINANCIAL PROFILE

Status quo:

Capital Budget: The following graph indicates the projected capital expenditure for all water and sanitation capital projects for OM.



The following graph indicates the proposed five year capital estimate for OM for water and sewerage services.



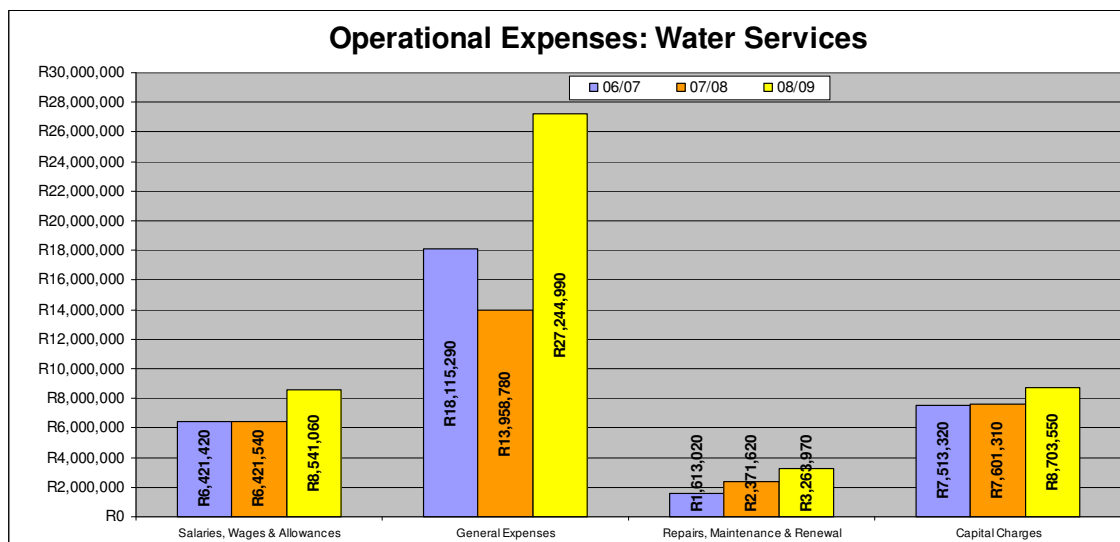
87% of the proposed water and sewerage capital budget for 2008/2009 will be funded by the Council. OM's 2008/2009 MIG allocation is R7.368 million and the 2009/2010 and 2010/2011 allocations are R10.194 million and R8.334 million respectively.

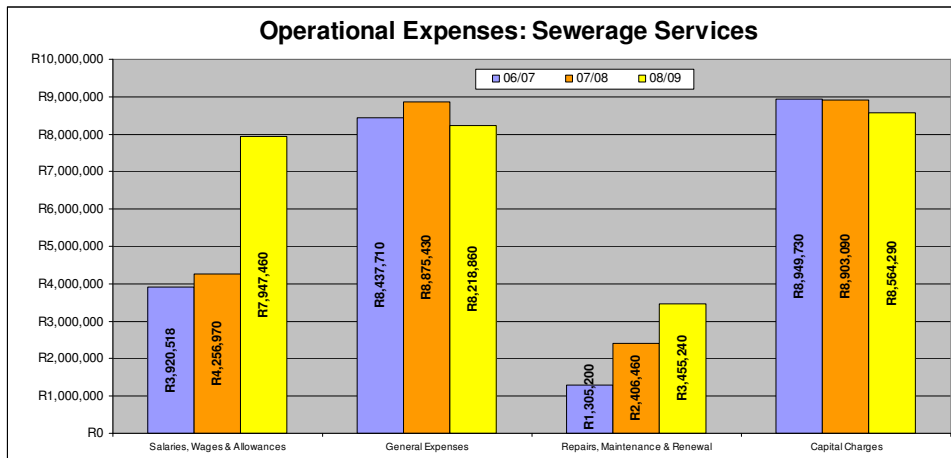
Possible future land sale proceeds, which could be used as a contribution to the Capital Replacement Reserve to finance capital projects, could be an additional source. Another financing source of the capital budget is the grants from other spheres of government. OM needs to increase its ability to bid for all relevant grant funding opportunities. The latter will have a favourable impact on the MTREF and will most certainly be of great help to OM to render sustainable services at affordable user charges and property rates.

Tariffs: The table below gives some comments on the specific blocks, with regard to OM's 2008/2009 block step tariff structure.

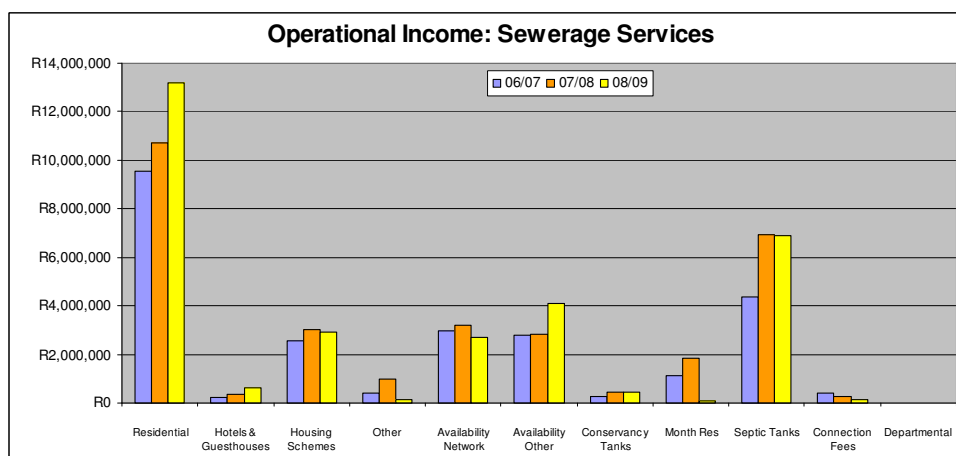
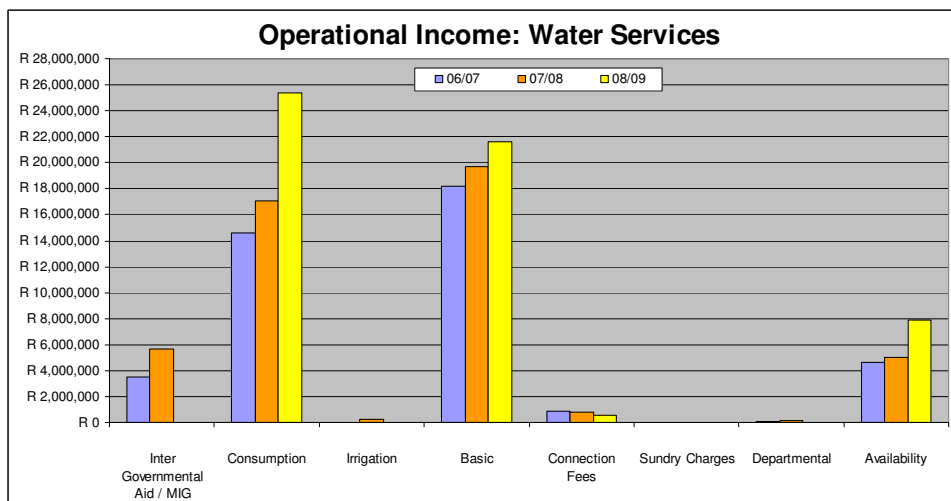
Block (kl/month)	2007/2008	2008/2009 Tariff	Comments
0 - 6	R0-00	R0-00	Free Basic Water
7 - 10	R1-46	R2-28	Low volume use
11 - 15	R1-94		
16 - 20	R2-90	R5-70	Typical use volume, including garden irrigation
21 - 25	R3-83		
26 - 30	R4-78		
31 - 40	R6-42		
41 - 45	R7-85	R9-12	Above average use, including garden irrigation
46 - 60		R12-54	
61 - 80	R9-36	R17-10	Wasteful use and/or severe garden irrigation
81 - 100	R11-69		
> 100	R15-64		

Operational Budget: The graph below gives an overview of the operational expenses for water and sewerage services per category:





The estimated operational income for water and sewerage services per category for the period 2006/2007 to 2008/2009 is presented on the two graphs below:



Gaps:

Capital Budget: OM's financial objective over the medium term is for increases in property rates, tariffs for user charges to be affordable and sustainable by being in line with general price inflation. It is likely, however, that tariffs for particular services may need to rise above inflation if significant infrastructure works are undertaken for the services in question. Such rises in the tariffs will be needed to fund the resultant operational budget costs of the capital investments.

The table below gives a summary of the proposed future works necessary for OM, as identified through the recent completed Water and Sewer Master Plans (Amounts include P&Gs, Contingencies, Fees, excl. VAT).

Distribution System	Water	Sewer
Buffels River	R20 658 018	R103 642 000
Kleinmond	R2 474 872	R34 039 000
Greater Hermanus	R106 922 302	R60 346 000
Stanford	R12 108 057	R15 978 000
Greater Gansbaai	R77 560 571	R87 204 000
Pearly Beach	R1 085 840	R18 777 000
TOTALS	R220 809 660	R319 986 000

Tariffs: The tariff structure of OM should remain a rising block tariff system, which prevents wasteful or inefficient use of water. The determination of tariff policies should seek to address both commercial and social welfare concerns. The **CAFES**-principles (Sansom et al. 2002) are outlined below:

- **Conserving.** Tariffs should encourage consumers to purchase enough water to meet their needs without being wasteful.
- **Adequate.** Future investment should also be considered when setting the tariffs.
- **Fair.** The utility should achieve financial sustainability while maintaining access for poor communities.
- **Enforceable.** Tariffs that cannot be enforced are unlikely to be sustained.
- **Simple.** The tariffs should be easy for the Municipality to administer and easy for customers to understand. Consumers generally show greater willingness to pay water bills that they understand.

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.

Operational Budget: Key risk areas in the operational budget of OM, which need to be closely monitored over the course of the 2008/2009 financial year, include the following:

- Changes in seasonal weather patterns from the norm can decrease the consumption of water and/or electricity services and whilst this is beneficial in environmental terms it does put at risk the achievement of the income budget.

- Further future load shedding due to the failure by the Eskom supply network can result in a loss of income and other related costs (such as the hiring of generators, additional labour costs, etc.) to Council.
- A cut-back on the level of overtime payments will require active management by the Managers and Directors to keep the expenditure within the new budget as vacant and new posts are filled.
- No appropriation for a contingency budget as a zero based budget methodology was applied.
- Preparation and impact of the 2010 Soccer World Cup on the infrastructure and resources of the area as a whole.
- The full impact of the implementation of GRAP/GAMAP and the new accounting standards that arose since its inception from 1 July 2004 and further accounting standards can not yet be quantified in all respects. The impact of impairment of assets, post retirement benefits, provisions for alien clearing, rehabilitation for tip sites etc. will be provided from the accumulated surplus and phased into the operational budget over time. The accounting treatment thereof could still further negatively impact on the budget and / or accumulated surplus.

Implementation Strategies

OM's objective is to keep rates and tariff increases affordable and sustainable by limiting the increases. The following implementation strategies, with regard to the **Capital Budget**, needs to be looked at:

- All services will need to be reviewed in order to assess whether the service is "core business" or whether the service is either low priority or non-statutory.
- The service levels that OM will work to and can afford will need to be agreed by Council and the community and be published.
- Alternative ways of providing services need to be actively investigated. Business Process Re-engineering reviews should be undertaken to identify both more efficient and cost-effective ways of delivering services.
- A proper housing development plan should be compiled to determine total financial implication and impact of future housing projects on the operational and capital budgets. The benefits / contribution / liability of these projects towards local economic development should also be investigated.

Other implementation strategies with regard to capital budget are as follows:

- To actively implement the Customer Care, Credit Control and Debt Collection Policy in order to minimize the percentage of non-payment of municipal services.
- Identify all possible sources of funding for capital projects.
- Develop Asset Registers and Asset Management Plans, which will indicate the real replacement values and service lives of the assets and the funds required to provide for adequate asset replacement.

The financial functional strategies with regard to the capital budget of OM, as included under the "Functional Areas of Municipal Activities" chapter of the IDP, are as follows:

- Proper co-ordinating of annual budget process.
- Ensure timeous annual closedown of accounts and preparation and completion of annual financial statements, attend to auditors during annual audit and financial aspects of annual report (including response to Auditor-General report).
- To produce regular financial reports as required by Council, National and Provincial treasuries, in accordance with applicable legislation.
- Implement and maintain GRAP/GAMAP, and international accounting standards and chart of accounts.
- Effective cash flow management.
- Introduce and update applicable policies.
- Strive to ensure compliance and consistency with all applicable regulations, policies and other legislation.
- Effective capital asset administration.
- Proper insurance risk management.
- External borrowing levels.

Implementation Strategies with regard to **Tariffs** are as follows: Wasteful or inefficient use of water is discouraged through increased tariffs. It is suggested that the following tariff structure characteristics should remain in OM's Structure in order to ensure efficient water use (WDM Strategy, March 2008):

- Maintain a rising block tariff structure.
- Kept 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. Six blocks in a tariff often make good sense.
- 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 100 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.

OM's existing tariff system can be adjusted to an even more conservation oriented and holistically designed system to include also the following:

- Uniquely describe Municipal use with a distinction between use types (e.g. parks, sports, fire fighting, etc.)
- Use codes to uniquely describe at least single residential use, water use by schools, business, commercial and industrial use.

The schools' consumptions need to be recorded under a unique billing code in the treasury system, in order to monitor their water usages and the success with the implementation of specific WDM activities more effectively.

Large users identified in the WDM Strategy should be encouraged by OM to implement suggested reuse practices by means of

- Incentives
- Informative billing to communicate monthly water consumption
- Monitoring and communicating actual savings achieved

OM needs to put a system in place whereby the discharge of industrial effluent from the industrial consumers is metered and the quality monitored. The Water Services By-laws need to include a formula for the calculation of the extraordinary treatment cost to industrial consumers for the industrial effluent they discharged into OM's sanitation system. The standards and criteria for the discharge of industrial effluent into OM's sanitation system also need to be included in the Water Services By-laws.

The financial functional strategies with regard to the tariffs and metering and billing of OM, as included under the "Functional Areas of Municipal Activities" chapter of the IDP, are as follows:

- To ensure proper administration with regards to the annual review and calculation of property rates and tariffs.
- To compile and revise tariff policies and structures.
- To ensure the monthly reading of electricity and water meters.
- To timeously send out accurate and understandable service charges and rates bills.
- To commission the valuation of properties for the purpose of property rates assessments.
- To maintain the data input of debtors accounts.

Implementation strategies with regard to the **Operational Budget** of OM are as follows:

- Develop comprehensive Asset Registers and Asset Management Plans, 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 depreciation charges will have to form part of the operating budget and subsequent tariffs, linked to a ring-fenced asset replacement fund.

- Water services operational surpluses have to be allocated to essential water services requirements.

The financial functional strategies with regard to the operational budget of OM, as included under the “Functional Areas of Municipal Activities” chapter of the IDP, are as follows:

- To provide and maintain an effective customer focused service to deal with Client queries.
- To ensure a sustainable implementation of the Municipality’s indigent policy.
- To effectively administrate and maintain debt management including the writing off, of irrecoverable debts.
- To produce regular management performance information relating to income collection.
- To ensure effective co-ordinating creditors and payroll management processes.
- To produce regular information relating to payroll and creditors.

LIST OF PROJECTS

Status quo:

Projects recorded in the table below refer to new infrastructure to be built, as included in the approved capital budget of OM for 2008/2009.

Project name	Settlement type	Water/sanitation	Project type (e.g. bulk reticulation, etc.)	Amount	Funding source	Year
Risk Reduction at pump stations	Overstrand	Sewerage	Pump Stations	R1 500 000	Council Funded	2008/09
Reticulation phase 3	Gansbaai	Sewerage	Reticulation	R1 800 000	Council Funded	2008/09
WWTW-Upgrade Existing works	Gansbaai	Sewerage	Bulk WWTWs	R300 000	Council Funded	2008/09
Reticulation Phase 2	Stanford	Sewerage	Reticulation	R2 000 000	Council Funded	2008/09
Upgrade WWTW Phase 2	Stanford	Sewerage	Bulk WWTWs	R1 000 000	Council Funded	2008/09
Sewerage Treatment Plant-Sludge Beds	Hawston	Sewerage	Bulk WWTWs	R100 000	Council Funded	2008/09
Sewerage Reticulation Phase 2 Completion	Kleinmond	Sewerage	Reticulation	3 400 000	Council Funded	2008/09
Repair Rising Main (Nature Reserve)	Kleinmond	Sewerage	Rising Main	R500 000	Council Funded	2008/09
Sewerage Disposal Plan Implementation	Betty’s Bay	Sewerage	Reticulation	R1 500 000	Council Funded	2008/09
Water Source Development	Overstrand	Water	Bulk Source	R3 500 000	Council Funded	2008/09
Water Loss Management	Overstrand	Water	Management	R450 000	Council Funded	2008/09
Network Upgrading	Gansbaai	Water	Reticulation	R4 500 000	Council Funded	2008/09
Franskraal Treatment Works (Phase 2)	Gansbaai	Water	Bulk WTWs	R4 370 000 R5 630 000	Council Funded MIG	2008/09
Water Supply	Baardskeerders	Water	Bulk Source	R500 000	Council Funded	2008/09
Replace Sand filter, Valves & Pipework	Pearly Beach	Water	Bulk WTWs	R500 000	Council Funded	2008/09
Telemetry Outstation	Baardskeerders	Water	Telemetry	R28 000	Council Funded	2008/09
Telemetry Outstation	Buffelsjags	Water	Telemetry	R28 000	Council Funded	2008/09
St Housing Scheme Reservoir & pipeline	Stanford	Water	Reticulation & Storage	R300 000	Council Funded	2008/09

Project name	Settlement type	Water/sanitation	Project type (e.g. bulk reticulation, etc.)	Amount	Funding source	Year
Voëlklip Water	Voëlklip	Water	Bulk Source	R600 000	Council Funded	2008/09
Fernkloof Reservoir	Hermanus	Water	Storage	R5 200 000	Council Funded	2008/09
Northcliff Replace Water line	Hermanus	Water	Reticulation	R600 000	Council Funded	2008/09
Onrus – Replace Water line	Onrus	Water	Reticulation	R600 000	Council Funded	2008/09
Water Network	Fisherhaven	Water	Reticulation	R600 000	Council Funded	2008/09
Upgrade Water Treatment Works Phase 2	Kleinmond	Water	Bulk WTWs	R500 000	Council Funded	2008/09
Telemetry for Water Works	Kleinmond	Water	Telemetry	R50 000	Council Funded	2008/09
Water Networks Upgrade Phase 3	Betty's Bay	Water	Reticulation	R2 100 000	Council Funded	2008/09
Water Networks Upgrade phase 2	Pringle Bay	Water	Reticulation	R880 000	Council Funded	2008/09

WSA sustainability project list:

Project name	Settlement type	Water/sanitation	Key issues to be addressed	Amount	Funding source	Year
Sustainability projects (state)						
See list of proposed Master Plan items as summarised in the Annexure Report						
Updating of WSDP for 2009/2010	Management Area	Water & Sanitation	Management	R199 815	Council Funds & MSB (DWAF)	2008/2009
Investigations into domestic consumption > 15 kl/month at properties in poor areas.	Informal Areas	Water	Management	R160 000	MSB (DWAF)	2008/2009
Water network replacement programme	Urban Areas	Water	Management	R300 000	MSB (DWAF)	2008/2009
Groundwater investigation Hermanus	Urban Area	Water	Management	R200 000	MSB (DWAF)	2008/2009
WTWs and WWTWs Permits	Urban Areas	Water	Management	R100 000	MSB (DWAF)	2008/2009
Bulk metering and Telemetry investigation	Urban Areas	Water & Sanitation	Management	R80 000	MSB (DWAF)	2008/2009
Drinking water and effluent quality sampling programme	Urban Areas	Water & Sanitation	Management	R50 000	MSB (DWAF)	2008/2009
Updating of Water Master Plans	Urban Areas	Water	Management	R250 000	Identify Funds	2009/2010
Develop Asset Management Plan for Water and Sanitation Infrastructure	Urban Areas	Water & Sanitation	Asset Management Plan	R200 000	Identify Funds	2009/2010
Survey the current service levels on the farms	Farm Areas	Water & Sanitation	Management	R150 000	Identify Funds	2009/2010
Develop a Water and Sanitation Service Level policy	Management Area	Water & Sanitation	Management	R80 000	Identify Funds	2009/2010
Develop a Pollution Contingency Plan	Management Area	Water & Sanitation	Management	R150 000	Identify Funds	2009/2010
Description WSA capacity development	Key issues to be addressed			Amount	Funding source	Year
A Work Place Skills Plan for OM for 2008/2009 is in place						

Gaps:

It is important for OM to focus over the next few years on the following key capital infrastructure projects:

- Augmentation of the bulk water supply for Stanford and the Greater Hermanus Area.
- Upgrading of the Waste Water Treatment Works (Stanford and Hawston) and the Water Treatment Works (Gansbaai and Hermanus).
- Upgrading / Replacement of the existing water and sewer networks, rising mains and pump stations as identified through the Water and Sewer Master Plans.
- Adequate rehabilitation and maintenance of the existing infrastructure.

Implementation strategies:

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 five 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 WC Programme and the 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) in accordance with the availability of water and the capacity of water treatment and waste water treatment facilities that are in place or that will be implemented.