Our Service Standards: We will

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

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

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

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

Table A.37: Water and sanitation indicators monitored by Overstrand Municipality with regard to customer services and maintenance work

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

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SECTION B: STATE OF WATER SERVICES PLANNING

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

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

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

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

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

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

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

SECTION C: WATER SERVICES EXISTING NEEDS PERSPECTIVE

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

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

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

Business Element 1: Administration

Table C.1 : Business Element 1: Administration (Topic 1)					
Overview of Topic	**Status Quo and Knowledge Interpretation Statistics**				
This topic provides knowledge on the status of the WSA's 5-year WSDP as well as with the contact particulars of the key role-players which have contributed to the development of the WSDP.	**Item**	**Quality (%)** assessment of current status against compliancy requirements	**Quantity (%)** an indication of the representation of the total area to address the issue	**Future Plan Assessment**	**Strategy Assessment**
	n/a	n/a	n/a	n/a	n/a
	TOTAL for Topic	**n/a**	**n/a**	**n/a**	**n/a**

Problem Definition Statements		
Nr	**Statements - Short Comings**	**Possible Improvement / Project**
1	Key issues raised in the WSDP need to be taken to the IDP	Ensure Executive Summary of WSDP (WSDP-IDP Water Sector Input Report) is included in the IDP.

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

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

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

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

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

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

The Strategic Objectives of Overstrand Municipality are as follows:

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

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

Table C.2: General challenges experienced by Overstrand Municipality	
Challenges	**Actions to address**
The on-going difficulties in the national and local economy and the subsequent risk of an increase in outstanding debtors.	Applying strict credit control measures.
Ever aging water, roads, sewage and electricity infrastructure.	Prioritizing of projects in terms of Revenue protections, Asset conservation and supply of basic services as a constitutional obligation.
Backlog in infrastructure.	Comprehensive 25 year infrastructure master plan developed.
Housing backlog and densely populated informal settlements.	A comprehensive 5 year housing strategy and programme developed.

Business Element 2: Demographics

Table C.3: Business Element 2: Demographics (Topic 2)					
Overview of Topic	**Status Quo and Knowledge Interpretation Statistics**				
This topic provides an overview of demographics of the WSA as sourced from the National Geo-Referenced Database, aligned to Census figures as well as the number of public amenities and private facilities within the jurisdictional area of the WSA.	**Item**	**Quality (%)** assessment of current status against compliancy requirements	**Quantity (%)** an indication of the representation of the total area to address the issue	**Future Plan Assessment**	**Strategy Assessment**
	Settlement Types (Urban, Rural , Farming)	78.82	74.12	71.76	71.76
	Public Amenities Consumer types	78.82	75.29	72.94	72.94
	TOTAL for Topic	**78.82**	**74.71**	**72.35**	**72.35**

Problem Definition Statements		
Nr	**Statements - Short Comings**	**Possible Improvement / Project**
1	Conservative approach is followed regarding the management of water sources, due to the possible impact of climate change.	All resources, especially surface water resources, need to be re-evaluated, especially where demand is close to the safe one in twenty year yields. Establish assurance of supply levels of all water sources.
2	Municipality needs to evaluate all land use planning applications against the broad SDF and Growth Management Strategy principles before approvals and recommendations are made.	Continue with the implementation of the SDF and Growth Management Strategy for each of the towns and ensure that new developments are in line with these priority action plans.
3	Ensure that the required bulk water and sewerage infrastructure are in place before housing projects are implemented.	Ensure that the provision of bulk water and sewerage infrastructure are aligned with the Housing Strategy and that housing projects only continue once the required bulk water and sewerage infrastructure are in place.

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

Table C.4: Six key strategies that should underpin all spatially related decision making (SDF)	
Spatial Development Strategy	**Strategy**
Managing Population Growth and In-migration	Adopt a selective "supply driven" approach by only providing for housing growth and related community facilities in the urban areas where the highest potential for sustained economic growth exists.
Housing Strategy	Eliminate the current subsidised housing backlog through the implementation of a co-ordinated housing supply plan. Ensure that the overall provision of land for housing makes provision for a balanced mix and range of housing types for all income groups.
Bulk Service Infrastructure Provision	Compile a co-ordinated bulk infrastructure supply provision policy which prioritises the implementation of bulk infrastructure based on the municipality spatial development concept – Growth Management Framework.
Initiate – Place specific key	Stimulate economic growth and development linked to the comparative locational advantage.

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

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

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

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

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

Table C.5: Objectives of the Housing Strategy and Housing Programmes and Related Projects	
Objectives	**Housing Programmes and Related Projects**
• Upscale provision and implementation of serviced sites. • Increasing densities of new human settlement developments on well-located land. • Reduce bulk infrastructure as a constraint to human settlement development. • Acquiring well-located land for well-planned integrated Human Settlements. • Provide a fair allocation of housing opportunities. • Increase beneficiary involvement in the development of housing opportunities. • Enhancing supply of new rental housing opportunities and encourage improved property management and rental stock. • Increase sustainable resource use by exploring alternative technologies and building methodologies. • Implement Overstrand Municipal Growth Management Strategy.	• Integrated residential Development Programme (IRDP) • Upgrading of Informal Settlements • Provision of Economic & Social Facilities • Institutional Subsidies • Enhanced People's Housing Process (EPHP) • Emergency Housing Programme (EHP) • Social Housing Programme • Community Residential Units (CRU)

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

Business Element 3: Service Levels

Table C.6: Business Element 3: Service Levels (Topic 3)					
Overview of Topic	**Status Quo and Knowledge Interpretation Statistics**				
Topic 3 information is presented in terms of the Department of Water and Sanitations' service level classification which considers the adequacy of services in establishing the service level profile. The profile is presented in terms of settlements, population and households.	**Item**	**Quality (%)** assessment of current status against compliancy requirements	**Quantity (%)** an indication of the representation of the total area to address the issue	**Future Plan Assessment**	**Strategy Assessment**
	Water - Below: No Services (Formal)	60.00	60.00	40.00	40.00
	Water - Below: Infra. Needs	60.00	60.00	40.00	40.00
	Water - Below: O&M Needs	80.00	80.00	80.00	80.00
	Water - Below No Services (Informal)	80.00	80.00	80.00	80.00
	Sanitation – Below: No Services (Formal)	60.00	60.00	40.00	40.00
	Sanitation – Below: Infra. Needs	60.00	60.00	40.00	40.00
	Sanitation – Below: O&M Needs	80.00	80.00	80.00	80.00
	Sanitation – Below: No Services (Informal)	80.00	80.00	80.00	80.00
	Residential, Public Institutions and Industries Amenities	74.44	60.74	63.33	63.33
	TOTAL for Topic	**70.49**	**68.97**	**60.37**	**60.37**

Problem Definition Statements		
Nr	**Statements - Short Comings**	**Possible Improvement / Project**
1	Ensure that all households on the farms in the rural areas with existing services below RDP standard are provided with at least basic water and sanitation services.	Assist private landowners as far as possible with the provision of basic water and sanitation services to all the households in the Municipality's Management Area with existing service levels below RDP standard, once practical guidelines become available from the DWS.

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

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

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

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

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

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

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

- To provide basic water and sanitation services in the informal areas to new citizens moving into the informal areas and to ensure that health and hygiene awareness and education is part of the process of providing basic services.

- To identify suitable land for the relocation of the people from informal areas, with existing communal services, to formal houses with a higher level of water and sanitation service (Services inside the house).

- To identify adequate funding for the rehabilitation, maintenance, replacement and upgrading of the existing bulk and reticulation infrastructure in order to support the sustainability of the water and sanitation services.

- To monitor the provision of basic water and sanitation on privately owned land.

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

Free basic water policy:

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

Free basic sanitation policy:

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

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

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

Business Element 4: Socio Economic

Table C.8: Business Element 4: Socio-Economic (Topic 4)					
Overview of Topic	**Status Quo and Knowledge Interpretation Statistics**				
The socio-economic information contained in the WSDP provides a broad overview of the socio-economic status of the municipality in terms of population growth rates, age and gender profile, employment profile, migration patterns, household income and economics. The topic also contains a quick reference to water services affordability by expressing the typical monthly water bill in terms of average monthly income in the municipal area.	**Item**	**Quality (%)** assessment of current status against compliancy requirements	**Quantity (%)** an indication of the representation of the total area to address the issue	**Future Plan Assessment**	**Strategy Assessment**
	General	80.00	80.00	-	-
	Age and gender profile	80.00	80.00	-	-
	Employment profile	64.00	64.00	-	-
	Demographic trends and migration patterns	68.00	40.00	-	-
	Household income	63.33	63.33	-	-
	Water Affordability	60.00	60.00	-	-
	Sanitation Affordability	60.00	60.00	-	-
	Economics	60.00	60.00	-	-
	TOTAL for Topic	**66.92**	**63.42**	-	-

Problem Definition Statements		
Nr	**Statements - Short Comings**	**Possible Improvement / Project**
1	Various socio-economic needs in the Management Area.	Adequately covered through the Municipality's Policies, LED Strategy, SDF and Social Programmes.
2	Challenges of poverty in the area	Alleviation of poverty by means of the Municipality's Indigent Policy, Local Labour Promotion Projects, OREIA, LED projects and the use of Supply Chain Management Policy as an instrument to enforce the maximum use of local labour.

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

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

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

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

- The Desmond Tutu Tuberculosis Centre (DTTC), Facility of Health Services at the University of Stellenbosch is proposing the establishment of "The Sustainable Primary Healthcare Facility" in the Gansbaai area. The project is in the planning phase and the municipality is considering making land available at a nominal rate due to the significant social benefits that can derive from this project.

- Boland College has expressed interest in establishing a campus in the Overstrand.

- A local NGO, "Greater Hermanus Training Centre / Groter Hermanus Opleiding Sentrum" aims to offer training courses throughout the Overstrand area.

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

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

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

Table C.9: Economic Challenges and Actions to address these challenges

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

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

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

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

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

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

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

Business Element 5: Water Services Infrastructure Management (Infrastructure)

Table C.10: Business Element 5: Water Services Infrastructure (Topic 5)

Overview of Topic	Status Quo and Knowledge Interpretation Statistics				
Topic 5.1 provides an overview of the extent-, functionality- and asset status of the municipality's water services infrastructure. It also provides an overview of the municipality's compliance in terms of legislation- and regulations concerning asset management, disaster management, water quality management, water resource licensing, etc. It should be emphasized that the topic does not provide the detail per infrastructure element, but provides an overview per each main water services infrastructure component.	**Item**	**Quality (%)** assessment of current status against compliancy requirements	**Quantity (%)** an indication of the representation of the total area to address the issue	**Future Plan Assessment**	**Strategy Assessment**
	General Information	65.00	65.00	55.00	55.00
	Operation	70.77	67.69	69.23	67.69
	Monitoring and sample failure	62.67	61.33	60.00	60.00
	Functionality	63.16	61.05	62.11	62.11
	Institutional status	70.00	65.00	60.00	60.00
	Asset assessment spectrum	60.00	60.00	45.00	45.00
	Type and capacity	64.00	56.00	60.00	60.00
	TOTAL for Topic	**65.09**	**62.30**	**58.76**	**58.54**

Problem Definition Statements

Nr	Statements - Short Comings	Possible Improvement / Project
1	Ensure adequate reservoir storage capacity for the various towns	Provide additional reservoir storage capacity for the towns with inadequate storage capacity, as identified through the WSDP and Water Master Plans.
2	Inadequate capacities of water pump stations and reticulation networks.	Upgrade existing water pump stations and provide new water pump stations for specific areas, as identified in the Water Master Plan. Upgrade sections of the water reticulation network as proposed in the Water Master Plan.
3	Inadequate capacities of sewer pump stations and sewer drainage networks.	Upgrade existing sewer pump stations and provide new sewer pump stations for specific areas, as identified in the Sewer Master Plan. Upgrade sections of the sewer drainage network as proposed in the Sewer Master Plan.
4	Priority should be given to rehabilitating existing infrastructure as this generally makes best use of financial resources and can achieve an increased in (operational) services level coverage's most rapidly.	The preparation of maintenance plans and the allocation of sufficient funding for maintenance are required to prevent the development of a large condition backlog.
5	Ensure that an appropriate maintenance and rehabilitation plan (AMP) is developed and implemented.	Develop an Asset Management Plan (AMP) from the updated Asset Register. This plan must be based on the principle of preventative maintenance in order to ensure that, as far as this is practical, damage to assets is prevented before it occurs.
6	Records need to be kept of the number of breakages / failures per infrastructure type in order to assist the Municipality with their refurbishment and maintenance planning.	Keep record of all breakages / failures per infrastructure type.
7	The Municipality needs to differentiate between budget allocated towards the operation and maintenance of the water and sewerage infrastructure and budget allocated towards the replacement of the water and sewerage infrastructure.	A budget of approximately 2% of the total asset value per annum should be allocated towards the replacement of existing water and sewerage infrastructure. In the case of operations and maintenance of the system, a budget of approximately 1% to 2% of the value of the system is typically required to ensure that the system remains in good condition.
8	Ensure that all the assets, as listed under the various tables in this chapter, are included in the Asset Register.	Update the Asset Register to include all the water and sewerage infrastructure assets.

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

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

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

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

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

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

Table C.12: Summary of the future water and sewerage infrastructure requirements for Overstrand Municipality, as included in the 2016 Water and Sewer Master Plans			
Zone / Area	Water Infrastructure	Sewerage Infrastructure	Total
Baardskeerdersbos	R0	R3 687 900	R3 687 900
Buffeljags Bay	R0	R1 031 600	R1 031 600
Total	**R320 151 680**	**R569 932 100**	**R890 083 780**

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

GROUNDWATER INFRASTRUCTURE

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

WATER TREATMENT WORKS INFRASTRUCTURE

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

Table C.13: Existing capacities and flows at each of the WTWs (Ml/d)					
WTW	Existing Hydraulic Capacity	Peak Daily Flow (Dec 2015 / January 2016)	Peak Month Average Daily Flow	Average Daily Flow (Jul 2015 – Jun 2016)	Required Treatment Capacity (1.5 x AADD10yr)
Buffels River	5.500	4.089	2.965 (Dec 2015)	2.090	4.212
Kleinmond	5.800	3.683	2.796 (Dec 2015)	2.097	4.227
Preekstoel and Bio-filtration	38.000	19.340	17.526 (Dec 2015)	12.702	28.203
Franskraal	6.500	Unknown	3.954 (Dec 2015)	2.748	6.102
De Kelders	1.600	Unknown	1.495 (May & Jun 2016)	1.392	1.600
Pearly Beach	1.440	Unknown	0.666 (Dec 2015)	0.413	0.834
Baardskeerdersbos	0.185	Unknown	0.119 (Jan 2016)	0.050	0.092

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

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

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

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

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

Preekstoel WTW

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

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

Biofiltration WTW

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BULK WATER INFRASTRUCTURE

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

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

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

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

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

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

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

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

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

- Replace the existing 225mm dia. bulk pipeline with a 400mm dia. pipeline when the existing 225 and 300mm dia. bulk pipes reaches capacity.

- New 315mm dia. parallel reinforcement of the existing 400mm dia. bulk supply pipeline when the 400mm dia. pipeline reaches capacity.

- Replace the existing 100 mm dia. bulk supply pipeline to the Mount Pleasant reservoir with a 200 mm dia. pipeline

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

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

Other future mains that will require upgrading are

- New 250mm dia. parallel reinforcement of the existing 150mm dia. bulk supply pipeline to the Sandbaai reservoir in order to augment supply to the reservoir.

- Replace the existing 225mm dia. bulk pipeline (from the Preekstoel WTW to the Coastal and Hermanus bulk pipelines) with a 500mm dia. pipeline when the existing 225, 400 and 600mm dia. bulk pipes from the Preekstoel WTW reaches capacity.

Stanford: No new future feeder mains are required.

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

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

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

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

- Replace the existing 200mm dia. bulk pipeline with a 400mm dia. pipeline when the existing 200mm and 355mm dia. bulk pipes reaches capacity.

- New 355mm dia. parallel reinforcement of the existing 250 mm dia. bulk supply pipeline in order to augment supply to the to the Gansbaai and De Kelders reservoirs (construction of this item is currently in progress).

- New 400mm dia. bulk supply pipeline to the Gansbaai reservoir. This item is required in order to utilize the existing bulk pipelines between Gansbaai and De Kelders so that bulk water supply to the De Kelders reservoirs can be augmented from Gansbaai.

- Dedicate the existing 250mm dia. pipeline between the Greater Gansbaai bulk system and the De Kelders reservoirs as 'n bulk supply pipeline to the De Kelders reservoirs. These items are required to isolate the bulk and distribution systems from each other when the new supply pipeline from the reservoirs to the De Kelders network is implemented.

- New 600mm dia. bulk supply pipeline from the Franskraal WTP clearwell reservoir to the main Franskraal bulk PS.

- New 315mm dia. bulk supply pipeline from the main Franskraal bulk PS to the proposed Franskraal HL reservoir.

- New 500mm dia. bulk supply pipeline from the main Franskraal bulk PS to the existing 355mm dia. and future 400mm dia. pipeline bulk pipes to Kleinbaai, Gansbaai and De Kelders.

- New 355mm dia. dedicated bulk supply pipeline from the main Franskraal bulk PS to the existing Franskraal LL reservoirs.

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

Baardskeerdersbos: No feeder mains require upgrading in the future.

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

WATER PUMP STATIONS

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

Table C.14: Future water pump stations required

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