



# **OVERSTRAND MUNICIPALITY**

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## *Water Services Development Plan (WSDP) – IDP Water Sector Input Report*

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*For IDP incorporation as directed by the Water Services Act (Act 108 of 1997)*

### **FY 2024/2025**

**FINAL**

**31 May 2024**

OVERSTRAND MUNICIPALITY



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## OVERSTRAND MUNICIPALITY

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### Version Control:

Status	Description	Date	Reference
Draft	Draft WSDP-IDP Water Sector Input Report for 2024/2025	26 February 2024	Draft Document
Approval	Final WSDP-IDP Water Sector Input Report for 2024/2025	31 May 2024	Council Resolution for approval will be forwarded by the Municipality to the DWS.

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### PROJECT P09233 - OVERSTRAND MUNICIPALITY'S WSDP-IDP SECTOR INPUT REPORT FOR 2024/2025

REV	DESCRIPTION	ORIG	REVIEW	IX APPROVAL	DATE	CLIENT APPROVAL	DATE
Draft	Draft issued for external review	R Kuffner Author	JT Human A Reviewer	Approval		Approval	
Final	Final for Council approval	R Kuffner Author	JT Human A Reviewer	Approval		Approval	

OVERSTRAND MUNICIPALITY

WSDP – IDP WATER SECTOR INPUT REPORT (EXECUTIVE SUMMARY)

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## ABBREVIATIONS AND DEFINITIONS

AADD	Average Annual Daily Demand
AC	Asbestos Cement
ACH	Aluminium Chlorohydrate
ADWF	Average Dry Weather Flow
AIDS	Acquired Immune Deficiency Syndrome
AMP	Asset Management Plan
AMR	Automatic Meter Reading
BDRR	Blue Drop Risk Rating
BGWMA	Breede-Gouritz Water Management Area
BOWMA	Breede-Olifants Water Management Agency
CAPEX	Capital Expenditure
CBO	Community Based Organisation
COD	Chemical Oxygen Demand
CRC	Current Replacement Cost
CRR	Cumulative Risk Ratio
CU	Consumer Unit
CV	Carrying Value
CWDP	Coastal Water Discharge Permit
DAFF	Dissolved Air Flotation and Filtration
DEADP	Department of Environmental Affairs and Development Planning
DM	Disaster Management
DMAF	Disaster Management Advisory Forum
DMC	Disaster Management Centre
DO	Dissolved Oxygen
DRC	Depreciated Replacement Cost
DWQ	Drinking Water Quality
DWS	Department of Water and Sanitation
EHP	Environmental Health Practitioner
EIA	Environmental Impact Assessment
FOG	Fats, Oils and Grease
FY	Financial Year
GA	General Authorisation
GAMAP	General Accepted Municipal Accounting Practice
GD	Green Drop
GDIP	Green Drop Improvement Plan
GIS	Geographical Information Systems
GRAP	Generally Recognized Accounting Practice
HH	Households
HIV	Human Immunodeficiency Virus
HL	High Level
HOD	Head of Department
IBT	Inclining Block Tariff
IDP	Integrated Development Plan
ILI	Infrastructure Leakage Index
IMQS	Infrastructure Management Query System
IRIS	Integrated Regulatory Information System
IWA	International Water Association
l/c/d	Litre Per Capita Per Day
JOC	Joint Operation Centre

## ABBREVIATIONS AND DEFINITIONS

Kl/d	Kilolitre per Day
KPA	Key Performance Area
KPI	Key Performance Indicator
L	License
LGTAS	Local Government Turn Around Strategy
LL	Low Level
LM	Local Municipality
l/p/d	Litre Per Person Per Day
MCC	Motor Control Centre
MFMA	Municipal Finance Management Act
MIG	Municipal Infrastructure Grant
MISA	Municipal Infrastructure Support Agent
MI	Mega Litre
MI/a	Mega Litre per Annum
MI/d	Mega Litre per Day
MLSS	Mixed Liquor Suspended Solids
MNF	Minimum Night Flow
MTEF	Medium-Term Expenditure Framework
MuSSA	Municipal Strategic Self-Assessment
N/A	Not Applicable
NGO	Non-Governmental Organisation
NRW	Non-Revenue Water
NWRS	National Water Resource Strategy
O&M	Operation and Maintenance
OLM	Overstrand Local Municipality
PAT	Progress Assessment Tool
PC	Process Controller
PDA	Previously Disadvantage Area
PDD	Peak Daily Demand
PFD	Process Flow Diagram
P&G	Preliminary and General
PMF	Peak Month Factor
PRP	Pipeline Replacement Programme
PRV	Pressure Reducing Valve
PS	Pump Station
RAS	Return Activated Sludge
RDP	Reconstruction and Development Programme
RO	Reverse Osmosis
RR	Risk Ratio
RUL	Remaining Useful Life
SALGA	South African Local Government Association
SAMRAS	South African Municipal Resource Administration System
SANDF	South African National Defense Force
SANS	South African National Standard
SAPS	South African Police Service
SCADA	Supervisory Control and Data Acquisition
SDBIP	Service Delivery and Budget Implementation Plan
SDF	Spatial Development Framework
SIV	System Input Volume

## ABBREVIATIONS AND DEFINITIONS

SST	Secondary Settling Tank
SWRO	Sea Water Reverse Osmosis
TMG	Table Mountain Group
TSS	Total Suspended Solids
VIP	Ventilated Improved Pit
WARMS	Water use Authorisation and Registration Management System
WAS	Waste Activated Sludge
WaSP	Water Safety Plan
WC/WDM	Water Conservation / Water Demand Management
WCNCB	Western Cape Nature Conservation Board (South Africa)
WDM	Water Demand Management
WMA	Water Management Area
WRC	Water Research Commission
WSA	Water Services Authority
WSDP	Water Services Development Plan
WSI	Water Services Institution
WSIG	Water Services infrastructure Grant
WSP	Water Services Provider
WSS	Water Supply System
WTP	Water Treatment Plant
WTW	Water Treatment Works
WULA	Water Use License Application
W <sub>2</sub> RAP	Waste Water Risk Abatement Plan
WWTW	Waste Water Treatment Works
Y	Yield

**KEY TERMS AND INTERPRETATIONS**

Climate Change	Changes in climatic conditions due to natural causes or to anthropogenic (man-made) effects such as emissions of greenhouse gases, e.g. carbon dioxide, nitrous oxide, and methane, from industry, transport, farming and deforestation, that are expected to have significant consequences for rainfall and water availability on earth.																														
Current replacement cost (CRC)	The cost of replacing the service potential of an existing asset, by reference to some measure of capacity, with an appropriate modern equivalent asset. GAMAP defines CRC as the cost the entity would incur to acquire the asset on the reporting date.																														
Depreciated Replacement Cost (DRC)	The replacement cost of an existing asset after deducting an allowance for wear or consumption to reflect the remaining economic life of the existing asset.																														
Financial Year	Financial year means in relation to- <ul style="list-style-type: none"> <li>a national or provincial department, the year ending 31 March; or</li> <li>a municipality, the year ending 30 June.</li> </ul>																														
Global Warming	The increase in the average surface temperatures across the globe, usually measured over long periods of time; reported to have increased by 1°C over the past hundred years.																														
Integrated Development Plan (IDP)	An IDP is a legislative requirement for municipalities, which identifies the municipality's key development priorities; formulates a clear vision, mission and values; formulates appropriate strategies; shows the appropriate organisational structure and systems to realise the vision and the mission and aligns resources with the development priorities.																														
National Water Resource Strategy 2	Sets out how we will achieve the following core objectives: <ul style="list-style-type: none"> <li>Water supports development and the elimination of poverty and inequality.</li> <li>Water contributes to the economy and job creation, and</li> <li>Water is protected, used, developed, conserved, managed and controlled sustainably and equitably.</li> </ul>																														
International Water Association (IWA) Water Balance	<table border="1"> <tr> <td rowspan="2">System Input Volume</td> <td rowspan="2">Authorised Consumption</td> <td>Billed Authorised Consumption</td> <td>Billed Metered Consumption</td> <td rowspan="2">Revenue Water</td> </tr> <tr> <td>Unbilled Authorised Consumption</td> <td>Billed Unmetered Consumption</td> </tr> <tr> <td rowspan="4">Water Losses</td> <td rowspan="4">Commercial Losses</td> <td rowspan="4">Physical Losses</td> <td>Unbilled Metered Consumption</td> <td rowspan="4">Non-Revenue Water</td> </tr> <tr> <td>Unbilled Unmetered Consumption</td> </tr> <tr> <td>Unauthorised Consumption</td> </tr> <tr> <td>Customer Meter Inaccuracies and Data Handling Errors</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Leakage on Transmission and Distribution Mains</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>Leakage and Overflows from the Utilities Storage Tanks</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>Leakage on Service Connections up to the Customer Meter</td> <td></td> </tr> </table>	System Input Volume	Authorised Consumption	Billed Authorised Consumption	Billed Metered Consumption	Revenue Water	Unbilled Authorised Consumption	Billed Unmetered Consumption	Water Losses	Commercial Losses	Physical Losses	Unbilled Metered Consumption	Non-Revenue Water	Unbilled Unmetered Consumption	Unauthorised Consumption	Customer Meter Inaccuracies and Data Handling Errors				Leakage on Transmission and Distribution Mains					Leakage and Overflows from the Utilities Storage Tanks					Leakage on Service Connections up to the Customer Meter	
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System Input Volume	The volume of treated water input to that part of the water supply system to which the water balance calculation relates.																														
Authorised Consumption	The volume of metered and/or un-metered water taken by registered customers, the water supplier and others who are implicitly or explicitly authorised to do so by the water supplier, for residential, commercial and industrial purposes. It also includes water exported across operational boundaries. Authorised consumption may include items such as fire-fighting and training, flushing of mains and sewers, street cleaning, watering of municipal gardens, public fountains, frost protection, building water, etc. These may be billed or unbilled, metered or unmetered.																														
Water Losses	The difference between System Input and Authorised Consumption. Water losses can be considered as a total volume for the whole system, or for partial systems such as transmission or distribution schemes, or individual zones. Water Losses consist of Physical Losses and Commercial Losses (also known as Real Losses and Apparent Losses).																														
Billed Authorised Consumption	Those components of Authorised Consumption which are billed and produce revenue (also known as Revenue Water). Equal to Billed Metered Consumption plus Billed Unmetered Consumption.																														
Unbilled Authorised Consumption	Those components of Authorised Consumption which are legitimate but not billed and therefore do not produce revenue. Equal to Unbilled Metered Consumption plus Unbilled Unmetered Consumption.																														
Commercial Losses	Includes all types of inaccuracies associated with customer metering as well as data handling errors (meter reading and billing), plus unauthorised consumption (theft or illegal use). Commercial losses are called "Apparent Losses" by the International Water Association and in some countries the misleading term "Non-Technical Losses" is used.																														

## KEY TERMS AND INTERPRETATIONS

Physical Losses	Physical water losses from the pressurized system and the utility's storage tanks, up to the point of customer use. In metered systems this is the customer meter, in unmetered situations this is the first point of use (stop tap/tap) within the property. Physical losses are called "Real Losses" by the International Water Association and in some countries the misleading term "Technical Losses" is used.
Billed Metered Consumption	All metered consumption which is also billed. This includes all groups of customers such as domestic, commercial, industrial or institutional and also includes water transferred across operational boundaries (water exported) which is metered and billed.
Billed Unmetered Consumption	All billed consumption which is calculated based on estimates or norms but is not metered. This might be a very small component in fully metered systems (for example billing based on estimates for the period a customer meter is out of order) but can be the key consumption component in systems without universal metering. This component might also include water transferred across operational boundaries (water exported) which is unmetered but billed.
Unbilled Metered Consumption	Metered Consumption which is for any reason unbilled. This might for example include metered consumption by the utility itself or water provided to institutions free of charge, including water transferred across operational boundaries (water exported) which is metered but unbilled.
Unbilled Unmetered Consumption	Any kind of Authorised Consumption which is neither billed nor metered. This component typically includes items such as fire-fighting, flushing of mains and sewers, street cleaning, frost protection, etc. In a well-run utility it is a small component which is very often substantially overestimated. Theoretically this might also include water transferred across operational boundaries (water exported) which is unmetered and unbilled – although this is an unlikely case.
Unauthorised Consumption	Any unauthorised use of water. This may include illegal water withdrawal from hydrants (for example for construction purposes), illegal connections, bypasses to consumption meters or meter tampering.
Customer Metering Inaccuracies and Data Handling Errors	Commercial water losses caused by customer meter inaccuracies and data handling errors in the meter reading and billing system.
Leakage on Transmission and /or Distribution Mains	Water lost from leaks and breaks on transmission and distribution pipelines. These might either be small leaks which are still unreported (e.g. leaking joints) or large bursts which were reported and repaired but did obviously leak for a certain period before that.
Leakage and Overflows at Utility's Storage Tanks	Water lost from leaking storage tank structures or overflows of such tanks caused by e.g. operational or technical problems.
Leakage on Service Connections up to point of Customer Metering	Water lost from leaks and breaks of service connections from (and including) the tapping point until the point of customer use. In metered systems this is the customer meter, in unmetered situations this is the first point of use (stop tap/tap) within the property. Leakage on service connections might be reported breaks but will predominately be small leaks which do not surface and which run for long periods (often years).
Revenue Water	Those components of Authorised Consumption which are billed and produce revenue (also known as Billed Authorised Consumption). Equal to Billed Metered Consumption plus Billed Unmetered Consumption.
Non-Revenue Water	Those components of System Input which are not billed and do not produce revenue. Equal to Unbilled Authorised Consumption plus Physical and Commercial Water Losses.
Remaining useful life (RUL)	The time remaining over which an asset is expected to be used.
Re-use	Utilisation of treated or untreated wastewater for a process other than the one that generated it. For instance, the re-use of municipal wastewater for agricultural irrigation. Water re-use can be direct or indirect, intentional or unintentional, planned or unplanned, local, regional or national in terms of location, scale and significance. Water re-use may involve various kinds of treatment (or not) and the reclaimed water may be used for a variety of purposes.
Service Delivery Budget Implementation Plan (SDBIP)	The SDBIP is a management, implementation and monitoring tool that enable the City Manager to monitor the performance of senior managers, the Mayor to monitor the performance of the City Manager, and for the community to monitor the performance of the municipality.
Strategic Framework for Water Services	The Strategic Framework provides a comprehensive summary of policy with respect to the water services sector in South Africa and sets out a strategic framework for its implementation over the next ten years.
Water Conservation	The minimisation of loss or waste, the care and protection of water resources and the efficient and effective use of water.
Water Demand Management	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.

**KEY TERMS AND INTERPRETATIONS**

Water Services Authority (WSA)	A water services authority means a municipality with the executive authority and the right to administer water services as authorised in terms of the Municipal Structures Act, 1998 (Act No.117 of 1998). 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.
Water Services Development Plan (WSDP)	A plan to be developed and adopted by the WSA in terms of the Water Services Act, 1997 (Act No.108 of 1997)
WSDP Guide Framework	Modular tool which has been developed by the DWS to support WSAs in complying to the Water Services Act with respect to Water Services Development Planning and which is also used by the DWS to regulate such compliance.
Water Services Provider (WSP)	A WSP means any person or institution that provides water services to consumers or to another water services institution, but does not include a water services intermediary.

### WSDP – IDP Water Sector Input Report (Executive Summary)

#### Introduction

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

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

- Settlements and Demographics
- Service Levels
- Water Services Infrastructure Management (Infrastructure)
- Water Services Infrastructure Management (O&M)
- Conservation and Demand Management
- Water Resources
- Financial
- Institutional Arrangements and Customer Care

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

- All WSAs must develop a WSDP.
- A new plan must be developed every five years and the plan should be updated as necessary and appropriate in the interim years.
- The WSDP must be integrated with the IDP of the municipality, as required in terms of the Municipal Systems Act.
- The WSDP must integrate water supply planning with sanitation planning.
- The WSDP must integrate technical planning with social, institutional, financial and environmental planning. The planning of capital expenditures must also be integrated with the associated operation and maintenance requirements and expenditures.
- The WSDP must be informed by the business plans developed by water services providers and with the plans of any regional water services providers, as relevant.
- The plan must take into account the impact of HIV/Aids on future water demand.
- The WSDP must integrate with the catchment management strategy.
- The planning process must take into account the views of all important stakeholders, including communities, through a consultative and participatory process. Every effort must be made to ensure the adequate and meaningful participation of women in consultation forums.
- The draft plan must be made available for public and stakeholder comment and all comments made must be considered when preparing the final plan.
- The contents of the WSDP must be communicated to all important stakeholders, including the DWS.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

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

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

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

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

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

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

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

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

The **SWOT analysis** for Overstrand Municipality indicated the following Threats, Strengths, Weaknesses and Opportunities (2023/2024 IDP).

Threats:

- Load shedding
- Covid-19 pandemic;
- Adverse economic climate affecting the revenue stream of the Municipality;
- Urbanisation; and
- Excessive red tape.

Strengths:

- Ethical, participative and accountable governance;
- Stable, skilled and highly knowledgeable workforce; and
- Available and well maintained municipal infrastructure that enhances social and economic growth.

Weaknesses:

- Lack of suitable land for urban expansion in certain areas due to topography (land locked between sea and mountain);
- Lack of affordable residential accommodation;
- Inadequate and/or non-existing public transport services that hamper opportunities to develop local economy;
- Gaps in pro-active and timely communication through the relevant mechanisms; and
- Inadequate resources to combat disasters.

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### Opportunities:

- Diverse economic income streams;
- Capitalise on its ability to foster local economic development;
- Promote safety and security;
- Make the most of its unique natural assets;
- Capacity building of elected statutory structures and community structures to be able to deal with challenges in local communities;
- Promotion of diversity and social cohesion.

## SECTION A: STATUS QUO OVERVIEW

Overstrand Municipality is situated within the Breede-Olifants Water Management Area (WMA). The Municipality consists of thirteen (13) individual wards and is the only WSA within this municipal area and is also the Water Services Provider for the internal water and sewerage networks and services. The bulk water and sewerage infrastructure are operated and maintained by an external Service Provider. Overstrand Municipality's Management Area includes the following towns and **Water Distribution Systems**:

- Rooi Els, Pringle Bay, Betty's Bay – **Buffels River System**

The towns of Rooi Els, Pringle Bay and Betty's Bay obtain their bulk water from the Buffels River Dam. The raw water is treated at the Buffels River WTW before it is distributed to the various consumers in Rooi Els, Pringle Bay and Betty's Bay.

- Kleinmond – **Kleinmond System**

Kleinmond is supplied from the Palmiet River. The "Dorpsfontein" and a borehole (1998), located 300m to the east of the fountain, is available as additional sources in case of emergency. The raw water is treated at the Kleinmond WTW before it is distributed to the various consumers in Kleinmond.

- Fisherhaven, Hawston, Vermont, Onrus, Sandbaai, Zwelihle, Hermanus – **Greater Hermanus System**

The Greater Hermanus area is supplied with bulk surface water from De Bos Dam and bulk groundwater from the Gateway-, Camphill- and Volmoed Well Fields. The surface and groundwater are treated at the Preekstoel WTW before it is distributed to the various consumers in the Greater Hermanus area. A portion of the final effluent from the Hermanus WWTW is used for irrigation purposes. Raw surface water from the Mossel River and Fisherhaven Dams is also used for irrigation purposes.

- Stanford – **Stanford System**

Stanford is supplied with bulk water from the high discharging Stanford Spring, generally known as "Die Oog" (the Eye), which was previously the sole source of supply of potable water to the town and the greater area. Two boreholes were drilled in the "Kouevlakte wellfield" during 2010/2011 and a new bulk pipeline was constructed the following year in order to connect the boreholes to the existing network. The raw water is treated at the Stanford WTW (Ultrafiltration plus Reverse Osmosis Plant) before it is distributed to the various consumers in Stanford.

- De Kelders, Gansbaai, Kleinbaai, Franskraal – **Greater Gansbaai System**

The water sources of Gansbaai, De Kelders, Kleinbaai and Franskraal are integrated with each other through the bulk water supply distribution system. In the past specific sources were utilised for specific areas, but due to peak supply limitations of underground resources during peak seasons, the system has become completely integrated. Bulk water supply to the Greater Gansbaai system is from the Franskraal and Kraaibosch dams and the Klipgat and Grotte water sources, which consist of a spring in the De Kelders caves and a spring at Stanfords Bay. The raw water from the Franskraal and Kraaibosch dams are treated at the Franskraal WTW and the water from the Klipgat and Grotte water sources are treated at the De Kelders WTW. Final effluent from the Gansbaai WWTW is used for irrigation purposes.

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- Pearly Beach – **Pearly Beach System**

Pearly Beach is supplied from seven springs located in the mountains some 6km from Pearly Beach. The water from the springs is kept in storage at the Pearly Beach Dam. A Service Level Agreement is also in place for the supply of 0.26 Ml/d from the Koekemoer Dam free of charge to the Municipality. The raw water is treated at the Pearly Beach WTW before it is distributed to the various consumers in Pearly Beach.

- Baardskeerdersbos – **Baardskeerdersbos System**

Bulk water supply to Baardskeerdersbos is from two boreholes. Baardskeerdersbos previously received their bulk water from the Boskloof Stream, but all current bulk water supply to the area and in the future will be from the boreholes. The groundwater is treated at the Baardskeerdersbos WTW before it is distributed to the various consumers in Baardskeerdersbos.

- Buffeljags Bay – **Buffeljags Bay System**

Bulk water supply to Buffeljags Bay is from a borehole. The water is disinfected before it is distributed to the various consumers in Buffeljags Bay.

The most significant challenges experienced by Overstrand Municipality from a water and sanitation services delivery perspective, as summarised in the draft 2022/2023 Annual Report, are as follows.

- Under reading of water meters older than twelve years;
- Burst water pipes in water distribution networks;
- Water conservation;
- Large price increases for treatment chemicals;
- Vandalism and theft of infrastructure and equipment;
- Aging infrastructure;
- Additional water source required for Hermanus in the medium term;
- National shortage of chlorine gas for water treatment;
- Blockages (Inappropriate objects in sewer lines cause blockages and leads to spillages);
- To provide sufficient wastewater treatment capacity as well as bulk and reticulation system capacity in all the schemes to be able to accommodate future growth and development, including the planned low-cost housing projects.

### Physical Perspective:

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

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

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

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

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

### Natural Environment:

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

### TOPIC 1: SETTLEMENTS AND DEMOGRAPHICS

The tables below gives an overview of the settlements, population and households in Overstrand Municipality's Management Area for 2022/2023. The numbers of settlements are in accordance with the grouping of the different areas in DWS's GeoDatabase.

Table A.1.1: Settlement Summary		
Section	Value	Assessment Score
1.1 Total Population (Permanent)	124 812	80%
1.2 Total Number of Households (Permanent)	43 289	80%
1.3 Average Household Size	2.88	80%
1.4 Total Number of Settlements (GeoDatabase)	60	80%

Note: The score of 80% in the above table is Excellent, which is the highest score in DWS's eWSDP website.

Table A.1.2 Summary by Settlement Group (Urban / Rural Split)				
Settlement Type	Settlements (GeoDatabase)	Population	Households	Assessment Score
Rural	10	5 604	2 127	80%
Urban	50	119 206	41 161	80%
<b>Total</b>	<b>60</b>	<b>124 812</b>	<b>43 289</b>	<b>80%</b>

Note: The score of 80% in the above table is Excellent, which is the highest score in DWS's eWSDP website.

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Main Type	Settlement Type	Settlements GeoDatabase	Population	Households	Avg. Household Size	Assessment Score
Rural	Farming	9	5 604	2 127	2.63	80%
Rural	Rural – Informal Settlements	1	60	15	4.00	80%
Urban	Urban - Informal Settlements	23	44 580	11 145	4.00	80%
Urban	Urban - Formal Town	27	74 566	30 001	2.49	80%
<b>Total</b>		<b>60</b>	<b>124 812</b>	<b>43 289</b>	<b>2.88</b>	<b>80%</b>

Note: The score of 80% in the above table is Excellent, which is the highest score in DWS's eWSDP website.

Amenity Type	Number of Amenities	Assessment Score
Health Facilities	13	80%
Educational facilities	39	80%

Note: The score of 80% in the above table is Excellent, which is the highest score in DWS's eWSDP website.

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

Overstrand Municipality's Spatial Development Framework (SDF), May 2020, estimated the 2019 population at 116 550 persons. The SDF indicated that the population of the Overstrand Municipality grew at an approximate rate of 3% per annum between 2011 and 2016, and that future growth will continue to be between 2.8% and 3.3% per annum.

The 2022 Socio Economic Profile of Overstrand Municipality (Western Cape Government) indicates the 2022 population of Overstrand Municipality at 110 971 persons and the 2021 households at 30 427. The Municipality's Final IDP of 31 May 2023 (Final IDP Review, 2023/2024) indicates the 2022 projected population at 110 971 persons and the permanent households for the 2021/2022 financial year at 36 076.

The published 2022 Census population for Overstrand Municipality was 132 495 persons (Annual growth rate of 4.9% over the period 2011 to 2022) and the number of permanent households was 59 980, which is higher than the figures included in the IDP, SDF and 2022 Socio Economic Profile. The projected population and households included in the Municipality's approved 2022/2023 WSDP Performance- and Water Services Audit Report is however closer to the 2022 Census published data. The 2022 Census data is not yet available per town and it was therefore not possible to update Overstrand Municipality's projected population and households per town (system) at this stage. It was therefore decided to keep the projected population and households for Overstrand Municipality, as included in the 2022/2023 WSDP Performance- and Water Services Audit Report.

The on-going in-migration into the Overstrand Municipal area will place increasing demands on the infrastructure and available space for urban growth. The increased footprint in the Municipal area needs careful management if it is not to impact negatively on the natural environment of Overstrand. The increased population growth will place increased pressure on the municipal resources to develop new as well as maintain existing infrastructure. The 2022/2023 populations for the various water distribution systems were estimated by applying the annual growth rates as indicated in Table A.1.5. The current population figures and the annual population growth percentages used in the WSDP Performance- and Water Services Audit Report are aligned with the figures used in DWS's GeoDatabase.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The future estimated annual population growth percentages, as listed in the table below, were agreed with the Municipality's Community Services and Engineering Planning Departments during January 2014.

**Table A.1.5: Estimated Future Annual Population Growth Percentages, Population and Households per Distribution System**

Town	Estimated future annual Population Growth %	Projected 2022/2023 Persons	Projected 2022/2023 Households
Buffels River	4.15%	3 593	1 811
Kleinmond	2.50%	8 698	3 586
Greater Hermanus	4.45%	76 410	25 213
Stanford	2.65%	6 375	1 991
Greater Gansbaai	4.89%	22 531	7 875
Pearly Beach	2.11%	1 317	610
Baardskeerdersbos	0.50%	129	41
Buffeljags Bay	0.50%	155	35
Farms	1.56%	5 604	2 127
<b>Total</b>	<b>4.07%</b>	<b>124 812</b>	<b>43 289</b>

The current 2022/2023 population for Overstrand Municipality is therefore estimated at 124 812 persons and the permanent households at 43 289, as indicated in the table above. The projected population and households will be updated according to the 2022 Census data, once the information becomes available per town.

# WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The tables below give an overview of the projected population and permanent number of households and the water and sanitation service levels in Overstrand Municipality's Management Area.

Table A.1.6: Water Services Overview																										
Settlement Type	2011/2012		2022/2023		Water category								Sanitation category													
	Households	Population	Households	Population	Adequate: Formal	Adequate: Informal	Adequate: Shared Services	Water resources needs only	O&M needs only	Infrastructure needs only	Infrastructure & O&M needs	Infrastructure, O&M & Resource need	No Services: Informal	No Services: Formal	Adequate: Formal	Adequate: Informal	Adequate: Shared Services	Water resources needs only	O&M needs only	Infrastructure needs only	Infrastructure & O&M needs	Infrastructure, O&M & Resource need	No Services: Informal	No Services: Formal		
<b>URBAN</b>																										
<b>Metropolitan Area</b>					Adequate	Below RDP	None	Adequate	Below RDP	None					Adequate	Below RDP	None									
Sub-Total	0	0	0	0																						
<b>Formal Town</b>					Adequate	Below RDP	None	Adequate	Below RDP	None					Adequate	Below RDP	None									
Buffels River	1 158	2 297	1 811	3 593	P	P								P	P											
Kleinmond	2 351	5 101	2 572	4 642	P	P								P	P											
Greater Hermanus	14 256	41 884	17 316	44 822	P	P								P	P											
Stanford	1 379	4 325	1 544	4 587	P	P								P	P											
Greater Gansbaai	3 251	7 698	6 214	15 887	P	P								P	P											
Pearly Beach	314	363	484	813	P	P								P	P											
Baardskoeviersbos	39	122	41	129	P									P												
Buffeljags Bay	33	147	20	95	P									P												
Sub-Total	22 781	61 937	30 002	74 567																						
<b>Townships</b>					Adequate	Below RDP	None	Adequate	Below RDP	None					Adequate	Below RDP	None									
Sub-Total	0	0	0	0																						
<b>Informal Settlements</b>					Adequate	Below RDP	None	Adequate	Below RDP	None					Adequate	Below RDP	None									
Greater Gansbaai	1 407	5 628	1 661	6 644	P									P												
Greater Hermanus	1 362	5 448	7 897	31 588	P									P												
Kleinmond	382	1 528	1 014	4 056	P									P												
Stanford	114	456	447	1 788	P									P												
Pearly Beach	171	684	126	504	P									P												
Buffeljags Bay			15	60	P									P												
Sub-Total	3 436	13 744	11 160	44 640																						
<b>Working towns &amp; service centres</b>					Adequate	Below RDP	None	Adequate	Below RDP	None					Adequate	Below RDP	None									
Sub-Total	0	0	0	0																						
Sub-Total: (Urban)	26 217	75 681	41 162	119 207																						
<b>RURAL</b>																										
<b>Rural / Farming</b>					Adequate	Below RDP	None	Adequate	Below RDP	None					Adequate	Below RDP	None									
Overstrand Rural	1 794	4 727	2 127	5 604	P	P								P	P	P									P	
Sub-Total	1 794	4 727	2 127	5 604																						
<b>Informal Settlements</b>					Adequate	Below RDP	None	Adequate	Below RDP	None					Adequate	Below RDP	None									
Sub-Total	0	0	0	0																						
Sub-Total (Rural)	1 794	4 727	2 127	5 604																						
<b>TOTAL</b>	<b>28 011</b>	<b>80 408</b>	<b>43 289</b>	<b>124 812</b>																						

# WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

## TOPIC 2: SERVICE LEVELS

The National Norms and Standards for Domestic Water and Sanitation Services, as published in the Government Gazette No.41100 of 8 September 2017, make provision for the following norms and standards for levels of water supply and sanitation services:

Table A.2.1: Norms and Standards for Levels of Water Supply Services		
<b>Full level of service:</b> People access and pay for more than 90 l/c/d at high pressure.	Interim Full	<b>Full provision:</b> People access a minimum of 50 l/c/d of SANS241 quality water on demand at the boundary of the yard, metered and tariffed.
	Interim Upper	<b>Upper provision:</b> People access a maximum of 90 l/c/d of SANS241 quality water from an improved source at the boundary of the yard, metered and tariffed.
<b>Middle level of service:</b> People access and pay for 51-90 l/c/d at medium pressure.	Interim Intermediate	<b>Intermediate provision:</b> People access more than 50 l/c/d but less than 90 l/c/d of SANS241 quality water from an improved source at the boundary of the yard, metered and tariffed.
	Interim Basic Plus	<b>Basic Plus provision:</b> People access more than 25 l/c/d but less than 50 l/c/d of SANS241 quality water from an improved source at the boundary of the yard, metered and tariffed.
<b>Minimum level of service:</b> People access 25-50 l/c/d at low to medium pressure, use of more than 25 l/c/d is paid for.	Interim Basic	<b>Basic provision:</b> People access a minimum of 25 l/c/d of SANS241 quality water from an improved source at the boundary of the yard, metered and tariffed.
	Interim Free Basic	<b>Free basic provision:</b> People access a minimum of 25 l/c/d of SANS241 quality water from an improved source at the boundary of the yard, metered.
	Intermittent	<b>Intermittent provision:</b> People access a minimum of 1500 l/household/week of acceptable quality water on a weekly basis within 100m, which is metered.
<b>Bulk service:</b> Source of potable water to be provided to people, which is metered in all circumstances.		
<b>No service / provision = backlog:</b> People access water from insecure or unimproved sources, or sources that are too distant, too time consuming or are of poor quality.		

**Interim provision:** People access a minimum of 25 l/c/d of acceptable quality water within 24 hours of disruption, normal service to be restored within 7 days.

Table A.2.2: Norms and Standards for Levels of Sanitation Services		
Hygiene promotion; Prevention of pollution; Re-use / recycle; Operation and Maintenance; Metering and tariffing; Solid Waste Management; Asset Management		
<b>Full level:</b> Full concern for human health, environment and sustainability of interconnected systems.	Full services	<b>In-house facility:</b> Storm water, wastewater/excreta, greywater, solid waste are collected and managed to achieve maximum benefits from treatment and re-use of water and nutrients.
		<b>In-house facility:</b> Access to a pleasant, safe, reliable and properly maintained facility for 24 hours a day, with control of nutrients in human excreta, wastewater and greywater.
<b>Basic level:</b> Remove excreta from the environment through treatment, pathogen reduction, resource recovery and nutrient reuse.	Free basic services	<b>Toilet with functional hand washing facility in the yard:</b> Access to a pleasant, safe and reliable facility for 24 hours a day, including privacy, personal safety and shelter through a subsidy for free. Maintenance of the facility is for free and is the responsibility of services provider.
	Basic services	<b>Toilet with functional hand washing facility in the yard.</b> Access to a pleasant, safe and reliable facility for 24 hours a day, including privacy, personal safety and shelter through a capital subsidy. Maintenance of the facilities is not for free and is the responsibility of the household / owner.
<b>Interim level:</b> Blocking the spread of faecal-oral diseases through proper excreta containment at a fixed point.	Excreta containment	<b>Household, shared or communal toilets with functional hand washing facilities:</b> Access to safe, reliable and properly maintained toilet and hand washing facility, free of charge, within 200m of the dwelling, which at a minimum safely contains human excreta. Maintenance is the responsibility of the services provider. To be phased out by 2030.
<b>No service / provision = backlog:</b> People practice open defecation or access an unimproved sanitation facility, such as pit toilets and bucket toilets. To be completely eliminated by 2030.		

**Emergency level:** People access pleasant, safe, reliable and properly maintained improved toilets and hand washing facility on the premises in close proximity to the temporary dwelling within 24 hours and for duration of event.

Proper disposal, clean platform, vector and rodent control, resource use and health protection.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

All the formal households in the urban areas of Overstrand Municipality's Management Area are provided with water and sewer connections inside the premises. Informal areas are supplied with shared services as an intermediary measure. Overstrand Municipality works towards a ratio of at least 1 tap per twenty-five households and 1 communal toilet per five households for their shared services. Overstrand Municipality is committed to ensure that private landowners provide at least basic water and sanitation services to those households in the rural areas with existing services below RDP standard.

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

- The operation and maintenance of communal services in informal areas are a challenge, with regular sewer blockages, vandalism of infrastructure and facilities and water leaks.
- 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 erven).
- 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.

The table and graph below give an overview of the water service delivery access profile of Overstrand Municipality.

Census Category	Description	Year 0		Year -1		Year 2	
		FY2022/23		FY2021/22		FY2020/21	
		Nr	%	Nr	%	Nr	%
	<b>WATER (ABOVE MIN LEVEL)</b>						
Piped (tap) water inside dwelling/institution	House connections	40 620	71%	39 713	70%	38 808	81%
Piped (tap) water inside yard	Yard connections	5 300	9%	5 300	9%	5 300	11%
Piped (tap) water on community stand: distance less than 200m from dwelling/institution	Standpipe connection < 200 m	11 191	20%	11 240	20%	3 810	8%
	<b>Sub-Total: Minimum Service Level and Above</b>	<b>57 111</b>	<b>100%</b>	<b>56 253</b>	<b>100%</b>	<b>47 918</b>	<b>100%</b>
	<b>WATER (BELOW MIN LEVEL)</b>						
Piped (tap) water on community stand: distance between 200m and 500m from dwelling/institution	Standpipe connection: > 200 m < 500 m	21	0%	21	0%	21	0%
Piped (tap) water on community stand: distance between 500m and 1000m (1km) from dwelling /institution	Standpipe connection: > 500 m < 1 000 m	8	0%	8	0%	8	0%
Piped (tap) water on community stand: distance greater than 1000m (1km) from dwelling/institution	Standpipe connection: > 1 000 m	5	0%	5	0%	5	0%
No access to piped (tap) water	No services	49	0%	49	0%	49	0%
	<b>Sub-Total: Below Minimum Service Level</b>	<b>83</b>	<b>0%</b>	<b>83</b>	<b>0%</b>	<b>83</b>	<b>0%</b>
	<b>Total number of households</b>	<b>57 194</b>	<b>100%</b>	<b>56 336</b>	<b>100%</b>	<b>48 001</b>	<b>100%</b>

Note: The households in the above residential water services delivery access profile include all permanent residential households, holiday homes, the households in informal areas and the backyard dwellers and is not the same as only the permanent residential households in Table A.1.6.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

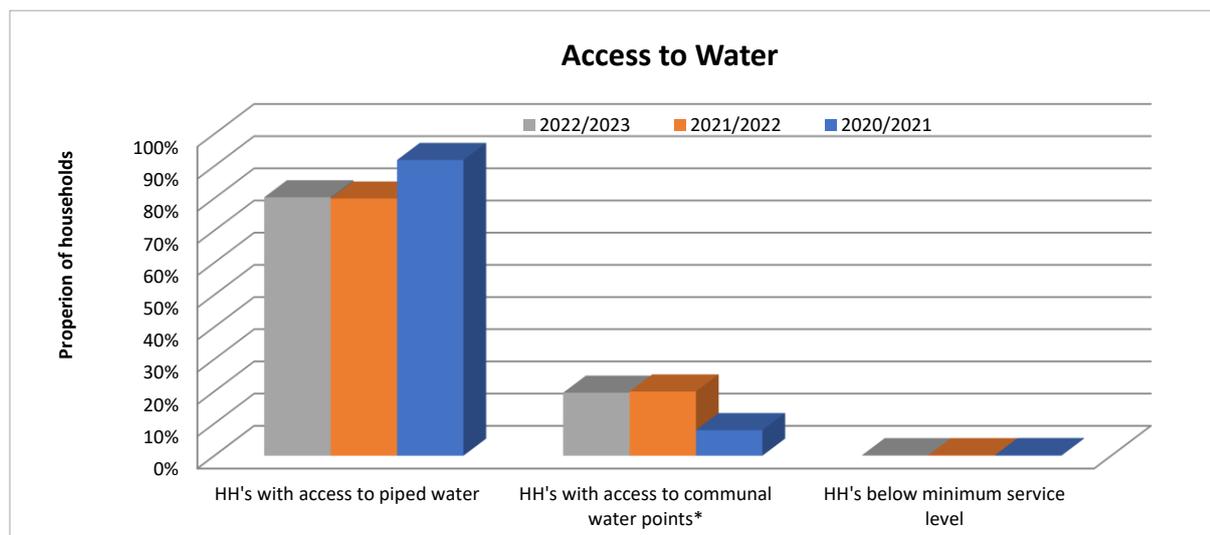


Figure A.2.1: Access to Water Services.

The existing residential water service levels in Overstrand Municipality's Management Area are indicated in the table below.

Service Level	Buffels River	Kleinmond	Greater Hermanus	Stanford	Greater Gansbaai	Pearly Beach	Baardskeerdersbos	Buffeljags Bay	Farms	Total
No Water Services	0	0	0	0	0	0	0	0	49 <sup>2)</sup>	49
Below RDP: Infrastructure Upgrade	0	0	0	0	0	0	0	0	0	0
Below RDP: Infrastructure Extension	0	0	0	0	0	0	0	0	34 <sup>3)</sup>	34
Below RDP: Infrastructure Refurbishment	0	0	0	0	0	0	0	0	0	0
Below RDP: O&M Needs	0	0	0	0	0	0	0	0	0	0
Below RDP: Water Resource Needs	0	0	0	0	0	0	0	0	0	0
Below RDP: Infrastructure and O&M Needs	0	0	0	0	0	0	0	0	0	0
Below RDP: Infrastructure, O&M and Water Resource Needs	0	0	0	0	0	0	0	0	0	0
<b>Total Basic Need (RDP)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>83</b>	<b>83</b>
Below Housing Interim <sup>4)</sup>	0	0	0	0	0	0	0	0	0	0
Adequate Housing Permanent <sup>5)</sup>	0	1 014	7 897	447	1 661	126	0	15	0	11 160
<b>Total Housing Need</b>	<b>0</b>	<b>1 014</b>	<b>7 897</b>	<b>447</b>	<b>1 661</b>	<b>126</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>11 160</b>
Standpipes	0	0	0	0	0	0	0	0	31	31
Yard Connections <sup>6)</sup>	6	282	3 623	482	625	39	0	0	243	5 300
House Connections <sup>1)</sup>	3 753	3 681	21 410	1 349	6 745	1 815	67	30	1 770	40 620
<b>Total Adequate</b>	<b>3 759</b>	<b>3 963</b>	<b>25 033</b>	<b>1 831</b>	<b>7 370</b>	<b>1 854</b>	<b>67</b>	<b>30</b>	<b>2 044</b>	<b>45 951</b>
<b>Total Residential Consumer Units for the Municipality</b>	<b>3 759</b>	<b>4 977</b>	<b>32 930</b>	<b>2 278</b>	<b>9 031</b>	<b>1 980</b>	<b>67</b>	<b>45</b>	<b>2 127</b>	<b>57 194</b>

- Notes: 1) Number of residential consumer units for the urban areas for 2022/2023 was estimated from the previous number of residential consumer units from the financial system.
- 2) Census 2011: Number of households with no access to piped (tap) water 49
- 3) Census 2011: Number of households with communal services (200m – 500m) 21, (500m – 1000m) 8 and (>1000m) 5.
- 4) Below Housing Interim in the above table is the number of informal households in informal areas without basic water services.
- 5) Adequate Housing Permanent in the above table is the number of informal households in informal areas with communal water services, as confirmed by the Municipality (June 2023).
- 6) Estimated number of backyard dwellers, as agreed with the Municipality during January 2014, as part of DWS's Backlog Eradication Strategy process.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Settlement	Urban / Rural	2022/23		2021/22 (-Y1)	
		Water backlog HH	Water Backlog Population	Water backlog HH	Water Backlog Population
Buffels River	Urban	0	0	0	0
Kleinmond	Urban	0	0	0	0
Greater Hermanus	Urban	0	0	0	0
Stanford	Urban	0	0	0	0
Greater Gansbaai	Urban	0	0	0	0
Pearly Beach	Urban	0	0	0	0
Baardskeerdersbos	Urban	0	0	0	0
Buffeljags Bay	Urban	0	0	0	0
Farms	Rural	83	218	83	218
		<b>83</b>		<b>83</b>	

Water Profile	Totals	Assessment Score
<b>Total households with a water need (Irrelevant the type of need)</b>	<b>83</b>	<b>80%</b>
<b>Total households below RDP</b>	<b>83</b>	<b>80%</b>
Piped water inside the dwelling/house-Households	40 620	80%
Piped water inside yard-Households	5 300	80%
Piped water distance <200m - Households	11 191	80%
Piped water distance >200m - Households	34	60%
Borehole in the yard - Households	0	80%
Rain-water tank in yard - Households	0	80%
Water vendor-carrier/tanker - Households	0	80%
Stagnant water - dam/pool - Households	19	60%
Flowing water/spring/ stream/river - Households	4	60%
Water Other – Households (include no water)	26	60%

Note: The scores of 60% and 80% in the above table is Good and Excellent. 80% is the highest score in DWS's eWSDP website.

Section: Water Reliability Profile	Totals	Assessment Score
<b>Total Number of Households having Reliable Service</b>	<b>57 111</b>	<b>80%</b>
<b>Total Number of Households NOT having Reliable Service</b>	<b>83</b>	<b>60%</b>

Note: The scores of 60% and 80% in the above table is Good and Excellent. 80% is the highest score in DWS's eWSDP website.

The projected figures in the previous tables for water services are still based on the 2011 Census data and can only be updated once the 2022 Census data becomes available per town or subplace.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

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

Table A.2.8: Residential Water Services Delivery Access Profile: Sanitation							
Census Category	Description	Year 0		Year -1		Year 2	
		FY2022/23		FY2021/22		FY2020/21	
		Nr	%	Nr	%	Nr	%
<b>SANITATION (ABOVE MIN LEVEL)</b>							
Flush toilet (connected to sewerage system)	Waterborne	30 398	53%	29 502	52%	28 376	59%
	Waterborne: Low Flush	4 100	7%	4 100	7%	4 100	9%
Flush toilet (with septic tank)	Septic tanks / Conservancy	11 239	20%	11 228	20%	11 449	24%
Chemical toilet	Non-waterborne (min. service level)	5	0%	5	0%	5	0%
Pit toilet with ventilation (VIP)		27	0%	27	0%	27	0%
Other / Communal Services	Waterborne (min. service level, communal)	11 160	20%	11 209	20%	3 779	8%
<b>Sub-Total: Minimum Service Level and Above</b>		<b>56 929</b>	<b>100%</b>	<b>56 071</b>	<b>100%</b>	<b>47 736</b>	<b>99%</b>
<b>SANITATION (BELOW MIN LEVEL)</b>							
Pit toilet without ventilation	Pit toilet	12	0%	12	0%	12	0%
Bucket toilet	Bucket toilet	68	0%	68	0%	68	0%
Other toilet provision (below min. service level)	Other	119	0%	119	0%	119	0%
No toilet provisions	No services	66	0%	66	0%	66	0%
<b>Sub-Total: Below Minimum Service Level</b>		<b>265</b>	<b>0%</b>	<b>265</b>	<b>0%</b>	<b>265</b>	<b>1%</b>
<b>Total number of households</b>		<b>57 194</b>	<b>100%</b>	<b>56 336</b>	<b>100%</b>	<b>48 001</b>	<b>100%</b>

Note: The households in the above residential sanitation services delivery access profile include all permanent residential households, holiday homes, the households in informal areas and the backyard dwellers and is not the same as only the permanent residential households in Table A.1.6.

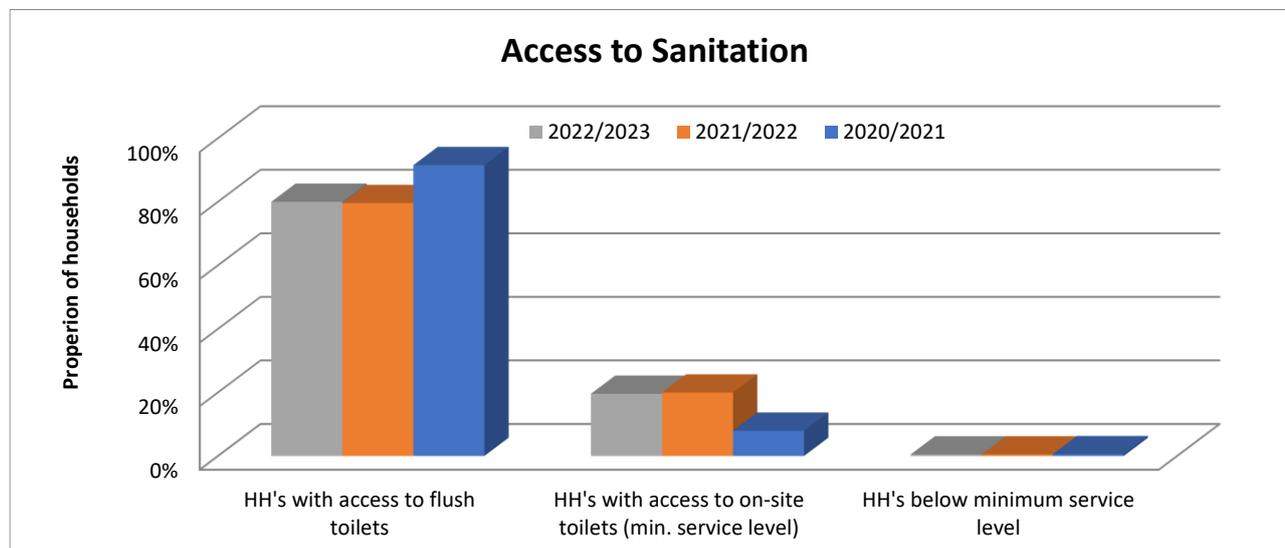


Figure A.2.2: Access to Sanitation Services.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The existing residential sanitation service levels in Overstrand Municipality's Management Area are indicated in the table below.

Service Levels	Buffels River	Kleinmond	Greater Hermanus	Stanford	Greater Gansbaai	Pearly Beach	Baardskeerdersbos	Buffeljags Bay	Farms	Total
No Sanitation Services	0	0	0	0	0	0	0	0	66 <sup>3)</sup>	66
Below RDP: Infrastructure Upgrade	0	0	0	0	0	0	0	0	204 <sup>4)</sup>	204
Below RDP: Infrastructure Extension	0	0	0	0	0	0	0	0	0	0
Below RDP: Infrastructure Refurbishment	0	0	0	0	0	0	0	0	0	0
Below RDP: O&M Needs	0	0	0	0	0	0	0	0	0	0
Below RDP: Water Resource Needs	0	0	0	0	0	0	0	0	0	0
Below RDP: Infrastructure and O&M Needs	0	0	0	0	0	0	0	0	0	0
Below RDP: Infrastructure, O&M and Water Resource Needs	0	0	0	0	0	0	0	0	0	0
<b>Total Basic Need (RDP)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>270</b>	<b>270</b>
Below Housing Interim <sup>5)</sup>	0	0	0	0	0	0	0	0	0	0
Adequate Housing Permanent <sup>6)</sup>	0	1 014	7 897	447	1 661	126	0	15	0	11 160
<b>Total Housing Need</b>	<b>0</b>	<b>1 014</b>	<b>7 897</b>	<b>447</b>	<b>1 661</b>	<b>126</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>11 160</b>
No Waterborne (VIP)	0	0	0	0	0	0	0	0	27	27
Waterborne Low Flush	0	0	4 100	0	0	0	0	0	0	4 100
Septic Tanks / Conservancy Tanks	3 759	960	1 318	10	2 671	594	67	30	1 830	11 239
Waterborne	0	3 003	19 615	1 821	4 699	1 260	0	0	0	30 398
<b>Total Adequate <sup>2)</sup></b>	<b>3 759</b>	<b>3 963</b>	<b>25 033</b>	<b>1 831</b>	<b>7 370</b>	<b>1 854</b>	<b>67</b>	<b>30</b>	<b>1 857</b>	<b>45 764</b>
<b>Total Residential Consumer Units for the Municipality</b>	<b>3 759</b>	<b>4 977</b>	<b>32 930</b>	<b>2 278</b>	<b>9 031</b>	<b>1 980</b>	<b>67</b>	<b>45</b>	<b>2 127</b>	<b>57 194</b>

Notes:

- 1) Total for Septic Tanks and Conservancy tanks in Urban Areas according to Municipal information for June for "Developed Sites Septic Tanks (SE8D)"
- 2) Include Backyard dwellers
- 3) Census 2011: Number of households with no toilet facility 66.
- 4) Census 2011: Number of households with existing buckets 68, chemical toilets 5, pit toilets without ventilation 12 and "other" 119.
- 5) Below Housing Interim in the above table is the number of informal households in informal areas without basic sanitation services.
- 6) Adequate Housing Permanent in the above table is the number of informal households in informal areas with communal ablution facilities, as confirmed by the Municipality (June 2023).

Settlement	Urban / Rural	2022/23		2021/22 (-Y1)	
		Sanitation backlog HH	Sanitation Backlog Population	Sanitation backlog HH	Sanitation Backlog Population
Buffels River	Urban	0	0	0	0
Kleinmond	Urban	0	0	0	0
Greater Hermanus	Urban	0	0	0	0
Stanford	Urban	0	0	0	0
Greater Gansbaai	Urban	0	0	0	0
Pearly Beach	Urban	0	0	0	0
Baardskeerdersbos	Urban	0	0	0	0
Buffeljags Bay	Urban	0	0	0	0
Farms	Rural	270	710	270	710
		<b>270</b>		<b>270</b>	

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

<b>Table A.2.11: Sanitation Level of Service (Households)</b>		
<b>Section: Sanitation Service Infrastructure Supply Level Profile</b>	<b>Totals</b>	<b>Assessment Score</b>
Bucket toilet - Households	68	60%
Pit without ventilation - Households	12	60%
Pit toilet with ventilation (VIP) - Households	27	60%
Chemical Toilet - Households	5	60%
Flush toilet (with septic / conservancy tank) - Households	11 239	80%
Flush toilet (connected to sewerage system) - Households	45 658	80%
None - Households	185	60%

Note: The scores of 60% and 80% in the above table is Good and Excellent. 80% is the highest score in DWS's eWSDP website.

<b>Table A.2.12: Sanitation Reliability Profile (Households)</b>		
<b>Section: Sanitation Reliability Profile</b>	<b>Totals</b>	<b>Assessment Score</b>
<b>Total number of households having reliable service</b>	<b>56 924</b>	<b>80%</b>
<b>Total number of households not having reliable service</b>	<b>270</b>	<b>60%</b>
Infrastructure to be upgraded: None to VIP (HH)	185	60%
Infrastructure requirement: Bucket to VIP (HH)	68	60%
Infrastructure to be upgraded: Pit to VIP (HH)	12	60%

Note: The scores of 60% and 80% in the above table is Good and Excellent. 80% is the highest score in DWS's eWSDP website.

The projected figures in the previous tables for sanitation services are still based on the 2011 Census data and can only be updated once the 2022 Census data becomes available per town or subplace.

<b>Table A.2.13: Direct Backlog (Water and Sanitation)</b>		
<b>Direct Backlog (Water &amp; Sanitation)</b>	<b>Totals</b>	<b>Assessment Score</b>
Direct settlement backlog water households. Total household of settlement with a water need (irrelevant the type of need)	83	60%
Direct settlement backlog water population. Total population of settlement with a water need (irrelevant the type of need)	218	60%
Direct settlement backlog sanitation households. Total household of settlement with a sanitation need (irrelevant the type of need)	270	60%
Direct settlement backlog sanitation population. Total population of settlement with a sanitation need (irrelevant the type of need)	710	60%

The National Norms and Standards for Domestic Water and Sanitation Services, as published in the Government Gazette No.41100 of 8 September 2017, include the following interim water and sanitation services (Communal Services):

<b>Table A.2.14: Interim Water and Sanitation Services (National Norms and Standards for Domestic Water and Sanitation Services)</b>
<b>Intermittent provision of water at a minimum level of water supply services</b>
<ul style="list-style-type: none"> <li>A minimum volume of 1 500 litres of potable water shall be made available to a household per week.</li> <li>The water provided shall comply with the SANS241 quality standards.</li> <li>The access/delivery point shall be at a minimum a communal standpipe, or a storage facility in the yard (water container, yard tank, roof tank) of at least a volume of 1 500 litres.</li> <li>In the case of a communal standpipe, it shall be within a reasonable walking distance of no more than 100m from the farthest household.</li> <li>In the case of a storage facility in the yard (water container, yard tank, roof tank), it shall be refilled by a water tanker with potable water at least once a week.</li> <li>The water shall be made available for 52 weeks per year.</li> <li>All water use and/or supply shall be metered, but not tariffed.</li> <li>Maintenance of the infrastructure for this level of service is the responsibility of the WSA.</li> <li>Point-of-use water treatment systems and methods shall be advocated.</li> <li>Efforts shall be made to ensure user acceptance and understanding for this level of service.</li> <li>Users shall be educated in effective water use and hygiene.</li> </ul>

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

<b>Table A.2.14: Interim Water and Sanitation Services (National Norms and Standards for Domestic Water and Sanitation Services)</b>	
<b>Intermittent provision of water at a minimum level of water supply services</b>	
<ul style="list-style-type: none"> <li>This level of service shall be phased out by 2030 to comply with the National Development Plan's requirement of providing a basic service of at least a yard connection for water.</li> </ul>	
<b>Interim sanitation services (Communal and shared facilities)</b>	
<ul style="list-style-type: none"> <li>Users shall be consulted on the siting and design, and the responsible cleaning and maintenance of shared toilets. Clean toilets are more likely to be frequently used.</li> <li>Plumbing in and for communal and shared facilities needs to be more robust than that installed on private premises, and shall comply with the general principles of the National Building Regulations. Precautions need to be taken in the design against vandalism, theft and misuse.</li> <li>Efforts shall be made to provide people living with chronic illnesses, such as HIV and AIDS, with easy access to a toilet as they frequently suffer from chronic diarrhoea and reduced mobility.</li> <li>Where possible, communal and shared toilets must be provided with lighting, or users provided with torches. The input of the users must be sought with regard to ways of enhancing the safety of users.</li> <li>Efforts to build a sense of communal ownership and pride of possession shall be made so that cooperation is voluntarily given or assured by peer pressure.</li> <li>Sufficient sanitation facilities shall be provided for the number of users               <ul style="list-style-type: none"> <li>Communal toilet: Toilet seats – 1 seat per 50 users; Urinal units – 1 unit per 100 users; Hand washing – 1 basin per 10 toilet seats.</li> <li>Shared toilet mostly used all the time: Toilet seats – 1 seat per 20 users; Urinal units – 1 unit per 50 users; Hand washing – 1 basin per 4 toilet seats.</li> </ul> </li> <li>Shared and communal facilities shall have separate toilet blocks for men and women with separate entries; waste bins with lids in toilet block for women – emptied once a week and disposed of appropriately; urinal facilities for men; seats for children in the section for women; waiting / circulating area; separate washing cubicles for men and women; facility to store large volumes of water (water-borne sanitation); appropriate wastewater disposal system; and store room for keeping the cleaning material / equipment.</li> </ul>	

Overstrand Municipality's Directorate Community Services regularly count the number of households in the informal areas. The current number of households in the informal areas, with access to communal basic services, is 3 242. The number of households with communal services in the informal areas and the number of households per facility type are summarised in the table below (June 2023).

<b>Table A.2.15: Communal Service Levels in the Informal Areas</b>						
Area	Informal Settlement	No. of Households	Number of Toilets	Household / Toilet	Number of Taps	Households / Tap
Stanford	Die Kop	180	20	9.0	7	25.7
Kleinmond	Overhills	489	107	4.6	27	18.1
Gansbaai	Masakhane	716	451	1.6	283	2.5
	Buffeljags Bay	15	8	1.9	2	7.5
Hawston	Erf 170	8	4	2.0	2	4.0
Zwelihle	Tsepe-Tsepe	244	40	6.1	7	34.9
	Serviced Sites	85	25	3.4	5	17.0
	Thambo Square	345	21	16.4	7	49.3
	Asazani	89	12	7.4	5	17.8
	Temporary Relocation Area	250	125	2.0	125	2.0
	New Camp	69	12	5.8	8	8.6
	Transit Camp	171	140	1.2	136	1.3
<b>Sub-Total</b>		<b>2 661</b>	<b>965</b>	<b>2.8</b>	<b>614</b>	<b>4.3</b>
<b>Communal Service Levels – Emergency Housing</b>						
Stanford	Stanford	154	36	4.3	9	17.1
Hermanus	Mount Pleasant (Cemetery)	25	8	3.1	4	6.3
	Mount Pleasant (Mbeki Str)	29	10	2.9	4	7.3
	Zwelihle	150	42	3.6	13	11.5
Gansbaai	Masakhane	97	16	6.1	3	32.3
	Eluxolweni	126	30	4.2	11	11.5
<b>Sub-Total</b>		<b>581</b>	<b>142</b>	<b>4.1</b>	<b>44</b>	<b>13.2</b>
<b>Total</b>		<b>3 242</b>	<b>1 107</b>	<b>2.9</b>	<b>658</b>	<b>4.9</b>

Notes: **No Services**, Ratios above Targets, Ratios meeting Targets

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The table below indicates the number of communal services provided on erven that was part of the land invasion.

Area	Settlement	No. of Households	Number of Toilets	Household / Toilet	Number of Taps	Households / Tap
Hermanus	Marikana (Area of church)	2 309	14	27.5	10	38.5
	Marikana (Next to swimming pool)		20		16	
	Marikana (Next to recycling site)		20		14	
	Marikana Swimming Pool		20		12	
	Marikana (Next to parking area)		10		8	
	Dubai (Schulphoek)	3 950	30	131.7	21	188.1
	Back of sport ground, Zwelihle	173	20	8.7	8	21.6
Kleinmond	Overhills	525	19	27.6	6	87.5
Gansbaai	Masakhane (Next to primary school and portion of new housing project)	848	8	106.0	1	848.0
Stanford	Die Kop	88	8	11.0	2	44.0
	Thembehle	25	2	12.5	1	25.0
<b>Sub-Total</b>		<b>7 918</b>	<b>171</b>	<b>46.3</b>	<b>99</b>	<b>80.0</b>

Notes: **No Services**, Ratios above Targets, Ratios meeting Targets

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

Distribution System	Residential	Commercial	Industrial	Other	Total
<b>2014/2015 (Average over period July 2014 – June 2015)</b>					
Buffels River	3 264	106	0	36	3 406
Kleinmond	3 533	264	0	65	3 862
Greater Hermanus	18 168	904	31	325	19 428
Stanford	1 147	53	2	14	1 216
Greater Gansbaai	4 962	225	4	188	5 378
Pearly Beach	1 221	5	0	7	1 234
Baardskeerdersbos	63	0	0	3	66
Buffeljags Bay	30	0	0	4	34
<b>TOTALS</b>	<b>32 388</b>	<b>1 557</b>	<b>37</b>	<b>642</b>	<b>34 624</b>
<b>2015/2016 (Average over period July 2015 – June 2016)</b>					
Buffels River	3 316	110	0	31	3 457
Kleinmond	3 553	263	0	64	3 880
Greater Hermanus	18 305	999	32	308	19 644
Stanford	1 156	54	2	17	1 229
Greater Gansbaai	5 034	228	4	198	5 464
Pearly Beach	1 254	4	0	7	1 265
Baardskeerdersbos	64	0	0	3	67
Buffeljags Bay	30	0	0	6	36
<b>TOTALS</b>	<b>32 712</b>	<b>1 658</b>	<b>38</b>	<b>634</b>	<b>35 042</b>
<b>2016/2017 (Average over period July 2016 – June 2017)</b>					
Buffels River	3 362	118	0	30	3 510
Kleinmond	3 585	292	0	66	3 943
Greater Hermanus	18 788	1 004	37	346	20 175
Stanford	1 187	55	2	18	1 262
Greater Gansbaai	5 091	234	3	202	5 530
Pearly Beach	1 500	3	0	7	1 510
Baardskeerdersbos	64	0	0	3	67

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

<b>Table A.2.17: Number of Consumer Units for Water Services for each User Category for the Various Financial Years</b>					
<b>Distribution System</b>	<b>Residential</b>	<b>Commercial</b>	<b>Industrial</b>	<b>Other</b>	<b>Total</b>
Buffeljags Bay	30	0	0	6	<b>36</b>
<b>TOTALS</b>	<b>33 607</b>	<b>1 706</b>	<b>42</b>	<b>678</b>	<b>36 033</b>
<b>2017/2018 (Average over period July 2017 – June 2018)</b>					
Buffels River	3 416	118	0	30	3 564
Kleinmond	3 606	295	0	70	3 971
Greater Hermanus	19 460	1 039	38	499	21 036
Stanford	1 227	56	3	18	1 304
Greater Gansbaai	5 213	286	5	197	5 701
Pearly Beach	1 691	5	0	8	1 704
Baardskeerdersbos	64	0	0	3	67
Buffeljags Bay	30	0	0	6	36
<b>TOTALS</b>	<b>34 707</b>	<b>1 799</b>	<b>46</b>	<b>831</b>	<b>37 383</b>
<b>2018/2019 (Average over period July 2018 – June 2019)</b>					
Buffels River	3 501	119	0	30	3 650
Kleinmond	3 625	297	0	71	3 993
Greater Hermanus	19 819	1 161	38	532	21 550
Stanford	1 260	65	3	20	1 348
Greater Gansbaai	5 761	346	9	196	6 312
Pearly Beach	1 647	8	0	8	1 663
Baardskeerdersbos	64	1	0	3	68
Buffeljags Bay	30	0	0	6	36
<b>TOTALS</b>	<b>35 707</b>	<b>1 997</b>	<b>50</b>	<b>866</b>	<b>38 620</b>
<b>2019/2020 (Average over period July 2019 – June 2020)</b>					
Buffels River	3 558	119	0	30	3 707
Kleinmond	3 633	307	1	71	4 012
Greater Hermanus	20 099	1 209	38	541	21 887
Stanford	1 269	76	3	18	1 366
Greater Gansbaai	5 917	375	9	198	6 499
Pearly Beach	1 657	9	0	8	1 674
Baardskeerdersbos	65	2	0	3	70
Buffeljags Bay	30	0	0	6	36
<b>TOTALS</b>	<b>36 228</b>	<b>2 097</b>	<b>51</b>	<b>875</b>	<b>39 251</b>
<b>2020/2021 (Estimated)</b>					
Buffels River	3 623	120	0	30	3 773
Kleinmond	3 649	312	1	73	4 035
Greater Hermanus	20 536	1 278	39	605	22 458
Stanford	1 295	84	3	18	1 400
Greater Gansbaai	6 194	421	11	196	6 822
Pearly Beach	1 710	11	0	8	1 729
Baardskeerdersbos	66	2	0	3	71
Buffeljags Bay	30	0	0	6	36
<b>TOTALS</b>	<b>37 103</b>	<b>2 227</b>	<b>54</b>	<b>940</b>	<b>40 324</b>
<b>2021/2022 (Estimated)</b>					
Buffels River	3 688	120	0	30	3 838
Kleinmond	3 665	317	2	74	4 058
Greater Hermanus	20 973	1 346	39	670	23 028
Stanford	1 322	91	4	18	1 435
Greater Gansbaai	6 469	468	13	195	7 145
Pearly Beach	1 763	13	0	8	1 784
Baardskeerdersbos	66	3	0	3	72
Buffeljags Bay	30	0	0	6	36
<b>TOTALS</b>	<b>37 976</b>	<b>2 358</b>	<b>58</b>	<b>1 004</b>	<b>41 396</b>

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Distribution System	Residential	Commercial	Industrial	Other	Total
<b>2022/2023 (Estimated)</b>					
Buffels River	3 753	121	0	30	3 904
Kleinmond	3 681	322	2	76	4 081
Greater Hermanus	21 410	1 415	40	735	23 600
Stanford	1 349	98	4	19	1 470
Greater Gansbaai	6 745	515	15	193	7 468
Pearly Beach	1 815	15	0	9	1 839
Baardskeerdersbos	67	4	0	3	74
Buffeljags Bay	30	0	0	6	36
<b>TOTALS</b>	<b>38 850</b>	<b>2 490</b>	<b>61</b>	<b>1 071</b>	<b>42 472</b>

Distribution System	Annual Growth % 14/15 – 22/23	14/15	15/16	16/17	17/18	18/19	19/20	20/21*	21/22*	22/23*
Buffels River	1.72%	3 406	3 457	3 510	3 564	3 650	3 707	3 773	3 838	3 904
Kleinmond	0.69%	3 862	3 880	3 943	3 971	3 993	4 012	4 035	4 058	4 081
Greater Hermanus	2.46%	19 428	19 644	20 175	21 036	21 550	21 887	22 458	23 028	23 600
Stanford	2.40%	1 216	1 229	1 262	1 304	1 348	1 366	1 400	1 435	1 470
Greater Gansbaai	4.19%	5 378	5 464	5 530	5 701	6 312	6 499	6 822	7 145	7 468
Pearly Beach	5.11%	1 234	1 265	1 510	1 704	1 663	1 674	1 729	1 784	1 839
Baardskeerdersbos	1.44%	66	67	67	67	68	70	71	72	74
Buffeljags Bay	0.72%	34	36	36	36	36	36	36	36	36
<b>TOTALS</b>	<b>2.59%</b>	<b>34 624</b>	<b>35 042</b>	<b>36 033</b>	<b>37 383</b>	<b>38 620</b>	<b>39 251</b>	<b>40 324</b>	<b>41 396</b>	<b>42 472</b>

Note: \* The number of CUs for the last three financial years was estimated.

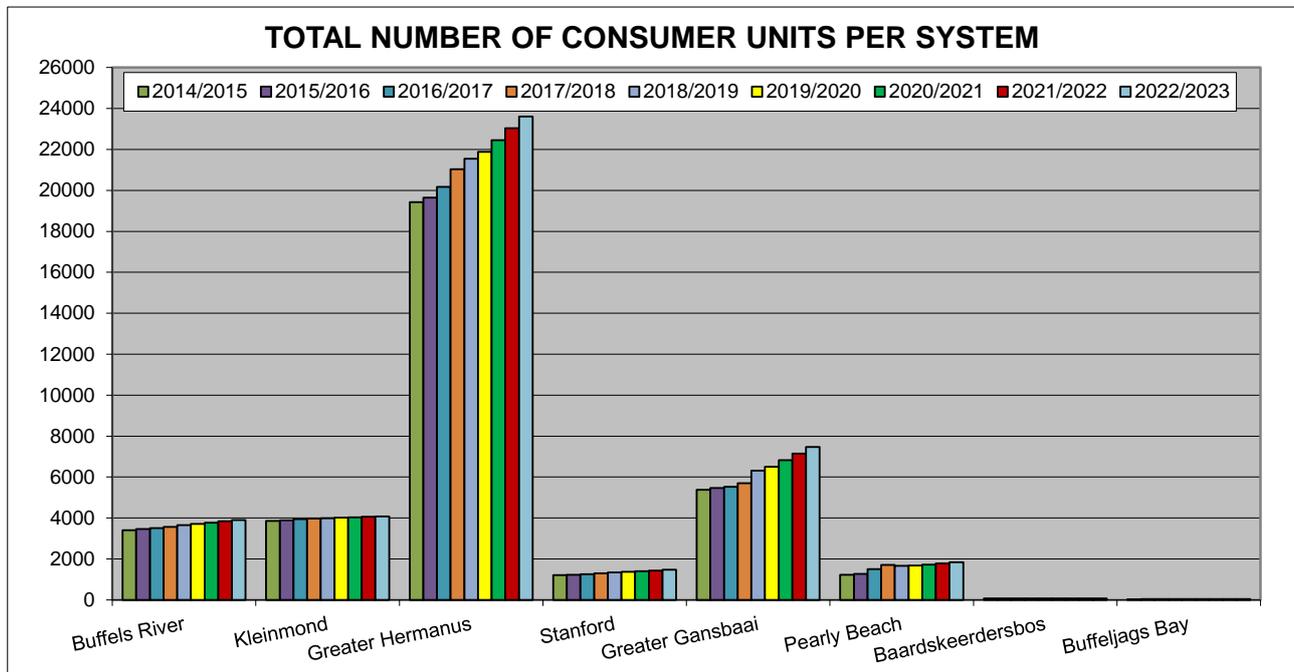


Figure A.2.3: Number of Billed Metered Consumption Units per System for each of the Financial Years

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

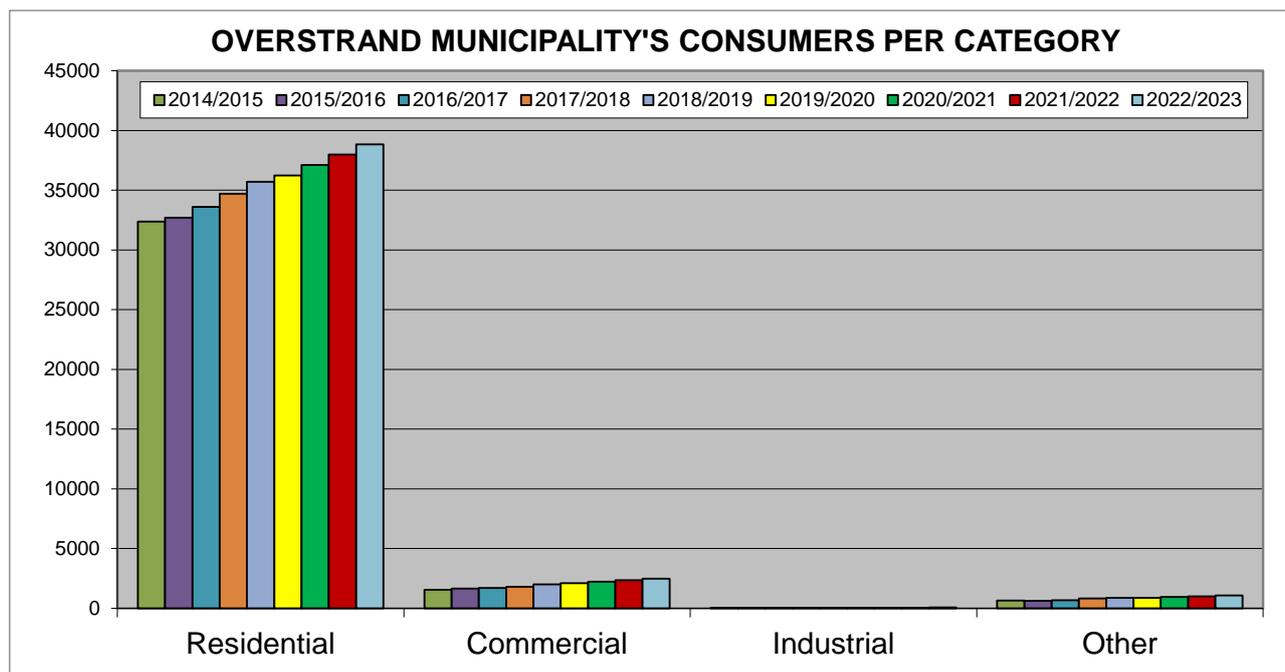


Figure A.2.4: Overstrand Municipality's Consumers per Category Type

### Public Amenities

All schools and medical facilities in Overstrand Municipality's Management Area are supplied with a higher level of water and sanitation services. The existing water and sanitation service levels for all the schools and medical facilities in Overstrand Municipality's Management Area are summarised in the tables below.

Table A.2.19: Water Service Levels: Education and Health Facilities				
Associated services facility	Number of facilities	Facilities with No Services	Facilities with Inadequate Services	Total Potential Cost (basic level) (RM)
<b>Education Plan</b>				
Primary school	17	0	0	R0
Secondary school	4	0	0	R0
Tertiary	-	-	-	-
Combined	4	0	0	R0
Special needs	1	0	0	R0
Other	13	0	0	R0
<b>Total</b>	<b>39</b>		<b>0</b>	<b>R0</b>
<b>Health Plan</b>				
Hospitals	2	0	0	R0
Community Day Centres	1	0	0	R0
Clinics	10	0	0	R0
Other	-	-	-	-
<b>Total</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>R0</b>

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table A.2.20: Sanitation Service Levels: Education and Health Facilities				
Associated services facility	Number of facilities	Facilities with No Services	Facilities with Inadequate Services	Total Potential Cost (basic level) (RM)
<b>Education Plan</b>				
Primary school	17	0	0	R0
Secondary school	4	0	0	R0
Tertiary	-	-	-	-
Combined	4	0	0	R0
Special needs	1	0	0	R0
Other	13	0	0	R0
<b>Total</b>	<b>39</b>	<b>0</b>	<b>0</b>	<b>R0</b>
<b>Health Plan</b>				
Hospitals	2	0	0	R0
Community Day Centres	1	0	0	R0
Clinics	10	0	0	R0
Other	-	-	-	-
<b>Total</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>R0</b>

### TOPIC 3: WATER SERVICES ASSET MANAGEMENT

A new Water and Wastewater Bulk Works Contract was signed during the 2018/2019 financial year between Overstrand Municipality and an External Service Provider to operate the bulk water services infrastructure in Overstrand Municipality's Management Area for a period of fifteen (15) years starting on the 8<sup>th</sup> of December 2018. The Municipality also has the right to extend the contract for a further five (5) years. The Municipality will ensure the long-term efficient operation and maintenance of their bulk water and sewerage infrastructure through the Contract.

The operation and maintenance of the following bulk infrastructure forms part of the Contract:

- Hawston, Hermanus, Stanford, Gansbaai, Kleinmond and Eluxolweni WWTWs;
- Preekstoel, Buffels River, Franskraal, Pearly Beach, De Kelders, Stanford, Kleinmond, Baardskeerdersbos and Buffeljags Bay WTWs;
- Water Resources;
- Surface water pump stations and borehole pumps;
- Bulk water and sewer pipelines;
- Water Reservoirs; and
- Water and sewer pump stations and rising main pipelines.

Table A.3.1: Infrastructure Components										
Assets	Boreholes	Abstraction Points	WTW	Water Pump Stations	Sewer Pump Stations	Water Bulk Pipelines	Sewer Bulk Pipelines	Reservoirs	WWTW	Assessment Score
Total number of components / km of pipeline / units	20	12	8	26	54	119 km	48.3 km (Rising)	48	6	80%

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The table below gives an overview of the resources and the WTWs and treatment processes for the various water distribution systems in Overstrand Municipality's Management Area.

Water Distribution System	Bulk Supply	WTWs and Treatment Processes	
	(Resources)	WTW (Capacity in Ml/d)	Processes
Buffels River	Buffels River Dam	Buffels River (5.500)	Chemical dosing (Aluminium Chlorohydrate), flocculation, sedimentation, filtration (Rapid gravity sand filters), stabilization (Soda Ash) and disinfection (Chlorine Gas)
Kleinmond	Palmiet River, Kleinmond Borehole & Dorpsfontein Spring	Kleinmond (5.800)	Chemical dosing (Aluminium Chlorohydrate and Soda Ash), flocculation, sedimentation, filtration (Rapid gravity sand filters), stabilization (Soda Ash) and disinfection (Chlorine Gas).
Greater Hermanus	De Bos Dam and Gateway, Camphill and Volmoed wellfields	Preekstoel (21.000)	Chemical dosing (Aluminium Sulphate and Sodium Aluminate), flocculation, sedimentation, filtration (Rapid gravity sand filters), stabilization (Lime) and Disinfection (Chlorine Gas)
		Groundwater Hemel & Aarde (10.000)	Biological WTW for iron and manganese removal by contact filtration, Caustic Soda dosing and Aeration (Hemel & Aarde wellfields of Camphill and Volmoed).
		Groundwater Gateway (7.000)	Chemical oxidation treatment plant with Potassium Permanganate and Aeration (Gateway Wellfield).
Stanford	Stanford Spring and two Kouevlakte Boreholes	Stanford RO plant (1.000)	Ultrafiltration plus Reverse Osmosis Plant and disinfection (Sodium Hypochlorite)
Greater Gansbaai	Franskraal and Kraaibosch Dams	Franskraal (6.500)	Chemical dosing (Aluminium Chlorohydrate), flocculation, sedimentation, filtration (Rapid gravity sand filters), disinfection (Chlorine Gas) and stabilization (Soda Ash)
	Klipgat Fountain and De Kelders Caves Fountain.	De Kelders (1.600)	Ultrafiltration plus Reverse Osmosis Plant and disinfection (Sodium Hypochlorite)
Pearly Beach	Pearly Beach Springs and Koekemoer Dam	Pearly Beach (1.440)	DAFF pre-treatment, Ultrafiltration Modules from Memcor, Chemical dosing (Sudfloc K300) and disinfection (Sodium Hypochlorite)
Baardskeerdersbos	Two Boreholes	Baardskeerdersbos (0.185)	pH adjustment, oxidation, settling, ultrafiltration and disinfection (Sodium Hypochlorite).
Buffeljags Bay	Borehole	-	Disinfection (Chlorine Tablets)

The existing water reticulation networks, pump stations and reservoirs are summarised in the table below for each of the water distribution systems.

Water Distribution System	Water Distribution Networks		Number of Water PS		Reservoirs and Water Towers	
	Bulk	Internal	Raw Water	Potable Water	Number of Reservoirs and Water Towers	Total Storage in MI
	km	km	Number of PS	Number of PS		
Buffels River	15.326	123.859	-	4	6	6.267
Kleinmond	5.400	75.053	3	1	3	8.100
Greater Hermanus	41.586	328.807	1	6	21	38.446
Stanford	5.564	34.501	-	2	2	2.750
Greater Gansbaai	35.299	140.970	3	3	10	13.050
Pearly Beach	12.404	30.969	-	2	2	2.300
Baardskeerdersbos	0.858	4.952	-	1	1	0.150
Buffeljags Bay	2.575	0.469	-	-	1	0.096
<b>Total Overstrand</b>	<b>119.012</b>	<b>739.580</b>	<b>7</b>	<b>19</b>	<b>46</b>	<b>72.544</b>

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

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

Sewer Drainage Systems	WWTWs and Treatment Processes			Sewer Drainage Network		Number of Sewer PS	
	Hydraulic Capacity	Organic Capacity	Treatment Processes	Rising	Gravity	Mun	Private
	MI/d	kg COD/d		km	km		
Buffels River	-	-	-	-	-	-	-
Kleinmond	0.997	843	Kleinmond Activated Sludge System	6.841	29.902	6	1
Greater Hermanus	0.700	968	Hawston Activated Sludge System	33.041	257.684	33	2
	12.000	9 000	Hermanus Activated Sludge System				
Stanford	1.200	1 200	Stanford Activated Sludge System	3.242	29.752	4	2
Greater Gansbaai	2.000	3 600	Gansbaai Nereda System	4.282	24.686	4	-
Pearly Beach	0.259	198	Eluxolweni Oxidation Pond System	0.941	5.245	1	1
Baardskeerdersbos	-	-	-	-	-	-	-
Buffeljags Bay	-	-	-	-	-	-	-
<b>Total Overstrand</b>				<b>48.347</b>	<b>347.269</b>	<b>48</b>	<b>6</b>

Rooi Els, Pringle Bay, Betty's Bay, De Kelders, Franskraal, Buffeljags Bay and Baardskeerdersbos and are not currently serviced by a sewer reticulation system. The towns of Kleinmond, Fisherhaven, Hawston, Stanford, Gansbaai and Pearly Beach are partially serviced by a sewer system.

Component	Refurbishment Need				O&M Occurrence				Observation			
	High	Medium	Low	None	Regular	Periodic	Sporadic	None	Dysfunctional	Operational	Prime Condition	Vandalised
Boreholes	1	2	13	4	20	0	0	0	0	18	2	0
Abstraction points	0	2	4	6	12	0	0	0	0	7	5	0
Bulk water pipelines	0	2	6	0	8	0	0	0	0	8	0	0
Reservoirs	0	9	24	15	48	0	0	0	0	43	5	0
Water pump stations	1	9	10	6	26	0	0	0	0	25	1	0
WTW	0	2	5	1	8	0	0	0	0	6	2	0
Bulk sewer pipelines	0	0	5	0	5	0	0	0	0	5	0	0
Sewer pump stations	2	13	22	17	54	0	0	0	0	52	2	0
WWTW	0	3	3	0	6	0	0	0	0	5	1	0

**Asset Management:** An Asset Management Policy and a Maintenance Management Policy are in place for Overstrand Municipality. The objectives of the Asset Management Policy are to ensure the effective and efficient control of the municipality's assets. The Maintenance Management Policy applies to the ongoing maintenance of infrastructure assets, which include all water and sanitation assets.

An Asset Maintenance Plan was completed with the 2014 asset register used as the basis for the plan. The maintenance plans developed provide the municipality with a basis for establishing a planned maintenance approach for the municipality's full asset base. Funding requirements for the maintenance needs are based on the guidelines of the National Infrastructure Maintenance Strategy, which is based on a % of the value of the assets of the respective services.

Overstrand Municipality updated their current Asset Register after June 2023, in order to include the new assets constructed during the 2022/2023 financial year. The tables and graphs below give an overview of the current water and sewerage infrastructure included in Overstrand Municipality's Asset Register.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

**Water Infrastructure:** The current replacement cost and carrying value of the water infrastructure of Overstrand Municipality is summarised in the table below (June 2023).

Table A.3.6: Current Replacement Cost and Carrying Value of the Water Infrastructure (June 2023)			
Asset Type	CRC	CV	% CV / CRC
Dams	R11 119 399	R4 212 132	37.9%
Boreholes	R11 161 486	R5 210 180	46.7%
Bulk Water Pipelines	R127 078 859	R45 277 466	35.6%
Pump Stations	R49 252 052	R15 680 482	31.8%
Reservoirs	R120 153 764	R66 182 683	55.1%
Water Reticulation Pipelines	R681 501 128	R247 737 828	36.4%
Buffels River WTW	R13 813 820	R4 589 580	33.2%
Kleinmond WTW	R27 568 183	R9 762 759	35.4%
Preekstoel WTW	R78 510 492	R62 746 623	79.9%
Franskraal New WTW	R36 298 367	R18 413 978	50.7%
Franskraal Old WTW	R20 036 738	R3 222 977	16.1%
Baardskeerdersbos WTW	R6 724 089	R3 355 523	49.9%
Pearly Beach WTW	R8 154 514	R5 049 560	61.9%
De Kelders WTW	R18 982 042	R6 557 326	34.5%
<b>Totals</b>	<b>R1 210 354 933</b>	<b>R497 999 097</b>	<b>41.1%</b>

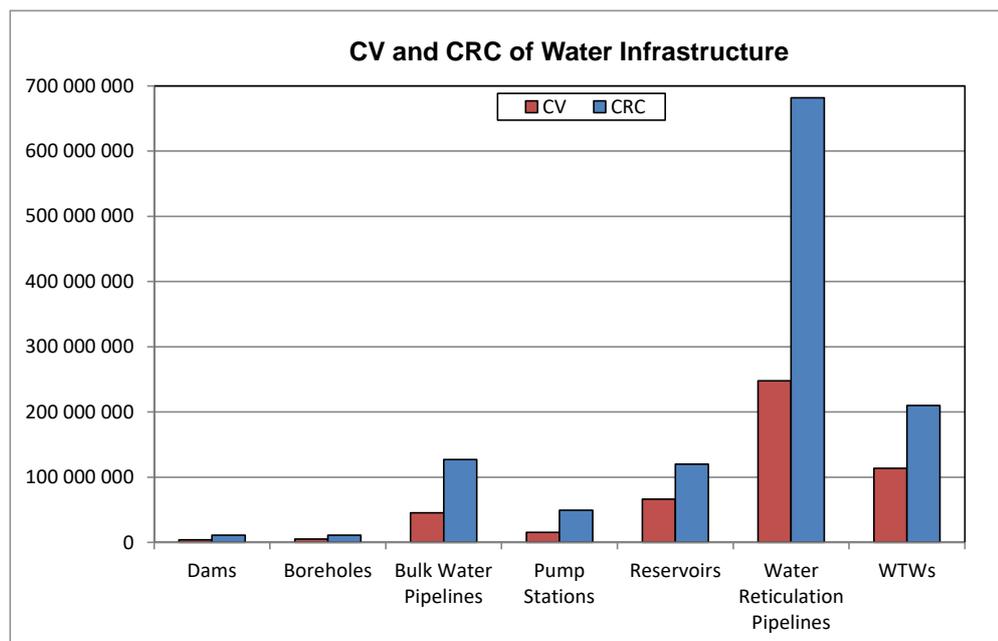


Figure A.3.1: CV and CRC of the Water Infrastructure

The information in the previous table indicates that 58.9% of the value of the water infrastructure has been consumed.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The following table and graph give an overview of the RUL by facility type for the water infrastructure (CRC).

Asset Type	0 – 5 yrs	6 – 10 yrs	11 – 15 yrs	16 – 20 yrs	> 20 yrs
Dams	R134 772	R549 065	R0	R9 355 486	R1 080 076
Boreholes	R5 505 371	R787 096	R0	R476 057	R4 392 962
Bulk Water Pipelines	R66 198 631	R1 975 841	R0	R15 095 773	R43 808 614
Pump Stations	R27 111 749	R3 525 932	R323 326	R9 802 824	R8 488 221
Reservoirs	R12 551 018	R4 438 285	R428 995	R74 489 805	R28 245 661
Water Reticulation Pipelines	R438 576 815	R21 947 656	R0	R15 986 449	R204 990 208
Buffels River WTW	R4 174 943	R1 643 262	R0	R7 990 365	R5 250
Kleinmond WTW	R3 532 253	R413 610	R18 819	R16 563 102	R7 040 399
Preekstoel WTW	R9 687 516	R5 919 392	R987 859	R1 472 124	R60 443 601
Franskraal New WTW	R14 072 191	R354 761	R63 424	R446 210	R21 361 781
Franskraal Old WTW	R5 320 555	R2 260 796	R6 955	R12 448 432	R0
Baardskeerdersbos WTW	R10 486	R5 198 392	R65 430	R0	R1 449 781
Pearly Beach WTW	R2 661 404	R2 650 272	R112 658	R268 380	R2 461 800
De Kelders WTW	R13 161 873	R0	R242 892	R213 953	R5 363 324
<b>Totals</b>	<b>R602 699 577</b>	<b>R51 664 360</b>	<b>R2 250 358</b>	<b>R164 608 960</b>	<b>R389 131 678</b>

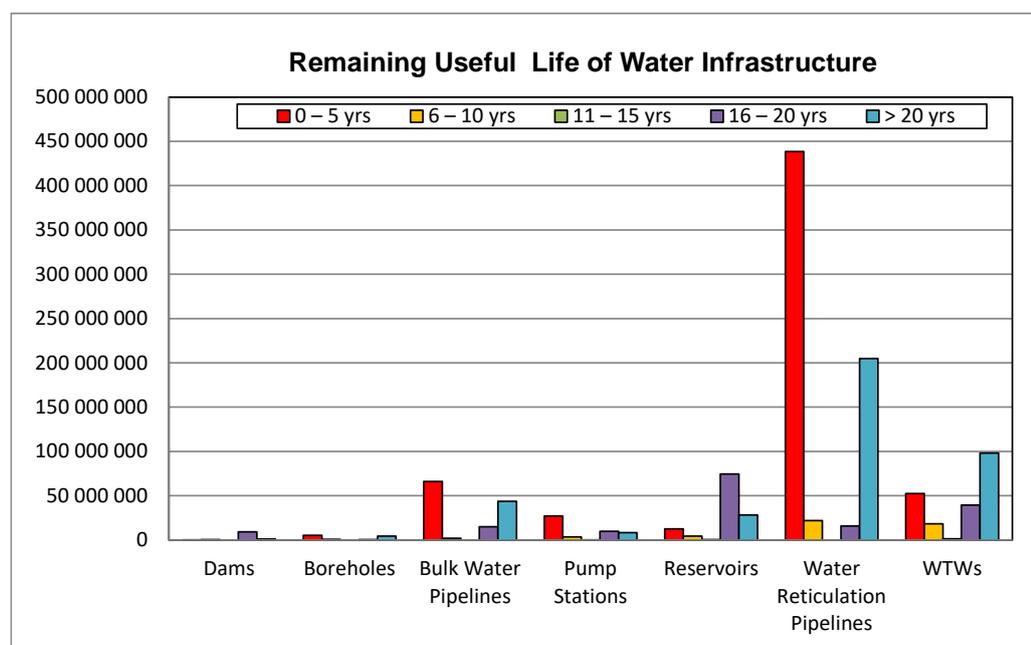


Figure A.3.2: Remaining Useful Life of the Water Infrastructure

The following table and graph give an overview of the age distribution by facility type for the water infrastructure (CRC).

Asset Type	0 – 5 yrs	6 – 10 yrs	11 – 15 yrs	16 – 20 yrs	> 20 yrs
Dams	R549 065	R0	R0	R134 772	R10 435 562
Boreholes	R118 473	R964 068	R8 577 298	R937 920	R563 727
Bulk Water Pipelines	R0	R0	R24 775 777	R0	R102 303 082
Pump Stations	R0	R238 775	R7 061 858	R21 433 221	R20 518 198
Reservoirs	R186 225	R1 407 859	R9 539 361	R5 558 561	R103 461 758
Water Reticulation Pipelines	R0	R26 593 582	R119 209 386	R134 535 758	R401 162 402
Buffels River WTW	R364 073	R0	R112 335	R3 987 088	R9 350 324
Kleinmond WTW	R0	R0	R1 625 527	R3 521 323	R22 421 333

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Asset Type	0 – 5 yrs	6 – 10 yrs	11 – 15 yrs	16 – 20 yrs	> 20 yrs
Preekstoel WTW	R0	R75 632 233	R1 351 766	R1 526 493	R0
Franskraal New WTW	R0	R31 823	R36 266 544	R0	R0
Franskraal Old WTW	R0	R0	R232 856	R2 476 656	R17 327 226
Baardskeerdersbos WTW	R0	R6 724 089	R0	R0	R0
Pearly Beach WTW	R0	R0	R6 293 841	R560 130	R1 300 543
De Kelders WTW	R0	R0	R18 982 042	R0	R0
<b>Totals</b>	<b>R1 217 836</b>	<b>R111 592 429</b>	<b>R234 028 591</b>	<b>R174 671 922</b>	<b>R688 844 155</b>

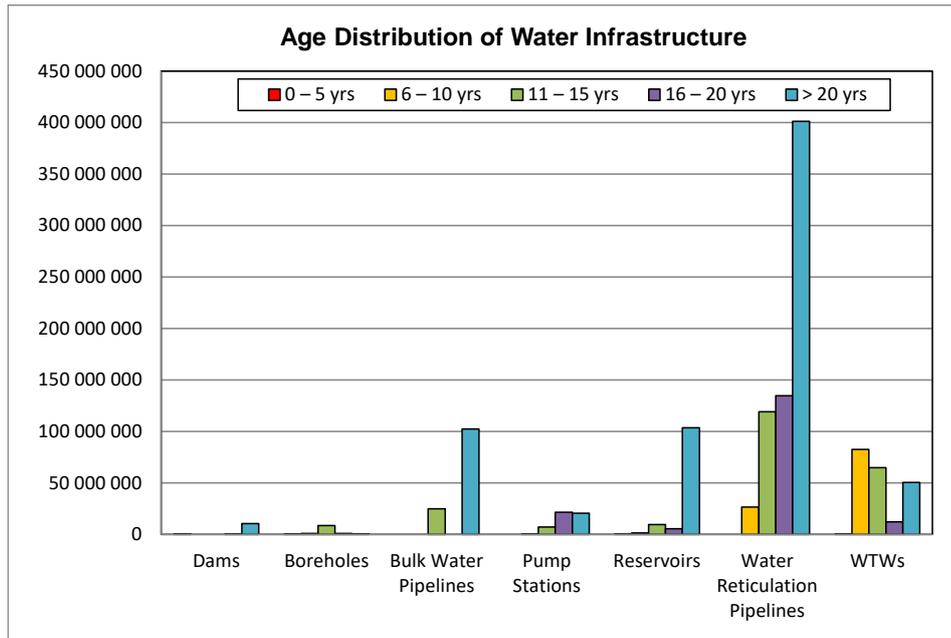


Figure A.3.3: Age Distribution of the Water Infrastructure

The following table and graph give an overview of the condition grading by facility type for the water infrastructure (CRC).

Asset Type	Very Poor	Poor	Fair	Good	Very Good
Dams	R0	R0	R10 570 334	R0	R549 065
Boreholes	R186 545	R78 365	R8 468 951	R2 411 330	R16 295
Bulk Water Pipelines	R66 198 631	R1 975 841	R26 320 613	R9 505 682	R23 078 092
Pump Stations	R921 951	R6 103 315	R31 217 742	R10 752 696	R256 348
Reservoirs	R5 006 986	R3 691 538	R80 415 707	R30 254 328	R785 205
Water Reticulation Pipelines	R307 354 345	R21 947 656	R183 106 914	R34 745 303	R134 346 910
Buffels River WTW	R0	R409 206	R12 947 079	R93 462	R364 073
Kleinmond WTW	R7 164	R3 168	R20 299 016	R5 851 745	R1 407 090
Preekstoel WTW	R0	R550 608	R16 234 675	R40 817 863	R20 907 346
Franskraal New WTW	R0	R0	R17 242 946	R18 219 366	R836 055
Franskraal Old WTW	R817 309	R6 142 278	R13 077 151	R0	R0
Baardskeerdersbos WTW	R0	R0	R555 518	R2 244 433	R3 924 138
Pearly Beach WTW	R0	R0	R914 226	R3 061 412	R4 178 876
De Kelders WTW	R0	R0	R5 815 836	R1 969 276	R11 196 930
<b>Totals</b>	<b>R380 492 931</b>	<b>R40 901 975</b>	<b>R427 186 708</b>	<b>R159 926 896</b>	<b>R201 846 423</b>

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

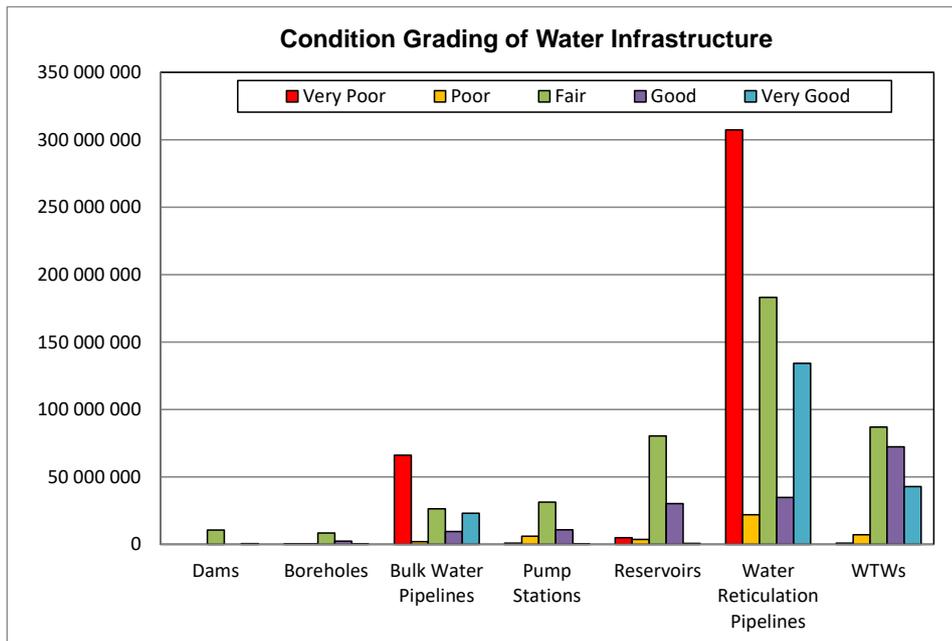


Figure A.3.4: Condition Grading of the Water Infrastructure

**Sewerage Infrastructure:** The current replacement cost and carrying value of the sewerage infrastructure of Overstrand Municipality is summarised in the table below (June 2023).

Asset Type	CRC	CV	% CV / CRC
Sanitation Pump Stations	R36 884 091	R29 419 087	79.8%
Sewer Reticulation Pipelines	R418 429 511	R350 017 326	83.7%
Stanford WWTW	R18 563 529	R20 671 888	111.4%
Hermanus WWTW	R75 665 898	R31 982 509	42.3%
Hawston WWTW	R13 438 372	R4 343 407	32.3%
Kleinmond WWTW	R13 430 196	R3 808 595	28.4%
Gansbaai WWTW	R34 135 896	R8 846 322	25.9%
Pearly Beach WWTW	R11 060 449	R6 213 515	56.2%
<b>Totals</b>	<b>R621 607 942</b>	<b>R455 302 649</b>	<b>73.2%</b>

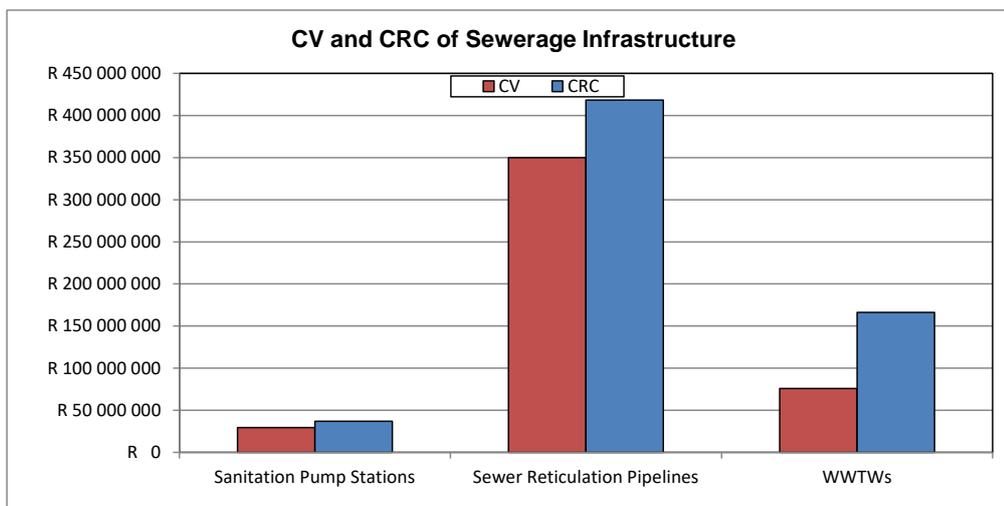


Figure A.3.5: CV and CRC of the Sewerage Infrastructure

The information in the previous table indicates that 26.8% of the value of the sewerage infrastructure has been consumed.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The following table and graph give an overview of the RUL by facility type for the sewerage infrastructure (CRC):

Asset Type	0 – 5 yrs	6 – 10 yrs	11 – 15 yrs	16 – 20 yrs	> 20 yrs
Sanitation Pump Stations	R16 594 142	R5 036 113	R157 644	R11 500 933	R3 595 259
Sewer Reticulation Pipelines	R4 755 708	R44 560 765	R12 710 160	R46 360 689	R310 042 189
Stanford WWTW	R10 066 779	R1 169 212	R124 499	R5 851 022	R1 352 017
Hermanus WWTW	R9 767 866	R41 485 956	R860 275	R9 705 903	R13 845 898
Hawston WWTW	R6 720 595	R1 498 020	R259 171	R2 075 285	R2 885 301
Kleinmond WWTW	R5 746 948	R2 435 140	R208 575	R2 109 326	R2 930 207
Gansbaai WWTW	R18 306 206	R5 711 316	R434 596	R3 575 748	R6 108 030
Pearly Beach WWTW	R85 365	R409 067	R292 620	R0	R10 273 397
<b>Totals</b>	<b>R72 043 609</b>	<b>R102 305 589</b>	<b>R15 047 540</b>	<b>R81 178 906</b>	<b>R351 032 298</b>

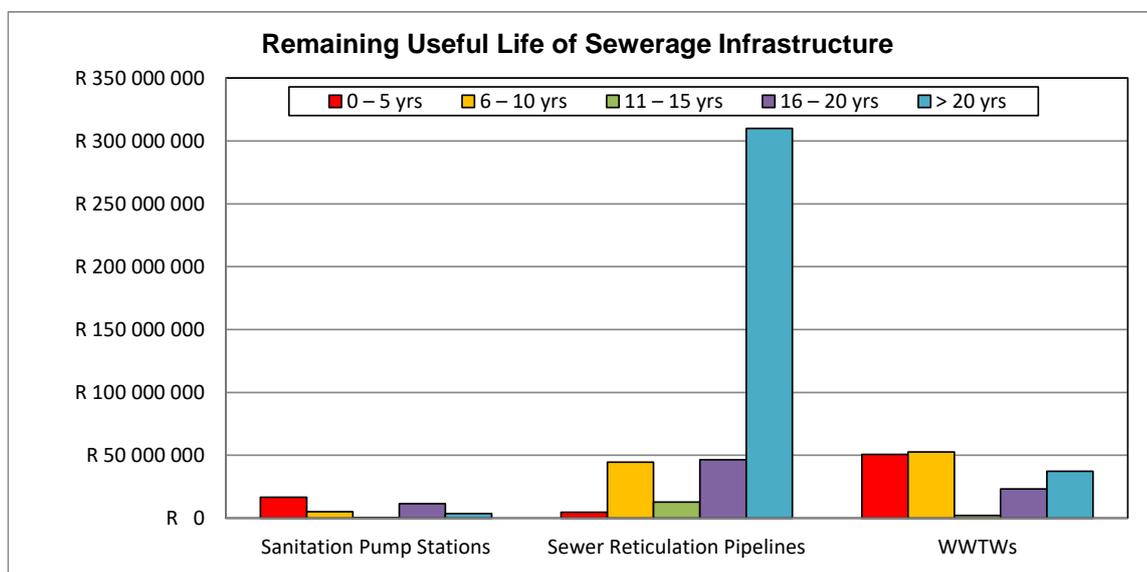


Figure A.3.6: Remaining Useful Life of the Sewerage Infrastructure

The following table and graph give an overview of the age distribution by facility type for the sewerage infrastructure (CRC).

Asset Type	0 – 5 yrs	6 – 10 yrs	11 – 15 yrs	16 – 20 yrs	> 20 yrs
Sanitation Pump Stations	R0	R6 155 871	R3 832 078	R14 456 267	R12 439 875
Sewer Reticulation Pipelines	R92 033	R24 193 190	R48 571 983	R0	R345 572 305
Stanford WWTW	R0	R0	R6 323 805	R4 355 297	R7 884 427
Hermanus WWTW	R35 182	R50 033 091	R2 875 535	R2 144 661	R20 577 429
Hawston WWTW	R0	R0	R5 824 224	R2 867 908	R4 746 240
Kleinmond WWTW	R0	R2 271 550	R1 203 605	R4 613 672	R5 341 369
Gansbaai WWTW	R0	R5 670 490	R2 248 236	R16 119 798	R10 097 372
Pearly Beach WWTW	R0	R11 060 449	R0	R0	R0
<b>Totals</b>	<b>R127 215</b>	<b>R99 384 641</b>	<b>R70 879 466</b>	<b>R44 557 603</b>	<b>R406 659 017</b>

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

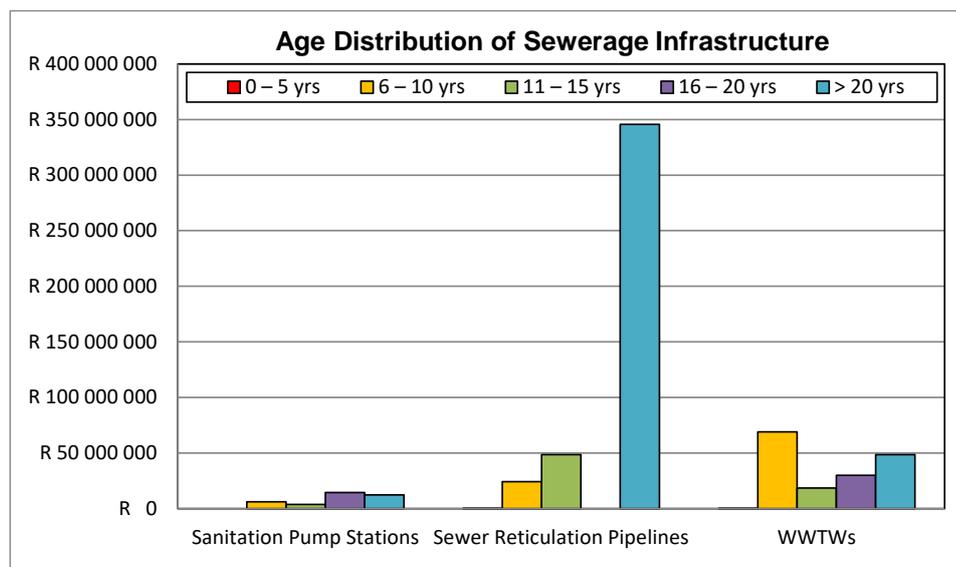


Figure A.3.7: Age distribution of the Sewerage Infrastructure

The following table and graph give an overview of the condition grading by facility type for the sewerage infrastructure (CRC).

**Table A.3.13: Overview of the Condition Grading by Facility Type for the Sewerage Infrastructure – June 2023 (CRC)**

Asset Type	Very Poor	Poor	Fair	Good	Very Good
Sanitation Pump Stations	R17 965	R38 148	R32 100 868	R3 057 178	R1 669 932
Sewer Reticulation Pipelines	R4 663 675	R60 105 948	R165 470 719	R143 382 791	R44 806 378
Stanford WWTW	R0	R1 063 582	R11 149 555	R6 350 392	R0
Hermanus WWTW	R8 648 330	R1 802 042	R38 583 831	R17 996 344	R8 635 351
Hawston WWTW	R0	R199 283	R6 585 074	R4 864 349	R1 789 666
Kleinmond WWTW	R25 913	R15 528	R6 906 032	R6 482 723	R0
Gansbaai WWTW	R4 768 779	R722 846	R20 501 243	R6 057 553	R2 085 475
Pearly Beach WWTW	R0	R58 022	R0	R162 383	R10 840 044
<b>Totals</b>	<b>R18 124 662</b>	<b>R64 005 399</b>	<b>R281 297 322</b>	<b>R188 353 713</b>	<b>R69 826 846</b>

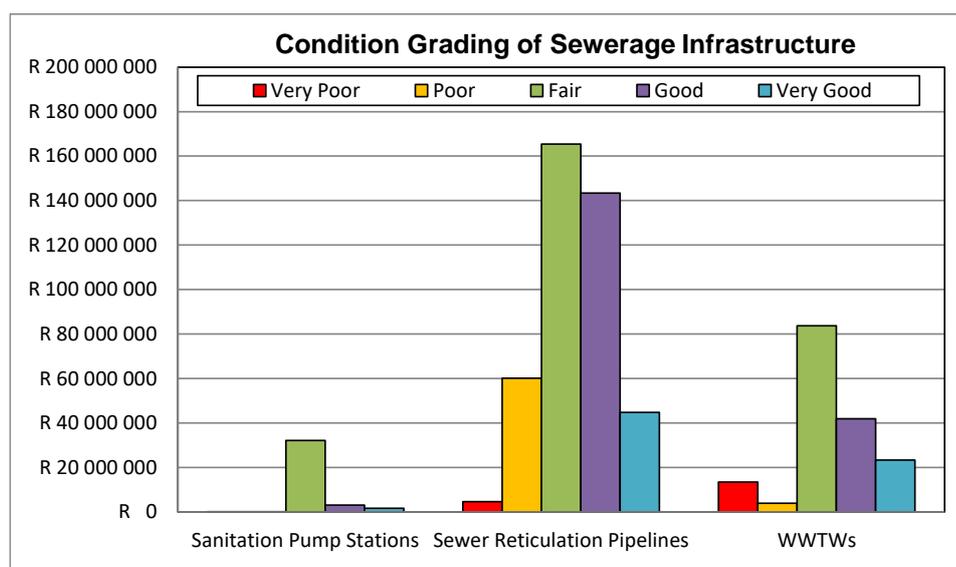


Figure A.3.8: Condition Grading of the Sewerage Infrastructure

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

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The CRC of the water and sewerage infrastructure that will need to be replaced over the next five years (RUL <5 yrs) is R674.743 million. The asset renewal needs for the water infrastructure assets over the next ten years is R65.436 million per year. The reinvestment required is R602.700 million in the first five years and R51.664 million in the second five-year period. The age of 56.9% of the water infrastructure assets is greater than twenty years. The CRC of the water infrastructure with a condition grading of “Very Poor” is R380.493 million. The asset renewal needs for the sewerage infrastructure assets over the next ten years is R17.435 million per year. The reinvestment required is R72.044 million in the first five years and R102.306 million in the second five-year period. The age of 65.4% of the sewerage infrastructure assets is greater than twenty years. The CRC of the sewerage infrastructure with a condition grading of “Very Poor” is R18.125 million.

Some of the key challenges of Overstrand Municipality are to identify adequate funds for the rehabilitation and maintenance of their existing infrastructure, which is critical to ensure the sustainability of the services that are provided by the Municipality. The Water and Wastewater Bulk Works Contract ensures that the new technology installed is adequately maintained and operated in order to prevent a massive increase in maintenance in the future due to backlog being created (Objective is asset preservation). This Bulk Works Contract addresses the capacity constraints, the Municipality previously experienced, with regard to the operation and maintenance of the WTWs and WWTWs (Objectives are skills development and retention and long-term improvement of efficiency of operations).

It is however still important for the Municipality to secure adequate funding for major refurbishment and maintenance work, the provision of bulk infrastructure and development of additional sources to keep up with the high demand for services.

**Disaster Management Plan:** An updated 2022/2023 Disaster Management Plan is available for Overstrand Municipality, which forms an integral part of the Municipality’s IDP and anticipate the types of disasters that are likely to occur in the municipal area as well as their possible effects. The Disaster Management Plan place emphasis on measures that reduce the vulnerability of disaster prone areas, communities and households.

Overstrand Municipality has a functional Fire and Disaster management Department within the Directorate: Protection Services. A Joint Operation Centre (JOC) is activated as and when the need arises. The JOC is operated from the Fire station in Hermanus. No Disaster Management Advisory Forum is established, because such a committee already exists which plays a similar role.

**Untreated Effluent Management Plan:** All effluent discharged in the urban areas in Overstrand Municipality are treated at the existing WWTWs and there is no known untreated effluent discharged to the environment. A W<sub>2</sub>RAP is in place for all the wastewater treatment systems.

### TOPIC 4: WATER SERVICES OPERATION AND MANAGEMENT

Maintenance is usually practiced in two forms, preventative maintenance and corrective maintenance. A third form is called design-out maintenance, which is rather an aspect of the design considerations when the infrastructure is planned.

The existing Water and Wastewater Bulk Works Contract assists Overstrand Municipality with the operation and maintenance of their bulk water and sewerage infrastructure.

Pipe bursts and other serious damage to pipes immediately interrupts services to the affected area and is rapidly addressed by Overstrand Municipality. O&M is a continuous process for Overstrand Municipality involving various activities, with the ultimate purpose of delivering good quality services to all customers at all times and keeping the percentage of water lost through pipe bursts and other serious damage to pipes as low as possible. Overstrand Municipality’s O&M Plan depends on a range of factors such as the age and condition of the water supply system, requirements of the Municipality and DWS as the regulating authority, the availability of staff, plant, equipment, spares, money and other resources.

Operation and Maintenance Manuals and Emergency Preparedness Plans were drafted for the Mossel River Dam and the De Bos Dam during the 2021/2022 financial year.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Overstrand Municipality and the Contractor responsible for the Bulk Works Contract also have standby teams available after hours and over weekends, besides the planned and scheduled O&M activities, in order to allow for unscheduled responses to service breakdowns due to mal-functioning equipment, vandalism, emergency situations, etc. This allows Overstrand Municipality to be able to quickly assess service breakdowns and re-allocate staff and resources to do unscheduled repairs, and then quickly return to the regular and scheduled O&M activities. The Municipality and the Contractor also ensure that sufficient repair materials, consumables and back-up equipment are also readily available for any potential breakdowns.

Electricity load shedding is putting additional pressure on available O&M resources due to the continuous need for refuelling of standby generators, controlling of sewerage pumpstation sump levels with tankers, increased equipment failures due to load shedding, and increased service requirements.

Compliance	Existing Groundwater Infrastructure	Existing Surface Water Infrastructure	Existing WTW Infrastructure	Existing WWTW Infrastructure	Existing Pump Station Infrastructure	Existing Bulk Pipeline Infrastructure	Existing Tower & Reservoir Infrastructure	Existing Reticulation Infrastructure
Resources	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement
Information	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement
Activity Control & Management	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement	Above min. requirement

### TOPIC 5: CONSERVATION AND DEMAND MANAGEMENT

The implementation of the Municipality's WDM Strategy and Action Plan have been extremely successful, with the overall raw water requirements for all the systems reduced from 9 206 MI in 2008/2009 to 7 028 MI in 2011/2012 (annual decrease of -8.6% over three-year period) and a further steady increase over the last eleven years to 8 160 MI in 2022/2023 (average annual increase of 1.37% over last eleven years). The overall NRW for all the systems for the 2022/2023 financial year was 1 841 MI (24.48%). The overall water losses were 1 733 MI (23.04%).

The table below give a summary of the Treatment Losses, NRW, Water Losses and ILIs for the various distribution systems, as calculated through the WSDP process.

System	Component	Unit	Record: Prior (MI/a)					22/23	
			17/18	18/19	19/20	20/21	21/22		
Buffels River	Treatment Losses	Volume	64.571	60.724	79.606	14.959	51.005	26.640	
		Percentage	9.94%	7.58%	10.37%	1.94%	6.47%	3.97%	
	NRW	Volume	265.104	407.056	335.271	383.457	358.678	232.091	
		Percentage	45.31%	54.98%	48.70%	50.60%	48.65%	35.99%	
	Water Losses	Volume	263.934	345.276	302.971	330.845	295.471	169.546	
		Percentage	45.11%	46.63%	44.01%	43.66%	40.08%	26.29%	
	ILI		<b>2.67</b>	<b>3.45</b>	<b>3.00</b>	<b>3.44</b>	<b>3.04</b>	<b>1.73</b>	
	The current treatment losses of below 10% are at an acceptable level. The NRW and Water Losses were reduced by approximately 13% over the last financial year, which is excellent. The NRW percentage is however still above the DWS's target of 30% and the Municipality needs to continue with the implementation of specific WC/WDM measures to further reduce the NRW and water losses. The Municipality needs to work towards targets of 30% for the NRW and 20% for the water losses. The ILI value indicates an excellent system, with no immediate intervention required and the Municipality needs to keep the ILI level below 2.								
	Kleinmond	Treatment Losses	Volume	16.091	67.349	73.584	75.267	61.360	86.275
			Percentage	2.25%	8.64%	8.19%	8.55%	7.04%	9.40%
NRW		Volume	188.379	183.409	276.922	289.372	281.074	287.316	
		Percentage	26.90%	25.75%	33.57%	35.94%	34.69%	34.54%	
Water Losses		Volume	186.978	178.280	273.090	282.963	269.958	283.332	
		Percentage	26.70%	25.03%	33.11%	35.15%	33.32%	34.06%	
ILI			<b>2.28</b>	<b>2.17</b>	<b>3.30</b>	<b>3.11</b>	<b>2.96</b>	<b>3.09</b>	
The current treatment losses of below 10% are at an acceptable level. The NRW and water losses stayed roughly the same for the last two financial years. The NRW percentage is above the DWS's target of 30% and									

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table A.5.1: Treatment Losses, NRW, Water Losses and ILIs for the Various Water Distribution Systems								
System	Component	Unit	Record: Prior (Ml/a)					22/23
			17/18	18/19	19/20	20/21	21/22	
	the Municipality needs to continue with the implementation of specific WC/WDM measures to reduce the NRW and water losses. The Municipality needs to work towards targets of 30% for the NRW and 25% for the water losses. The current ILI value of 3.09 is good and no urgent action is required, but the NRW and Water Losses should however be monitored carefully.							
Greater Hermanus	Treatment Losses	Volume	539.107	487.283	445.591	217.909	194.527	113.774
		Percentage	12.89%	11.77%	10.79%	5.14%	4.56%	2.67%
	NRW	Volume	262.270	332.685	430.532	960.986	753.296	816.989
		Percentage	7.20%	9.10%	11.69%	23.88%	18.50%	19.67%
	Water Losses	Volume	254.983	316.318	416.581	947.239	702.134	782.891
		Percentage	7.0%	8.66%	11.31%	23.54%	17.25%	18.85%
ILI			0.62	0.75	0.98	2.23	1.62	1.77
	The current treatment losses of below 10% are at an acceptable level. The current NRW and water losses percentages are at good levels and the Municipality needs to maintain the percentages for the NRW and water losses below 20%. The ILI value indicates an excellent system, with no immediate intervention required and the Municipality needs to keep the ILI level below 2.							
Stanford	Treatment Losses	Volume	20.993	53.133	40.381	143.545	197.305	235.534
		Percentage	6.53%	14.18%	11.05%	32.15%	42.08%	47.26%
	NRW	Volume	78.723	90.868	93.141	79.613	17.035	13.485
		Percentage	26.20%	28.25%	28.65%	26.28%	6.27%	5.13%
	Water Losses	Volume	78.122	87.478	91.463	78.036	13.758	11.884
		Percentage	26.00%	27.19%	28.14%	25.76%	5.07%	4.52%
ILI			3.81	4.16	4.31	2.27	0.39	0.33
	The treatment losses of the RO plant are closely monitored by the Municipality to ensure that it is at acceptable levels. There was a drastic decrease in the NRW and water losses for the last two financial years for Stanford. The Municipality recently installed a new bulk water meter in order to ensure that readings for the calculation of the NRW and Water are accurate. The Municipality needs to keep the NRW below a target of 20% and the water losses below a target of 15%. The ILI value is extremely low and it will be verified during the new financial year, when the readings from the newly installed bulk water meter become available.							
Greater Gansbaai	Treatment Losses	Volume	55.750	66.610	64.025	97.490	120.239	83.200
		Percentage	5.02%	5.56%	5.45%	8.69%	10.64%	6.55%
		Volume	68.287	71.221	69.012	79.262	69.131	83.545
		Percentage	16.30%	19.71%	19.68%	22.89%	19.71%	23.11%
	NRW	Volume	449.900	450.328	390.657	308.492	308.847	455.188
		Percentage	32.01%	31.67%	28.07%	23.89%	23.92%	31.08%
Water Losses	Volume	447.089	445.817	384.859	303.451	294.694	450.605	
	Percentage	31.81%	31.35%	27.66%	23.50%	22.82%	30.77%	
ILI			3.84	3.58	3.03	2.26	2.13	3.16
	The treatment losses of the De Kelders RO plant are closely monitored by the Municipality to ensure that it is at acceptable levels. The current treatment losses of below 10% for the Franskraal plant are at an acceptable level. The NRW percentage is just above the DWS's target of 30% and the Municipality needs to continue with the implementation of specific WC/WDM measures to reduce the NRW and water losses. The Municipality needs to work towards targets of 30% for the NRW and 25% for the water losses. The current ILI value of 3.16 is good and no urgent action is required, but the NRW and Water Losses should however be monitored carefully.							
Pearly Beach	Treatment Losses	Volume	5.860	29.603	4.891	4.756	-6.419	7.263
		Percentage	4.64%	16.98%	3.15%	3.10%	-4.35%	4.89%
	NRW	Volume	23.495	38.499	46.005	44.318	41.065	25.787
		Percentage	19.52%	26.60%	30.57%	29.81%	26.65%	18.25%
	Water Losses	Volume	23.254	37.760	45.166	43.574	39.415	25.284
		Percentage	19.32%	26.09%	30.02%	29.31%	25.58%	17.89%
ILI			1.43	2.35	2.81	1.26	1.12	0.70
	The current treatment losses of below 10% are at an acceptable level. The current NRW and water losses percentages are at good levels and the Municipality needs to maintain the percentages for the NRW and water losses below 20%. The ILI value indicates an excellent system, with no immediate intervention required and the Municipality needs to keep the ILI level below 2.							
Baardskeedersbos	Treatment Losses	Volume	2.446	3.101	2.637	2.603	3.202	2.229
		Percentage	14.26%	17.15%	14.40%	14.67%	19.02%	11.56%
	NRW	Volume	6.752	7.509	6.941	7.918	5.883	8.125
		Percentage	45.91%	50.14%	44.28%	52.31%	43.14%	47.67%

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

System	Component	Unit	Record: Prior (Ml/a)					22/23
			17/18	18/19	19/20	20/21	21/22	
	Water Losses	Volume	6.723	7.313	6.834	7.871	5.738	7.640
		Percentage	45.71%	48.83%	43.60%	52.00%	42.08%	44.82%
	ILI		2.12	2.29	2.12	2.35	1.71	2.26
<p>The Municipality needs to work towards a target of below 10% for the treatment losses. The current NRW and water losses are extremely high. The NRW percentage is above the DWS's target of 30% and the Municipality needs to continue with the implementation of specific WC/WDM measures to reduce the NRW and water losses. The Municipality needs to work towards targets of 35% for the NRW and 30% for the water losses. The current ILI value of 2.26 is good and no urgent action is required, but the NRW and Water Losses should however be monitored carefully.</p>								
Buffeljags Bay	Treatment Losses	Volume	0.523	0.048	-0.139	-0.220	0.247	0.182
		Percentage	10.53%	0.98%	-2.77%	-3.89%	4.49%	3.10%
	NRW	Volume	0.373	0.770	0.930	3.156	2.299	1.998
		Percentage	8.40%	15.83%	18.03%	53.68%	43.73%	35.11%
	Water Losses	Volume	0.364	0.741	0.901	3.127	2.243	1.986
		Percentage	8.20%	15.24%	17.46%	53.19%	42.67%	34.90%
	ILI		1.60	3.24	3.96	13.75	9.86	8.73
<p>The bulk distribution losses of below 5% are at an acceptable level. The NRW and Water Losses were reduced by approximately 8% over the last financial year, which are excellent. The NRW percentage is however still above the DWS's target of 30% and the Municipality needs to continue with the implementation of specific WC/WDM measures to reduce the NRW and water losses. The Municipality needs to work towards targets of 30% for the NRW and 25% for the water losses. The current ILI value of 21.5 is extremely high, which requires immediate water loss reduction interventions.</p>								
TOTAL	NRW	Volume	1 274.996	1 511.124	1 580.399	2 077.312	1 768.177	1 840.979
		Percentage	18.82%	21.54%	22.31%	28.26%	24.04%	24.48%
	Water Losses	Volume	1 261.447	1 418.983	1 521.865	1 997.106	1 623.411	1 733.168
		Percentage	18.62%	21.23%	21.48%	27.17%	22.07%	23.04%
	ILI		1.57	1.73	1.83	2.32	1.85	1.94
<p>The NRW and water losses for all the systems combined increased slightly during the last financial year, but are still below DWS's target of 30% for the NRW, which is good. The Municipality needs to work towards targets of 20% for the NRW and 15% for the water losses. The current ILI of 1.94 is excellent, with no immediate intervention required and the Municipality needs to keep the ILI level below 2.</p>								

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

**Category A** = No specific intervention required.

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

**Category C** = Requires attention

**Category D** = Requires immediate water loss reduction interventions

The Billed Metered Consumption figures up to 2019/2020 included the raw water volumes supplied from the different raw water pipelines to consumers, as well as the volume of treated effluent re-used by consumers. These volumes were excluded for the 2020/2021 financial year onwards and therefore the drastic increase in the NRW and Water Losses for the 2020/2021 financial year, especially in the Greater Hermanus area.

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

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The table below gives an overview of the various WC/WDM measures and whether the measures are adequately addressed by Overstrand Municipality.

<b>Table A.5.2: Reducing Unaccounted Water</b>		
<b>Reducing unaccounted water and water inefficiencies</b>	<b>In Place</b>	<b>Assessment Score</b>
Night flow metering	Yes	80%
Day flow metering	Yes	80%
Reticulation leaks	Yes	80%
Illegal connections	Yes	80%
Un-metered connections	Yes	80%
<b>Leak and meter repair programmes. Consumer units targeted by:</b>		
Leak repair assistance programme	Yes	80%
Retro-fitting of water inefficient toilets	Yes	80%
Meter repair programme	Yes	80%
<b>Consumer/end-use demand management: Public Information &amp; Education Programmes</b>		
Schools targeted by education programmes	Yes	80%
Consumers targeted by public information programmes	Yes	80%

Note: The score of 80% in the above table is Excellent, which is the highest score in DWS's eWSDP website.

Overstrand Municipality is committed to reduce the percentage of Water Losses for the various water distribution systems to below 20%. The Municipality's WDM Strategy and Action Plan include the following key activities (June 2023 progress in brackets):

- Continue with pipe replacement in priority areas with old reticulation networks and history of frequent pipe failures (2018/2019 to 2022/2023 phases included Rooi-Els, Pringle Bay, Betty's Bay, Kleinmond, Northcliff, Zwelihle and Voëlklip);
- Continued operation and maintenance of intelligent pressure management systems in Stanford, Kleinmond and Betty's Bay;
- Phased pro-active replacement of older water meters;
- Review and improve efficiency of remote monitoring of minimum night flows in all zones (On-going maintenance and extension of SCADA and telemetry systems).
- Link properties with distribution zones in financial data base to enable water balance in smaller areas (ongoing in all areas);
- Enhance public awareness on general water and water demand management issues, e.g. the watering of gardens as determined by the bylaws, rainwater harvesting, dam levels, and general water saving tips; regular publication of water and wastewater quality in local media and on Overstrand Municipality's website; pamphlets are being issued with all building plan approvals, and primary school learners are reached with water awareness puppet shows as well as live shows;
- Identify users on financial data base with regular abnormal high or abnormal low water use, and physically inspect the causes (on-going);
- Sourcing of external funds, e.g. from the DWS WSIG program and MIG for water projects;
- Tariffs structured to discourage excessive use of water, including volumetric sewerage tariffs, and specific water restriction tariffs implemented for specific water restriction levels (implemented and on-going);
- Continue with removal of alien vegetation in catchment areas (ongoing);
- Maximum use of treated effluent for irrigation (Implemented and extended in Hermanus and Gansbaai).

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The Long-Term WC/WDM Strategy does not only refer to measures that reduce water wastage and inefficient use, but also include measures to effectively manage and sustain efficiency targets. Some of the priority requirements are to install systems that measure and identify certain key parameters such as minimum night flows and systems to enable detailed and regular water audits and water balances.

The table below gives an overview of the System Input Volume, Average Billed Metered Consumption and Non-Revenue Water in litre per connection per day for the various water distribution systems for the 2022/2023 financial year.

Water Balance Component	Buffels River	Kleinmond	Greater Hermanus	Stanford	Greater Gansbaai	Pearly Beach	Baardskeerdersbos	Buffeljags Bay	Overstrand Municipality
System Input Volume	443	558	482	490	537	211	640	433	<b>485</b>
Average Billed Metered Cons.	290	366	387	465	370	172	335	281	<b>366</b>
Non-Revenue Water	153	193	95	25	167	38	305	152	<b>119</b>

The system with the highest system input volume per connection per day is Baardskeerdersbos. The system with the highest average billed metered consumption per connection per day is Stanford, while the Baardskeerdersbos system is the system with the highest non-revenue water per connection per day.

DWS's scorecard for assessing the potential for WC/WDM efforts was completed for Overstrand Municipality. The aim of the scorecard was to establish areas where the municipality has made good progress in relation to WC/WDM and where there is still room for improvement. It can be seen from the Scorecard that there are 25 questions each of which carries a maximum of 4 points providing a possible maximum score of 100. If the Municipality has the specific item completely under control, it receives the maximum points and if it is neglecting the item completely it receives no points. There are various levels between the maximum and the minimum number of points assigned to the municipality for each item depending on the level of completeness or lack thereof. **The status quo score for Overstrand Municipality is 85 out of 100 suggesting that the Municipality is making good progress with regard to the implementation of specific WC/WDM activities.**

### TOPIC 6: WATER RESOURCES

**The Western Cape experienced a severe drought over the period 2015 to 2017, with some relief during the 2018 to 2022 winter months. The drought over the period 2015 to 2017 reduced the safe yield of the Municipality's own existing surface and groundwater resources. The Municipality therefore continued with the implementation of various WC/WDM measures to lower the current and future water requirements and investigations of augmentation options for the existing water resources.**

Below average rainfall was experienced in the Hermanus area during the period 2015 to 2019. Level 1 water restrictions were implemented in the Greater Hermanus area from 1 November 2017, and level 2 water restrictions from 1 June 2018, accompanied by the 1<sup>st</sup> level of restriction tariffs. Level 3 restrictions were implemented from 1 November 2019, but reduced to level 2 again from 1 February 2020, following a significant rainfall event in January 2020. Above average rainfall was experienced during the 2020 winter season, resulting in the water restrictions being lifted completely from 1 September 2020.

The municipality took a pro-active approach some years ago by firstly implementing a WC/WDM programme and secondly diversifying its water resources.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The table below gives an overview of the current water resources, the current volumes abstracted and authorised and whether the abstractions are registered and recorded.

Table A.6.1: Current Water Sources and Volumes								
Source Type	Source	Number of Sources	Current 22/23 Abstraction or Returns (Mm <sup>3</sup> /a)	Licensed Abstraction / Returns (Mm <sup>3</sup> /a)	Community Water Supply		Abstraction registered? (Yes/No)	Abstraction recorded? (Yes/No)
					Rural	Urban		
Groundwater	Baardskeedersbos	2	0.019	0.060 (License)	NA	100%	Yes	Yes
	Buffeljags Bay	1	0.006	-	NA	100%	In process	Yes
Surface Water	Buffels River dam	1	0.672	0.900 (WARMS)	NA	100%	Yes	Yes
	Franskraal and Kraai Bosch dams	2	1.270	2.000 (WARMS)	NA	100%	Yes	Yes
	Klipgat fountain	1	0.239	-	NA	100%	In process	Yes
	De Kelders fountain	1	0.143	-	NA	100%	In process	Yes
	Pearly Beach and Koekemoer dams	1	0.149	0.257 (WARMS) 0.095 (Agreement)	NA	100%	Yes	Yes
External Sources (Bulk Purchase)	-	-	-	-	-	-	-	-
Water Returned to Source	Kleinmond WWTW	1	0.348	0.730 (GA)	-	-	-	-
	Hawston WWTW	1	0.212	0.365 (GA)	-	-	-	-
	Hermanus WWTW	1	2.049	4.380 (Permit)	-	-	-	-
	Stanford WWTW	1	0.265	0.730 (GA)	-	-	-	-
	Gansbaai WWTW	1	0.018	0.730 (GA)	-	-	-	-
	Pearly Beach WWTW	1	0.000	0.091 (GA)	-	-	-	-
Conjunctive use	Palmiet River	1	0.918	0.949 (WARMS)	NA	100%	Yes	Yes
	Dorpsfontein	1	-	0.110 (WARMS)	NA	100%	Yes	Yes
	Kleinmond Borehole	1	-		NA	100%	Yes	Yes
	Gateway Well Field	5	0.411	1.600 (License)	NA	100%	Yes	Yes
	Camphill and Volmoed Well Fields	7	0.600	1.200 (License)	NA	100%	Yes	Yes
	De Bos	1	3.441	2.800 (Court Ruling)	NA	100%	Yes	Yes
	Stanford Fountain	1	0.265	1.600 (License)	NA	100%	Yes	Yes
	Stanford Boreholes	2	0.234		NA	100%	Yes	Yes

The table below indicates the potential additional future water resources for Overstrand Municipality. These resources are with regard to the Greater Hermanus system.

Table A.6.2: Additional Water Sources and Volumes				
Source Type	Schemes	Number of Sources	Potential Volume (Mm <sup>3</sup> /a)	Licensed Abstraction (Mm <sup>3</sup> /a)
Ground Water	Camphill and Volmoed boreholes, Third Phase	4	0.400	1.600
Surface Water	Desalination First Phase	1	1.095	Not yet done
	Desalination Second Phase	1	1.095	Not yet done
	Desalination Third Phase	1	1.460	Not yet done
External Sources (Bulk Purchase)	-	-	-	-

Overstrand Municipality has an established monitoring plan to monitor the volumes abstracted from all the various surface and ground water resources and quality of the water abstracted.

Table A.6.3: Monitoring of Abstraction Volumes, Water Levels and Water Quality		
Monitoring of water abstracted		Assessment Score
% of water abstracted monitored: Surface water		100%
% of water abstracted monitored: Ground water		100%
Monitoring of water levels and water quality		Assessment Score
Surface water levels (1: daily, 2: weekly, 3: monthly, 4: annually, 5: never)		80%
Ground water levels (1: daily, 2: weekly, 3: monthly, 4: annually, 5: never)		80%
Water quality for formal schemes? (1: daily, 2: weekly, 3: monthly, 4: annually, 5: never)		80%
Water quality for rudimentary schemes? (1: daily, 2: weekly, 3: monthly, 4: annually, 5: never)		-
Borehole abstraction? (1: daily, 2: weekly, 3: monthly, 4: annually, 5: never)		80%

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Detail IWA Water Balances are available for each of the water distribution systems (towns) in Overstrand Municipality's Management Area. The graph below gives an overview of the average daily raw water supply to all the towns.

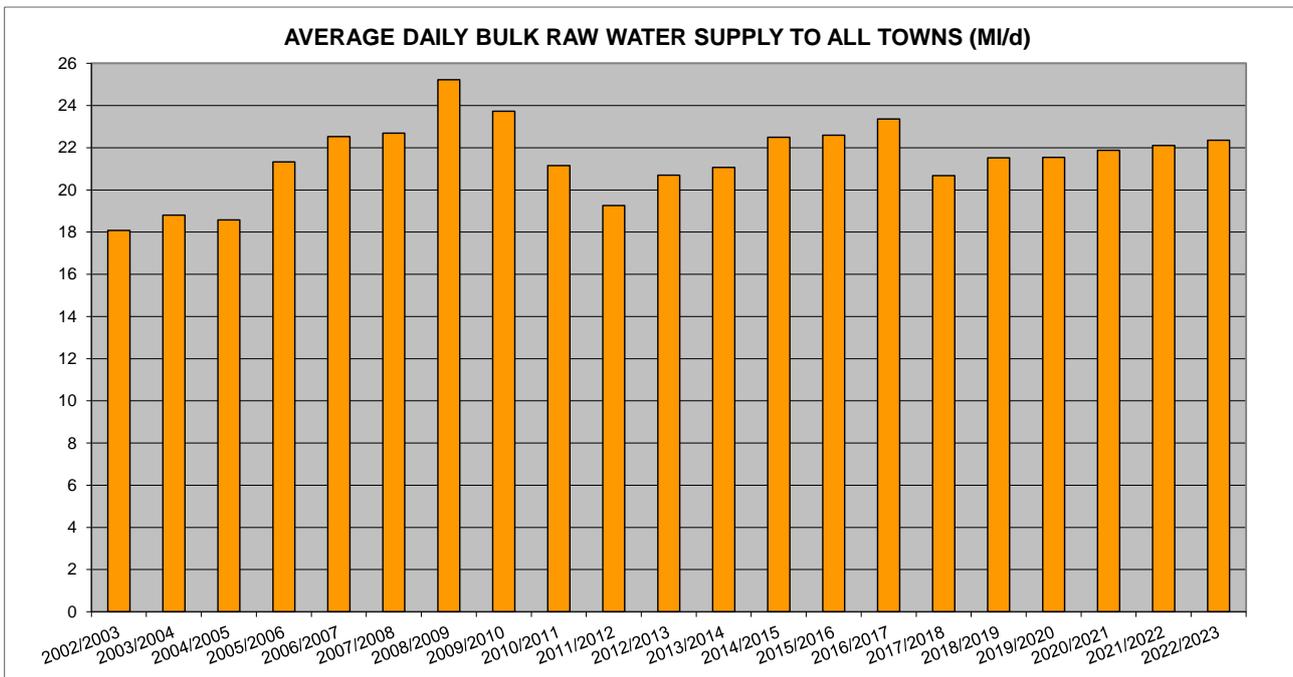


Figure A.6.1: Average Daily Bulk Raw Water Supply to all Towns

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

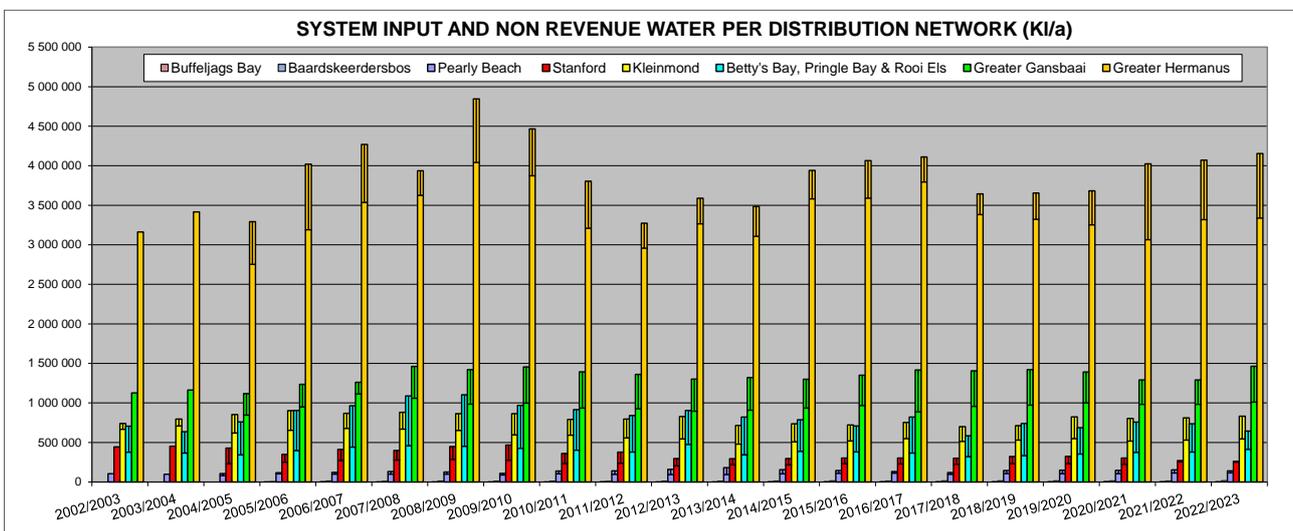


Figure A.6.2: System Input Volume and NRW per Distribution System

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

All water sources are supplied with bulk water meters and accurate records are kept of all bulk water meter readings. The table below gives a summary of the total bulk raw water supplied to the various towns within Overstrand Municipality's Management Area.

Distribution System	Source	Record : Prior (Ml/a)					22/23
		17/18	18/19	19/20	20/21	21/22	
Buffels River	Buffels River Dam	649.669	801.120	767.993	772.751	788.232	671.598
Kleinmond	Palmiet River and Dorpsfontein spring	716.358	779.610	898.489	880.390	871.522	918.124
Greater Hermanus	De Bos Dam and Groundwater	4 182.703	4 141.553	4 128.705	4 242.199	4 265.761	4 267.244
Stanford	Stanford spring and two Boreholes	321.479	374.810	365.453	446.512	468.903	498.341
Greater Gansbaai	Kraaibosch and Franskraal Dam Klipgat, De Kelders Grotte	1 529.544	1 559.727	1 524.604	1 467.816	1 480.781	1 631.362
Pearly Beach	Pearly Beach Springs and Koekemoer Dam	126.233	174.354	155.368	153.406	158.837	148.586
Baardskeerdersbos	Two Boreholes	17.154	18.077	18.311	17.741	16.838	19.274
Buffeljags Bay	Borehole	4.966	4.912	5.019	5.879	5.504	5.872
<b>Total Supply to all towns</b>		<b>7 548.106</b>	<b>7 854.163</b>	<b>7 863.942</b>	<b>7 986.694</b>	<b>8 056.378</b>	<b>8 160.401</b>

Raw water is also supplied by Overstrand Municipality from their Fisherhaven dam and the Mossel River dams in Fernkloof to a number of users. The untreated raw water supply from the Fisherhaven dam is for the Karwyderskraal Landfill (Overberg District Municipality), Benguela Cove and a number of properties along the pipeline route for irrigation and non-potable use. The untreated raw water supply from the Mossel River dams is for the irrigation of the golf course and for the Fernkloof nature reserve. These dams are not part of the Municipality's water sources utilised for the treatment of the raw water to potable standards.

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

The table below gives an overview of the various water quality monitoring measures and whether it is in place for Overstrand Municipality.

Water Quality	In place	Status Quo	Assessment Score
Reporting on quality of water taken from source: urban & rural	Yes	80%	80%
Quality of water returned to the resource: urban	Yes	80%	80%
Quality of water returned to the resource: rural	No	Not Applicable	80%
Is there a Pollution contingency measures plan in place?	Yes	80%	80%
Quality of water taken from source: urban - % monitored by WSA self?	Yes	80%	80%
Quality of water taken from source: rural - % monitored by WSA self?	No	Not Applicable	80%
Quality of water returned to the source: urban - % monitored by WSA self?	Yes	80%	80%
Quality of water returned to the source: rural - % monitored by WSA self?	No	Not Applicable	80%
Are these results available in electronic format? (Yes/no)	Yes	80%	80%
% Time (days) within SANS 241 standards per year	Yes	80%	80%
Abstraction IS registered with DWS	Yes	60%	60%
The abstraction IS NOT registered with DWS	Yes	40%	40%
The abstraction IS recorded	Yes	80%	80%
The abstraction IS NOT recorded	-	-	-

Note: The score of 80% in the above table is Excellent, which is the highest score in DWS's eWSDP website.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The water quality of all the water distribution systems in Overstrand Municipality is “Excellent”, according to the SANS 241:2015 classification, except for the Buffels River system that was “Unacceptable” for Operational Efficiency, due to a number of turbidity failures, and the Buffeljags Bay system that was “Unacceptable” for Aesthetic, due to a number of conductivity and chloride failures. The overall percentage of compliance of the water quality samples taken over the period July to June for the last two financial years is summarised in the table below per distribution system. The additional monitoring required by Overstrand Municipality for determinands identified during the risk assessment exceeding the SANS 241:2015 numerical limits are also included in the table.

Table A.6.6: Percentage Compliance of the Water Quality Samples for the Last Two Financial Years						
Performance Indicator	Performance Indicator categorised as unacceptable Yes / No (Table 4 of SANS 241-2:2015)		% Sample Compliance according to SANS 241-2015 Limits		Frequency of Additional Monitoring due to failure (Table 3 of SANS 241-2:2015)	
	22/23	21/22	22/23	21/22	22/23	21/22
<b>Buffels River</b>						
Acute Health Microbiological	No (Excellent)	No (Excellent)	99.3%	100.0%	-	-
Acute Health Chemical	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Chronic Health	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Aesthetic	No (Excellent)	No (Excellent)	99.8%	99.8%	-	-
Operational Efficiency	Yes (Unacceptable)	No (Excellent)	89.7%	93.9%	Monthly	-
<b>Kleinmond</b>						
Acute Health Microbiological	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Acute Health Chemical	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Chronic Health	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Aesthetic	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Operational Efficiency	No (Excellent)	No (Excellent)	98.2%	98.9%	-	-
<b>Greater Hermanus</b>						
Acute Health Microbiological	No (Excellent)	No (Excellent)	100.0%	98.8%	-	-
Acute Health Chemical	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Chronic Health	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Aesthetic	No (Excellent)	No (Excellent)	99.5%	99.6%	-	-
Operational Efficiency	No (Excellent)	No (Excellent)	98.4%	99.1%	-	-
<b>Stanford</b>						
Acute Health Microbiological	No (Excellent)	No (Excellent)	99.1%	98.8%	-	-
Acute Health Chemical	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Chronic Health	No (Excellent)	No (Excellent)	99.4%	100.0%	-	-
Aesthetic	No (Excellent)	No (Excellent)	100.0%	99.5%	-	-
Operational Efficiency	No (Excellent)	No (Excellent)	97.0%	97.2%	-	-
<b>Greater Gansbaai</b>						
Acute Health Microbiological	No (Excellent)	No (Excellent)	99.3%	98.7%	-	-
Acute Health Chemical	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Chronic Health	No (Excellent)	No (Excellent)	99.8%	99.7%	-	-
Aesthetic	No (Excellent)	No (Excellent)	100.0%	99.8%	-	-
Operational Efficiency	No (Excellent)	No (Excellent)	97.1%	98.4%	-	-
<b>Pearly Beach</b>						
Acute Health Microbiological	No (Excellent)	No (Excellent)	99.1%	98.7%	-	-
Acute Health Chemical	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Chronic Health	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Aesthetic	No (Excellent)	No (Excellent)	100.0%	98.5%	-	-
Operational Efficiency	No (Excellent)	No (Excellent)	94.9%	98.8%	-	-
<b>Baardskeerdersbos</b>						
Acute Health Microbiological	No (Excellent)	No (Excellent)	99.1%	98.7%	-	-
Acute Health Chemical	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Chronic Health	No (Excellent)	No (Excellent)	97.3%	99.2%	-	-
Aesthetic	No (Excellent)	No (Excellent)	94.9%	99.1%	-	-
Operational Efficiency	No (Excellent)	No (Good)	93.3%	90.8%	-	-
<b>Buffeljags Bay</b>						

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Performance Indicator	Performance Indicator categorised as unacceptable Yes / No (Table 4 of SANS 241-2:2015)		% Sample Compliance according to SANS 241-2015 Limits		Frequency of Additional Monitoring due to failure (Table 3 of SANS 241-2:2015)	
	22/23	21/22	22/23	21/22	22/23	21/22
	Acute Health Microbiological	No (Excellent)	No (Excellent)	97.6%	100.0%	-
Acute Health Chemical	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Chronic Health	No (Excellent)	No (Excellent)	100.0%	100.0%	-	-
Aesthetic	Yes (Unacceptable)	No (Excellent)	87.0%	95.3%	Quarterly	-
Operational Efficiency	No (Excellent)	No (Excellent)	97.8%	94.1%	-	-

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

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

The table below indicates the compliance of the E.Coli monitoring frequency in the water distribution systems of Overstrand Municipality, in terms of the minimum requirements of SANS:241-2: 2015 (Table 2). The period assessed was for samples taken from July 2022 to June 2023.

Distribution System	Population served	Required number of monthly samples (SANS 241-2:2015: Table 2)	Average Number of monthly E.Coli samples taken by Municipality during 2022/2023
Buffels River	3 593	2.0	12.4
Kleinmond	8 698	2.0	8.5
Greater Hermanus	76 410	14.6	24.6
Stanford	6 375	2.0	8.4
Greater Gansbaai	22 531	4.3	23.3
Pearly Beach	1 317	2.0	8.6
Baardskeerdersbos	129	2.0	9.0
Buffeljags Bay	155	2.0	6.6

It can be noted from the above table that the number of monthly E.Coli samples taken by the Municipality during the 2022/2023 financial year was far more than the required number of samples for all the water distribution systems.

**Effluent quality:** The effluent quality compliance sample results are loaded onto DWS's IRIS via the internet. The final effluent quality complies with the authorised Microbiological, Chemical and Physical limits for most of the WWTWs. The overall Microbiological, Chemical and Physical compliance percentages of the final effluent samples taken over the last three financial years at the Kleinmond-, Hawston-, Hermanus-, Stanford-, Gansbaai and Pearly Beach WWTW are summarised in the tables below.

WWTW	2020/2021	2021/2022	2022/2023
Kleinmond	100.0%	91.7%	91.7%
Hawston	100.0%	91.7%	100.0%
Hermanus	100.0%	75.0%	91.7%

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

WWTW	2020/2021	2021/2022	2022/2023
Stanford	100.0%	91.7%	33.3%
Gansbaai	100.0%	50.0%	16.7%
Pearly Beach	100.0%	100.0%	83.3%
<b>Total</b>	<b>100.0%</b>	<b>83.3%</b>	<b>69.4%</b>

Note: Where parameters were resampled, due to failures, the resampled results were used to calculate the above compliance percentages.

WWTW	2020/2021					2021/2022					2022/2023				
	Ammonia	Nitrites & Nitrates	COD	Ortho Phosphate	Overall	Ammonia	Nitrites & Nitrates	COD	Ortho Phosphate	Overall	Ammonia	Nitrites & Nitrates	COD	Ortho Phosphate	Overall
Kleinmond	8.3%	100.0%	66.7%	100.0%	<b>68.8%</b>	16.7%	100.0%	33.3%	100.0%	<b>62.5%</b>	16.7%	100.0%	0.0%	100.0%	<b>54.2%</b>
Hawston	83.3%	100.0%	75.0%	100.0%	<b>89.6%</b>	25.0%	100.0%	33.3%	75.0%	<b>58.3%</b>	33.3%	100.0%	16.7%	66.7%	<b>54.2%</b>
Hermanus	100.0%	100.0%	100.0%	100.0%	<b>100.0%</b>	91.7%	100.0%	91.7%	100.0%	<b>95.8%</b>	83.3%	83.3%	100.0%	91.7%	<b>89.6%</b>
Stanford	91.7%	100.0%	91.7%	100.0%	<b>95.8%</b>	100.0%	100.0%	100.0%	100.0%	<b>100.0%</b>	91.7%	100.0%	100.0%	100.0%	<b>97.9%</b>
Gansbaai	100.0%	91.7%	100.0%	100.0%	<b>97.9%</b>	66.7%	66.7%	100.0%	91.7%	<b>81.3%</b>	41.7%	66.7%	66.7%	91.7%	<b>66.7%</b>
Pearly Beach	58.3%	100.0%	0.0%	83.3%	<b>60.4%</b>	91.7%	100.0%	0.0%	100.0%	<b>72.9%</b>	91.7%	100.0%	0.0%	100.0%	<b>72.9%</b>
<b>Total</b>	<b>73.6%</b>	<b>98.6%</b>	<b>72.2%</b>	<b>97.2%</b>	<b>85.4%</b>	<b>65.3%</b>	<b>94.4%</b>	<b>59.7%</b>	<b>94.4%</b>	<b>78.5%</b>	<b>59.7%</b>	<b>91.7%</b>	<b>47.2%</b>	<b>91.7%</b>	<b>72.6%</b>

Note: Where parameters were resampled, due to failures, the resampled results were used to calculate the above compliance percentages.

WWTW	2020/2021				2021/2022				2022/2023			
	pH	Electrical Conductivity	Total Suspended Solids	Overall	pH	Electrical Conductivity	Total Suspended Solids	Overall	pH	Electrical Conductivity	Total Suspended Solids	Overall
Kleinmond	100.0%	91.7%	83.3%	<b>91.7%</b>	100.0%	91.7%	83.3%	<b>91.7%</b>	100.0%	100.0%	50.0%	<b>83.3%</b>
Hawston	100.0%	16.7%	100.0%	<b>72.2%</b>	100.0%	25.0%	75.0%	<b>66.7%</b>	91.7%	50.0%	75.0%	<b>72.2%</b>
Hermanus	100.0%	100.0%	100.0%	<b>100.0%</b>	100.0%	100.0%	100.0%	<b>100.0%</b>	100.0%	100.0%	100.0%	<b>100.0%</b>
Stanford	100.0%	66.7%	100.0%	<b>88.9%</b>	100.0%	91.7%	100.0%	<b>97.2%</b>	100.0%	83.3%	100.0%	<b>94.4%</b>
Gansbaai	100.0%	83.3%	100.0%	<b>94.4%</b>	100.0%	100.0%	100.0%	<b>100.0%</b>	100.0%	75.0%	91.7%	<b>88.9%</b>
Pearly Beach	75.0%	0.0%	25.0%	<b>33.3%</b>	91.7%	50.0%	8.3%	<b>50.0%</b>	50.0%	25.0%	0.0%	<b>25.0%</b>
<b>Total</b>	<b>95.8%</b>	<b>59.7%</b>	<b>84.7%</b>	<b>80.1%</b>	<b>98.6%</b>	<b>76.4%</b>	<b>77.8%</b>	<b>84.3%</b>	<b>90.3%</b>	<b>72.2%</b>	<b>69.4%</b>	<b>77.3%</b>

Note: Where parameters were resampled, due to failures, the resampled results were used to calculate the above compliance percentages.

The trend of the wastewater quality compliance for the various WWTWs are summarised in the table below.

WWTW	2016/2017 to 2018/2019			2018/2019 to 2020/2021			2020/2021 to 2022/2023		
	Micro.	Chemical	Physical	Micro.	Chemical	Physical	Micro.	Chemical	Physical
Kleinmond	Decrease	Decrease	Same	Increase	Decrease	Decrease	Decrease	Decrease	Decrease
Hawston	Same	Increase	Increase	Same	Decrease	Decrease	Same	Decrease	Same
Hermanus	Increase	Same	Same	Same	Same	Same	Decrease	Decrease	Same
Stanford	Same	Increase	Increase	Increase	Decrease	Decrease	Decrease	Increase	Increase
Gansbaai	Increase	Increase	Decrease	Same	Same	Same	Decrease	Decrease	Decrease
Pearly Beach	-	-	-	-	-	-	Decrease	Increase	Decrease

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

**Industrial Consumers:** The Municipality completed the updating of their Water Supply and Sanitation Services By-law. The updating includes the reviewing of the charges that need to be paid by the industrial consumers for the quality of final effluent discharged into the municipality's sewer system by them. The Municipality liaise with the industrial consumers from time to time with regard to the quality of final effluent discharged by them. Industrial effluent quality sample results are received by the Municipality for private package plants that discharge effluent into the Municipality's sewer system or into the environment.

### TOPIC 7: FINANCIAL

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

Financial Year	Water Infrastructure			Sewerage Infrastructure		
	Budget	Expenditure	% Spend	Budget	Expenditure	% Spend
2013/2014	R23 831 730	R23 630 683	99.16%	R12 153 413	R10 159 365	83.59%
2014/2015	R16 384 323	R16 275 016	99.33%	R12 070 996	R11 969 551	99.16%
2015/2016	R16 390 184	R14 232 323	86.83%	R8 360 500	R6 418 821	76.78%
2016/2017	R15 588 846	R15 772 309	101.18%	R14 848 519	R14 821 358	99.82%
2017/2018	R1 447 495	R1 432 532	98.97%	R12 252 782	R8 294 387	67.69%
2018/2019	R21 945 225	R12 270 442	55.91%	R44 868 863	R34 962 591	77.92%
2019/2020	R39 982 374	R24 903 681	62.29%	R20 240 106	R15 641 239	77.28%
2020/2021	R50 035 705	R34 573 765	69.10%	R41 458 465	R30 513 335	73.60%
2021/2022	R37 333 918	R36 630 152	98.11%	R50 890 147	R40 005 632	78.61%
2022/2023	R35 789 052	R31 607 552	88.32%	R31 285 030	R31 123 018	99.48%
<b>Average over last 10 years</b>	<b>R25 872 885</b>	<b>R21 132 846</b>	<b>81.68%</b>	<b>R24 842 882</b>	<b>R20 390 930</b>	<b>82.08%</b>

**Operational Budget:** The actual operational and maintenance expenditure and income for the last five financial years for water and sanitation services is summarised in the table below (Unaudited figures).

Service	Expenditure / Income	18/19	19/20	20/21	21/22	22/23
Water	Expenditure	R117 615 148	R128 656 376	R137 409 799	R145 142 796	R153 152 405
	Income	R145 980 226	R153 663 169	R153 115 215	R156 425 649	R173 298 233
	<b>Surplus / Deficit</b>	<b>R28 365 078</b>	<b>R25 006 793</b>	<b>R15 705 416</b>	<b>R11 282 853</b>	<b>R20 145 828</b>
Sanitation	Expenditure	R86 438 364	R94 725 991	R99 329 089	R112 745 218	R140 730 503
	Income	R104 583 319	R98 447 712	R109 567 538	R123 712 658	R117 561 435
	<b>Surplus / Deficit</b>	<b>R18 144 955</b>	<b>R3 721 721</b>	<b>R10 238 449</b>	<b>R10 967 440</b>	<b>R23 169 068</b>

**Tariff and Charges:** The first ten (10) kl of water is provided free to all indigent registered households. Overstrand Municipality's tariffs support the viability and sustainability of water supply services to the poor through cross-subsidies (where feasible). Free basic water and sanitation services are linked to the Municipality's Indigent Policy and all indigent registered households therefore receive free basic water and sanitation services. This implies that either the equitable share is used to cover this cost, or higher consumption blocks are charged at a rate greater than the cost in order to generate a surplus to cross-subsidise indigent consumers who use up to ten (10) kilolitres per month.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Tariffs often comprise both a fixed charge and a variable charge based on consumption. The cost consumers had to pay for their water services in Overstrand Municipality's Management Area, for the various financial years, is presented on the graph below (Normal residential water tariffs).

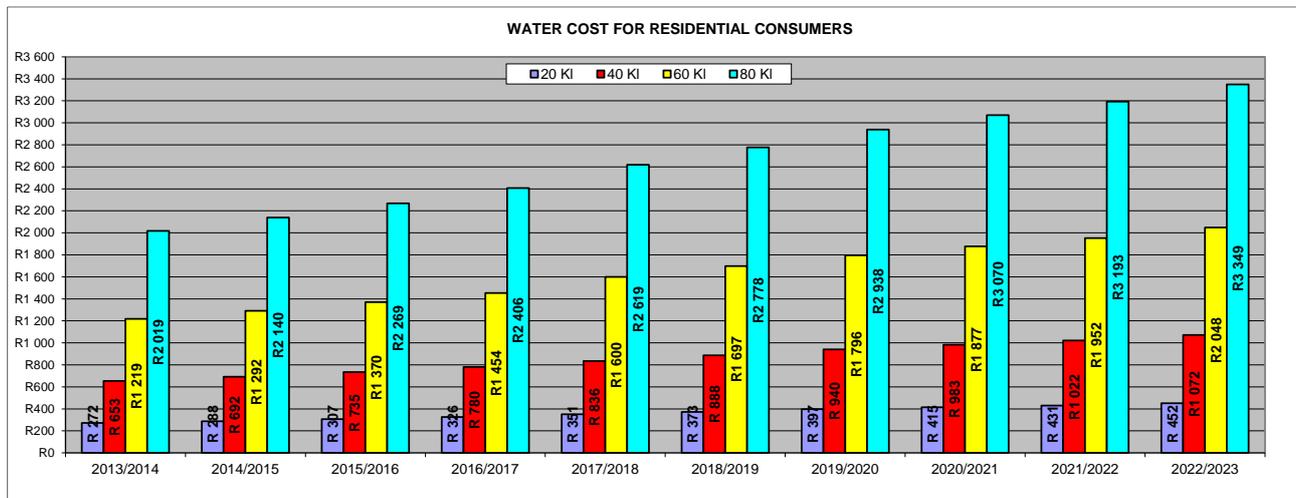


Figure A.7.1: Water Cost for Residential Consumers

The water tariff structures for Overstrand Municipality for the 2022/2023 financial year and the previous four financial years are summarised in the table below (Subject to VAT).

Consumer / Description	Tariff Code	Category	18/19	19/20	20/21	21/22	22/23	
Consumer Deposits	WD1	Domestic Water	R562-00	R594-03	R620-76	R646-00	R678-00	
	WD2	Commercial Water Cons. < 40 kl	R2 248-00	R2 376-14	R2 483-07	R2 582-00	R2 709-00	
	WD3	Commercial Water Cons 40 – 100 kl	R7 866-00	R8 314-36	R8 688-51	R9 036-00	R9 479-00	
	WD4	Commercial Water Cons. 100 kl +	R13 484-00	R14 252-59	R14 893-96	R15 490-00	R16 249-00	
	WD5	Domestic – Water RUEs	Applicable RUE's x WD1A					
	WD6	Indigent Registered	R180-00	R190-26	R198-82	R207-00	R217-00	
Basic Charge	W1A1	Basic Monthly Charge per erf/unit per month	R129-14	R136-50	R142-64	R148-35	R155-62	
	W1A2A	Basic Monthly Subsidy: Residential Indigent as per paragraph A of the Indigent Policy per erf/unit per month	-	R136-50	R142-64	R148-35	R155-62	
	W1A2B	Basic Monthly Subsidy: Residential Indigent as per paragraph B, C & D of the Indigent Policy per erf/unit per month 1/7/22-31/10/22	-	R129-14	R129-14	R129-14	R129-14	
	W1A2B	Basic Monthly Subsidy: Residential Indigent as per paragraph B, C & D of the Indigent Policy per erf/unit per month 1/11/22-28/2/23	-	-	-	-	R86-09	
	W1A2B	Basic Monthly Subsidy: Residential Indigent as per paragraph B, C & D of the Indigent Policy per erf/unit per month 1/3/23-30/6/23	-	-	-	-	R43-05	
	W1A3A	Fixed Infrastructure Basic Charge per erf/unit per month	R15-45	R15-45	R15-45	R15-45	R15-45	
	W1A3B	Fixed Infrastructure Basic Charge per erf/unit per month	R8-41	R8-41	R8-41	R8-41	R8-41	
	W1A3C	Subsidised Fixed Infrastructure Basic Charge per erf/unit per	-	R8-41	R8-41	R8-41	R8-41	

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table A.7.3: Water Tariffs								
Consumer / Description	Tariff Code	Category	18/19	19/20	20/21	21/22	22/23	
		month – Registered Indigent Households						
Consumption Households and Registered Indigent Households (0 - 10 kl subsidised for indigent households)	W1B1	Normal Tariff & Level 1 restrictions	0 – 6 kl per kl	R5-02	R5-60	R5-85	R6-08	R6-38
	W1B2		7 - 18 kl per kl	R10-85	R11-47	R11-99	R12-47	R13-08
	W1B3		19 – 30 kl per kl	R17-61	R18-61	R19-45	R20-23	R21-22
	W1B4		31 – 45 kl per kl	R27-11	R28-66	R29-95	R31-15	R32-68
	W1B5		46 - 60 kl per kl	R35-21	R37-22	R38-89	R40-45	R42-43
	W1B6		> 60 kl per kl	R46-96	R49-64	R51-87	R53-94	R56-58
	W1B7	Restriction Tariff 1 (level 2 & 3 restrictions)	0 – 6 kl per kl	R5-02	R5-60	R5-85	R6-08	R6-38
	W1B8		7 – 18 kl per kl	R14-11	R14-91	R15-58	R16-20	R17-01
	W1B9		19 - 30 kl per kl	R22-89	R24-19	R25-28	R26-29	R27-59
	W1B10		31 - 45 kl per kl	R35-24	R37-25	R38-93	R40-49	R42-48
	W1B11		46 - 60 kl per kl	R48-37	R51-13	R53-43	R55-57	R55-16
	W1B12		> 60 kl	R64-50	R68-18	R71-25	R74-10	R73-56
	W1B13	Restriction Tariff 2 (level 4 & 5 restrictions)	0 – 6 kl per kl	R5-02	R5-60	R5-85	R6-08	R6-38
	W1B14		7 – 18 kl per	R17-38	R18-37	R19-20	R19-97	R20-93
	W1B15		19 - 30 kl per kl	R28-18	R29-79	R31-13	R32-38	R33-95
	W1B16		31 - 45 kl per kl	R43-38	R45-85	R47-91	R49-83	R52-28
	W1B17		46 - 60 kl per kl	R59-55	R62-94	R65-77	R68-40	R67-89
	W1B18		> 60 kl	R79-38	R83-90	R87-68	R91-19	R90-53
	W1B19	Restriction Tariff 3 (level 6 restrictions)	0 – 6 kl per kl	R5-02	R5-60	R5-85	R6-08	R6-38
	W1B20		7 – 18 kl per kl	R22-94	R24-25	R25-34	R26-35	R26-16
W1B21	19 – 30 kl per kl		R99-23	R104-89	R109-61	R113-99	R42-44	
W1B22	31 – 45 kl per kl						R65-35	
W1B23	46 – 60 kl per kl						R84-86	
W1B24	> 60 kl per kl						R113-17	
Consumption – All other	W1C1	Normal Tariff & Level 1 restrictions	0 – 18 kl per kl	R12-01	R12-69	R13-26	R13-79	R14-47
	W1C2		19 - 30 kl per kl	R17-61	R18-61	R19-45	R20-23	R21-22
	W1C3		31 – 45 kl per kl	R27-11	R28-66	R29-95	R31-15	R32-68
	W1C4		46 – 60 kl per kl	R35-21	R37-22	R38-89	R40-45	R42-43
	W1C5		> 60 kl per kl	R46-96	R49-64	R51-87	R53-94	R56-58
	W1C6	Restriction Tariff 1 (level 2 & 3 restrictions)	0 – 18 kl per kl	R15-61	R16-50	R17-24	R17-93	R18-81
	W1C7		19 – 30 kl per kl	R22-89	R24-19	R25-28	R26-29	R27-59
	W1C8		31 - 45 kl per kl	R35-24	R37-25	R38-93	R40-49	R42-48
	W1C9		46 - 60 kl per kl	R48-38	R51-14	R53-44	R55-58	R55-16
	W1C10		> 60 kl	R64-49	R68-17	R71-24	R74-09	R73-56
	W1C11	Restriction Tariff 2 (level 4 & 5 restrictions)	0 – 18 kl per kl	R19-22	R20-32	R21-23	R22-08	R23-15
	W1C12		19 - 30 kl per kl	R28-18	R29-79	R31-13	R32-38	R33-95
	W1C13		31 - 45 kl per kl	R43-38	R45-85	R47-91	R49-83	R52-28
	W1C14		46 - 60 kl per kl	R59-55	R62-94	R65-77	R68-40	R67-89
	W1C15		> 60 kl	R79-38	R83-90	R87-68	R91-19	R90-53
	W1C16	Restriction Tariff 3 (level 6 restrictions)	0 – 10 kl per kl	R24-02	R25-39	R26-53	R27-59	-
			0 – 18 kl per kl	-	-	-	-	R28-93
	19 – 30 kl per kl		-	-	-	-	R42-44	
	31 - 45 kl per kl		-	-	-	-	R65-35	
	46 - 60 kl per kl		-	-	-	-	R84-86	
W1C17	> 10 kl per kl	R99-23	R104-89	R109-61	R113-99	-		
	> 60 kl	-	-	-	-	R113-17		
Other Consumers	W1D1	Departmental per kl	R21-63	R23-39	R24-86	R25-19	R28-46	
	W1D2	Fire Hoses: Basic per month	R164-34	R173-71	R181-53	R188-79	R198-04	
	W1D3	Bulk usage (Unconnected to networks) per kl – Consumers permanently residing within Overstrand municipal area	R13-29	R14-05	R14-68	R15-27	R16-02	
	W1D3A	Restriction Tariff 1 (level 2 & 3 water restrictions)	-	R18-27	R19-09	R19-85	R20-82	

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table A.7.3: Water Tariffs								
Consumer / Description	Tariff Code	Category	18/19	19/20	20/21	21/22	22/23	
	W1D3B	Restriction Tariff 2 (level 4 & 5 water restrictions)	-	R22-28	R23-28	R24-21	R25-63	
	W1D3C	Restriction Tariff 3 (level 6 water restrictions)	-	R28-10	R29-39	R30-53	R32-04	
	W1D4	Kidbrooke (Van Cauter 0 – 8000 kl /a)	R0-08	R0-08	R0-08	R0-08	R0-08	
	W1D5	Onrus Small Holdings Tariff 2 (Van Cauter)	R0-08	R0-08	R0-08	R0-08	R0-08	
	W1D6	Onrus Small Holdings Tariff 4 (Per Agreement)	R1-05	R1-11	R1-11	R1-11	R1-11	
	W1D7	Contractors water consumption – temporary connection	R21-63	R23-39	R24-86	R25-19	R28-46	
	W1D8	Bulk usage (Unconnected to networks) per Kl - People residing outside the Overstrand municipal area	R49-30	R52-11	R54-45	R56-63	R59-40	
	W1D8A	Restriction Tariff 1 (level 2 & 3 restrictions)	R64-09	R67-74	R70-79	R73-62	R77-23	
	W1D8B	Restriction Tariff 2 (level 4 & 5 restrictions)	R78-88	R83-38	R87-13	R90-62	R95-05	
	W1D8C	Restriction Tariff 3 (level 6 restrictions)	R98-60	R104-22	R108-91	R113-27	R118-81	
Wet Commercial, Sport, Parks etc. (must apply for this tariff)	W1E1	Normal Tariff & Level 1 restrictions	0 – 500 kl per kl	R17-47	R18-47	R19-30	R20-07	R21-05
	W1E2		501 – 1 000 kl per kl	R26-41	R27-92	R29-18	R30-35	R31-84
	W1E3		> 1 000 kl per kl	R35-22	R37-23	R38-91	R40-47	R42-45
	W1E4	Restriction Tariff 1 (level 2 & 3 restrictions)	0 – 300 kl per kl	R22-72	R24-02	R25-10	R26-10	R27-37
	W1E5		301 – 700 kl per kl	R34-33	R36-29	R37-92	R39-44	R41-39
	W1E6		> 700 kl per kl	R45-79	R48-40	R50-58	R52-60	R55-19
	W1E7	Restriction Tariff 2 (level 4 & 5 restrictions)	0 – 250 kl per kl	R27-96	R29-55	R30-88	R32-12	R33-69
	W1E8		251 – 500 kl per kl	R42-26	R44-67	R46-68	R48-55	R50-94
	W1E9		> 500 kl per kl	R56-35	R59-56	R62-24	R64-73	R67-92
	W1E10	Restriction Tariff 3 (level 6 restrictions)	0 – 100 kl per kl	R34-95	R36-94	R38-60	R40-14	R42-11
	W1E11		>100 kl per kl	R70-44	R74-46	R77-81	R80-92	R84-91
Wet Industry (Marine etc, must apply for this tariff) (Average of 100kl per day over prev. 365 days)	W1F1	Normal Tariff & Level 1 restrictions	0 – 5 800 kl per kl	R18-20	R19-24	R20-11	R20-91	R21-93
	W1F2		> 5 800 kl per kl	R35-22	R37-23	R38-91	R40-47	R42-45
	W1F3	Restriction Tariff 1 (level 2 & 3 restrictions)	0 – 5 800 kl per kl	R23-66	R25-01	R26-14	R27-19	R28-51
	W1F4		> 5 800 kl per kl	R45-79	R48-40	R50-58	R52-60	R55-19
	W1F5	Restriction Tariff 2 (level 4 & 5 restrictions)	0 – 5 800 kl per kl	R29-12	R30-78	R32-17	R33-46	R35-10
	W1F6		> 5 800 kl per kl	R56-35	R59-56	R62-24	R64-73	R67-92
	W1F7	Restriction Tariff 3 (level 6 restrictions)	0 – 5 800 kl per kl	R36-40	R38-47	R40-20	R41-81	R43-87
	W1F8		> 5 800 kl per kl	R70-44	R74-46	R77-81	R80-92	R84-91
Availability Charges	W2A1	Overstrand per month		R129-14	R136-50	R142-64	R148-35	R155-62
	W2A2	Farms connected to water pipeline		R129-14	R136-50	R142-64	R148-35	R155-62
Rebates (Granted by Municipal Manager after application)	W2J1	Kl above average – per kl		R21-63	R23-39	R24-86	R25-19	R28-46
Irrigation Water (Leiwater) & Raw Water	W3A1	Use and pump water (80-90min) per month Stanford		R39-47	R41-72	R43-60	R45-34	R47-56
	W3A2	Pearly Beach Small Holdings: Basic		R48-16	R50-91	R53-20	R55-33	R58-04

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table A.7.3: Water Tariffs							
Consumer / Description	Tariff Code	Category	18/19	19/20	20/21	21/22	22/23
	W3A3	Pearly Beach Small Holdings: Consumption 0 – 70 kl per kl	R3-77	R3-98	R4-16	R4-33	R4-52
	W3A4	Pearly Beach Small Holdings: Consumption > 70 kl per kl	R8-82	R9-32	R9-74	R10-13	R10-63
	W3A5	Others per kl	R3-77	R3-98	R4-16	R4-33	R4-52
	W3A6	Farm 1/722 Stanford as per agreement 0.875% of raw water abstraction from municipal boreholes, max 4380 kl/a, per kl	R0-00	R0-00	R0-00	R0-00	R0-00
	W3A6A	Farm 10/722 Stanford as per agreement 0.875% of raw water abstraction from municipal boreholes, max 4380 kl/a, per kl	R0-00	R0-00	R0-00	R0-00	R0-00
	W3A6B	Farms Rem 1/722 and 10/722 Stanford as per agreement, raw water abstraction from boreholes in excess of 0.875% of municipal abstraction per property, per kl	R0-00	R0-00	R0-00	R0-00	R4-52
	W3A7	Farm 586 Volmoed raw water from De Bos pipeline consumption 0-300 kl/month per kl	R0-00	R0-00	R0-00	R0-00	R0-00
	W3A8	Farm 586 Volmoed raw water from De Bos pipeline consumption >300 kl/month per kl	R3-55	R3-75	R3-92	R4-31	R4-52
Irrigation Water (Treated Effluent)	W3B2	Hermanus Golf Club per month	R42 847-33	R45 289-63	R47 325-57	R49 218-59	R51 630-30
	W3B3	All other per kl	R2-41	R2-55	R2-66	R2-77	R2-91
	W3B4	Schools, municipal sports grounds and project sport grounds as per agreement	No Charge				
	W3B5	Curro Holdings – 250kl free per day as per deed of sale	R2-41	R2-55	R2-66	R2-77	R2-91
Sundry Charges	W4A1	Testing of a meter (Call-out fee incl.)	R862-61	R912-17	R953-04	R991-30	R1 035-65
	W4A2	Testing of a meter (Incl. / Bulk Meter)	Cost + 15% Min charge of R500-00				
	W4A3	Disconnection	R391-30	R413-91	R432-17	R449-57	R469-57
	W4A4	Reconnection	R391-30	R413-91	R432-17	R449-57	R469-57
	W4A5	Reconnection after normal working hrs	R782-61	R826-96	R864-35	R899-13	R940-00
	W4A6	Administration fee – recalculation due to no meter access	R153-04	R161-74	R168-70	R175-65	R182-61
	W4A7	Verification of a meter reading	R213-91	R226-09	R236-52	R246-09	R257-39
	W4A8	Final and special readings	R195-65	R206-96	R216-52	R225-22	R235-65
	W4A9	Call-out fee – Normal working hrs	R390-44	R413-04	R431-30	R448-70	R468-70
	W4A10	Call-out fee – After hrs	R781-74	R826-09	R863-48	R898-26	R938-26
	W4A11	Replacement of damage meter	R1 049-57	R1 109-57	R1 159-13	R1 205-22	R1 259-13
	W4A12	Removal of Meter (based on call out fee)	R862-61	R912-17	R953-04	R991-30	R1 035-65
	W4A13	Registration of Borehole (Incl. inspection fee)	R293-04	R309-57	R323-48	R336-52	R351-30
	W4A14	Repositioning of Meter (Excl. pipe)	R859-13	R907-83	R948-70	R986-96	R1 031-30
	W4A15	Convert to water flow restrictor meter	R2 797-39	R2 956-52	R3 089-57	R3 213-04	R3 357-39
	W4A16	Temporary connections – deposit	R7 360-00	R7 780-00	R8 130-00	R8 455-00	R8 835-00
	W4A17	Temporary connection – usage per kl	R18-96	R23-39	R24-35	R25-19	R28-46
W4A18	Damage to Water Meter	Actual cost plus 15%	Actual cost plus 15%	Actual cost plus 15%	Actual cost plus 15%	Actual cost plus 15%	
W4A19	Damage of Watermain	Actual cost plus R2 958-44	Actual cost plus R3 127-07	Actual cost plus R3 268-00	Actual cost plus R3 398-72	Actual cost plus R3 551-66	

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Consumer / Description	Tariff Code	Category	18/19	19/20	20/21	21/22	22/23
	W4A20	Damage of Service Connection (including water meter)	Actual cost plus R777-69	Actual cost plus R822-02	Actual cost plus R859-00	Actual cost plus R893-36	Actual cost plus R933-56
Illegal Connection / Tampering Fee	W5A1	1 <sup>st</sup> Offence	R6 529-00	R6 901-00	R7 212-00	R7 500-00	R7 838-00
	W5A2	2 <sup>nd</sup> Offence – Must convert to a flow-restriction water meter at applicable tariff	R7 661-00	R8 098-00	R8 462-00	R8 800-00	R9 196-00
	W5A3	3 <sup>rd</sup> Offence (Restriction of service and remedial action fee = double previous offence fee)	Previous offence amount x 2	Previous offence amount x 2	Previous offence amount x 2	Previous offence amount x 2	Previous offence amount x 2
Connection Fee	W6A1	20mm Connection Conventional Meter	R4 782-61	R5 055-65	R5 283-48	R5 494-78	R5 741-74
	W6A2	20mm Connection Water Flow Restrictor Meter	R5 680-00	R6 003-48	R6 273-91	R6 525-22	R6 819-13
	W6A3	Other Connections	Actual Cost + 15%	Actual Cost + 15%	Actual cost plus + 15%	Actual Cost + 15%	Actual Cost + 15%
	W6A4	Connections (Erf Boundary – by Dev.)	R1 243-48	R1 314-78	R1 373-91	R1 428-70	R1 493-04
Bulk Service Dev. Fees	W7	Tariffs set out in Development Contribution Tariff list	Development Contributions will be determined as set out in the Annexure in respect of Dev. Contribution Policy				

The sewerage tariff structures for Overstrand Municipality for the 2022/2023 financial year and the previous four financial years are summarised in the table below (Subject to VAT).

Consumer / Description	Tariff Code	Category	18/19	19/20	20/21	21/22	22/23
Sewerage – Single and Intermediate Residential (Dwelling house and duplex flats, Conventional sewers, small bore sewers and conservancy tanks)	SE7A1	0 – 35 kl per kl (based on 70% of 50 kl water usage) – per unit per month. Conservancy tank service only during office hours per month. For after-hours service, refer to tariff SE9B.	R12-96	R12-22	R14-32	R14-89	R15-53
	SE7A2	Where no municipal water is used – per RUE per month. Conservancy tank service only during office hours per month. For after-hours service, refer to tariff SE9B.	-	-	R128-83	R131-57	R137-88
Sewerage – registered indigent households	SE7A4	0 – 4.2 kl – subsidised	R12-96	R12-22	R14-32	R14-89	-
		0 – 7 kl - subsidised	-	-	-	-	R15-53
	SE7A5	4.3 – 35 kl per kl (based on 70% of max 50 kl water usage) – per unit per month, Conservancy tank service only during office hours per month. For after-hours service, refer to tariff SE9B.	R12-96	R12-22	R14-32	R14-89	-
		8 – 35 kl per kl (based on 70% of max 50 kl water usage) – per unit per month, Conservancy tank service only during office hours per month. For after-hours service, refer to tariff SE9B.	-	-	-	-	R15-53
Sewerage – General residential (Blocks of flats and residential buildings)	SE7B1	0 – 45kl per kl (based on 90% of max 50 kl water usage) per unit per month.	R12-96	R12-22	R14-32	R14-89	R15-53
Sewerage – Guest house, bed & breakfast establishments	SE7C1	Per kl (based on 70% of water usage) per unit per month	R12-96	R12-22	R14-32	R14-89	R15-53
Consumption – All other (Including Commercial,	SE7D1	Per kl (based on 90% of water usage) per unit per month – this percentage may be adjusted	R12-96	R12-22	R14-32	R14-89	R15-53

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table A.7.4: Sewerage Tariffs								
Consumer / Description	Tariff Code	Category	18/19	19/20	20/21	21/22	22/23	
Industrial, School, Sport, etc.)		according to the Tariff Policy after investigation						
Consumption - Departmental	SE7E1	0 – 35 kl per kl (based on 70% of max 50 kl water usage) per unit per month.	R12-96	R12-22	R14-32	R14-89	R15-53	
Basic Charge	SE8A	Basic Monthly Charge Developed sites per erf/unit per month.	R115-09	R108-54	R127-12	R132-20	R137-88	
	SE8A1	Basic Monthly Subsidy Residential Indigent as per paragraph A of the Indigent Policy per month	-	R121-65	R127-12	R132-20	R137-88	
	SE8A2	Basic Monthly Subsidy Residential Indigent as per paragraph B, C & E of the Indigent Policy per month (01/07/2022 – 31/10/2022)	-	R115-09	R115-09	R115-09	R115-09	
	SE8A2	Basic Monthly Subsidy Residential Indigent as per paragraph B, C & E of the Indigent Policy per month (01/11/2022 – 28/02/2023)	-	R115-09	R115-09	R115-09	R76-73	
	SE8A2	Basic Monthly Subsidy Residential Indigent as per paragraph B, C & E of the Indigent Policy per month (01/03/2023 – 30/06/2023)	-	R115-09	R115-09	R115-09	R38-36	
	SE8B	Basic Monthly Charge Undeveloped sites – cannot connect to the network per erf/unit per month.	R77-54	R73-13	R85-65	R89-08	R92-91	
	SE8C	Basic Monthly Charge Undeveloped sites – can connect to the network per erf/unit per month	R115-09	R108-54	R127-12	R132-20	R137-88	
	SE8D	Basic Monthly Charge Developed sites – with a septic Tank per erf/unit per month	R77-54	R73-13	R85-65	R89-08	R92-91	
	SE8E	Basic Monthly Charge – Low Cost Housing & Single Quarters per erf/unit per month	R77-54	R73-13	R85-65	R89-08	R92-91	
	SE8F1	Fixed Infrastructure Basic Charge per erf/unit per month	R9-60	R9-60	R9-60	R9-60	R9-60	
	SE8F2	Fixed Infrastructure Basic Charge per erf/unit per month	R3-43	R3-43	R3-43	R3-43	R3-43	
	SE8F3	Subsidised Fixed Infrastructure Basic Charge per erf/unit per month – Registered Indigent	-	R3-43	R3-43	R3-43	R3-43	
	Other Sewerage Charges and Sundry Charges	SE9A1	Vacuum Tanker Service for users not paying tariffs SE7 above – Provided on request	Vacuum Tanker service provided on request <6kl (per 6kl or part thereof)	R529-39	R559-57	R584-75	R608-14
SE9A2		Vacuum Tanker service provided on request <5kl (per 5kl or part thereof)		R529-39	R559-57	R584-75	R608-14	R634-29
SE9A4		Vacuum Tanker service provided on request >6kl (per 6kl or part thereof)		R529-39	R559-57	R584-75	R608-14	R634-29
SE9A5		Call out fee for Tank Service request but no service due to another defect		R529-39	R559-57	R584-75	R608-14	R634-29
SE9A6		More than 3 pipes an additional fee per pipe for users not paying tariff SE7 above		R77-54	R81-96	R85-65	R89-08	R92-91
SE9B1		After Hours Vacuum Tanker Service – Provided on request		After hours per request < 6kl (per 6kl or part thereof)	R1 058-78	R1 119-13	R1 169-49	R1 216-28
SE9B2		After hours per request > 6kl (per 6kl or part thereof)	R1 058-78	R1 119-13	R1 169-49	R1 216-28	R1 268-58	

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Consumer / Description	Tariff Code	Category	18/19	19/20	20/21	21/22	22/23	
	SE9B3	After hours per request < 5kl (per 5 kl or part thereof)	R1 058-78	R1 119-13	R1 169-49	R1 216-28	R1 268-58	
	SE9B2	After hours businesses with Public Toilets per removal	R317-91	R336-03	R351-15	R365-20	R380-90	
	SE9C1	Vacuum Tanker Service outside urban areas – Provided on request	R317-91	R336-03	R351-16	R365-21	R380-91	
	SE9C2	Normal applicable Tariff (SE9A1 or SE9A2 or SE9A4) plus additional per km	R15-52	R16-40	R17-14	R17-83	R18-60	
	SE9C6	After Hours Vacuum Tanker Service outside urban areas – Provided on request	R317-91	R336-03	R351-15	R365-20	R380-90	
	SE9C7	Normal applicable Tariff (SE9A1 or SE9A2 or SE9A4) plus additional per km	R15-52	R16-40	R17-14	R17-83	R18-60	
	SE9D1	Testing of septic and conservancy tanks per test	R1 377-39	R1 456-52	R1 521-74	R1 582-61	R1 650-44	
	SE9D2	Small bore sewerage connection fee + tank test	R6 320-87	R6 680-87	R6 981-74	R7 260-87	R7 573-04	
	SE9D3	Sewer connection	R4 736-52	R5 006-09	R5 231-30	R5 448-70	R5 682-61	
	SE9E1	Disposal	R68-96	R73-04	R76-52	R80-00	R15-65	
Bulk services development fees	SEW10	Bulk services development fees	Development Contributions will be determined as set out in the Annexure in respect of Development Contribution Policy					
Illegal Connection / Tampering Fee	SE11A	1 <sup>st</sup> Offence	R6 495-00	R6 866-00	R7 175-00	R7 462-00	R7 783-00	
	SE11B	2 <sup>nd</sup> Offence (SE11A x 2)	R12 990-00	R13 730-00	R14 348-00	R14 924-00	R15 566-00	

### TOPIC 8: WATER SERVICES INSTITUTIONAL ARRANGEMENTS AND CUSTOMER SERVICES

Overstrand Municipality is the official WSA for the entire Municipal Management Area and act as the WSP for the whole area. Current water services are delivered by way of an internally operated and managed mechanism. A Water and Wastewater Bulk Works Contract commenced on the 8<sup>th</sup> of December 2018 between Overstrand Municipality and Veolia Services Southern Africa (Pty) Ltd to operate and maintain the bulk infrastructure in Overstrand Municipality's Management Area for a period of fifteen (15) years. The Municipality also has the right to extend the contract for a further five (5) years.

The updated Water Supply and Sanitation Services By-law was approved by Council on 26 April 2022.

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

The overall performance of the municipality is managed and evaluated by a municipal scorecard (Top Layer SDBIP) at organisational level and through monitoring and evaluation of the detailed Departmental SDBIP at directorate and departmental (HOD) levels. The municipal scorecard (Top Layer SDBIP) sets out consolidated service delivery targets for senior management and provides an overall picture of performance for the municipality as a whole, reflecting the performance on each strategic objective and service delivery priorities. The SDBIP includes non-financial KPIs.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The Municipal personnel and the bulk water services contractor’s personnel are continuously exposed to training opportunities, skills development and capacity building at a technical, operations and management level in an effort to create a more efficient overall service to the users. A Workplace Skills Plan is compiled every year and the specific training needs of the personnel, with regard to water and wastewater management are determined annually.

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

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

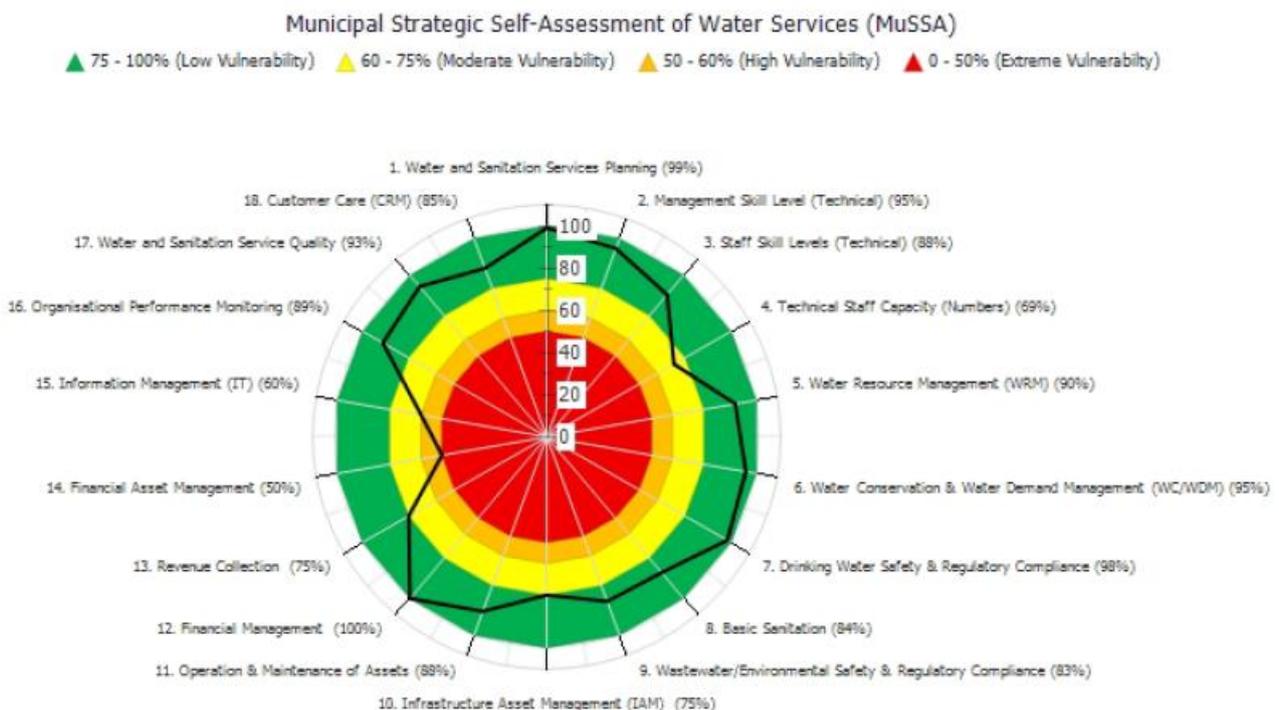


Figure A.8.1: Spider Diagram of the Vulnerability Levels of Overstrand Municipality for 2023

Overstrand Municipality’s Vulnerability Index for 2023 was indicated as 0.23 “Low Vulnerability”. The only area of concern evident from the 2023 assessment is Financial Asset Management (High Vulnerability, 50.0%).

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

Overstrand Municipality completed a snap community survey during the 2021/2022 financial year. 2 574 People participated in the structured questionnaire. The performance indicated as satisfactory were 67% for water supply and 75% for sewerage provision. The percentage indicates the proportion of those surveyed that believed that the relevant performance was at least satisfactory.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

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

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

### Water Services Quality:

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

### Vacuum Tanker Service:

- Overstrand Municipality is rendering a vacuum tanker service to properties in Gansbaai, Stanford, Hermanus and Kleinmond areas where no sewer networks are installed.
- Affected clients must monitor the sewer levels of their conservancy tanks and submit a request for service at least 72 hours before capacity of a tank is reached.
- Last-mentioned action will also promote the scheduling of requests (jobs) to be executed by the Administration.

### 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 30 days of receiving the application and all prescribed requirements have been met;
- Clean up sewer overflows due to blockages or 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;
- Test water meters on request. If the meter complies with the specifications the consumer will be liable for the cost thereof. If the meter is faulty, there will be no cost for the consumer;
- Monitor and investigate individual municipal users, consumption on a monthly basis;
- Monitor and investigate abnormal high or low water consumption of consumers;
- Ensure that all requests for vacuum tanker services are rendered within 72 hours of receipt of requests by the Administration; and
- Requests for vacuum tanker services received by the Administration after 15:00 to be executed after 16:30 on the same day must receive preference and will be charged at the applicable after hour tariffs.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

A comprehensive Customer Services and Complaints system is in place at Overstrand Municipality. 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 works-order system to ensure execution thereof. All help desks were equipped with Batho Pele picture signage.

The table below gives an overview of logged queries/complaints responded to within 24 hours for the last three financial years by the various Departments (July to June).

Department	2020/2021			2021/2022			2022/2023		
	Total received	Completed within 24 hours	Percentage completed within 24 hours	Total received	Completed within 24 hours	Percentage completed within 24 hours	Total received	Completed within 24 hours	Percentage completed within 24 hours
Sewer	863	831	96.3%	867	896	96.8%	913	940	97.1%
Tankers	840	697	83.0%	631	815	77.4%	647	890	72.7%
Water	1 192	1 144	96.0%	1 292	1 339	96.5%	1 260	1 314	95.9%

The table below gives a summary of the water and sanitation records that are kept by Overstrand Municipality and the maintenance work that was carried out over the last five financial years for the various areas.

Service	Definition	All Areas				
		18/19	19/20	20/21	21/22	22/23
Sewerage connection	Provision of connection or inspection of existing connections	-	-	-	22	101
Smallbore Connections	Test new tanks smallbore	-	-	-	-	-
Sewer blockages	Repair blockages on main sewer pipelines up to connection points	1 823	1 828	2 032	1 904	2 006
Other sewer reticulation	Any other sewer reticulation inspections	152	106	156	204	248
PDA toilets repairs	Previously disadvantaged toilets repaired	188	137	151	165	274
Pipeline sewer	Installation of sewer pipelines or repair of pipelines	148	114	167	209	232
Investigate sewer reticulation pump stations	Work carried out at sewer pump stations	34	1	1	2	2
Replace water meters	Replace water meters	15	9	25	1 782	79
Test water meter	Testing of water meter for accuracy	24	20	23	17	11
Disconnect water connection	Disconnect supply	8	6	34	23	17
Install drip system	Installation and inspection of drip systems	1	-	0	5	1
Inspect water connections	Inspect connections	38	28	21	21	31
New water connections	New water connections	311	171	284	536	678
Other water connections	Inspections and work carried out at water connections	25	61	31	16	64
Pipelines water	Installation or repair of water pipelines	6	28	48	16	9
Pressure	Complaints with regard to pressure in the system	116	81	135	190	158
Water Pump Stations	Inspections and work carried out at water pump stations.	-	1	3	-	2
Repair pipe bursts	Repair of burst water pipelines	433	232	267	333	307
Reservoirs	Inspection of reservoirs and work carried out at reservoirs	4	-	7	2	2
Water Routine Inspections	Any water related inspections	-	-	0	1	-
Water Valves	Inspection of valves and work carried out on valves	2	6	14	21	11

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

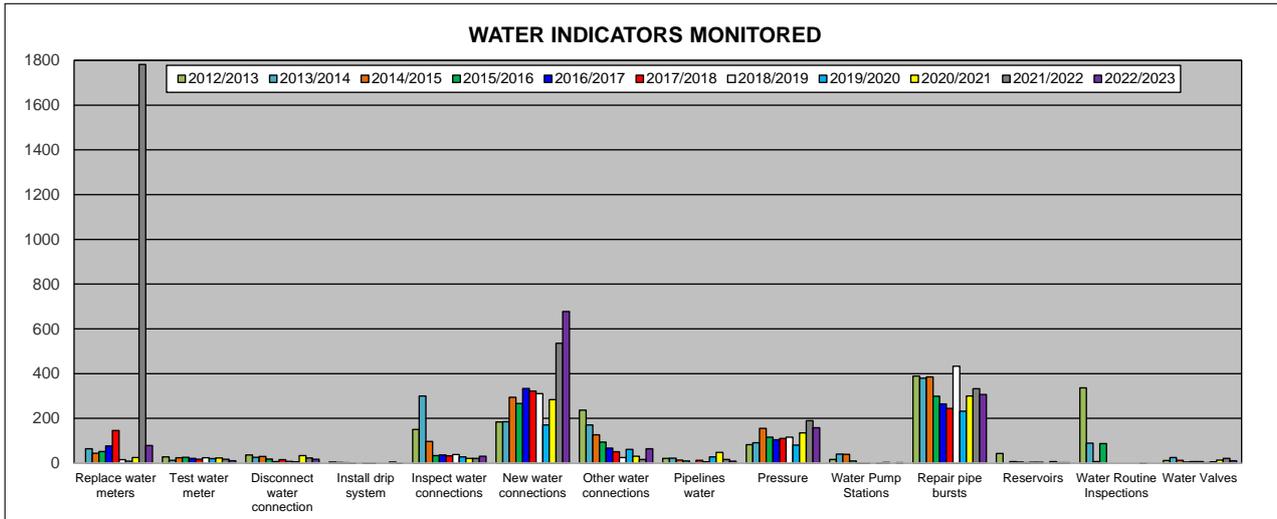


Figure A.8.2: Water Indicators Monitored by Overstrand Municipality

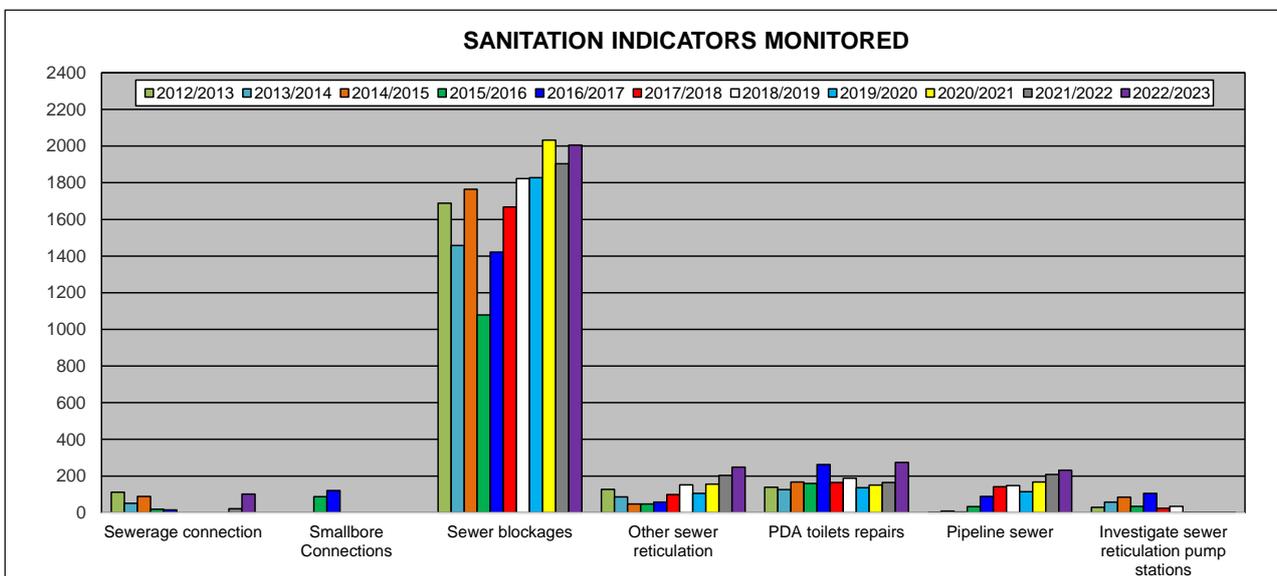


Figure A.8.3: Sanitation Indicators Monitored by Overstrand Municipality

Overstrand Municipality also received their 2023 No Drop Score, as calculated through the 2023 assessment done by the DWS. The 2023 No Drop assessments were performed using a reduced set of No Drop Criteria. These criteria were selected to assess a WSA's understanding of their WC/WDM status, the plans, strategies, budgets, and implementation of remedial projects. Below is a brief description of the Criteria used for the 2023 assessment.

Criteria	Description
Criteria 1	WC/WDM status quo, plans and strategies, budgets, and implementation of projects (Water Resource Diagram, Water Balance, Council approved WC/WDM strategies and budgets).
Criteria 2	Asset management as it relates to meter replacement. Monitoring, analysis, and action of high loss District Metered Areas (DMAs) in metropolitan municipalities.
Criteria 3	Technical skills of WC/WDM team.
Criteria 5	Compliance and Performance based on the water loss and efficiency Key Performance Indicators (KPI) and year on year improvement there-of.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The purpose of the 2023 No Drop Assessments was twofold:

- To complete the consultative assessment of the 144 WSAs as per the No Drop Requirements based on the 2021/22 financial year.
- To update the water balance and water loss benchmarking for the 2022/23 financial year. This is reported on in the Status of Water Loss, Water Use Efficiency and Non-Revenue Water in South African Municipalities (2012/13 to 2022/23).

The No Drop results for Overstrand Municipality are presented in the table below.

<b>Table A.8.4: No Drop Performance of the Municipality (DWS's 2023 No Drop Report)</b>		
<b>No Drop Score (2021/2022)</b>		<b>101%</b>
<b>Criteria</b>	<b>Weight</b>	<b>Score</b>
1: WC/WDM Strategy, Planning and Implementation	45%	100% (Excellent)
2: Asset Management	10%	100% (Excellent)
3: Technical Skills	10%	100% (Excellent)
5: Compliance and Performance	35%	74% (Average)
<b>Weighted Sub-Total</b>		<b>91%</b>
Bonus		10%
<b>Score</b>		<b>101% (Excellent)</b>
Penalty 1: No evidence of approved budget		0.0%
Penalty 2: Section 82 of the Water Services Act		0.0%
<b>Criteria 1 Sub-Items: WC/WDM Strategy, Planning and Implementation</b>		
<b>Item</b>		<b>Score (Max = 1)</b>
1.1: Water Resources		1.0 (Excellent)
1.2: Water Balance		1.0 (Excellent)
1.2: WC/WDM Strategy and Business Plan		1.0 (Excellent)
Penalty 1: No evidence of approved budget		0.0
<b>Criteria 5 Sub-Items: Compliance and Performance</b>		
<b>Item</b>		<b>Score (Max = 1)</b>
5.1: Reticulation Leak Repair		0.3 (Poor)
5.2: Physical Water Losses		0.9 (Excellent)
5.3: Commercial Water Losses		1.0 (Excellent)
5.4: Non-Revenue Water		0.8 (Good)
5.5: Water Use Efficiency		0.7 (Average)
Water Balance Integrity		<b>High (Excellent)</b>

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

### DWS's Blue Drop Process

The DWS completed the Blue Drop process for the WSAs in 2023. Blue drop status is awarded to those towns that comply with 95% criteria on drinking water quality management. The blue drop performance of Overstrand Municipality was summarised as follows in the DWS's 2023 Blue Drop Report.

Table A.8.5: Blue Drop Performance of the Municipality (DWS's 2023 Blue Drop Report)	
Municipal Blue Drop Score	2011 – 90.56%, 2012 – 96.82%, 2014 - 90.79% and 2023 – 99.99%
<p><b>Introductions:</b> The Overstrand Local Municipality (OLM) supplies approximately 109 703 people with potable water through its 8 water supply systems, with a total SIV of 20.33 MI/day and a combined design capacity of 61.11 MI/day. The OLM is the Water Services Authority responsible for 100% of the total SIV and sub-contracts the operation of all the treatment plants to VEOLIA (water service provider). The distribution network is solely maintained by the Overstrand Local Municipality:</p> <ul style="list-style-type: none"> <li>The Baardskeerdersbos Supply system abstracts raw water from boreholes for treatment at the Baardskeerdersbos WTP (OLM) which serves 128 people, delivered at an SIV of 37 kl/d.</li> <li>The Buffeljags Bay Supply system abstracts raw water from boreholes for treatment at the Buffeljags Bay WTW (OLM) which serves 154 people, delivered at an SIV of 14 kl/d.</li> <li>The Buffels River Supply system abstracts raw water from the Buffels River Dam for treatment at the Buffels River WTP (OLM) which serves 3 312 people, delivered at an SIV of 2 020 kl/d.</li> <li>The Greater Gansbaai Supply system serves 20 479 people, delivered at a total SIV of 3 743 kl/d. The system abstracts raw water from the Klipgat &amp; De Kelders Grotte Fountain for treatment at the De Kelders WTP (OLM) at an SIV of 763 kl/d, and the Kraaibosch and Franskraal Dams for treatment at the Franskraal WTP (OLM) at an SIV of 2 980 kl/d.</li> <li>The Greater Hermanus Supply system abstracts raw water from the De Bos Dam, Gateway Borehole Field (5 boreholes) and Volmoed and Camphill borehole fields (7 boreholes) for treatment at the Preekstoel WTP (OLM) which serves 70 038 people, delivered at an SIV of 11 154 kl/d.</li> <li>The Kleinmond Supply system abstracts raw water from the Palmiet River and Dorpsfontein for treatment at the Kleinmond WTP (OLM) which serves 8 279 people, delivered at an SIV of 2 260 kl/d.</li> <li>The Pearly Beach Supply system abstracts raw water from the Pearly Beach and Koekemoer Dams for treatment at the Pearly Beach WTP (OLM) which serves 1 263 people, delivered at an SIV of 380 kl/d.</li> <li>The Stanford Supply system abstracts raw water from the Stanford Spring Kouevlakte Boreholes for treatment at the Stanford Water Treatment Works (OLM) which serves 6 050 people, delivered at an SIV of 720 kl/d.</li> </ul> <p><b>Regulatory Impression:</b> The Overstrand Local Municipality (OLM) was represented by the Director of Engineering planning and accompanied by two technical managers as well as the operations manager from VEOLIA appointed for the operation of all the treatment works for the OLM. The WSI representatives were very well prepared for the Blue Drop assessment, well informed of all aspects of their systems, and provided an outstanding portfolio of evidence which made the audit process easy and efficient. The OLM had a significant decline in its Blue Drop score history from 93.70% in 2011 to 63.90% in 2014.</p> <p>The regulator would like to applaud the OLM for their commitment to a high standard of service delivery by taking the initiative in appointing VEOLIA for the operation of their treatment plants. With very-low risk ratings, and excellent compliance for both microbiological and chemical acute health across all their systems it is plain to see the value added by this appointment, which resulted in a praiseworthy overall Blue Drop score of 99.99%.</p> <p>The WSI completed comprehensive high-quality water safety plans for all their systems including extensive proof of implementation and monthly reports on the performance and O&amp;M expenditures on all their plants. Their operational monitoring, data capturing, and analysis is commendable, and they have well-defined and implemented compliance monitoring and risk-based monitoring programs. The team was questioned on their knowledge of the risks identified in the WaSP and was able to readily identify the major risk in the catchments, at the treatment works and within the network including the mitigation measures and status of implementation thereof.</p> <p>The WSI provided detailed system assessments informed by high-quality process audits including technical site assessments, water reticulation inspections/assessments, and IWA water balances.</p> <p>The maintenance teams are sufficiently capacitated and managed with competent staff and term contracts are in place for outsourcing of specialised maintenance.</p>	

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

**Table A.8.5: Blue Drop Performance of the Municipality (DWS's 2023 Blue Drop Report)**

A capital budget was provided together with a five-year forecast. The budget for the audit year was R7.17 million for bulk (delivery and treatment) projects and R30.16 million for network/distribution with respective expenditures of R7.15 million and R29.48 million. The projects were listed as follows:

Capital works executed under bulk contract:

- Security Fencing Water Facilities. Hawston and Pearly Beach Booster WPS (budget R1.0 mil; spent: R0.99 mil)
- Replace Kraaibosch Booster Pump; Replace membranes at Pearly Beach WTW; Replace Membranes at De Bos WTW; Refurbish sand filters; install solar pump and DAF upgrade at Pearly Beach (budget R 2.18 mil; spent: R 2.17 mil)
- Refurbishment of Bulk Water Pipelines (All systems) (budget R1.988 mil; expenditure: R1.986 mil).
- Upgrade access roads to Kleinmond and Buffels River WTW (budget R2.0 mil; expenditure: R1.99 mil)

Capital projects implemented by the Municipality:

- Replacement of Overstrand water pipes (f1/3) - (budget R7.05 mil; expenditure: R7.05 mil).
- Replacement of Overstrand water pipes (f2/3) - (budget R8.00mil; expenditure: R8.00 mil).
- Replacement of Overstrand water pipes (f3/3) - (budget R3.62 mil; expenditure: R3.62 mil).
- Upgrade Hermanus well fields phase 2- (budget R3.59 mil; expenditure: R3.58 mil).
- Water master plan implementation- (budget R7.22 mil; expenditure: R7.22 mil).

**Blue Drop Findings:** The OLM, across all their system, has very few shortcomings.

- The WSI should ensure that all their Water Use Licenses are in place for Raw Water Abstraction.
- The WSI to ensure up-to-date proof of accuracy for flow meters of the Buffeljags WSS.
- Although the WSI are complying with the regulations for Process controllers and supervisors required for this audit period, the WSI should ensure compliance with the newly promulgated requirement of regulation 3630 for future.

**Technical Site Assessment:**

The **Preekstoel WTP** was inspected to verify the Blue Drop audit findings and received a technical site assessment score of 94%. The plant is owned by the Overstrand LM and operated by a private company, Veolia. The works comprises of 3 plants, a 21 MI/d conventional treatment, a 7 MI/d chemical oxidation plant (KMnO<sub>4</sub>), and a 10 MI/d biological filter plant for Fe & Mn removal giving a combined treatment capacity of 38 MI/d. The works was found to be in prime condition, excellently managed and maintained and only required some minor general concrete repairs and general upkeep of the buildings. The inspected raw water pump station requires refurbishment of corroded valves and pipes, and a gland leakage sump / pump should be considered. Due to the chemical oxidation process, non-corrosive materials should be considered in areas. All considered the total VROOM amount comes to R56 679/MI. The final water quality produced by the treatment plant is excellent with a Microbiological (Acute Health) compliance of 98.53% (samples taken fortnightly), and a Chemical compliance (Acute and Chronic Health) of >99.90% and 99.75% respectively. The Operational, Aesthetic and Risk Def compliance monitoring are also excellent, scoring 99.23%, 99.91% and 99.59% respectively. The team on site is aware of what is listed in the safety plan on risks associated from the catchment to the reticulation system. Workplace satisfaction has been indicated as 90% with training identified as the only aspect to improve.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Performance Area		Baardskeerdersbos	Buffeljags Bay	Buffels River	Greater Gansbaai	Greater Hermanus	Kleinmond	Pearly Beach	Stanford
Bulk/WSP		-	-	-	-	-	-	-	-
Capacity Management	15%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
DWQ Risk Management	20%	96.00%	95.00%	96.00%	95.29%	96.00%	96.00%	96.00%	96.00%
Financial Management	10%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Technical Management	20%	98.50%	83.50%	100.00%	98.81%	100.00%	98.50%	98.50%	98.50%
DWQ Compliance	35%	98.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Bonus	10%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Penalties	10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Disqualifiers		None	None	None	None	None	None	None	None
<b>Blue Drop Score (2023)</b>	<b>%</b>	<b>99.70%</b>	<b>98.20%</b>	<b>99.99%</b>	<b>99.99%</b>	<b>99.99%</b>	<b>99.99%</b>	<b>99.99%</b>	<b>99.99%</b>
Blue Drop Score (2014)	%	63.87%	71.83%	87.20%	88.30%	96.44%	86.59%	87.35%	90.94%
Blue Drop Score (2012)	%	91.60%	93.80%	95.00%	97.10%	97.90%	95.00%	95.20%	92.70%
Blue Drop Score (2011)	%	93.70%	75.40%	95.10%	95.10%	87.20%	93.10%	94.30%	95.20%
System Design Capacity	kl/d	185	80	5 500	8 100	38 000	5 800	1 440	1 000
System Available Capacity	kl/d	185	28	5 500	8 100	38 000	5 800	1 440	2 000
System Input Value	kl/d	37	14	2 020	3 743	11 154	2 260	380	720
Capacity Utilization	%	20.00%	50.00%	36.73%	46.22%	29.35%	38.97%	26.39%	36.00%
Average Daily Consumption	l/p/d	289	92	610	183	159	273	301	119
Resource Abstracted From		Boreholes	Borehole	Buffels River Dam	Klipgat & De Kelders Grotte Fountain, Kraaibosch & Franskraal Dams	De Bos Dam; Gateway Borehole Field (5 boreholes); Volmoed and Camphill borehole fields (7 boreholes)	Palmiet River and Dorpsfontein	Pearly Beach Dam & Koekemoer Dam	Stanford Spring Kouevlakte Boreholes
Microbiological Compliance	%	98.70%	99.99%	99.99%	99.05%	98.53%	99.99%	97.30%	98.77%
Chemical Health Compliance	%	98.51%	98.28%	99.47%	98.85%	99.76%	98.73%	98.80%	98.11%
Risk Defined Compliance	%	97.97%	98.04%	96.79%	99.70%	99.59%	99.71%	99.43%	99.05%
VROOM	Rand	-	-	R311 735	-	R2 153 802	-	-	-
BDRR 2023	%	9.57%	14.21%	15.08%	19.97%	18.44%	14.53%	13.39%	15.98%
BDRR 2022	%	12.80%	16.20%	16.70%	17.00%	20.70%	16.20%	13.80%	17.80%

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

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

Distribution System	2019/2020		2020/2021		2021/2022			2022/2023				
	Estimated Permanent Population	Aver. Daily Billed Metered Res. Consumption (kl)	Estimated Permanent Population	Aver. Daily Billed Metered Res. Consumption (kl)	Estimated Permanent Population	Aver. Daily Billed Metered Res. Consumption (kl)	Aver. Daily consumption (l/p/d)	Estimated Permanent Population	Aver. Daily Billed Metered Res. Consumption (kl)	Aver. Daily consumption (l/p/d)		
Buffels River	3 180	797	3 180	797	3 180	797	3 449	931	<b>270</b>	3 593	893	<b>249</b>
Kleinmond	8 077	1 063	8 077	1 063	8 077	1 063	8 486	1 076	<b>127</b>	8 698	1 089	<b>125</b>
Greater Hermanus	67 054	6 376	67 054	6 376	67 054	6 376	73 154	7 113	<b>97</b>	76 410	7 067	<b>92</b>
Stanford	5 894	459	5 894	459	5 894	459	6 210	487	<b>78</b>	6 375	482	<b>76</b>
Greater Gansbaai	19 524	1 720	19 524	1 720	19 524	1 720	21 480	1 778	<b>83</b>	22 531	1 829	<b>81</b>
Pearly Beach	1 237	239	1 237	239	1 237	239	1 290	266	<b>206</b>	1 317	263	<b>200</b>
Baardskeedersbos	127	20	127	20	127	20	128	19	<b>148</b>	129	19	<b>147</b>
Buffeljags Bay	153	8	153	8	153	8	155	6	<b>39</b>	155	7	<b>45</b>
<b>All Systems</b>	<b>105 246</b>	<b>10 682</b>	<b>105 246</b>	<b>10 682</b>	<b>105 246</b>	<b>10 682</b>	<b>114 352</b>	<b>11 676</b>	<b>102</b>	<b>119 208</b>	<b>11 649</b>	<b>98</b>

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

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

### DWS's Green Drop Process

The DWS completed the new Green Drop assessment for the WSAs in 2021 and the results were received early in 2022. Green drop status is awarded to those WSAs that comply with 90% criteria on key selected indicators on wastewater quality management. The green drop performance of Overstrand Municipality is summarised as follows in the DWS's 2022 Green Drop Report.

Table A.8.7: Green Drop Performance of the Municipality (DWS's 2022 Green Drop Report)	
Average Green Drop Score	2009 – 63%, 2011 – 89%, 2013 - 89%, 2021 – 89%
<p><b>Regulatory Impression:</b> Overstrand Municipality and WSP Veolia delivered a sterling performance that was awarded with an overall 89% Green Drop score. The municipality continues to maintain a remarkable record of 89% over 10 years, marked by a highlight committed, competent team. In addition, Gansbaai, Hermanus and Stanford were serious contenders for Green Drop Certification, which regrettably had to be waived due to not achieving excellent standards (&gt;90%) on their final microbiological and/or chemical qualities. The WSA should be able to attain Certification status in 2023 if this matter can be resolved.</p> <p>The Regulator is impressed with the level of preparation and professional conduct during the audit, represented by managers in various roles, supported by Veolia Water. All required information was loaded onto IRIS for various KPAs prior which ensure a seamless preliminary assessment. The team then used the main audit and verification audit events to maximise their scores by providing clarification and further evidence on sludge classification (landfilling), stormwater- and water demand management and capital projects. The striking performance and sustained services are not surprising if noting the strength of the engineering, technical, scientific, and laboratory competence, supported by committed senior management and municipal leadership. Perfect score (100%) were achieved for KPA Capacity Management for the expertise, supported by comprehensive operation, maintenance and monitoring plans and records, including financials and energy management. Human capacity is optimised via the adoption of automation and telemetry. This aspect must be taken up with the Regulator to align with capacity requirements to ensure that any risks associated with such innovations are managed. Flow monitoring is in place for inflow and outflow, and online monitoring for night flows (Mycity) is in place. Energy optimisation via LED is standard procedure and CO<sub>2</sub> equivalents are calculated to monitor the benefit. Well done. These best practices set a high standard for wastewater services in South Africa.</p> <p>In a nutshell, the municipality performed exceptionally well in all KPA (&gt;90%), with the exception of Effluent and Sludge Compliance. Areas for improvement include the laboratory turn-around time, monitoring of dedicated sludge streams and performance evaluation against design expectations, flow meter calibration / verification, sludge classification according to the WRC guidelines (noting new landfill regulations).</p> <p>The adoption of site specific W<sub>2</sub>RAP process is an encouraging; notably that risk management is informed and influenced by a process audit, sewer master plan and supported by budget for implementation. Improvement should focus on having (independent) Risk Reviews every 6 months to monitor (quantify) risk movement. The Regulator congratulates Overstrand and hope the 2023 audit cycle will result in an exponential improvement until Green Drop excellence is achieved for all six systems.</p> <p><b>Green Drop Findings:</b></p> <ol style="list-style-type: none"> <li>All WWTW achieved a full score for capacity management, thereby verifying the availability of registered and qualified process controllers, maintenance teams (inhouse and outsourced services), engineering, technical (technicians and technologists) and scientific expertise tied to wastewater management and asset planning.</li> <li>W<sub>2</sub>RAPs are in place and implemented and its impact monitored through operational monitoring and compliance monitoring.</li> <li>All systems presented financial evidence viz. allocated budgets and expenditure, treatment cost (R/m<sup>3</sup> treated), energy costs (R/kWh) and contracts for external services.</li> <li>Six of six WWTWs logged full records for compliance monitoring, including biomonitoring.</li> <li>Operational monitoring with online meters for most process streams are implemented. Gaps are still noted with regard to sludge monitoring of dedicated streams, e.g. in and output from settlers and thickeners, anaerobic digesters, belt presses, drying beds, etc.</li> <li>High quality reports were presented for process audits, sewage inspection reports and sewer master planning.</li> <li>Bylaws are updated and enforced.</li> <li>Twelve months of data uploaded on IRIS for all six WWTWs, supported by relevant site-specific water use authorisation and general authorisations.</li> <li>Sludge classification for landfill disposal is done, but not complemented by WRC classification – the latter not only intending to guide disposal but also to monitor the quality of biosolids produced by the site.</li> <li>No penalties and no directives were issued for any systems.</li> <li>No plants in the critical or high-risk positions.</li> <li>Capital projects are part of a three-year plan, with 2021 projects listed as follows: <ul style="list-style-type: none"> <li>R6 700 000: Sewer network extension in Gansbaai WWTWs and associated infrastructure</li> <li>R16 154 000: Hawston WWTW refurbishment on civil and mechanical equipment's for various unit processes.</li> <li>R8 836 000: Hermanus WWTW refurbishments and associated infrastructure.</li> <li>R1 645 000: Kleinmond WWTW refurbishments and associated infrastructure.</li> <li>R1 797 000: Stanford WWTW refurbishments and associated infrastructure.</li> </ul> </li> </ol>	

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

GREEN DROP REPORT CARD							
Key Performance Area	Weight	Gansbaai	Hawston	Hermanus	Kleinmond	Pearly Beach	Stanford
A: Capacity Management	15%	100%	100%	100%	100%	100%	100%
B: Environmental Management	15%	91.0%	85.0%	85.0%	86.0%	98.8%	92.0%
C: Financial Management	20%	98.0%	98.0%	98.0%	78.0%	97.5%	98.0%
D: Technical Management	20%	97.5%	97.5%	97.5%	93.5%	97.1%	97.5%
E: Effluent & Sludge Management	30%	70.0%	50.0%	85.0%	64.0%	62.5%	50.0%
F: Bonus		94.0%	94.0%	94.0%	94.0%	56.0%	94.0%
G: Penalties		0.0%	0.0%	0.0%	0.0%	-25.0%	0.0%
H: Disqualifiers		None	None	None	None	None	None
<b>2021 Green Drop Score</b>		<b>89% - 96%</b>	<b>89%</b>	<b>89% - 96%</b>	<b>88%</b>	<b>88%</b>	<b>89% - 90%</b>
<b>2013 Green Drop Score</b>		<b>92%</b>	<b>90%</b>	<b>91%</b>	<b>78%</b>	<b>NA</b>	<b>93%</b>
<b>2011 Green Drop Score</b>		<b>76%</b>	<b>88%</b>	<b>92%</b>	<b>83%</b>	<b>NA</b>	<b>83%</b>
<b>2009 Green Drop Score</b>		<b>66%</b>	<b>57%</b>	<b>66%</b>	<b>66%</b>	<b>NA</b>	<b>61%</b>
System Design Capacity (Ml/d)		2.000	1.000	12.000	2.000	0.259	1.200
Design Capacity Utilisation (%)		43%	61%	54%	76%	31%	89%
Resource Discharged into		Irrigation Sports Complex	Maturation Pond into Wetland	Ocean and Irrigation	Reed-bed / wetland area lined to sea	An aquifer	Constructed reed bed to Klein River
Microbiological Compliance (%)		<b>68%</b>	80%	<b>87%</b>	91%	100%	<b>82%</b>
Chemical Compliance (%)		<b>86%</b>	74%	98%	51%	58%	<b>78%</b>
Physical Compliance (%)		95%	62%	100%	88%	27%	82%
Wastewater Risk Rating (CRR% of CRR max)							
<b>2011 CRR (%)</b>		<b>31.0%</b>	<b>33.0%</b>	<b>35.0%</b>	<b>44.0%</b>	<b>NA</b>	<b>44.0%</b>
<b>2013 CRR (%)</b>		<b>35.3%</b>	<b>29.0%</b>	<b>45.0%</b>	<b>47.0%</b>	<b>NA</b>	<b>29.0%</b>
<b>2021 CRR (%)</b>		<b>41.2%</b>	<b>52.9%</b>	<b>36.4%</b>	<b>47.1%</b>	<b>52.9%</b>	<b>64.7%</b>

The Hermanus WWTW was inspected to verify the Green Drop audit findings (Hermanus WWTW Technical Site Assessment Score: 74%)

- The network and pumpstation was in good condition, noticed for routine maintenance and adequate response to sewage blockages.
- Trespassing seems to be a risk at the WWTW, compounded by land invasion close to the site. Neighbours to the WWTW resort to jumping over the fence to access their residence. Overstrand has plans to raise the wall to secure the facility and mitigate security risks.
- Plant infrastructure is aging; however, its lifespan is extended via preventative maintenance strategies. All equipment is functional.
- The site office displays certificates for PCs and WWTW – a satisfactory working environment is observed.
- Operational monitoring, daily logbook or maintenance records were in place.
- Safety signs were displayed at various unit processes i.e. chlorination, belt presses, lime storage, reactors, etc.
- Parts of the site was untidy and not evident of good groundskeeping – used as storage whilst network upgrades / refurbishments underway. Good housekeeping was evident at the maturation ponds.
- Sludge drying beds were not well kept and used only during emergency. Belt presses are used for primary sludge handling.
- Veolia Water developed a reactor control- and sludge management plan.
- All required documents were presented on site including comprehensive O&M manual with manufacturers specs, PFD and model of plant and record of all maintenance issues (job cards, works orders, tracking of outstanding jobs).

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Overstrand Municipality also received their 2023 Green Drop Risk Ratings, as calculated from the 2023 assessment done by the DWS.

Table A.8.8: Green Drop Risk Rating of the Overstrand Municipality (DWS's 2023 Green Drop Progress Report)							
CRR 2023 (%CRR/CRRmax)			51.3%				
<b>Introduction:</b>							
Overstrand LM has six (6) WWTWs which are owned by the WSA, and operated and maintained by Veolia Southern Africa, a private company. The systems design capacities range in size, from 250 -12 000 kl/day.							
<b>Regulator's Comments:</b> The Overstrand LM has impressed with their preparedness for the GD PAT. It is commendable to note that all the WWTWs design information is available (Criteria A) and that all WWTWs are operating well within their design capacities (Criteria B). Kleinmond is running at 82.4% of capacity however it is encouraging to note that there is a refurbishment and upgrade planned at this site along with the sewer network extension. In addition to this capital work, the Gansbaai region is upgrading the sewer networks and supply lines while significant refurbishment is noted at Hermanus with a new inlet screw pump station belt press and RAS upgrade. Therefore, all the systems have provided sufficient supporting data to allow for the calculation of the Cumulative Risk Rating (CRR). Many of the sites have improved their CRR scores from 2022 to 2023 except for Hawston and Hermanus where the scores have increased slightly. The upcoming refurbishment of the Hermanus site will improve the status of the CRR score for the Hermanus WWTW.							
Effluent compliance is generally good at all systems although the Hawston site has a total of 6 non-compliant parameters measured which requires technical intervention to improve the situation. The WSA is applauded for the technical skills and Supervisor competence evident at all sites which is indicative of good planning and infrastructure maintenance. There are some gaps in the availability of technical and operational staff which should be prioritized to ensure effective operation of the WWTWs, especially evident at Hermanus and Pearly Beach where process controller and technical skill availability is lower than desired. The WSA must address the final effluent non-compliance in the Hawston WWTW to improve the CRR scores. The WSA is encouraged to work on decreasing the risks by reviewing their W <sub>2</sub> RAP documentation to address all risks as well as ensure that the GDIP is fully implemented in order to reduce the CRR score for all systems, by targeting the poor performing KPIs, especially effluent quality.							
All Overstrand systems have W <sub>2</sub> RAPs in place and the WSA is encouraged to continually update and implement the available W <sub>2</sub> RAPs as they are a vital management tool for effective wastewater management. The WSA has GDIPs in place for all systems and the WSA are evidently making sure that the wastewater generated in the Overstrand LM is managed by competent staff with budgets in place for refurbishment and upgrade work. Overstrand LM is commended for their good performance during this GDPAT, and the regulator will be looking forward to their future performance during the next round of GD Audits.							
Risk Assessment Areas	Weight	Gansbaai	Hawston	Hermanus	Kleinmond	Pearly Beach	Stanford
Class of Works		D: Approved	D: Approved	C: Approved	D: Approved	E: Approved	D: Approved
Treatment Technology		Activated Sludge	Activated Sludge	Activated Sludge	Activated Sludge	Oxidation ponds	Activated Sludge
<b>A: Total Design Capacity</b>	Kl/d	2 000	1 000	12 000	2 000	250	1 200
<b>B: Operational Capacity (% inflow / design)</b>	%	41.2%	61.0%	54.1%	82.4%	41.6%	70.8%
<b>C: Effluent Quality Non-compliance</b>	#	2	6	3	3	3	1
% Microbiological Compliance	%	76.5%	86.7%	78.6%	91.7%	100.0%	100.0%
% Physical Compliance	%	100.0%	63.4%	100.0%	91.2%	50.0%	97.2%
% Chemical Compliance	%	84.2%	34.6%	90.9%	35.3%	63.9%	100.0%
<b>D: Technical Skills Compliance</b>	%	100.0%	100.0%	77.8%	100.0%	83.3%	100.0%
Process Controller Compliance	%	100%	100%	33%	100%	50%	100.0%
Supervisor Compliance	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Maintenance Team Compliance	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
<b>CRR (2023)</b>	%	<b>31.3%</b>	<b>62.5%</b>	<b>57.1%</b>	<b>43.8%</b>	<b>50.0%</b>	<b>29.4%</b>
<b>CRR (2022)</b>	%	<b>41.2%</b>	<b>52.9%</b>	<b>36.4%</b>	<b>47.1%</b>	<b>52.9%</b>	<b>64.0%</b>
<b>CRR (2013)</b>	%	<b>35.3%</b>	<b>29.0%</b>	<b>45.0%</b>	<b>47.0%</b>	-	<b>29.0%</b>
<b>CRR (2011)</b>	%	<b>31.0%</b>	<b>33.0%</b>	<b>35.0%</b>	<b>44.0%</b>	-	<b>44.0%</b>
W <sub>2</sub> RAP Status: 2022 Green Drop Report		Final document (approved by Council)	Final document (approved by Council)	Final document (approved by Council)	Final document annual review no. 3	Draft document (unapproved by Council)	Final document (approved by Council)

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Table A.8.8: Green Drop Risk Rating of the Overstrand Municipality (DWS's 2023 Green Drop Progress Report)							
W <sub>2</sub> RAP Status: 2023 Green Drop PAT		Final document annual review no. 3	Final document (approved by Council)	Final document (approved by Council)	Final document annual review no. 3	Final document annual review no. 1	Final document annual review no. 3
Capital & Refurbishment Projects (Rand)		18 200 479	0	14 675 201	2 735 289	0	0
Description of Capital & Refurbishment Projects		1. Masakhane Bulk Sewer Supply Line. 2. Gansbaai CBD Sewer Network Extension.	No projects for this financial year, but refurbishments and upgrades has been planned for 2024/25 and 2025/26.	1) New Inlet Screw Pump station. 2) New Belt Press. 3) RAS Upgrade.	1) Kleinmond WWTW Refurbishment & Upgrade. 2) Kleinmond Sewer Network Extension.	Non-Available. No capital projects were undertaken for the 2022/23 financial year.	No capital projects undertaken for the 2022/23 financial year.
2022 GD Score	%	89.0%	89.0%	89.0%	88.0%	88.0%	89.0%
GD Improvement Plan (GDIP)	Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Corrective Action Plan (CAP)	Y/N	No	No	No	No	No	No

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### SECTION B: STATE OF WATER SERVICES PLANNING

Overstrand Municipality updated their WSDP during the 2021/2022 financial year. The new WSDP is for the 2022-2027 five-year WSDP cycle and was approved by Council on the 31<sup>st</sup> of May 2022. The WSDP IDP Water Sector Input Report was also compiled as part of the updating of the WSDP.

The Municipality updated their existing Water Supply and Sanitation Services By-law during the 2021/2022 financial year. The updated Water Supply and Sanitation Services By-law was advertised for public comment, where after it was finalised and gazetted.

The Municipality annually compile the WSDP Performance- and Water Services Audit Report, which is submitted to Council with the Annual Report. 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 2022/2023 WSDP Performance- and Water Services Audit Report will be approved by Council as part of the Municipality's Annual Report.

Water Safety Plans are in place for the distribution systems and treatment facilities. W<sub>2</sub>RAPs are also in place for all the WWTWs and the sewer drainage networks.

Water Safety Plans are a form of water quality assurance through a comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchment to consumer. The multiple barrier principle implies that actions are required at all stages in the process of producing and distributing water in order to protect water quality.

The W<sub>2</sub>RAP is an all-inclusive risk analysis tool by which risks associated with the management of collection, treatment and disposal of wastewater are identified and rated (quantified). The W<sub>2</sub>RAP is used by Overstrand Municipality to manage the identified risks according to its potential impacts on the receiving environment / community / resources.

Detail WWTW Process Audits were compiled for all the WTWs and the WWTWs (June 2022).

The Water and Sewer Master Plans were updated during the 2020/2021 financial year and were incorporated into the WSDP. The 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. All forward planning for water and sanitation services and water and sewerage infrastructure is guided by the Water and Sewer Master Plans.

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

- Water Master Plan, Overstrand Municipality, June 2021, GLS Consulting
- Sewer Master Plan, Overstrand Municipality, June 2021, GLS Consulting

The following water and sanitation related reporting and investigations were successfully completed during the 2022/2023 financial year.

- The Water Services Audit Report for 2022/2023 was finalised and will be approved by Council as part of the Annual Report. The NRW water balance models were updated for each of the distribution systems (Up to the end of June 2023) as part of the 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 monthly onto DWS's IRIS. All the WTWs and WWTWs are registered on the IRIS website. The quality of the treated effluent re-used for irrigation purposes from the Hermanus- and Gansbaai WWTW is also sampled monthly.
- Overstrand Municipality is continuing with their Groundwater Monitoring and Management Programmes.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

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- The Asset Register was updated to include all the water and sewerage capital projects completed during the 2022/2023 financial year.
- Plant and Process Audits were done for the Kleinmond-, Hawston-, Hermanus-, Gansbaai- and Pearly Beach WWTW.
- The following Technical investigations were completed during the 2022/2023 financial year:
  - Water Source Development and Management Plan for the Overstrand Local Municipality. Baardskeerdersbos Wellfield Annual Monitoring Report, Umvoto, October 2021 to September 2022.
  - Gansbaai Groundwater Monitoring at the WWTW and Communal Sports Centre. Gansbaai Annual Groundwater Monitoring Report, Umvoto, October 2021 to September 2022.
  - Water Resource Development and Management Plan for the Hermanus Area. Gateway, Camphill and Volmoed Wellfields Annual Monitoring Report, Umvoto, October 2021 to September 2022.
  - Water Resource Development and Management Plan for the Stanford Area. Kouevlakte Wellfield Annual Monitoring Report, Umvoto, October 2021 to September 2022.
  - Overstrand Water and Wastewater Treatment Plants. Various Site Investigation Report, Zutari, November 2022.
  - Basic Assessment Report for the Hemel and Aarde Wellfield Augmentation, Umvoto, April 2023.
  - Technical Report: Upgrading of the Kleinmond WWTW, Zutari, June 2023.
  - Report on the technical and environmental assessment of the Onrus Main Sewerage Pumpstation, Lyners, June 2023.
  - Energy Efficiency and Alternative Energy Proposals for Preekstoel WTW and Hermanus WWTW, Veolia, April 2023.

Overstrand Municipality completed the following key water and sewerage capital infrastructure projects during the 2022/2023 financial year.

- Various sections of the water reticulation networks and sewer drainage networks and pump stations were upgraded as recommended in the Water and Sewer Master Plans. Sections of the old water reticulation networks were also replaced (Implementation of the Pipeline Replacement Programme).
- The Municipality continued with the Hermanus Wellfield Phase 2 upgrade project, including the basic assessment process for the upgrade of the wellfields in the Hemel-en-Aarde valley.
- The Municipality continued with the provision of communal water and sanitation services for the informal areas.
- The RO tank at the De Kelders WTW was replaced and the filters at the Franskraal WTW were refurbished.
- The MCC Panel of the Kraaibosch Dam raw water pump stations was refurbished.
- The Municipality completed the upgrade of the access roads to the Kleinmond and Buffels River WTWs.
- New fencing was installed at some of the water and sewerage infrastructure facilities to improve security.
- The Gansbaai sewer network was extended.
- A new Archimedes Screw pumpstation was completed at the Hermanus WWTW inlet works.
- The Municipality started with the refurbishment and upgrade of the Kleinmond WWTW.
- The rerouting of the treated effluent irrigation pipeline from the Hermanus WWTW was completed.

### 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:

- The intervention required to address the gap;
- The proposed solution to address the gap; and
- The Future plan / identified project that would meet the requirement.

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.

Overstrand Municipality's **Strategic Goals** are indicated below (2023/2024 IDP):

- 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.
- The promotion of tourism, economic and social development.

The Breede-Olifants Catchment Management Agency was established by extending the boundary and area of operation of the Breede-Gouritz CMA Water Management Area (Government Gazette No.47559, 25 November 2022).

The area of operation of the Breede-Olifants Catchment Management Agency includes the previous Breede-Gouritz and Berg-Olifants water management areas as pronounced in the National Water Resource Strategy second edition, 2013.

A Catchment Management Strategy is not yet available for the Breede-Olifants Water Management Area (BOWMA), but the Catchment Management Strategy of the former Breede-Gouritz Water Management Area (BGWMA), July 2017, included the following Vision and three Strategic Focus Areas.

#### **“Healthy water resources, for all, forever,”**

- **Strategic Area 1: Protecting for People and Nature:** Focusing primarily on management of streamflow, water quality, habitat and riparian zones related to riverine, wetland, estuarine and groundwater resources, to maintain important ecosystem goods and services and biodiversity.
- **Strategic Area 2: Sharing for Equity and Development:** Focusing primarily on management of water use from surface and groundwater resources through the operation of infrastructure, in order to provide water for productive and social purposes within and outside of the WMA.
- **Strategic Area 3: Co-operating for Compliance and Resilience:** Focusing primarily on co-operation and management of institutional aspects to enable and facilitate the protection and sharing of water, including the more co-operative stakeholders, partnerships, information sharing, disaster risk and adaptation elements of the strategy.

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### TOPIC 1: SETTLEMENTS AND DEMOGRAPHICS

Topic C.1.1: Settlement Demographics and Public Amenities						
Section	Intervention Required	% (1)	Solution description as identified by Master Plan	% (2)	Is there an Existing project/activity addressing this problem?	Current Demand Overall Scoring % (3)
Settlements Summary	Yes	100.0	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. 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. 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.	100.0	Yes	92.9
Summary by Settlement Group	No	100.0				100.0
Assessment Score by Settlement Type	No	100.0				100.0
Amenities Summary	No	100.0				100.0

Notes: (1) Is this section addressed in the WSDP?

(2) Were solutions identified for the possible gaps?

(3) Percentage calculated based on the above two percentages and whether there is an existing project/activity addressing this problem? Does this current listed project/activity address the problem totally? Project/Activity approved by Council as part of WSDP database? Approved by Council in project activity database and part of 5yr IDP cycle projects? Project/Activity listed in 3yr MTEF Cycle?

The seven 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 (May 2020), are as follows:

Table C.1.2: Seven 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.
Mixed Use Densification	Implement a bold mixed use densification policy which earmarks densification areas within urban settlement in order to accommodate growth in the Overstrand based on the extremely limited amount of greenfield land available for development.
Housing Strategy	Eliminate the current housing need based on the revision of the Overstrand Human Settlement Plan. The key principle of this plan being the establishment of human settlements which include the required community facilities, are located in proximity to economic opportunities etc.
Bulk Service Infrastructure Provision	Compile a co-ordinated bulk infrastructure supply provision policy, which prioritises the implementation of bulk infrastructure based on the municipality spatial development concept – Growth Management Framework.
Initiate – Place specific key economic development projects / drivers	Stimulate economic growth and development linked to the comparative locational advantage. Municipality must identify and actively facilitate key catalyst projects in conjunction with strategic partnerships with business / investors.
Priority areas for biodiversity conservation	All public owned land (including State property, Municipal and Provincial property) that is of high conservation importance is to be included in a formal municipal protection area 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	Rural development to be informed by the DEADP Rural Development Guidelines (2017), where applicable.

The concept of using a Growth Management Strategy to promote the long-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.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

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 for 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 (2023/2024 IDP).

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

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.

## TOPIC 2: SERVICE LEVELS

<b>Section</b>	<b>Intervention Required?</b>	<b>% (1)</b>	<b>Solution description as defined by topic situation assessment</b>	<b>% (2)</b>	<b>Is there an Existing project/activity addressing this problem?</b>	<b>Current Demand Overall Scoring % (3)</b>
Direct Backlog Water	Yes	100.0	Assist private landowners as far as possible with the provision of basic water services to all the households in the Municipality's Management Area with existing water service levels below RDP standard, once practical guidelines and funding become available from the DWS.	100.0	No	28.6
Direct Backlog Sanitation	Yes	100.0	Assist private landowners as far as possible with the provision of basic sanitation services to all the households in the Municipality's Management Area with existing sanitation service levels below RDP standard, once practical guidelines and funding become available from the DWS.	100.0	No	28.6
Water Services Infrastructure Supply Level Profile	No	100.0				100.0
Water Reliability Profile	Yes	100.0	Continue with the provision of communal services in informal areas in order to ensure that the ratio of number of households per facility complies with the target of 25 or less households per tap. Assist private landowners as far as possible with the provision of basic water services to all the households on the farms in the rural areas with existing water service levels still below RDP standard, once practical guidelines and funding become available from DWS.	100.0	Partially	92.9

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Topic C.2.1: Service Levels Profile						
Section	Intervention Required?	% (1)	Solution description as defined by topic situation assessment	% (2)	Is there an Existing project/activity addressing this problem?	Current Demand Overall Scoring % (3)
Sanitation Service Infrastructure Supply Level Profile	No	100.0				100.0
Sanitation Reliability Profile	Yes	100.0	Continue with the provision of communal services in informal areas in order to ensure that the ratio of number of households per facility complies with the target of 5 or less households per toilet facility. Assist private landowners as far as possible with the provision of basic sanitation services to all the households on the farms in the rural areas with existing sanitation service levels still below RDP standard, once practical guidelines and funding become available from DWS.	100.0	Partially	92.9
Water Services: Education	No	100.0				100.0
Water Services: Health	No	100.0				100.0
Sanitation Services: Education	No	100.0				100.0
Sanitation Services: Health	No	100.0				100.0
Health and Educational Facilities	No	100.0				100.0

Notes: (1) Is this section addressed in the WSDP?

(2) Were solutions identified for the possible gaps?

(3) Percentage calculated based on the above two percentages and whether there is an existing project/activity addressing this problem? Does this current listed project/activity address the problem totally? Project/Activity approved by Council as part of WSDP database? Approved by Council in project activity database and part of 5yr IDP cycle projects? Project/Activity listed in 3yr MTEF Cycle?

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 Water Supply and Sanitation Services By-law. 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 acknowledges the fact that communal standpipes represent probably the weakest part of a network's water supply services. Standpipes must be constructed in ways that can withstand excessive use and should not be neglected in terms of operation and maintenance. Malfunctioning standpipes may adversely affect 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 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.

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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 need it most.

### Free basic sanitation policy:

- Provision of the most appropriate sanitation facility to the poor households.
- 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 landowner) 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.

**Public Amenities Education:** All education facilities in Overstrand Municipality's Management Area are provided with adequate water services and no specific strategies, with regard to the provision of water services to these facilities, were therefore identified. Overstrand Municipality is however committed to work with the Education Department to address any possible shortcomings with regard to the provision of water services that might exist at any school or tertiary education facilities. It is important for the schools in Overstrand Municipality's Management Area to focus on Water Demand Management activities and for Overstrand Municipality to continue to support the schools with WC/WDM initiatives.

**Public Amenities Health:** All medical facilities in Overstrand Municipality's Management Area are provided with adequate water services and no specific strategies, with regard to the provision of water services to these facilities, were therefore identified.

Overstrand Municipality will strive to continue to ensure that the minimum required SANS241:2015 water quality standards are met through proper management, operation and maintenance of their WTWs and the systematic upgrading of their WTWs when required. The monitoring of provision of basic minimum services to farm dwellers remains a challenge, in view of the limited funding and human resources.

The environmental health function is currently with the Overberg District Municipality. The Municipal Health Services of the Overberg District Municipality also report monthly to the Department of Health on water quality. The quality of life of the people within a Municipality is influenced by the available health care. Various factors influence the health conditions of people in any region, for example access to clean water, good sanitation, proper nutrition and adequate housing.

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

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

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

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

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

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

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

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

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

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### TOPIC 3: WATER SERVICES ASSET MANAGEMENT

Topic C.3.1: Water Services Asset Management						
Section	Intervention Required?	% (1)	Solution description as defined by topic situation assessment	% (2)	Is there an Existing project/activity addressing this problem?	Current Demand Overall Scoring % (3)
General Information	No	100.0				100.0
Operation	No	100.0	Implement recommendations from the Water Safety Plans and WTW Process Audits. Improvement/Upgrade plans to be implemented.	100.0	Partially	92.9
	No	100.0	Implement recommendations from the W <sub>2</sub> RAPs and WWTW Process Audits. Improvement/Upgrade plans to be implemented.	100.0	Partially	92.9
Functionality Observation	No	100.0	Provide additional reservoir storage capacity for the towns with inadequate storage capacity. Upgrade existing water pump stations and provide new water pump stations for the identified areas. Upgrade existing WTWs and WWTWs as recommended. Upgrade existing sewer pump stations and provide new sewer pump stations for the identified areas.	100.0	Partially	92.9
Asset Assessment Spectrum	No	100.0	Increase O&M budget for repairs and maintenance of infrastructure. A budget of approximately 2% of the total asset value per annum should be allocated towards the replacement of the existing water and sewerage infrastructure (Best Practice). 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 (Best Practice).	100.0	Partially	92.9
Water and Sanitation schemes	No	100.0	Upgrade sections of the water reticulation network and sewer drainage network as proposed in the Water and Sewer Master Plan	100.0	Partially	92.9

Notes: (1) Is this section addressed in the WSDP?

(2) Were solutions identified for the possible gaps?

(3) Percentage calculated based on the above two percentages and whether there is an existing project/activity addressing this problem? Does this current listed project/activity address the problem totally? Project/Activity approved by Council as part of WSDP database? Approved by Council in project activity database and part of 5yr IDP cycle projects? Project/Activity listed in 3yr MTEF Cycle?

**Asset Management Plan:** 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 have the skills to operate the infrastructure optimally. The Water and Wastewater Bulk Works Contract ensures the adequate operation and maintenance of the WTWs and WWTWs and the other bulk water and sewerage infrastructure.

The Municipality's current Asset Register is adequate for the information required for the WSDP. An Asset Management Policy is also in place to ensure efficient, effective and optimal management, operation and maintenance of all assets, which includes treatment plants, reservoirs, structures, buildings, pipelines, sites, etc. An Asset Management Plan also needs to be drafted with the following purpose.

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

An Asset Management Plan normally includes the following:

- documents the nature, extent, age, utilisation, condition, performance and value of the infrastructure work;
- identifies existing and target levels of service, as well as expected changes in demand;
- identifies the life-cycle management needs of the infrastructure (development, renewal, operations and maintenance);
- assesses capital and operational budget needs; and
- identifies infrastructure asset management improvement needs.

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Overstrand Municipality needs to differentiate between budget allocated towards the operation and maintenance of the water and sewerage infrastructure and the budget allocated towards the replacement of the water and sewerage infrastructure. A budget of approximately 2% of the total asset value per annum should be allocated towards the replacement of the existing water and sewerage infrastructure (Best Practice). 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 (Best Practice).

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

Priority should be given to rehabilitating existing infrastructure as this generally makes best use of financial resources and can achieve an increase in (operational) services level coverage's most rapidly. The preparation of maintenance plans and the allocation of sufficient funding for maintenance are required to prevent the development of a large condition backlog. The potential renewal projects for water and sanitation infrastructure need to be identified from the Asset Register. All assets with a condition grading of "poor" and "very poor" need to be prioritised.

The Asset Management Plan must be based on the principle of preventative maintenance in order to ensure that, as far as this is practical, damage to assets is prevented before it occurs. Overstrand Municipality 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.

One of the key challenges of Overstrand Municipality is to identify adequate funds for the rehabilitation and maintenance of their existing infrastructure, which is critical to ensure the sustainability of the services that are provided by the Municipality. It is important for the Municipality to secure adequate funding for major refurbishment and maintenance work, the provision of bulk infrastructure and the development of additional sources in order to keep up with the high demand for services.

**Disaster Management Plan:** An updated Disaster Management Plan is available for Overstrand Municipality. The role of the Disaster Management Unit include the following.

- To compile and adopt a disaster management policy;
- Compile and maintain disaster management plans / framework;
- Establish a disaster management committee; and
- Establish community partnerships that combine the access and attributes of everyone with a stake in disaster resistance.

Risk reduction includes: Risk awareness programs; Risk prevention programs; Formal and informal training about emergency services and disaster relief; Research in formal and informal settlements about location, growth and development and Upgrading of vehicles, equipment and protective clothing.

The 2023/2024 IDP include the following Disaster Management Analysis for Overstrand Municipality.

Table C.3.2: Disaster Management Analysis for Overstrand Municipality				
Functions		Yes	No	Comments, if No
A Hazard, Risk and Vulnerability Assessment have been performed.	For the Municipal Area		X	Budget and capacity constraints
	For projects identified in the IDP		X	New function, no projects in place. No budget for projects.
The identified disaster risks have been prevented or mitigated through the implementation of risk reduction programmes.	For the Municipal Area	X		
	For projects identified in the IDP		X	New function, no projects in place. No budget for projects.
Appropriate disaster preparedness, response and recovery plans have been developed for a risk that cannot be prepared or mitigated.	For the Municipal Area	X		
	For projects identified in the IDP		X	New function, no projects in place. No budget for projects.
The Municipality has instituted the following disaster management requirements.	Establish a functional Disaster Management Centre		X	Budget Constraints
	Appoint a Head of Centre		X	Do not have a Centre

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Functions		Yes	No	Comments, if No
	A functional Disaster Management Advisory Forum		X	DMAF to be established. Provincial Government hosted presentation on importance of DMAF.
	A Disaster Management Plan has been developed	X		
	This DM Plan does include Sectoral Plans.	X		
Disaster Management has functional systems that comply with the following.	GIS data for disaster management		X	Limited DM Capacity
	Risk reduction planning		X	Limited DM Capacity
	Early warning system		X	Budget Constraints
	Preparedness, response and recovery planning (Generic Plan)	X		
These systems are linked to:	Other line functions in the Municipality		X	Overberg District
	Other Municipalities	X		
	Security Forces (SAPS and SANDF)		X	Overberg District DMC
	Provincial MES		X	Overberg District DMC
	Provincial Departments		X	Overberg District DMC
The Municipal Disaster Management Plan is completed, submitted and approved by:	The National Disaster Management Centre		X	Overberg District DMC
	Other Municipalities in District Municipal Area	X		
	District Municipal Disaster Management Centre	X		
	Provincial Disaster Management Centre	X		

**Untreated Effluent Management Plan:** There are no known untreated effluent discharges to the environment. The W<sub>2</sub>RAP include Management Procedures and Incident Response and Emergency Protocols to respond to incidents.

**Future Water and Sewerage Infrastructure Requirements:** The Water and Sewer Master Plans (June 2021) for the various distribution and drainage systems in Overstrand Municipality's Management Area recommends upgrades of the water and sewerage infrastructure to the values indicated in the table below in the foreseeable future in order to accommodate development and population growth according to the SDF.

Zone / Area	Water Infrastructure	Sewerage Infrastructure	Total
Buffels River	R52 112 000	R362 954 000	R415 066 000
Kleinmond	R5 623 000	R65 460 000	R71 083 000
Greater Hermanus	R191 077 000	R186 234 000	R377 311 000
Stanford	R16 778 000	R13 458 000	R30 236 000
Greater Gansbaai	R178 917 000	R314 524 000	R493 441 000
Pearly Beach	R9 986 000	R54 833 000	R64 819 000
Baardskeerdersbos	R4 155 000	R5 424 000	R9 579 000
Buffeljags Bay	R50 000	R537 000	R587 000
<i>Overberg Water</i>	<i>R448 691 000</i>	-	<i>R448 691 000</i>
<b>Total (Excluding Overberg Water)</b>	<b>R458 698 000</b>	<b>R1 003 424 000</b>	<b>R1 462 122 000</b>

Notes: 1) Costs include P&G's, Contingencies & Fees, but exclude EIA studies, registration of servitudes and/or land acquisition and VAT.

2) The above requirements do not include the cost for the upgrading or the refurbishment of the WTWs and WWTWs or the cost for the augmentation of the water resources for the various towns.

### **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 experienced hydrogeologists in order to ascertain whether the resources are being sustainably utilised and to ensure compliance with the approved Groundwater Monitoring Programmes and water use licenses. Managing groundwater for water supply purposes should have the following three main functions.

- Ensure that the aquifer is used optimally: The aquifer should not be over-pumped as that would negatively impact on its long-term sustainable yield or on the environment. It also means that if the aquifer is being

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under-utilised, this will become known. Over-abstraction close to the coastline can also result in seawater intrusion into the aquifer, and irreversible damage to the system.

- Ensure that the water quality in the aquifer is not negatively affected: This may be as a result of high abstraction from the aquifer, or from poor groundwater protection (from latrines, animal enclosures, etc.).
- Optimise borehole pumping rates so that the pumping equipment operates efficiently: Pumping rates are frequently set too high and this cause unnecessarily high pumping heads, a waste of energy, and at times, pump failure.

An additional function, which is usually captured in the first two points, is to ensure that environmental integrity is maintained. A botanical and streamflow monitoring programme is therefore also in place. It is important for Overstrand Municipality to continue to focus on aquifer protection, groundwater monitoring and wellfield management, in order to meet the town's future water requirements.

The table below gives an overview of the key groundwater management functions.

Activity	Responsible Person	Skills and qualifications required	Resources, tools and equipment	Remarks
Measuring and recording of water levels.	Pump operator	Literacy, numeracy, trained in taking water levels	Dip meter, ruler, logbook, pen.	Done as part of operators' regular O&M activities.
Measuring and recording abstraction	Pump operator	Literacy, numeracy, trained in reading water meters.	Logbook, pen	Done as part of operators' regular O&M activities.
Providing data to the authority that is responsible for water supply on a regular basis.	Pump operator and pump operator supervisor	Literacy, numeracy, keeping records.	Postal service or public transport.	Include as part of the reporting requirements of the pump operator.
Taking water samples	The authority that is responsible for water supply.	Trained in taking water samples, driving license.	Transport, sample bottles, cooler box.	Sampling routine defined by sampling plan.
Sending water samples for testing.	The authority that is responsible for water supply.	Keeping records.	Transport to laboratory	Sent to nearest accredited laboratory.
Defining the monitoring requirements of an individual borehole.	Technical manager of operations or hydrogeologist.	Hydrogeological degree or diploma, experience of hydrogeological conditions.	Reports and records on borehole, monitoring data.	
Ensuring that boreholes are equipped with piezometer tubes for measuring water levels and water meters for measuring abstraction.	The authority that is responsible for water supply.	Project management	In house technical staff, suppliers, contractors, specifications.	
Ensuring that operators have the equipment and skills to do monitoring.	The authority that is responsible for water supply.	Project management	Trainers, suppliers, specifications.	
Monitoring the pump operator's competence to collect and record data.	Pump operator supervisor	Staff supervision, knowledge of pump operators' tasks.	Transport	Done as part of the supervision of O&M activities.
Processing data collected at the local level	Data clerk	Data capture, record keeping, filing, trained in operating software.	Computer, spreadsheet or groundwater management software, files.	Maintains an electronic and physical record of data.
Studying water level, water quality and abstraction data on a regular basis.	Technical manager of operations.	Technical training, operations experience.	Project files, monitoring data	Done as part of the management of O&M
Revising pumping recommendations and adjusting the monitoring requirements. Ensuring the recommendations are carried out and monitoring the implementation of the recommendations.	Technical manager with hydrogeologist as required.	Technical training, operations experience.	Reports and records on borehole, monitoring data, operational information.	Ongoing management of operations and groundwater resources.
Reporting to council and pump operator, providing summary data to the CMA.	Data clerk with supervision from technical manager.	Training in operating software.	Computer, spreadsheet or groundwater management software, printer.	Summary data defined by license (frequency, what data, form of data)

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### WATER TREATMENT WORKS INFRASTRUCTURE

The existing capacities and current flows at each of the WTWs are summarised in the table below.

WTW	Existing Hydraulic Capacity	Peak Month Average Daily Flow	Average Daily Flow (Jul 2022 – Jun 2023)	Average Daily Flow as a % of Capacity	Current Required Treatment Capacity (1.5 x AADD10yr)	2022/2023 Water Quality Failures (SANS0241:2015)
Buffels River	5.500	2.371 (Dec)	1.840	33.45%	3.533	Turbidity (Operational)
Kleinmond	5.800	2.930 (Dec)	2.515	43.36%	4.830	-
Preekstoel	38.000	13.861 (Jan)	11.691	30.77%	23.568	-
Stanford	2.710 *	1.638 (Oct)	1.365	50.37%	2.622	Total Coliforms
Franskraal	6.500	4.157 (Jan)	3.479	53.52%	7.013	Total Coliforms
De Kelders	1.600	1.197 (Mar)	0.990	61.88%	1.600	
Pearly Beach	1.440	0.536 (Jan)	0.407	28.26%	0.782	Total Coliforms
Baardskeedersbos	0.185	0.070 (Nov)	0.053	28.65%	0.101	Manganese and Turbidity (Operational)

Note: \* The Stanford RO Plant has a hydraulic design capacity of 1.250 Ml/d. The water from the RO plant is however blended with the raw water and the level of blending is controlled through the monitoring of the hardness of the water. The overall treatment capacity for the Stanford system is therefore 2.710 Ml/d.

**Buffels River WTW:** The WTW treats water from the nearby Buffels River dam for usage in the Rooi Els, Betty's Bay and Pringle Bay areas. 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 Buffels River distribution system received a Blue Drop score of 99.99% in 2023 (highest in the country). The 2023 Blue Drop Risk Rating for the Buffels River supply system was 15.08% (Low).

The recommendations from the detail Buffels River WTW Process Audit (June 2022), as completed during the 2021/2022 financial year, are summarised in the table below.

<ul style="list-style-type: none"> <li>• Formalise soda ash dosing configuration.</li> <li>• Expedite repairs to the inlet flowmeter.</li> <li>• Monitor and record turbidity values for the individual settling tanks and continue to optimise the operation of this Process Unit.</li> <li>• Record actual "Filter-to-waste" durations.</li> <li>• Perform Specific Deposit determination on filter media.</li> <li>• Investigate underdrain system of filtration. Re-install nozzles in a more secure manner.</li> <li>• Monitor and record turbidity values for the individual filters and continue to optimise the operation of this Process Unit.</li> <li>• Install a formal, fixed treated water sampling point.</li> <li>• A formal plan for dealing with a chlorine leak needs to be developed, it seems like there is no safe way in which to ventilate the area.</li> <li>• Current stacking practices related to cylinders needs to be addressed, both full and empty cylinders should be securely chained. It is furthermore ideal to have demarcated areas for these.</li> <li>• There should be 30 days' stock on site.</li> <li>• Another full-face mask should be provided. Ideally, every process controller should have his/her own one.</li> <li>• Having spare chlorine connector lines, "pigtailed", on site is always advisable.</li> <li>• Ensure all the required information is captured, i.e., ensure the turbidity values from the individual settling tanks are recorded.</li> <li>• Ensure spreadsheet is being kept up to date and not only populated once a month.</li> <li>• Process Controllers to interact with the data collected on site, draw graphs etc. to track operational changes (quality &amp; quantities).</li> <li>• Process Controllers should receive feedback from both the internal lab and the independent laboratory.</li> <li>• The calibration of the equipment used on site should be verified by the internal lab.</li> <li>• Consider expanding the spreadsheet to provide operational feedback and not act as database only.</li> <li>• The inclusion of Electrical Conductivity in the daily testing is a requirement stipulated in SANS241:2015 – Table 1 and needs to be included.</li> <li>• Ensure Process Controllers are aware of the Preventative Maintenance Schedule.</li> <li>• Ensure records / logbooks pertaining to preventative maintenance are also available on site.</li> </ul>
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**Table C.3.6 Recommendations from the detail Buffels River WTW Process Audit**

- Start sensitising Process Controllers to take more responsibility for aspects related to risk management pertaining to the operation of the Works.

The WTW structure is 35 to 45 years old except for the new flocculation and sedimentation tanks that were added in 2008. The WTW comfortably meets the coagulation, flocculation and sedimentation requirements given the oversized flocculation and settling tanks. The Refurbishment Investigation (Conditional Assessment) of the Buffels River WTW, as completed in August 2020, indicated the following challenges:

- Filtration was identified as the bottle neck limiting the capacity of the WTW. Due to the low driving head, the filters are effectively limited to an average filtration rate of 45 l/s (160 m<sup>3</sup> /h over 20 hours, or 3.2 Ml/d). This can be remedied by increasing the driving head by lowering the outlet weir level. Further, the current filter backwash is inadequate to clean the filters. This can be fixed by increasing the size of the header tank to provide the necessary backwash water volumes.
- The WTW chlorine dosing facilities appear to be undersized and there is no chlorine contact tank. Baffles can be introduced to the reservoir on site to increase the dispersion factor to avoid constructing a new chlorine contact tank. The chlorine room which does not meet SANS health and safety standards and poses a health risk.
- The water is aggressive and there is no provision for stabilisation of the water. Hydrated lime or limestone contact tanks are proposed with the latter being recommended.
- Process monitoring and chemical optimisation can also be improved by adding in-line pH meters and monitoring chemical dosages.
- The waste streams from the WTW are poorly managed and sludge currently overflows into the environment. There is no dedicated backwash recovery system, and the sludge settling tank is not operational. It is proposed that a new backwash recovery system is introduced and the existing sludge settling tank be dedicated to sedimentation desludging streams only.

The majority of the mechanical equipment on site is in working order but requires ongoing maintenance. A few valves need to be replaced along with the modifications to the flowmeter.

In general, the electrical infrastructure is in a working condition aside from some minor problems. These can be fixed by testing and repairing all electrical panels and wiring. In the long term, the MCC should be replaced along with the electrical and instrument cabling. The control system and SCADA should also be upgraded.

A structural conditional assessment along with core sample testing revealed that the majority of the structures are generally safe and there is no urgent need to condemn any of them. A few key areas were highlighted that need immediate repair such as the chemical dosing area, the steel conveyor belt and all places with spalling. There will be ongoing maintenance and repair work required, in particular to ensure leaks do not arise in the structure and removal of the asbestos superstructure but these do not pose immediate risks to the operators or surroundings.

A professional service provider was appointed to commence with the detailed planning of refurbishing and upgrading the Buffels River WTW. The project is included in the draft Capital Budget for the next 3 years.

**Kleinmond WTW:** The WTW treats water from the Palmiet River for usage in Kleinmond. The plant operates well within its design capacity. The Kleinmond WTW is generally operated and maintained satisfactorily. The Kleinmond distribution system received a Blue Drop score of 99.99% in 2023 (highest in the country). The 2023 Blue Drop Risk Rating for the Kleinmond supply system was 14.53% (Low).

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The recommendations from the detail Kleinmond WTW Process Audit (June 2022), as completed during the 2021/2022 financial year, are summarised in the table below.

<b>Table C.3.7: Recommendations from the detail Kleinmond WTW Process Audit</b>
<ul style="list-style-type: none"> <li>• Provide standby Flocculant Dosing Pump.</li> <li>• Monitor and record turbidity values for the individual settling tanks and continue to optimise the operation of this Process Unit.</li> <li>• Provide flow control to the individual settling tank inlets (currently isolation sluice gates are provided).</li> <li>• Control flow to the filters as to ensure they are equally loaded.</li> <li>• Install a second Backwash Pump &amp; Blower.</li> <li>• Theoretically, the plant should be able to cope with only two filters in operation.</li> <li>• Perform Specific Deposit determination on filter media.</li> <li>• Current stacking practices related to cylinders needs to be addressed, both full and empty cylinders should be securely chained. It is furthermore ideal to have demarcated areas for these.</li> <li>• There should be 30 days stock on site.</li> <li>• Another full-face mask should be provided. Ideally, every process controller should have his/her own one.</li> <li>• Having spare chlorine connector lines, "pigtailed", on site is always advisable.</li> <li>• Capture the units being used in the logbook – there is, as an example, no indication of the unit in which flow is measured.</li> <li>• Monitor (and record) turbidity values for the individual settling tanks in order to optimise the operation of this Process Unit.</li> <li>• Ensure spreadsheet is being kept up to date and not only populated once a month.</li> <li>• Process Controllers to interact with the data collected on site, draw graphs etc. to track operational changes (quality &amp; quantities).</li> <li>• Process Controllers should receive feedback from both the internal lab and the independent laboratory.</li> <li>• The calibration of the equipment used on site should be verified by the internal lab.</li> <li>• Consider expanding the spreadsheet to provide operational feedback and not act as database only.</li> <li>• The inclusion of Electrical Conductivity in the daily testing is a requirement stipulated in SANS241:2015 – Table 1 and needs to be included.</li> <li>• Ensure Process Controllers are aware of the Preventative Maintenance Schedule.</li> <li>• Ensure records / logbooks pertaining to preventative maintenance are also available on site.</li> <li>• Start sensitising Process Controllers to take more responsibility for aspects related to risk management pertaining to the operation of the Works.</li> </ul>

The Conditional Assessment of the Kleinmond WTW, as completed in June 2021, indicated the following conclusions and way forward for the plant.

- The treated water currently meets all SANS:241 (2015) criteria.
- All process units can meet criteria at 61 l/s.
- Sedimentation was identified as the bottleneck limiting the capacity of the WTW to 61 l/s followed by filtration with a capacity of 64 l/s. Modifications to the inlet configuration at the lamellas to improve settlement thereby improving operation would theoretically increase sedimentation capacity to 85 l/s. This results in filtration as the limiting capacity
- Both filter backwash and sedimentation sludge is directed to a backwash holding tank where it gravitates to the Kleinmond WWTW. There is no recovery system. It is recommended to add pumps in the backwash holding tank to recover filter backwash and to direct sedimentation sludge to the sewer directly bypassing the backwash holding tank.
- Process monitoring and chemical optimisation can also be improved by adding in-line pH meters and monitoring chemical dosages.
- From theoretical calculations, the water is aggressive, but clearwell and reservoir walls should be inspected more thoroughly before dosing additional chemicals.
- An additional water source is used on an ad hoc basis called Dorpsfontein fountain. When used, the source is added directly into the treated water reservoir. No water quality data could be sourced, and it is highly recommended to test this water as it bypasses the WTW when used.

A majority of the mechanical equipment on site is in working order but requires general valve and pump maintenance.

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In general, the electrical infrastructure is in a working condition. The WTW does not have a SCADA system but rather a SCADA mimic. All equipment at the WTW is controlled by switching them on and off on the MCC panels next to the equipment. The high-lift pumps were previously controlled using radio telemetry, but this stopped functioning forcing the operators to drive to the pumpstation. In the short term, the telemetry can be fixed and testing and repairing of all electrical panels and wiring is recommended. In the long run (and in the interest of the municipality) the electrical and electronic infrastructure can be upgraded to allow for all equipment to be controlled through a centralised SCADA system. This upgrade may help optimise the WTW, but not necessary for the operation of the works.

The high, medium and low refurbishment priorities for the Kleinmond WTW and the estimated costs are indicated in the table below.

<b>Table C.3.8: High, Medium and Low Refurbishment Priorities for the Kleinmond WTW</b>			
<b>Criteria</b>	<b>High Priority</b>	<b>Medium Priority</b>	<b>Low Priority</b>
Plant performance	<ul style="list-style-type: none"> <li>Condition assessment of the rising main</li> <li>Sedimentation tank lamella plates</li> </ul>		<ul style="list-style-type: none"> <li>Treated water stability.</li> <li>Additional chlorinator.</li> <li>Improve Dorpsfontein fountain disinfection.</li> </ul>
Improved operations and control	<ul style="list-style-type: none"> <li>Backwash water recovery system.</li> <li>Sedimentation sludge bypass system.</li> </ul>	<ul style="list-style-type: none"> <li>Fix flow measurement at the Palmiet Booster pump station.</li> <li>Allowance to start and stop booster pumps from WTW.</li> <li>Blower and backwash pump redundancy.</li> </ul>	<ul style="list-style-type: none"> <li>Chemical dose monitoring.</li> <li>In-line pH meter.</li> <li>Electrical control and instrument upgrade.</li> </ul>
Safety	<ul style="list-style-type: none"> <li>Fix safety shower in chemical storage and add a new shower in the dosing area.</li> <li>Improve chlorine dosing facility.</li> <li>Filter float valve access.</li> <li>Testing Dorpsfontein fountain water quality.</li> </ul>		
Longevity	<ul style="list-style-type: none"> <li>Inspect reservoir internal walls</li> </ul>		<ul style="list-style-type: none"> <li>Brick plaster in flocculation tanks.</li> </ul>
Operator comfort			<ul style="list-style-type: none"> <li>Reconfigure admin area</li> </ul>
General maintenance		<ul style="list-style-type: none"> <li>Valve maintenance.</li> <li>Pump maintenance.</li> <li>EC&amp;I maintenance.</li> </ul>	
<b>Total Cost (Excl. VAT)</b>	<b>R1 780 000</b>	<b>R1 650 000</b>	<b>R6 350 000</b>

**Preekstoel WTWs:** The Preekstoel WTWs include the following treatment processes.

- The Preekstoel WTW treats water from the De Bos dam for usage in the Greater Hermanus area.
- The bio-filtration plant treats groundwater from the Hemel en Aarde boreholes (Camphill and Volmoed wellfields), before it is further disinfected at the Preekstoel WTW.
- The chemical oxidation treatment plant treats water from the Gateway boreholes, before it is further treated at the conventional plant.

The Preekstoel WTW was upgraded from 24 MI/d to 28 MI/d during the 2011/2012 financial year. A new 10 MI/day biological WTW for iron and manganese removal was also constructed at the Preekstoel WTW during the 2012/2013 financial year, in order to treat the newly developed groundwater sources and to increase the overall treatment capacity for the Greater Hermanus to 38 MI/d. Both plants are operated well within the design capacities. The distribution system received a Blue Drop score of 99.99% in 2023 (highest in the country). The 2023 Blue Drop Risk Rating for the Hermanus supply system was 18.44% (Low).

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The recommendations from the detail Preekstoel WTW Process Audit (June 2022), as completed during the 2021/2022 financial year, are summarised in the table below.

<b>Table C.3.9: Recommendations from the detail Preekstoel WTW Process Audit</b>
<ul style="list-style-type: none"> <li>• Clean off some of the residue that forms on the dosing points.</li> <li>• Monitor and record turbidity values for the individual settling tanks and continue to optimise the operation of this Process Unit.</li> <li>• Consider moving the inlet to the centre of the distribution box as to establish better flow distribution between the two basins.</li> <li>• Control flow to the filters as to ensure they are equally loaded.</li> <li>• Monitor and record turbidity values for the individual filters in order to optimise the operation of this Process Unit.</li> <li>• Theoretically, the plant should be able to cope with only two filters per bank in operation.</li> <li>• Perform Specific Deposit determination on filter media.</li> <li>• There should be 30 days stock on site.</li> <li>• Having spare chlorine connector lines, "pigtailed", on site is always advisable.</li> <li>• Monitor and record turbidity values for the individual Process Units.</li> <li>• Ensure Process Controllers are aware of the Preventative Maintenance Schedule.</li> <li>• Ensure records / logbooks pertaining to preventative maintenance are also available on site.</li> <li>• Start sensitising Process Controllers to take more responsibility for aspects related to risk management pertaining to the operation of the Works.</li> <li>• Ensure spreadsheet is being kept up to date and not only populated once a month.</li> <li>• Process Controllers to interact with the data collected on site, draw graphs etc. to track operational changes (quality &amp; quantities).</li> <li>• Process Controllers should receive feedback from both the internal lab and the independent laboratory.</li> <li>• The calibration of the equipment used on site should be verified by the internal lab.</li> <li>• Consider expanding the spreadsheet to provide operational feedback and not act as database only.</li> <li>• The inclusion of Electrical Conductivity in the daily testing is a requirement stipulated in SANS241:2015 – Table 1 and needs to be included.</li> <li>• Ensure Process Controllers are aware of the Preventative Maintenance Schedule.</li> <li>• Ensure records / logbooks pertaining to preventative maintenance are also available on site.</li> <li>• Start sensitising Process Controllers to take more responsibility for aspects related to risk management pertaining to the operation of the Works.</li> </ul>

**Stanford WTW:** The ultrafiltration and reverse osmosis plant treats water from the spring and the two Kouevlakte boreholes. The Stanford distribution system received a Blue Drop score of 99.99% in 2023 (highest in the country). The 2023 Blue Drop Risk Rating for the Stanford supply system was 15.98% (Low).

The recommendations from the detail Stanford WTW Process Audit (June 2022), as completed during the 2021/2022 financial year, are summarised in the table below.

<b>Table C.3.10: Recommendations from the detail Stanford WTW Process Audit</b>
<ul style="list-style-type: none"> <li>• Maintenance of membranes are crucial, ensure all schedules are adhered to.</li> <li>• Ensure spare membranes are available, either on site or in storage.</li> <li>• Ensure a standby RO Feed Pump is available in storage (Only a duty pump is currently installed).</li> <li>• Ensure maintenance of dosing pumps are scheduled.</li> <li>• Closely monitor residual chlorine levels. Maintain a balance between providing additional residual protection in the network and raising levels to appoint where a "chlorine taste and smell" become evident to consumers.</li> <li>• Ensure spreadsheet is being kept up to date and not only populated once a month.</li> <li>• Process Controllers to interact with the data collected on site, draw graphs etc. to track operational changes (quality &amp; quantities).</li> <li>• Process Controllers should receive feedback from both the internal lab and the independent laboratory.</li> <li>• The calibration of the equipment used on site should be verified by the internal lab.</li> <li>• Consider expanding the spreadsheet to provide operational feedback and not act as database only.</li> <li>• The inclusion of Electrical Conductivity in the daily testing is a requirement stipulated in SANS241:2015 – Table 1 and needs to be included.</li> <li>• Ensure Process Controllers are aware of the Preventative Maintenance Schedule.</li> <li>• Ensure records / logbooks pertaining to preventative maintenance are also available on site.</li> <li>• Start sensitising Process Controllers to take more responsibility for aspects related to risk management pertaining to the operation of the Works.</li> </ul>

**Franskraal WTW:** The WTW treats water from the Franskraal and Kraaibosch dams for usage in the Greater Gansbaai area. The WTW was completely rebuilt in 2009 and is currently well equipped and well-operated. The plant operates well within its design capacity under normal conditions. The Greater Gansbaai distribution system received a Blue Drop score of 99.99% in 2023 (highest in the country). The 2023 Blue Drop Risk Rating for the Greater Gansbaai supply system was 19.97% (Low).

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The recommendations from the detail Franskraal WTW Process Audit (June 2022), as completed during the 2021/2022 financial year, are summarised in the table below.

<b>Table C.3.11: Recommendations from the detail Franskraal WTW Process Audit</b>
<ul style="list-style-type: none"> <li>• Connect (electrically) the standby Flocculant Dosing Pump.</li> <li>• Formalise the flocculant dosing point.</li> <li>• Monitor and record turbidity values for the individual settling tanks in order to optimise the operation of this Process Unit.</li> <li>• Control flow to the filters as to ensure they are equally loaded.</li> <li>• Theoretically, the plant should be able to cope with only two filters in operation.</li> <li>• Perform Specific Deposit determination on filter media.</li> <li>• Current stacking practices related to cylinders needs to be addressed, both full and empty cylinders should be securely chained. It is furthermore ideal to have demarcated areas for these.</li> <li>• There should be 30 days stock on site.</li> <li>• Another full-face mask should be provided. Ideally, every process controller should have his/her own one.</li> <li>• Repair the chlorine scales.</li> <li>• Ensure all the required information is captured, i.e., ensure the turbidity values from the individual filters are recorded.</li> <li>• Ensure spreadsheet is being kept up to date and not only populated once a month.</li> <li>• Process Controllers to interact with the data collected on site, draw graphs etc. to track operational changes (quality &amp; quantities).</li> <li>• Process Controllers should receive feedback from both the internal lab and the independent laboratory.</li> <li>• The calibration of the equipment used on site should be verified by the internal lab.</li> <li>• Consider expanding the spreadsheet to provide operational feedback and not act as database only.</li> <li>• The inclusion of Electrical Conductivity in the daily testing is a requirement stipulated in SANS241:2015 – Table 1 and needs to be included.</li> <li>• Ensure Process Controllers are aware of the Preventative Maintenance Schedule.</li> <li>• Ensure records / logbooks pertaining to preventative maintenance are also available on site.</li> <li>• Start sensitising Process Controllers to take more responsibility for aspects related to risk management pertaining to the operation of the Works.</li> </ul>

**De Kelders WTW:** The WTW treats water from the Klipgat fountain and The Grotte fountain for usage in the De Kelders area. This Reverse Osmosis WTW was constructed during 2011 at De Kelders. The recommendations from the detail De Kelders WTW Process Audit (June 2022), as completed during the 2021/2022 financial year, are summarised in the table below.

<b>Table C.3.12: Recommendations from the detail De Kelders WTW Process Audit</b>
<ul style="list-style-type: none"> <li>• Maintenance of membranes are crucial, ensure all schedules are adhered to.</li> <li>• Ensure spare membranes are available, either on site or in storage.</li> <li>• Ensure maintenance of dosing pumps are scheduled.</li> <li>• Provide a containment barrier around the dosing station to prevent any spillages or leaks from becoming a hazard to plant personnel.</li> <li>• Closely monitor residual chlorine levels. Maintain a balance between providing additional residual protection in the network and raising levels to appoint where a “chlorine taste and smell” become evident to consumers.</li> <li>• Ensure spreadsheet is being kept up to date and not only populated once a month.</li> <li>• Process Controllers to interact with the data collected on site, draw graphs etc. to track operational changes (quality &amp; quantities).</li> <li>• Process Controllers should receive feedback from both the internal lab and the independent laboratory.</li> <li>• The calibration of the equipment used on site should be verified by the internal lab.</li> <li>• Consider expanding the spreadsheet to provide operational feedback and not act as database only.</li> <li>• The inclusion of Electrical Conductivity in the daily testing is a requirement stipulated in SANS241:2015 – Table 1 and needs to be included.</li> <li>• Ensure Process Controllers are aware of the Preventative Maintenance Schedule.</li> <li>• Ensure records / logbooks pertaining to preventative maintenance are also available on site.</li> <li>• Start sensitising Process Controllers to take more responsibility for aspects related to risk management pertaining to the operation of the Works.</li> </ul>

**Pearly Beach WTW:** The WTW treats water from the Pearly Beach and Koekemoer dams for usage in Pearly Beach. The Pearly Beach WTW 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 Pearly Beach distribution system received a Blue Drop score of 99.99% in 2023 (highest in the country). The 2023 Blue Drop Risk Rating for the Pearly Beach supply system was 13.39% (Low).

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The recommendations from the detail Pearly Beach WTW Process Audit (June 2022), as completed during the 2021/2022 financial year, are summarised in the table below.

**Table C.3.13: Recommendations from the detail Pearly Beach WTW Process Audit**

- Ensure sludge disposal records are kept.
- Maintenance of membranes are crucial, ensure all schedules are adhered to.
- Ensure spare membranes are available, either on site or in storage.
- Ensure maintenance of dosing pumps are scheduled.
- A general clean-up of the area would be advisable.
- Provide a containment barrier around the dosing station to prevent any spillages or leaks from becoming a hazard to plant personnel.
- Closely monitor residual chlorine levels. Maintain a balance between providing additional residual protection in the network and raising levels to a point where a “chlorine taste and smell” become evident to consumers.
- Ensure spreadsheet is being kept up to date and not only populated once a month.
- Process Controllers to interact with the data collected on site, draw graphs etc. to track operational changes (quality & quantities).
- Process Controllers should receive feedback from both the internal lab and the independent laboratory.
- The calibration of the equipment used on site should be verified by the internal lab.
- Consider expanding the spreadsheet to provide operational feedback and not act as database only.
- The inclusion of Electrical Conductivity in the daily testing is a requirement stipulated in SANS241:2015 – Table 1 and needs to be included.
- Ensure Process Controllers are aware of the Preventative Maintenance Schedule.
- Ensure records / logbooks pertaining to preventative maintenance are also available on site.
- Start sensitising Process Controllers to take more responsibility for aspects related to risk management pertaining to the operation of the Works.

**Baardskeedersbos WTW:** The WTW treats water from the two boreholes for usage in Baardskeedersbos. The plant operates well within its design capacity. The Baardskeedersbos distribution system received a Blue Drop score of 99.70% in 2023 (second highest in the country). The 2023 Blue Drop Risk Rating for the Baardskeedersbos supply system was 9.57% (Low).

The recommendations from the detail Baardskeedersbos WTW Process Audit (June 2022), as completed during the 2021/2022 financial year, are summarised in the table below.

**Table C.3.14: Recommendations from the detail Baardskeedersbos WTW Process Audit**

- Should deficiencies in the removal of manganese be noted, determine the concentration or organic compounds in the raw water.
- Automate desludging of the second settler.
- Ensure sludge disposal records are kept.
- Ensure water quality results from the sludge drainage water, flowing back into the natural water course, are kept on site.
- Maintenance of membranes are crucial, ensure all schedules are adhered to.
- Ensure spare membranes are available, either on site or in storage.
- Ensure maintenance of dosing pumps are schedules.
- A general clean-up of the area would be advisable.
- Provide a containment barrier around the dosing station to prevent any spillages or leaks from becoming a hazard to plant personnel.
- Closely monitor residual chlorine levels. Maintain a balance between providing additional residual protection in the network and raising levels to a point where a “chlorine taste and smell” become evident to consumers.
- Ensure spreadsheet is being kept up to date and not only populated once a month.
- Process Controllers to interact with the data collected on site, draw graphs etc. to track operational changes (quality & quantities).
- Process Controllers should receive feedback from both the internal lab and the independent laboratory.
- The calibration of the equipment used on site should be verified by the internal lab.
- Consider expanding the spreadsheet to provide operational feedback and not act as database only.
- The inclusion of Electrical Conductivity in the daily testing is a requirement stipulated in SANS241:2015 – Table 1 and needs to be included.
- Ensure Process Controllers are aware of the Preventative Maintenance Schedule.
- Ensure records / logbooks pertaining to preventative maintenance are also available on site.
- Start sensitising Process Controllers to take more responsibility for aspects related to risk management pertaining to the operation of the Works.

**Buffeljags Bay WTW:** No water treatment is done, except for disinfection. The Buffeljags Bay distribution system received a Blue Drop score of 98.20% in 2023. The 2023 Blue Drop Risk Rating for the Buffeljags Bay supply system was 14.21% (Low). The only recommendation from the Buffeljags Bay WTW Process Audit (June 2022), as completed during the 2021/2022 financial year, was that the Municipality needs to ensure that monitoring is done in accordance with SANS241:2015 (Table 1), which is the case.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The WTWs to be upgraded in Overstrand Municipality are summarised in the table below.

WTW	Short, Medium, Long Term	Estimated Cost (Vat Excluded)
<i>Refurbishment of Buffels River WTW Options 1: The existing infrastructure is maintained in its current condition with various mitigation measures implemented in-situ.</i>	Short	R35 000 000
<i>Refurbishment of Buffels River WTW Option 2: Urgent work on the existing WTW is done to keep it operational for another 5-years while a new site is sought to procure a new 5.5 Ml/d WTW, thereafter the old WTW would be demolished.</i>	Short	R33 300 000
Refurbishment of Buffels River WTW Option 3 (Recommended): The existing WTW site is retained, but it is sequentially rebuilt to a modern WTW and the aspects of the existing infrastructure which is in good condition are retained.	Short	R32 700 000
Refurbishment of the Kleinmond WTW (High Priority)	Short	R1 780 000
Refurbishment of the Kleinmond WTW (Medium Priority)	Medium	R1 650 000
Refurbishment of the Kleinmond WTW (Low Priority)	Medium	R6 350 000
Hermanus 3 Ml/d desalination plant (Phase 1)	Short	R90 000 000
Hermanus 3 Ml/d desalination plant (Phase 2)	Medium	R90 000 000
Hermanus 4 Ml/d desalination plant (Phase 3)	Long	R120 000 000
Buffeljags Bay	Medium	R3 000 000
<b>Total</b>		<b>R345 480 000</b>

### **BULK WATER PIPELINE INFRASTRUCTURE**

The Water Master Plan (June 2021) 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, Greater Hermanus, Greater Gansbaai, Pearly Beach and Baardskeerdersbos:** The existing bulk water supply systems (Bulk pipelines) have insufficient capacity to supply the future water demands for the fully occupied scenario and the additional future development areas.
- **Kleinmond, Stanford, Pearly Beach and Buffeljags Bay:** The existing bulk water supply systems (Bulk pipelines) have sufficient capacity to supply the future water demands for the fully occupied scenario and the additional future development areas.

Scheme	New feeder mains that are proposed or existing feeder mains that require upgrading in the future	Year	Distance (m)	Diameter (mm)	Cost (R million)
Buffels River	Abandon existing 150 mm bulk pipeline to Rooi Els and replace with a new 200 dia. pipe (item OBW.B11)	Completed	5 029	200	R9.173
	Restrict flow into the sump of the Sunny Seas bulk PS in order to sustain pressure in the upstream Voorberg reservoir zone network, install 14 l/s FCV (item OBW.B8).	2024	-	150	R0.241
	The remaining section of 300 mm dia. bulk pipeline from Buffels River WTP to the Pringle bay draw-off point supplying Pringle Bay and Voorberg reservoirs. (item OBW.B6).	2025	104	400	R0.598
	<b>Subtotal</b>		<b>5 133</b>	<b>-</b>	<b>R10.012</b>
Greater Hermanus	New 500 mm dia. parallel reinforcement of the existing 300 mm dia. bulk supply pipeline to the Mount Pleasant take-off in order to augment supply to the reservoirs on the Hermanus bulk line (item OHW.B24).	2024	665	500	R4.417
	Replace the existing 100 mm dia. bulk supply pipeline to the Mount Pleasant reservoir with a 200 mm dia. pipeline (item OHW.B34).	2024	142	200	R0.300
	New 160 mm dia. connection pipe from the main pipelines downstream of the Preekstoel WTP to the Sandbaai and Mount Pleasant reservoirs as an alternative supply (items OHW.B41 & OHW.B42).	2024	160	160	R0.260
		2024	265	160	R0.407
	Connect existing Gateway pipeline to existing 600 mm dia. Hermanus bulk pipeline (alternative option in order to supply bulk water to Sandbaai reservoir) (item OHW.B40).	2024	4	160	R0.041
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 (item OHW.B20).	2024	296	315	R0.450	

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table C.3.16: Future bulk water supply pipelines required					
Scheme	New feeder mains that are proposed or existing feeder mains that require upgrading in the future	Year	Distance (m)	Diameter (mm)	Cost (R million)
	New 250 mm dia. parallel reinforcement of the existing 150 mm dia. bulk supply pipeline to the Sandbaai reservoir in order to augment supply to the reservoir (item OHW.B14).	2024	193	250	R0.522
	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 (item OHW.B28).	2024	236	200	R0.472
	Install inter-connection pipe between 200 mm dia. bulk and 200 mm dia. network pipe as part of bulk system (after item OHW1.1 is implemented) (item OHW.B22c).	2025	1	200	R0.024
	Insert and close valve between network and bulk system (after item OHW1.1 is implemented) (item OHW.B22d).	2025	-	200	R0.121
	It is proposed that the existing 200 mm dia. supply pipeline from the Fisherhaven LL reservoir to the existing network is replaced with a new 315 mm dia. pipe (item OHW1.1) in order to transfer the existing 200 mm dia. network pipe to the existing bulk system (Items OHW.B22a & OHW.B22b). This will improve bulk supply from the Coastal bulk system to Fisherhaven LL reservoir.	2025	19	200	R1.078
		2025	-	200	R0.121
	New 400 mm dia. parallel reinforcement of the existing 400 mm dia. bulk supply pipeline when the 400 mm dia. pipe reaches capacity (item OHW.B25).	2030	1 387	400	R7.214
	New 315 mm dia. parallel reinforcement of the existing 250 mm dia. Vermont to Hawston bulk pipeline when the existing 250 mm dia. bulk pipe reaches capacity (item OHW.B19).	2035	3 329	355	R13.682
	New 500 mm dia. parallel reinforcement of the existing 400 & 600 mm dia. bulk pipelines (from the Preekstoel WTP to the Coastal & Hermanus bulk pipelines) when the existing 400 & 600 mm dia. bulk pipes from the Preekstoel WTP reaches capacity (item OHW.B23).	2040	472	500	R3.179
	New 355 mm dia. bulk supply pipeline from the Fisherhaven HL reservoir to the existing bulk water infrastructure at the Hawston reservoir (item OHW.B35).	2040	2 611	355	R10.746
	Install pipeline when Overberg pipeline is constructed, to feed Fisherhaven LL from HL reservoir (item OHW.B37).	2040	39	200	R0.114
	Insert and close valve when Overberg pipeline is constructed, to feed Fisherhaven LL from HL reservoir (item OHW.B38).	2040	-	200	R0.121
	Install Flow Control Valve (41 l/s) when Overberg pipeline is constructed, to feed Fisherhaven LL from HL reservoir (item OHW.B39).	2040	-	200	R0.279
	Install Flow Control Valve (67 l/s) to transfer bulk water from Fisherhaven HL reservoir to the Hawston reservoir (item OHW.B43).	2040	-	400	R1.420
	<b>Subtotal</b>			<b>9 961</b>	<b>-</b>
Greater Gansbaai	Dedicate the existing 250 mm dia. pipeline between the Greater Gansbaai bulk system and the De Kelders reservoirs as 'n bulk supply pipeline to the De Kelders reservoirs (item OGW.B24).	2030	59	250	R0.150
	New 600 dia. mm bulk supply pipeline from the Franskraal WTP clearwell reservoir to the main Franskraal bulk PS (item OGW.B9).	2030	42	600	R1.240
	Reinforce existing Franskraal WTP raw water supply (item OGW.B23)	2030	203	500	R1.454
	New 500 mm dia. bulk supply pipeline from the main Franskraal bulk PS to the existing 355 mm dia. and future 400 mm dia. pipeline bulk pipes to Kleinbaai, Gansbaai and De Kelders (item OGW.B19).	2030	205	500	R1.466
	Replace the existing 200 mm dia. bulk pipeline with a 400 mm dia. pipeline when the existing 200 and 355 mm dia. bulk pipes reaches capacity (items OGW.B2 & B3).	2035	715	400	R1.246
		2035	2 169	400	R3.714
	New 315 mm dia. bulk supply pipeline from the main Franskraal bulk PS to the proposed Franskraal HL reservoir (item OGW.B16).	2040	864	315	R2.653
	New 355 mm dia. dedicated bulk supply pipeline from the main Franskraal bulk PS to the existing Franskraal LL reservoirs (item OGW.B21).	2040	182	355	R0.816
<b>Subtotal</b>			<b>4 439</b>	<b>-</b>	<b>R12.739</b>
Baardskeerdersbos	A new dedicated bulk pipeline is proposed when master plan item OBBW.B2 (new reservoir) is implemented.	2030	939	110	R0.987
	<b>Subtotal</b>		<b>939</b>	<b>-</b>	<b>R0.987</b>
Overberg Water	New bulk supply pipeline to Hermanus (item RVW5.1)	2035	7 229	450	R46.543
	New bulk supply pipeline to Hermanus (item RVW5.4)	2035	34 547	450	R221.861
	<b>Subtotal</b>		<b>41 776</b>	<b>-</b>	<b>R268.404</b>
<b>Total (Excluding Overberg Water)</b>			<b>20 472</b>	<b>-</b>	<b>R68.706</b>

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

### WATER PUMP STATIONS

The water pump stations are well maintained and all the motors and pumps are operational. The Water Master Plan (June 2021) has indicated that based on the most likely land-use development scenario, it will be necessary for the following water pump stations:

<b>Scheme</b>	<b>Recommendations included in the Water Master Plan</b>	<b>Year</b>	<b>Capacity (l/s)</b>	<b>Head (m)</b>	<b>Cost (R Million)</b>
Buffels River	A new booster pump station is proposed on the 300 mm Ø Betty's Bay Voorberg reservoir supply pipeline in order to augment bulk water supply to Betty's Bay in the future (item OBW.B7).	2025	75	12	R2.729
	A new booster pump station for the higher lying areas in the Voorberg reservoir zone is proposed (item OBW.B4).	2030	10	25	R1.781
	<b>Subtotal</b>				<b>R4.510</b>
Greater Hermanus	A new booster pump station to augment water supply through the Coastal bulk pipeline (item OHW.B17) to Hawston and Fisherhaven.	2024	90	20	R3.037
	Upgrading of the existing bulk pump station to augment bulk water supply from the Fisherhaven LL to the Fisherhaven HL reservoir is proposed for when future areas GH1, GH5,1 & GH50 develop (item OHW.B3).	2025	40	70	R0.626
	<b>Subtotal</b>				<b>R3.663</b>
Greater Gansbaai	New booster pump station when future area GG30 develops (item OGW5.1).	2024	30	20	-
	New booster pump station to supply sufficient water pressure Masakhane informal area (Item OGW7.1)	2025	30	15	R2.069
	New bulk pump station to supply water from the Gansbaai reservoirs to the De Kelder reservoirs (item OGW.B7).	2030	45	60	R2.545
	New dedicated bulk PS to Kleinbaai & Gansbaai when existing bulk supply reaches capacity (item OGW.B18).	2030	220	35	R5.500
	Dedicated PS to Franskraal reservoirs when existing bulk PS reaches capacity (item OGW.B20).	2040	130	5	R3.440
	New dedicated pump station from the Franskraal clearwater reservoir to the proposed Franskraal HL reservoir (item OGW.B15).	2040	60	65	R2.883
<b>Subtotal</b>				<b>R16.437</b>	
Pearly Beach	Upgrading of the existing Pearly Beach pump system (item OPW.B3).	2035	75	45	R0.693
	<b>Subtotal</b>				<b>R0.693</b>
Baardskeedersbos	Pump station to augment bulk supply to Baardskeedersbos reservoir (item OBBW.B3)	2060	6	100	R1.765
	<b>Subtotal</b>				<b>R1.765</b>
Overberg Water	Pump station for new bulk supply to Hermanus (item RVW5.3)	2035	250	250	R11.367
	<b>Subtotal</b>				<b>R11.367</b>
<b>Total (Excluding Overberg Water)</b>					<b>R27.068</b>

### RESERVOIR INFRASTRUCTURE

The condition of most of the reservoirs in Overstrand Municipality's Management Area is good and the reservoirs are well maintained. New security fences were also recently installed at some of the reservoir sites to reduce possible vandalism.

Overstrand Municipality's overall storage factors of the reservoirs for the various schemes for 2022/2023, based on 1 x PDD (24 hours storage capacity), are 1.89 for Buffels River, 2.00 for Kleinmond, 2.05 for Greater Hermanus, 1.29 for Stanford, 1.78 for Greater Gansbaai, 2.40 for Pearly Beach, 1.47 for Baardskeedersbos and 3.31 for Buffeljags Bay.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Even though the town's overall storage capacity might be adequate there might be some distribution zones within the town's network with inadequate storage capacity, as identified through the Water Master Planning process (June 2021) and indicated in the table below.

<b>Table C.3.18: Future Reservoir Storage Capacities Required</b>				
<b>Area</b>	<b>Recommendations included in the Water Master Plan</b>	<b>Year</b>	<b>Capacity (MI)</b>	<b>Cost (R Million)</b>
Buffels River	A new 3.0 MI reservoir is proposed at the existing Voorberg reservoir site to augment reservoir storage for Betty's Bay (item OBW.B3).	2025	3.000	R10.962
	A new 1.0 MI reservoir is proposed at the existing Sunny Seas reservoir site to augment reservoir storage for Betty's Bay (item OBW.B9).	2030	1.000	R5.220
	A new 1.5 MI reservoir is proposed at the existing Pringle Bay reservoir site to augment reservoir storage for Pringle Bay (item OBW.B2).	2050	1.500	R6.888
	<b>Subtotal</b>			<b>R23.070</b>
Greater Hermanus	A new 3.0 MI reservoir is proposed at the existing Sandbaai reservoir site to augment reservoir storage in Sandbaai (item OHW.B11).	2024	3.000	R10.962
	A new 1.5 MI reservoir is proposed at the existing Onrus reservoir site to augment reservoir storage in Onrus (item OHW.B9).	2024	1.500	R6.888
	12.0 MI reservoir storage is proposed at the existing Fisherhaven HL reservoir site to augment reservoir storage for the Fisherhaven HL reservoir zone. It is proposed that this is phased in 2 x 6 MI reservoirs (item OHW.B30a).	2030	6.000	R18.009
	A new 3.5 MI reservoir is proposed at the existing Hawston LL reservoir site to augment reservoir storage in Hawston (item OHW.B2).	2030	3.500	R12.345
	A new 1.0 MI reservoir is proposed at the existing Vermont reservoir site to augment reservoir storage for the Vermont reservoir zone (item OHW.B36).	2030	1.000	R5.220
	A new 0.5 MI reservoir is proposed at the existing Chanteclair reservoir site to augment reservoir storage in the Onrus Manor reservoir zone (item OHW.B27).	2030	0.500	R3.321
	A new 2.0 MI reservoir is proposed at the existing Hermanus 1 & 2 reservoir site to augment reservoir storage for the zone when the AADD for the Hermanus reservoir zone exceeds 5 000 kl/d (item OHW.B32).	2030	2.000	R8.294
	A new 2.0 MI reservoir is proposed at the existing Fisherhaven LL reservoir site to augment reservoir storage for the Fisherhaven LL reservoir zone (item OHW.B1).	2035	2.000	R8.294
	A new 0.25 MI reservoir is proposed at the existing Northcliff reservoir site to augment reservoir storage in the Northcliff reservoir zone (item OHW.B12).	2035	0.250	R2.001
	12.0 MI reservoir storage is proposed at the existing Fisherhaven HL reservoir site to augment reservoir storage for the Fisherhaven HL reservoir zone. It is proposed that this is phased in 2 x 6 MI reservoirs (item OHW.B30b).	2045	6.000	R18.009
	<b>Subtotal</b>			<b>R93.343</b>
Stanford	A new 3.0 MI reservoir is proposed at the existing Stanford reservoir site to augment reservoir storage for Stanford when the AADD for the town exceeds 1 350 kl/d (item OSW.B1).	2030	3.000	R10.962
	<b>Subtotal</b>			<b>R10.962</b>
Greater Gansbaai	A new 4.0 MI reservoir (item OGW.B10) is proposed at the existing Franskraal reservoir site to augment reservoir storage for Franskraal.	2030	4.000	R13.601
	A new 3.5 MI reservoir (item OGW.B11) is proposed at the existing Kleinbaai reservoir site to augment reservoir storage for Kleinbaai, Romans Bay and the Birkenhead area.	2035	3.500	R12.345
	A second 4.0 MI reservoir (item OGW.B22) is proposed at the existing Gansbaai reservoir site to augment reservoir storage for the future.	2035	4.000	R13.601
	A new 1.5 MI reservoir (item OGW.B13) is proposed at the existing De Kelders reservoir site to augment reservoir storage for De Kelders.	2035	1.500	R6.888
	A new 5.5 ML reservoir (item OGW.B17) is proposed to accommodate future development area GG32 and the higher lying erven of future development area GG33.	2040	5.500	R16.907
	A new 4.5 MI (item OGW.B14) is proposed at the existing Franskraal reservoir site to augment reservoir storage for Franskraal. The reservoir will only be required when future development area GG31 & the lower lying erven of future development area GG33 start to develop.	2050	4.500	R14.731
	<b>Subtotal</b>			<b>R78.073</b>
Pearly Beach	A new 1.5 MI reservoir is proposed at the existing Pearly Beach reservoir site to augment reservoir storage for Pearly Beach when the AADD reaches 1 000 kl/d (item OPW.B2).	2035	1.500	R6.888
	<b>Subtotal</b>			<b>R6.888</b>
Baardskeerdersbos	A new 0.150 MI tank is proposed to augment reservoir storage capacity for Baardskeerdersbos when the AADD exceeds 75 kl/d (item OBBW.B2)	2050	0.150	R1.201
	<b>Subtotal</b>			<b>R1.201</b>
Overberg Water	<i>To augment balancing volume of Ruensveld West WTW (Item RVW1.8)</i>	2035	5.500	<i>R16.907</i>
	<i>Balancing volume for supply to Hermanus (item RVW5.2)</i>	2035	10.000	<i>R26.390</i>

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Area	Recommendations included in the Water Master Plan	Year	Capacity (Ml)	Cost (R Million)
	<i>Balancing volume for supply to Hermanus (item RVW5.5)</i>	2035	20.000	R45.530
	<b>Subtotal</b>			<b>R88.827</b>
<b>Total (Excluding Overberg Water)</b>				<b>R213.537</b>

### WATER RETICULATION INFRASTRUCTURE

The Water Master Plan (June 2021) has indicated that based on the most likely land-use development scenario, it will be necessary for the following water reticulation infrastructure.

Scheme	Year	Recommendations included in the Water Master Plan	Distance (m)	Diameter (mm)	Cost (R Million)	
Buffels River	2024	Upgrade existing 75 and 100 mm pipelines (Item OBW5.1)	91	200	R0.114	
		New dedicated feeder main for high lying erven (Items OBW5.2 and OBW5.3)	109	200	R0.242	
			363	110	R0.398	
	2025	Replace existing 75 mm to improve network conveyance (Item OBW1.1)	330	200	R0.310	
		Replace existing 50 mm to improve network conveyance (to be verified, potentially already upgraded) (Item OBW1.2)	691	160	R0.486	
		Replace existing 50 mm to improve network conveyance (Item OBW1.3)	428	110	R0.310	
		Replace existing 75 mm and connect to Disa Kloof 160 mm pipeline to improve network conveyance (including main road crossing) (Item OBW4.3)	292	160	R1.625	
	2030	Replace existing 75 and 100 mm pipelines to improve network conveyance (Item OBW4.1)	57	160	R0.079	
		Replace existing 75 mm to improve network conveyance (Item OBW7.3)	177	160	R0.178	
		Required to augment supply to Sunny Seas reservoir when supply problems occur (Item OBW2.2)	602	200	R1.136	
		Required to rezone network when Betty's Bay booster zone is implemented (Item OBW2.3)	1 887	200	R3.469	
		Replace existing 75 mm to improve network conveyance when Voorberg booster zone is implemented (Item OBW3.1)	155	110	R0.151	
		Inter-connection pipe to improve network redundancy (including main road crossing) (Item OBW3.2)	17	110	R0.042	
		Required to rezone network, check valve to install (Item OBW3.3)	-	100	0.140	
	2040	Required to rezone network, valve to insert and close (Item OBW3.4a)	-	75	0.102	
		Required to rezone network, valve to insert and close (Item OBW3.4b)	-	160	0.114	
		Required to rezone network, check valve to install (Item OBW3.5)	-	150	0.151	
		To improve network conveyance (Item OBW2.1)	1 736	315	R5.273	
		<b>Subtotal</b>	<b>6 935</b>	<b>-</b>	<b>R14.320</b>	
	Kleinmond	2024	Required soon for pressure requirements (Item OKW1.2)	502	315	R1.564
			To improve network conveyance (Item OKW1.9)	7	160	R0.044
			To improve network conveyance (Item OKW1.10)	4	160	R0.040
			75 mm and 100 mm valves to close and 160 mm valve to open	-	-	-
2025		To improve network conveyance (Item OKW1.8)	863	200	R1.609	
2035		Replace existing 50 mm required when future areas KM3 and KM4 develop (Item OKW1.6)	356	200	R0.262	
		Required when future areas KM3 and KM4 develop (Item OKW1.7)	369	200	R0.713	
		Replace existing 75 mm with 200 mm when future area KM20 develops (Item OKW1.11)	750	200	R0.672	
	Required when future area KM16 develops (Item OKW1.12)	452	160	R0.669		
	<b>Subtotal</b>	<b>3 303</b>	<b>-</b>	<b>R5.573</b>		
Greater Hermanus	2024	Replace existing 75mm pipes and reinforce network when future areas GH32 and GH33 develop (Item OHW8.3)	277	160	R0.316	
		To improve network redundancy (Item OHW8.4)	80	110	R0.108	
		Replace existing 225 mm to improve network conveyance (Item OHW9.2)	111	315	R0.323	
		Required to rezone network, valve to insert and close (Item OHW10.1b)	-	75	R0.102	
		Required to rezone network, open and close various valves (Items OHW10.1a, OHW10.2a-c, OHW10.3a-d)	-	-	-	
		To improve network conveyance (Item OHW10.4)	185	110	R0.176	
		To improve network conveyance (with implementation of item OHWB.20) (Item OHW2.1)	313	400	R1.705	

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table C.3.19: Future Water Reticulation Infrastructure Required					
Scheme	Year	Recommendations included in the Water Master Plan	Distance (m)	Diameter (mm)	Cost (R Million)
		Inter-connection pipe to improve network redundancy (Item OHW9.5)	105	110	R0.134
		Replace existing 75 mm to improve network conveyance (Item OHW9.9)	572	160	R0.519
		To improve network conveyance (Item OHW9.12)	324	160	R0.489
		To improve network conveyance (Item OHW9.13)	117	110	R0.145
		Required to improve network conveyance (Item OHW9.14)	1 534	400	R7.968
		To improve network conveyance (Item OHW9.15)	92	160	R0.112
		To improve network conveyance (Item OHW9.16)	25	110	R0.052
		Required when Zwelihle informal area is formalized (Item OHW9.3)	431	200	R0.826
		Required when Zwelihle informal area is formalized (Item OHW9.6)	621	160	R0.834
		Required when Zwelihle informal area is formalized (Item OHW9.10)	449	160	R0.613
		Required to improve network conveyance (Item OHW9.11)	591	160	R0.864
	2025	Required when future area GH5.2 develops (Item OHW2.3)	610	200	R1.150
		Replace existing 50 mm to improve network conveyance when GH6.2 and GH6.6 develops (Item OHW2.6)	580	110	R0.412
		To improve network conveyance when future area GH5.1 develops (Item OHW13.1)	466	355	R1.807
		To improve network conveyance (Item OHW5.1)	80	75	R0.095
		Required when future area GH28.1 develops (Item OHW7.4)	212	110	R0.177
		New supply pipe from reservoir to network (when AADD of Fisherhaven LL reaches 1 000 kl/d) (Item OHW1.1)	976	315	R4.280
		To improve network conveyance (including main road crossing) (Item OHW6.1)	432	200	R0.827
		Required for even withdrawal from existing network, flow control valve to install (Item OHW14.1)	-	75	R0.182
		Fernkloof tank internal water network (Item OHW14.2)	200	110	R0.230
	2030	Replace existing 50 mm required to improve network conveyance (Item OHW1.5)	492	110	R0.382
		Replace existing 75 mm required to improve network conveyance (Item OHW1.6)	623	110	R0.563
		Replace existing 150 mm Ø to improve network conveyance (Item OHW2.2)	287	315	R0.437
		Replace existing 150 mm Ø to improve network conveyance (Item OHW2.4)	252	315	R0.389
		Required to manage static pressures in zone, install PRV (Item OHW3.6)	-	110	R0.241
		Required when future area GH5.1 develops (Item OHW13.2)	397	355	R1.550
		Required when future area GH5.1 develops (Item OHW13.3)	1 391	315	R4.236
		Required when future area GH5.1 develops (Item OHW13.4)	623	250	R1.844
		Required when future area GH5.1 develops (Item OHW13.5)	1 905	160	R2.531
		Required when future areas GH6.3, GH6.4 & GH6.5 develop (including main road crossing) (Item OHW13.8)	1 052	250	R2.606
		Required when future area GH11 develops (Item OHW7.6)	522	160	R0.767
	2035	Replace existing 50 and 75 mm to improve network redundancy when future area GH2 develops (Item OHW1.2)	650	160	R0.467
		Required when future area GH2 develops (Item OHW1.3)	932	160	R1.343
		Required when future area GH6.6 develops (Item OHW2.10)	590	110	R0.593
		Replace existing 50 mm required to improve network conveyance (Item OHW2.11)	1 224	250	R0.867
		Required when future area GH6.4 develops (Item OHW3.8)	325	200	R0.582
		Required when future area GH6.1 develops (Item OHW5.2)	378	160	R0.566
		To improve network conveyance (Item OHW12.1)	473	200	R0.902
	2040	Required when future area GH3 develops (Item OHW1.4)	148	250	R0.414
		To improve network redundancy (Item OHW12.2)	194	110	R0.225
2045	Replace existing 100 mm required to improve network conveyance (Item OHW2.5)	423	315	R0.575	
	Required when future areas GH1 & GH50 develop (Item OHW13.12)	152	400	R0.880	
2050	Required when future area GH1 develops (Item OHW13.13)	285	315	R0.997	
<b>Subtotal</b>			<b>22 701</b>	<b>-</b>	<b>R48.403</b>
Stanford	2024	To improve network conveyance (when future area SF7 develops) (Item OSW1.6)	614	250	R1.455
		Replace existing 100 mm pipeline to improve network conveyance (Item OSW2.5)	264	200	R0.296
		Replace existing 50 and 75 mm pipelines to improve network conveyance (Item OSW2.8)	261	160	R0.235

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table C.3.19: Future Water Reticulation Infrastructure Required						
Scheme	Year	Recommendations included in the Water Master Plan	Distance (m)	Diameter (mm)	Cost (R Million)	
		Required for isolating of Stanford PRV and reservoir zones, close valves (Items OSW2.9a and OSW2.9b)	-	110	-	
		Replace existing 50 and 75 mm pipelines and connect lower lying erven of LCH area to PRV zone (Item OSW2.10)	110	160	R0.111	
		Required for isolating of Stanford PRV and reservoir zones, install PRV (Item OSW2.2)	-	110	R0.241	
	2025	To improve network redundancy (Item OSW1.8)	100	110	R0.129	
		Replace existing 50 mm to improve network conveyance (Item OSW2.6)	564	110	R0.401	
	2030	Required when future areas SF1, SF3, SF4 and SF5 develop (Item OSW1.3)	1 147	200	R2.126	
	2035	Required when future areas SF1, SF3 and SF4 develop (Item OSW1.4)	374	200	R0.722	
	<b>Subtotal</b>			<b>3 434</b>	<b>-</b>	<b>R5.716</b>
	Greater Gansbaai	2024	Replace existing 50 mm to improve network conveyance (Item OGW1.3)	76	110	R0.074
			To improve network redundancy (Item OGW1.6)	119	75	R0.129
To improve network redundancy (OGW1.8)			296	110	R0.329	
To improve network conveyance (Item OGW2.1)			1 006	450	R5.407	
To improve network conveyance (Item OGW2.2)			200	355	R0.818	
To improve network conveyance (Item OGW2.16)			155	160	R0.252	
To improve network conveyance (Item OGW2.17)			52	160	R0.108	
To improve network conveyance (Item OGW2.3)			398	200	R0.765	
2025		To improve network conveyance (Item OGW3.1a)	83	315	R0.236	
		To improve network conveyance (Item OGW3.4)	134	110	R0.164	
		Required when future areas GG25 and GG34 develop (Item OGW3.10)	733	110	R0.721	
		Required when future area GG34 develops (Item OGW3.12)	1 405	110	R1.357	
		To improve network conveyance (Item OGW7.2)	139	200	R0.295	
		To isolate booster zone from reservoir zone, insert two 75 mm valves and close (Items OGW7.3 and OGW7.4)	-	75	R0.204	
		Required when future area GG8.2 develops (Item OGW2.13)	399	160	R0.595	
		To improve network conveyance and redundancy (Item OGW2.14)	703	160	R1.021	
2030		Required when future area GG2 develops (Item OGW1.5)	94	160	R0.166	
		To improve network conveyance (Item OGW2.8a)	332	200	R0.646	
		Replace existing 50 mm to improve network conveyance (Item OGW2.8b)	486	200	R0.349	
		To improve network conveyance (Item OGW2.9)	612	160	R0.894	
		To improve network conveyance (Item OGW3.1b)	601	200	R1.379	
		Required when future areas GG12, 16, 17 and 18 develop (Item OGW3.2)	1 308	200	R2.417	
		To improve network conveyance (Item OGW4.1)	204	160	R0.320	
2035		Required when future area GG1 develops (Item OGW1.2)	782	200	R1.463	
		Replace existing 75 mm when future area GG28 develops (Item OGW1.12)	238	110	R0.202	
		Required when future areas GG16, 17 and 18 develop (Item OGW3.3)	1 105	160	R1.585	
2040		Required when future area GG1 develops (Item OGW1.13)	1 022	160	R1.470	
		Required when future area GG10.2 develops (Item OGW2.18)	512	160	R0.753	
		Required when future area GG31 and lower lying erven of GG33 develops (Item OGW4.3)	801	550	R5.995	
		Inter-connection pipe to improve network conveyance when MP item OGW4.3 is constructed (Item OGW4.4)	20	355	R0.149	
		Required when lower lying erven of future area GG33 develops (Item OGW4.8)	1 762	315	R5.352	
		New supply pipe when Franskraal HL reservoir is constructed (Item OGW6.1)	572	400	R2.771	
		Required when higher lying erven of future area GG33 develops (Item OGW6.4)	1 043	400	R4.973	
		Required when higher lying erven of future area GG33 develops (Item OGW6.5)	814	315	R2.501	
2045		Required when future area GG25 develops (Item OGW3.6)	640	110	R0.632	
		Required when future area GG25 develops (Item OGW3.7)	1 347	110	R1.301	
		Required when future area GG25 develops (Item OGW3.8)	1 120	110	R1.087	
		Required when future area GG25 develops (Item OGW3.9)	1 517	110	R1.463	
		To improve network conveyance (Item OGW4.2)	1 171	160	R1.679	
		Required when future area GG31 develops (Item OGW4.5)	1 176	315	R3.589	
		Required when lower lying erven of future area GG33 develops (Item OGW4.9)	771	250	R1.759	

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Scheme	Year	Recommendations included in the Water Master Plan	Distance (m)	Diameter (mm)	Cost (R Million)
		Required when lower lying erven of future area GG33 develops (Item OGW4.10)	597	200	R1.033
		Required when lower lying erven of future area GG33 develops (Item OGW6.6)	1 008	250	R2.283
	2050	Required when future area GG31 develops (Item OGW4.6)	1 613	250	R3.620
	2055	Required when future area GG31 develops (Item OGW4.7)	805	200	R1.377
	<b>Subtotal</b>			<b>29 971</b>	<b>-</b>
Pearly Beach	2035	To improve network conveyance when capacity of the booster PS is upgraded (Item OPW1.4)	595	250	R1.497
	2040	Required when future area PB4 develops (Item OPW1.3)	817	110	R0.808
	<b>Subtotal</b>			<b>1 412</b>	<b>-</b>
Baardskeerdersbos	2030	Dedicated bulk water supply to Baardskeerdersbos reservoir, valve to insert and close (Item OBBW1.1)	-	90	R0.102
	<b>Subtotal</b>			<b>-</b>	<b>-</b>
<b>Total</b>			<b>67 756</b>	<b>-</b>	<b>R142.102</b>

The Water Master Plan (June 2021) indicated the following Water Demand Management infrastructure requirements.

Scheme	Year	Project	Cost (R Million)
Buffels River	-	Telemetry at reservoirs, pumping stations and bulk water meters	R0.200
Kleinmond	-	Telemetry at reservoirs, pumping stations and bulk water meters	R0.050
Greater Hermanus	-	Telemetry at reservoirs, pumping stations and bulk water meters	R0.700
Stanford	-	Telemetry at reservoirs, pumping stations and bulk water meters	R0.100
Greater Gansbaai	2024	Various pipelines and valves, PRJ-OGW002	R5.287
	2035	Various valves, PRJ-OGW016	R0.198
	-	Telemetry at reservoirs, pumping stations and bulk water meters	R0.500
Pearly Beach	-	Telemetry at reservoirs, pumping stations and bulk water meters	R0.100
Baardskeerdersbos	-	Telemetry at reservoirs, pumping stations and bulk water meters	R0.100
Buffeljags Bay	-	Telemetry at reservoirs, pumping stations and bulk water meters	R0.050
<b>Total</b>			<b>R7.285</b>

### **BULK SEWER PIPELINE AND SEWER DRAINAGE NETWORK INFRASTRUCTURE**

The waterborne sewerage drainage networks need to be extended in Kleinmond, Greater Gansbaai, Greater Hermanus, Hawston and Pearly Beach, while the entire towns of Betty's Bay, Pringle Bay, Rooi-Els, Baardskeerdersbos and Buffeljags Bay are still dependent on the sewerage tanker truck service. Some of the bulk sewer rising main pipelines need to be refurbished.

The Sewer Master Plan (June 2021) has indicated that based on the most likely land-use development scenario, it will be necessary for the following bulk sewer pipeline and sewer drainage network infrastructure.

Scheme	Year	Project	Cost (R Million)
Buffels River	2030	New outfall sewer for unserviced erven in Betty's Bay (Item OBS8.1 – OBS15.1)	R148.905
		New rising main when Betty's Bay Main pump station no. 1 is constructed (Item OBS.B6)	R21.895
		New rising main when Betty's Bay Main pump station no. 2 is constructed (Item OBS.B8)	R12.137
		New rising main when Betty's Bay Main pump station no. 3 is constructed (Item OBS.B10)	R17.641
		New rising main when future Betty's Bay pump station 1 is constructed (Item OBS8.3)	R0.383
		New rising main when future Betty's Bay pump station 2 is constructed (Item OBS9.6)	R2.362
		New rising main when future Betty's Bay pump station 3 is constructed (Item OBS10.4)	R0.882
		New rising main when future Betty's Bay pump station 4 is constructed (Item OBS11.3)	R0.455
		New rising main when future Betty's Bay pump station 5 is constructed (Item OBS12.3)	R0.343

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table C.3.21: Future Bulk Sewer Pipeline and Sewer Drainage Network Infrastructure Required				
Scheme	Year	Project	Cost (R Million)	
		New rising main when future Betty's Bay pump station 6 is constructed (Item OBS13.3)	R0.565	
		New rising main when future Betty's Bay pump station 7 is constructed (Item OBS14.5)	R0.763	
		New rising main when future Betty's Bay pump station 8 is constructed (Item OBS15.3)	R0.102	
	2035		New gravity outfall sewers for unserved erven in Pringle Bay (Items OBS5.1, OBS5.2, OBS6.1, OBS6.2 and OBS7.1))	R69.134
			New rising main when future Pringle Bay pump station 1 is constructed (Item OBS5.4)	R2.556
			New rising main when future Pringle Bay pump station 2 is constructed (Item OBS6.4)	R0.939
			New rising main when future Pringle Bay pump station 3 is constructed (Item OBS7.3)	R0.773
			New rising main when future Rooi Els pump station 1 is constructed (Item OBS1.3)	R0.310
			New rising main when future Rooi Els pump station 2 is constructed (Item OBS2.4)	R0.522
			New rising main when future Rooi Els pump station 3 is constructed (Item OBS3.6)	R0.282
			New rising main when future Rooi Els pump station 4 is constructed (Item OBS4.3)	R0.331
			New rising main when Pringle Bay Main pump station is constructed (Item OBS.B4)	R10.664
	2040		New gravity outfall sewers for unserved erven in Rooi Els (Item OBS1.1, OBS2.1, OBS2.2, OBS3.1, OBS3.2, OBS3.3, OBS3.4 and OBS4.1)	R20.013
			New rising main when Rooi Els Main pump station is constructed (Item OBS.B2)	R7.105
	<b>Subtotal</b>			<b>R319.062</b>
Kleinmond	2024	New gravity outfall sewer for unserved erven in Kleinmond (Item OKS2.1)	R39.146	
		Upgrade existing 160 mm dia. outfall gravity sewer when it reaches capacity (Investigate first) (Item OKS2.4)	R1.289	
	2025		New gravity outfall sewer for unserved erven in Kleinmond (Item OKS1.1)	R20.639
			New gravity outfall sewer for future development area KM9 (Item OKS2.6)	R0.501
	2030		Upgrade existing 100 mm dia. gravity sewer when it reaches capacity (Item OKS5.1)	R0.742
			New gravity sewer required when future area KM3 develops (Item OKS2.3)	R0.577
	2035		Upgrade existing rising main when Kleinmond PS5 is upgraded (Item OKS6.2)	R0.565
			Upgrade existing gravity sewer when future area KM20 develops (Item OKS6.3)	R0.904
<b>Subtotal</b>			<b>R64.363</b>	
Greater Hermanus	2024	Upgrade existing rising main. Verify diameter of rising main (Item OHS22.2)	-	
		Upgrade existing 225 mm dia. outfall gravity sewer when it reaches capacity (Item OHS13.1)	R2.507	
		Upgrade existing 450 & 525 mm dia. bulk gravity outfall sewer when it reaches capacity (Item OHS13.4)	R3.426	
		New gravity sewer when existing 525 mm dia. outfall sewer reaches capacity (Item OHS13.2)	R4.506	
		Upgrade existing gravity (Investigate first). Verify the capacity of the Onrus Milkwood pump station first (Item OHS11.8)	R1.179	
		Upgrade existing gravity when overflow problems occur when Whale Rock PS is upgraded (Item OHS19.1)	R1.600	
	2025		Abandon existing Peach House rising main when outfall sewer is constructed to divert flow to Whale Rock PS (Item OHS30.2)	R0.008
			Decommission existing Hemel-en-Aarde rising main (Item OHS29.4)	R0.008
			New outfall gravity sewer for future areas GH1, GH5.1, GH5.2 & GH50 (Item OHS8.3)	R3.912
			New outfall gravity sewer for unserved erven in Fisherhaven (Item OHS2.1)	R8.674
			New outfall gravity sewers for unserved erven in Hawston (Item OHS6.3, Item OHS8.1, Item OHS8.10)	R10.455
			New outfall gravity sewer for unserved erven in Onrus (Item OHS11.1)	R4.005
			New outfall gravity sewer to divert flow from Peach House PS to Whale Rock PS. Abandon existing gravity sewer (Item OHS30.3, Item OHS30.4)	R0.783
			New gravity sewer to divert flow from existing Hemel en Aarde PS to Sandbaai PS (Item OHS29.1)	R0.274
			Upgrade existing gravity sewer when existing Hemel en Aarde drainage area is diverted to Sandbaai PS (Item OHS29.2)	R2.203
			New rising main when future Greater Hermanus PS 1 is constructed (Item OHS2.3)	R0.330
			New rising main when future Greater Hermanus PS 12 is constructed (Item OHS24.3)	R1.204
			New rising main when future Greater Hermanus PS 3 is constructed (cost to the developer) (Item OHS4.2)	-
			New rising main when future Greater Hermanus PS 4 is constructed (Item OHS6.5)	R1.480
	New rising main when future Greater Hermanus PS 7 is constructed (Item OHS9.2)	R0.353		
	New rising main when future pump station GH15 is constructed (cost to the developer) (Item OHS28.2)	-		
	2030		New outfall gravity sewer for future area GH2 (Item OHS3.2)	R1.472
			New outfall gravity sewer for future areas GH6.3 and GH6.5 (Item OHS7.5)	R1.570
			New outfall gravity sewers for unserved erven in Fisherhaven (Item OHS1.1, OHS1.2, OHS1.4, OHS3.1)	R23.745

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table C.3.21: Future Bulk Sewer Pipeline and Sewer Drainage Network Infrastructure Required			
Scheme	Year	Project	Cost (R Million)
		New outfall gravity sewer for unserviced erven in Hawston (Item OHS6.1)	R16.003
		New outfall gravity sewers for unserviced erven in Hermanus (Item OHS15.1, Item OHS16.1, Item OHS17.1 and OHS18.1)	R18.550
		Upgrade existing 200 mm dia. outfall gravity sewer when it reaches capacity (Investigate first), modelled on minimum slope (Item OHS11.3)	R0.632
		Upgrade existing 400 mm dia. outfall gravity sewer when it reaches capacity (when Onrus Main PS is upgraded) (Item OHS13.5)	R2.544
		Upgrade existing outfall gravity sewer when it reaches capacity, modelled on minimum slope and diameter of 90 mm (Item OHS11.7)	R0.395
		Upgrade existing gravity sewer when future areas GH13 and GH28.1 develops (Item OHS12.4)	R0.710
		Upgrade existing gravity sewer when future areas GH8.3 - GH8.6 develop (Item OHS11.12)	R1.069
		Upgrade existing gravity when future areas GH8.5 and GH8.6 develop (Item OHS11.11)	R0.604
		New rising main when future Greater Hermanus PS 10 is constructed (Item OHS17.3)	R0.428
		New rising main when future Greater Hermanus PS 2 is constructed (Item OHS3.4)	R0.304
		New rising main when future Greater Hermanus PS 5 is constructed (Item OHS7.4)	R0.366
		New rising main when future Greater Hermanus PS 9 is constructed (Item OHS18.3)	R0.404
	Upgrade existing rising main when Sandbaai pump station 1 reaches capacity (Item OHS12.6)	R5.182	
	2035	Upgrade existing rising main when Fisherhaven pump station reaches capacity (Item OHS1.6)	R4.695
		New outfall gravity sewer for future areas GH1, GH5.1 & GH50 (including main road crossing) (Item OHS8.2)	R4.440
		New outfall gravity sewer for unserviced erven in Hawston (Item OHS7.1)	R6.388
		New outfall gravity sewer for unserviced erven in Voëlklip (Item OHS14.1)	R5.750
		Upgrade existing gravity sewers when existing 250 mm dia. outfall sewer reaches capacity (Item OHS1.3, OHS1.7)	R1.278
		Upgrade existing 300 mm dia. outfall gravity sewer when it reaches capacity (Item OHS8.6)	R1.631
		Upgrade existing outfall gravity sewer when it reaches capacity (Item OHS8.5)	R2.173
		Upgrade existing outfall gravity sewers when it reaches capacity, modelled on minimum slope (Item OHS12.7, OHS12.8)	R2.458
		New gravity sewer when future area GH6.4 develops (Item OHS9.3)	R0.450
		New gravity sewer when future area GH6.6 develops (Item OHS9.4)	R0.447
		New gravity sewer when future areas GH8.3 - GH8.6 develop (Item OHS11.13)	R1.300
		Upgrade existing gravity sewers when overflow problem occur (Investigate first) (Item OHS8.8, OHS8.9)	R1.245
	2040	New outfall gravity sewer for future area GH46 (Item OHS27.1)	R1.302
		New outfall gravity sewer for future areas GH1 and GH50 (Item OHS8.7)	R4.544
	2045	Upgrade existing 315 mm dia. outfall gravity sewer when it reaches capacity (Item OHS27.2)	R5.697
		New rising main when future Greater Hermanus PS 6 is constructed (Item OHS5.2)	R2.434
	2050	New rising main when future areas GH1 and GH50 develop (Item OHS20.2)	R1.465
		New gravity sewer when future areas GH1 and GH50 develop (Item OHS20.3)	R1.314
	2060	New rising main when future areas GH1 and GH50 develop (Item OHS20.4)	R1.225
	<b>Subtotal</b>		
Stanford	2030	New gravity sewer required when future Stanford PS1 is constructed (Item OSS2.2)	R0.222
		New rising main when future Stanford PS 1 is constructed (Item OSS3.3)	R0.285
		New gravity outfall sewer for unserviced erven in Stanford South (Item OSS3.1)	R2.439
		Upgrade existing gravity outfall sewer (Investigate first) when it reaches capacity, modelled on minimum slope (Item OSS2.4)	R0.850
	2035	Upgrade existing gravity sewers (Investigate first) when it reaches capacity, modelled on minimum slope (Item OSS1.3, OSS2.3)	R1.920
		Upgrade existing 200 mm dia. gravity outfall sewer when it reaches capacity (Item OSS1.4)	R3.561
	2040	Upgrade existing gravity outfall sewer (Investigate first) when it reaches capacity, modelled on minimum slope, verify capacity of Sunrise Estate PS first (Item OSS1.2)	R1.272
	2045	Upgrade existing gravity (Investigate first). Modelled on minimum slope and diameter of 160 mm, verify capacity of Sunrise Estate PS first (Item OSS1.1)	R0.440
	2050	New rising main when future Stanford PS 2 is constructed (Item OSS5.3)	R0.443
<b>Subtotal</b>			<b>R11.432</b>
Greater Gansbaai	2024	Upgrade existing outfall gravity sewers when it reaches capacity, modelled on minimum slope (Investigate first) (Item OGS8.2, Item OGS8.3)	R1.840
	2025	New outfall gravity sewer for future area GG30 (Item OGS24.1)	R1.005
		New outfall gravity sewers for unserviced erven in Gansbaai (Item OGS7.2, Item OGS7.3, Item OGS8.1)	R7.939
		New gravity sewer required to decommission Conservancy Tank no. 1 (Item OGS14.2)	R0.581

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table C.3.21: Future Bulk Sewer Pipeline and Sewer Drainage Network Infrastructure Required			
Scheme	Year	Project	Cost (R Million)
		New gravity sewer required to decommission Conservancy Tank no. 2 (Item OGS15.3b)	R0.086
		Upgrade existing outfall gravity sewers when it reaches capacity, modelled on minimum slope (Item OGS7.10, Item OGS7.11)	R0.393
		New rising main when future De Kelders Main PS is constructed (Item OGS.B4)	R5.268
		New rising main when future De Kelders PS 4 is constructed (Item OGS4.7)	R1.294
		New rising main when future Kleinbaai Main PS is constructed (Item OGS.B2)	R8.105
		New rising main when future Kleinbaai PS 1 is constructed (Item OGS14.4)	R0.451
		New rising main when future Kleinbaai PS 2 is constructed (Item OGS15.11)	R3.054
		New rising main when Future PS KB 6 is constructed (Item OGS22.2)	R0.592
		New gravity sewer when Kleinbaai PS 1 and rising main is constructed (Item OGS15.7)	R0.895
	2030	New outfall gravity sewer for Birkenhead (Item OGS24.4)	R1.580
	2030	New outfall gravity sewer for future area GG2 (Item OGS4.5)	R1.001
	2030	New outfall gravity sewer for future area GG3 (Item OGS7.5)	R0.488
	2030	New outfall gravity sewers for unserved erven in De Kelders (Item OGS3.2, Item OGS4.2, Item OGS4.3, Item OGS4.4)	R5.520
	2030	New outfall gravity sewers for unserved erven in Gansbaai (Item OGS7.1, Item OGS7.4, Item OGS7.9a, Item OGS12.1, Item OGS13.1, Item OGS13.2)	R23.381
	2030	New outfall gravity sewer for unserved erven in Kleinbaai (Item OGS14.1)	R9.741
	2030	New rising main when Birkenhead Main pump station is constructed (Item OGS24.2)	R1.489
	2030	New gravity sewers required to decommission Conservancy Tank no. 2 (Item OGS15.2, Item OGS15.3a)	R2.749
	2030	New gravity sewer required to decommission Conservancy Tank no. 3 (Item OGS15.4)	R1.753
	2030	New gravity sewer when future area GG2 develops (Item OGS3.3)	R0.673
	2030	New gravity sewer when future area GG6 develops (Item OGS7.6)	R1.213
	2030	New rising main when future De Kelders PS 3 is constructed (Item OGS3.5)	R0.820
	2030	New rising main when future Gansbaai PS 2 is constructed (Item OGS9.2)	R0.353
	2030	New rising main when future Gansbaai PS 4 is constructed (Item OGS12.3)	R0.245
	2030	Upgrade existing rising main when Kogans pump station 2 reaches capacity (Item OGS10.2)	R0.568
	2035	New outfall gravity sewer for future area GG16.2 (Item OGS15.12)	R0.388
	2035	New outfall gravity sewer for future area GG17 (Item OGS15.6)	R0.495
	2035	New outfall gravity sewer for future area GG18 (Item OGS17.3)	R2.894
	2035	New outfall gravity sewer for future areas GG22.1 and GG23.2 (Item OGS7.9b)	R0.507
	2035	New outfall gravity sewers for unserved erven in De Kelders (Item OGS2.2, Item OGS4.1, Item OGS5.1)	R21.514
	2035	New outfall gravity sewers for unserved erven in Franskraal (Item OGS17.2, OGS18.3)	R1.051
	2035	New outfall gravity sewer for unserved erven in Gansbaai (Item OGS6.1)	R12.895
	2035	New outfall gravity sewers for unserved erven in Kleinbaai (Item OGS15.1, 16.1)	R8.461
	2035	New gravity sewer required to decommission Conservancy Tank no. 3 (Item OGS15.5)	R0.358
	2035	New gravity sewer required when future area GG12 develops (Item OGS15.8)	R0.433
	2035	New gravity sewer required when future area GG13 develops (Item OGS15.9)	R0.448
	2035	Upgrade existing outfall gravity sewers when it reaches capacity (Investigate first), modelled on minimum slope (Item OGS7.7, OGS8.10, OGS8.8)	R2.663
	2035	New gravity sewers when future area GG1 develops (Item OGS2.6, OGS3.6)	R1.411
	2035	New gravity sewer when future area GG28 develops (Item OGS1.4)	R0.675
	2035	New rising main when future De Kelders PS 1 is constructed (Item OGS1.3)	R0.058
	2035	New rising main when future De Kelders PS 2 is constructed (Item OGS2.5)	R0.472
	2035	New rising main when future De Kelders PS 5 is constructed (Item OGS5.3)	R0.313
	2035	New rising main when future Franskraal PS 1 is constructed (Item OGS17.5)	R4.574
	2035	New rising main when future Gansbaai PS 1 is constructed (Item OGS6.3)	R0.231
	2035	New rising main when future Kleinbaai PS 3 is constructed (Item OGS16.3)	R0.366
	2040	New rising sewer for Birkenhead (Item OGS20.1)	R0.599
	2040	New outfall gravity sewers for unserved erven in De Kelders (Item OGS1.1, OGS3.1)	R15.420
	2040	New gravity sewers for unserved erven in Franskraal (Item OGS17.1, OGS18.2, OGS19.5)	R10.518
	2040	New gravity sewers for unserved erven in Franskraal, when future area GG19 develops (Item OGS18.4, OGS19.2)	R1.930
	2040	New gravity sewer required to transfer sewage flow from Uilenskraalmond to future Franskraal PS no. 9 (Item OGS32.1)	R0.638
	2040	New gravity sewer when future area GG1 develops (Item OGS2.3)	R0.552
	2040	New gravity sewers when future area GG31 develops (Item OGS27.1, OGS27.2, OGS28.1)	R6.906

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table C.3.21: Future Bulk Sewer Pipeline and Sewer Drainage Network Infrastructure Required			
Scheme	Year	Project	Cost (R Million)
		New rising main when future area GG33 develops (Item OGS33.2)	R0.451
		Upgrade existing gravity sewers when future area GG33 develops and existing system reaches capacity (Item OGS8.4, OGS8.6)	R5.227
		New gravity sewers when future area GG33 develops and existing system reaches capacity (Item OGS8.7)	R11.232
		New gravity when future areas GG32 and GG33 develop (Item OGS31.1)	R2.880
		New rising main when future Franskraal PS 2 is constructed (Item OGS18.6)	R1.354
		New rising main when future Franskraal PS 3 is constructed (Item OGS19.4)	R0.861
		New rising main when future Franskraal PS 6 is constructed (Item OGS28.3)	R1.054
		New rising main when future Franskraal PS 7 is constructed (Item OGS29.2)	R1.020
		New rising main when future Franskraal PS 8 is constructed (Item OGS31.3)	R2.135
		New rising main when future Franskraal PS 9 is constructed (Item OGS32.3)	R3.548
	New rising main when future Gansbaai PS 5 is constructed (Item OGS23.2)	R0.435	
	2045	New outfall gravity sewers for Birkenhead (Item OGS20.3, OGS21.1)	R6.364
		New outfall gravity sewer for unserved erven in De Kelders (Item OGS2.1)	R7.830
		New outfall gravity sewers for unserved erven in Franskraal (Item OGS18.1, OGS19.1)	R14.149
		New rising main when future Franskraal PS 4 is constructed (Item OGS25.4)	R0.426
		New rising main when Future PS KB 5 is constructed (Item OGS21.3)	R0.895
	2050	New outfall gravity sewers for unserved erven in Franskraal (Item OGS25.1, OGS25.2)	R8.889
		New rising main when future Franskraal PS 5 is constructed (Item OGS26.3)	R0.377
	2055	New outfall gravity sewer for unserved erven in Franskraal (Item OGS26.1)	R10.402
	<b>Subtotal</b>		
Pearly Beach	2024	New rising main when Package plant is decommissioned (Item OPS4.5)	R0.770
	2030	New gravity outfall sewer for unserved erven in Pearly Beach (Item OPS1.4b, OPS1.5, OPS1.6, OPS1.7)	R3.526
		New gravity sewer required when future area PB1.3 develops (Item OPS1.4a)	R0.392
		New rising main when future Pearly Beach PS 1 is constructed (Item OPS1.3)	R2.253
	2035	New gravity outfall sewers for unserved erven in Pearly Beach (Item OPS1.1, OPS2.1, OPS3.2, OPS4.2)	R12.427
		New rising main when future Pearly Beach PS 2 is constructed (Item OPS2.3)	R0.173
		New rising main when future Pearly Beach PS 3 is constructed (Item OPS3.4)	R1.504
		New rising main when future Pearly Beach PS 4 is constructed (Item OPS4.4)	R0.491
	New gravity outfall sewers for unserved erven in Pearly Beach (Item OPS3.1, OPS4.1)	R25.866	
	<b>Subtotal</b>		
Baardskeerd ersbos	2040	New gravity outfall sewer for unserved erven in Baardskeerdersbos (Item OBaS1.1)	R5.424
	<b>Subtotal</b>		
Buffeljags Bay	2045	New gravity outfall sewer for unserved erven in Buffeljags Bay (Item OBJS1.1)	R0.537
	<b>Subtotal</b>		
<b>Total</b>			<b>R878.747</b>

### SEWER PUMP STATIONS

The Sewer Master Plan (June 2021) has indicated that based on the most likely land-use development scenario, it will be necessary for the following sewer pump stations.

Table C.3.22: Future Sewer Pump Stations Required			
Scheme	Year	Project	Cost (R Million)
Buffels River	2030	New pump stations for Betty's Bay (Items OBS8.2, OBS9.5, OBS10.3, OBS11.2, OBS12.2, OBS13.2, OBS14.4, OBS15.2)	R13.431
		New pump stations required to pump sewage from Betty's Bay to Kleinmond WWTW (Items OBS.B5, OBS.B7, OBS.B9)	R13.811
	2035	New pump stations for Pringle Bay (Item OBS5.3, OBS6.3, OBS7.2)	R5.705
		Required to pump sewage from Pringle Bay to Betty's Bay (Item OBS.B3)	R2.974
	2040	New pump stations for Rooi Els (Item OBS1.2, OBS2.3, OBS3.5, OBS4.2)	R6.154
		New pump station required to pump sewage from Rooi Els to Pringle Bay (Item OBS.B1)	R1.817
	<b>Subtotal</b>		
Kleinmond	2024	Upgrade existing pump station when it reaches capacity, verify existing pump capacity first (Item OKS1.3)	R0.024

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table C.3.22: Future Sewer Pump Stations Required				
Scheme	Year	Project	Cost (R Million)	
	2025	Upgrade existing pump station when it reaches capacity (Item OKS3.1)	R0.976	
	2035	Upgrade existing pump station when it reaches capacity with development of future area KM20 (Item OKS6.1)	R0.097	
	<b>Subtotal</b>		<b>R1.097</b>	
Greater Hermanus	2024	Upgrade existing pump station when it reaches capacity, verify existing pump capacity first (Item OHS22.1)	R0.024	
		Upgrade existing PS when it reaches capacity. Investigate existing capacity and operation of system from WWTW Main PS to Hermanus WWTW first (Item OHS19.2)	R0.024	
		Upgrade existing PS capacity in order to reach scouring velocity through rising main (Item OHS23.1)	R0.644	
	2025	Abandon existing Peach House PS when outfall sewer is constructed to divert flow to Whale Rock PS (Item OHS30.1)	R0.216	
		Decommission existing Hemel-en-Aarde PS (Item OHS29.3)	R0.216	
		New pump station for Fisherhaven (Item OHS2.2)	R1.508	
		New pump station for Hawston (Item OHS6.4)	R2.148	
		New PS when future area GH49 develops (cost to the developer) (Item OHS4.1)	-	
		New PS when future areas GH6.2 and GH6.5 develop (Item OHS9.1)	R0.620	
		New PS when future development area GH6.1 develops (cost to the developer) (Item OHS28.1)	R0.414	
		Upgrade existing PS (Investigate first) when overflow problems occur (capacity of upstream PS more than Hermanus PS 4) (Item OHS21.1)	R0.024	
	2030	New PS when Zwelihle informal area is formalized (Item OHS24.2)	R0.620	
		New pump station for Fisherhaven (Item OHS3.3)	R1.628	
		New pump station for Hawston (Item OHS7.3)	R1.579	
		New pump stations for Hermanus (Item OHS17.2, OHS18.2)	R3.096	
		Upgrade existing PS (Investigate first) when it reaches capacity (Item OHS11.10)	R0.024	
	2035	Upgrade existing PS when it reaches capacity, verify existing pump capacity first (Item OHS12.5)	R0.024	
		2035	Upgrade existing PS when it reaches capacity, verify existing pump capacity first (Item OHS1.5)	R0.024
		2045	New PS when future area GH4 develops (Item OHS5.1)	R2.250
		2050	New PS when future areas GH1 & GH50 develop (Item OHS20.1)	-
		2060	New PS when Future areas GH1 & GH50 develop (Item OHS20.5)	-
		<b>Subtotal</b>		<b>R15.083</b>
Stanford	2030	New pump station for Stanford South (Item OSS3.2)	R1.508	
	2050	New pump station for Stanford North (Item OSS5.2)	R0.518	
	<b>Subtotal</b>		<b>R2.026</b>	
Greater Gansbaai	2024	New pump station required to pump sewage from Kleinbaai and Franskraal to Gansbaai WWTW (Item OGS.B1)	R5.300	
	2025	New pump station for De Kelders (Item OGS4.6)	R2.542	
		New pump stations for Kleinbaai (Item OGS14.3, OGS15.10)	R4.451	
		New pump station required to pump sewage from De Kelders to Gansbaai Hawe pumping station (Item OGSB.3)	R2.832	
		New pump station when lower lying erven of Perlemoenpunt develop (Item OGS22.1)	R1.658	
	2030	New Main pump station for Birkenhead drainage area (Item OGS24.3)	R1.628	
		New pump station for De Kelders (Item OGS3.4)	R2.104	
		New pump stations for Gansbaai (Item OGS12.2, OGS9.1)	R2.381	
		Upgrade existing pump station when existing pump station reaches capacity, verify existing pump capacity first (Item OGS.B5, OGS10.1)	R0.637	
	2035	New pump stations for De Kelders (Item OGS1.2, OGS2.4, OGS5.2)	R4.432	
		New pump stations for Franskraal (Item OGS17.4, OGS18.5)	R4.501	
		New pump station for Gansbaai (Item OGS6.2)	R1.598	
	2040	New pump station for Birkenhead drainage area (Item OGS20.2)	R1.568	
		New pump station for Franskraal (Item OGS19.3)	R1.866	
		New pump station for Kleinbaai (Item OGS16.2)	R1.508	
		New pump station when future area GG31 develops (Item OGS28.2, OGS29.1)	R3.613	
		New pump stations when future area GG33 develops (Item OGS32.2, OGS33.1)	R3.680	
		New pump station when future areas GG10.2 & GG11.2 develop (Item OGS23.1)	R0.538	
		New pump station when future areas GG32 & GG33 develop (Item OGS31.2)	R3.819	
	2045	New pump station for Birkenhead drainage area (Item OGS21.2)	R1.206	
		New pump station for Franskraal (Item OGS25.3)	R1.718	
	2050	New pump station for Franskraal (Item OGS26.2)	R1.568	

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Scheme	Year	Project	Cost (R Million)
<b>Subtotal</b>			<b>R55.148</b>
Pearly Beach	2030	New pump station for Pearly Beach (Item OPS1.2)	R2.250
	2035	New pump stations for Pearly Beach (Item OPS2.2, OPS3.3, OPS4.3)	R5.181
	<b>Subtotal</b>		<b>R7.431</b>
<b>Total</b>			<b>R124.677</b>

### WASTE WATER TREATMENT INFRASTRUCTURE

The table below gives a summary of the existing hydraulic design capacities and current flows at each of the WWTWs, as well as the final effluent quality compliance percentages for the 2022/2023 financial year (MI/d).

WWTW	Existing Hydraulic Capacity	Peak Month Average Daily Flow	Average Daily Flow (2022/2023)	Average Wet Weather Flow (Jun'23, Jul'22, Aug'22)	Average Daily Flow as a % of Design Capacity	Final Effluent Compliance for 2022/2023 against Authorisation
Kleinmond	0.997	3.015 (Jun)	1.591	2.051	159.6%	Microbiological: 91.7% Chemical: 54.2% Physical: 83.3% <i>General Limits</i>
Hawston	0.700	1.469 (Jun)	0.726	0.958	103.7%	Microbiological: 100.0% Chemical: 54.2% Physical: 72.2% <i>General Limits</i>
Hermanus	12.000	14.529 (Jun)	8.076	10.095	67.3%	Microbiological: 91.7% Chemical: 89.6% Physical: 100.0% <i>Licence 17 October 2016</i>
Stanford	1.2000	1.229 (Jun)	1.042	1.182	86.8%	Microbiological: 33.3% Chemical: 97.9% Physical: 94.4% <i>General Limits</i>
Gansbaai	2.000	1.115 (Jun)	0.997	0.989	49.9%	Microbiological: 16.7% Chemical: 66.7% Physical: 88.9% <i>General Limits</i>
Eluxolweni	0.259	0.135 (Jun)	0.098	0.078	37.8%	Microbiological: 83.3% Chemical: 72.9% Physical: 25.0% <i>General Limits</i>

Note: Where parameters were resampled, due to failures, the resampled results were used to calculate the above compliance percentages.

The organic design capacities of the WWTWs and the current loadings at the WWTWs are indicated in the table below.

WWTW	Organic Design Capacity (kg COD/d)	2020/2021		2021/2022		2022/2023	
		Average Load (kg COD/d)	% of Design Capacity	Average Load (kg COD/d)	% of Design Capacity	Average Load (kg COD/d)	% of Design Capacity
Kleinmond	843	1 133	134.4%	1 045	124.0%	1 050 *	124.6%
Hawston	968	1 748	180.6%	1 234	127.5%	850	87.8%
Hermanus	9 000	4 935	54.8%	4 696 *	52.2%	6 221	69.1%
Stanford	1 200	1 116	93.0%	933	77.8%	1 033	86.1%
Gansbaai	3 600	1 136	31.6%	979	27.2%	1 405	39.0%
Euvolemia	198	103	52.0%	190	96.0%	267	134.8%

Note: \* Extremely high COD readings of September 2021 for Hermanus WWTW and March 2023 for Kleinmond WWTW were not taken into account

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

The projected future WWTW flows are included in the future water requirement projection models. The table below gives an overview of the average daily future projected WWTW flows.

WWTW	Existing Hydraulic Capacity	Average Daily Future Projected WWTW Flows					Peak Month Average Daily Future Projected WWTW Flows				
		2027	2032	2037	2042	2047	2027	2032	2037	2042	2047
Kleinmond	0.997	1.890	2.279	2.747	3.114	3.544	2.533	3.054	3.681	4.173	4.749
Hawston	0.700	8.888	11.897	15.914	21.285	26.797	11.999	16.061	21.484	28.735	36.176
Hermanus	12.000										
Stanford	1.200	1.657	2.005	2.434	2.962	3.613	1.922	2.326	2.823	3.436	4.191
Gansbaai	2.000	1.242	1.757	2.432	3.319	4.485	1.379	1.950	2.700	3.684	4.978
Eluxolweni	0.259	0.121	0.181	0.264	0.380	0.541	0.167	0.250	0.364	0.524	0.747

Note: The peak month factors used in the above table are 1.34 for Kleinmond, 1.35 for Hawston and Hermanus, 1.16 for Stanford, 1.11 for Gansbaai and 1.38 for Eluxolweni (Average PMF over last three years).

**Kleinmond WWTW:** The 2021 Green Drop score for the WWTW was 88% and the wastewater risk rating decreased from 47.1% in 2022 to 43.8% in 2023. **It can be noted from Tables C.3.23 and C.3.24 that both the current hydraulic and organic design capacities are inadequate to meet the current demands.** The Municipality is currently busy with the upgrading of the WWTW. The approved 2023/2024 Capital Budget of the Municipality include a budget of R37.548 million for the current 2023/2024 financial year for the upgrade.

The recommendations from the detail Kleinmond WWTW Process Audit (June 2022), as completed during the 2021/2022 financial year, are summarised in the table below.

<ul style="list-style-type: none"> <li>• Install outlet flowmeter.</li> <li>• Control the MLSS concentration at around 3 500 mg/l by daily wasting.</li> <li>• Monitor and maintain alkalinity above 500 mg/l.</li> <li>• Gather data on peak flows to better understand the effect these have on clarifier performance.</li> <li>• Complete installation of new dosing pump (Disinfection).</li> <li>• Manager (or independent laboratory's sampler) to conduct random residual chlorine and/or microbiological sampling to verify disinfection.</li> <li>• Run the press 6.5 hours per day, every day.</li> <li>• Allow Sludge Lagoons to dry out and start with the cleaning of these as to create spare capacity should the press be out of order for an extended period.</li> <li>• Ensure spreadsheet is being kept up to date and not only populated once a month.</li> <li>• Process Controllers to interact with the data collected on site - draw graphs etc. to track operational changes (quality &amp; quantities).</li> <li>• Process Controllers should receive feedback from both the internal lab and the independent laboratory.</li> <li>• The calibration of the equipment used on site should be verified by the internal lab.</li> <li>• Consider expanding the spreadsheet to provide operational feedback and not act as database only.</li> <li>• Ensure Process Controllers are aware of the Preventative Maintenance Schedule.</li> <li>• Ensure records / logbooks pertaining to preventative maintenance are also available on site.</li> <li>• Start sensitising Process Controllers to take more responsibility for aspects related to risk management pertaining to the operation of the Works.</li> </ul>
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The Technical Feasibility Report for the upgrading of the Kleinmond WWTW (February 2021), included the following four options to upgrade the process.

- Option 1 (Cost R15 900 000): Change the existing reactor to an anoxic basin and build a new aerobic reactor basin equipped with surface aerators.
- Option 2 (Cost R13 100 000): Retain the existing reactor as an aerobic basin and build a new anoxic reactor basin. The existing aerobic reactor basin will make use of the existing floating aerators until they have reached the end of their economic life cycle.
- Option 3 (Cost R19 800 000): Retain the existing reactor as an aerobic basin and build a new deep aerobic reactor basin equipped with FBD aeration.

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- Option 4 (Cost R15 600 000): Add a new anoxic / aerobic reactor basin and split the existing reactor into an anoxic/aerobic reactor basin.

Each of the options have their advantages and disadvantages. Option 1 allows for a new aerobic reactor that can be designed to suit aeration requirements. Option 2 is the cheapest option but uses the existing aerator that will likely need replacing in 5 years. Also, the current reactor whose depth is less than optimum depth for aeration will be used. Option 3 has a high initial capital cost but allows for a smaller reactor footprint which may be important if environmental requirements restrict the reactor size. Also, lower aeration power is required with fine bubble diffusers. Option 4 is more expensive than Option 2 but allows for future modularisation of the WWTW. The above estimated cost exclude professional fees of all options.

The above options do not allow for upgrading other important refurbishments / replacements that were highlighted in the 2018 Conditional Assessment report. The required refurbishments were reassessed in February 2021 and the table below gives an overview of the priority items for refurbishment.

Table C.3.27: Refurbishment Priority Items for the Kleinmond WWTW			
Process Area	Refurbishment	Cost (Excl. VAT)	Comment with regard to Cost
<b>Priority 1: Important</b>			
Disinfection	Upgrading chemical dosing system	R75 000	This costing is for an HTH disinfection system where chemical preparation tank and dosing system is added. Chlorine disinfection would require a new building and chlorination system, so it has been ignored.
	Contact tank	R200 000	This will strongly depend on environmental requirements. For a contact time of 30 minutes, a simple 4m x 4m x 3m deep tank would be sufficient.
Dewatering facility	Investigate reticulation system	N/A	Could not give price, limited information. Price could range from less than 100 000 if only buffer tanks are provided to over a million if pipeline from Kleinmond and a booster pump is provided.
	Booster pump		
	Extension of building	R1 680 000	Cost accounts for a new dewatering building built to house equipment.
Electronic	Add outlet flowmeter	R100 000	Will replace pipework and flow meter in existing flow meter chamber.
Sub-Total		R2 055 000	
P&Gs		R1 030 000	
Contingency		R360 000	
<b>Total</b>		<b>R3 445 000</b>	
<b>Priority 2: Semi-important</b>			
Screening and grit removal	Minimal concrete corrosion	R35 000	Priced for internal walls, further investigation required for accurate costing.
	Platform and cut-out	R120 000	
	Built in sluice gates	R250 000	
Secondary settling tank	Motor	R58 000	Motor inspection
	Scrapper	R175 000	Inspection and general repairs where required.
	General	R175 000	Tank emptying and cleaning
Bioreactor	Remove splash guards	N/A	Will be done as part of existing reactor refurbishment.
RAS pump station	Lower flowrate if possible	N/A	Need to source more information on pump curves. Either the impeller could be replaced or a belt between the motor and pump can be added.
	Check air release valve and repair/replace	R50 000	Price for replacing instead of repair as the cost is similar.
Disinfection	Allow for effluent sampling	R20 000	Price based on Monitor labs estimate for different project.
	Install second service water pump	R95 000	Need to understand limitation with existing service water supply, so the price is an estimate only.
Dewatering Facility	Reconfigure pipework	R250 000	
	Restoration of lagoons	R2 900 000	Emptying, cleaning and restoration of lagoons.
Electrical	Wiring and MCC servicing	R240 000	Service electrical infrastructure and replace / repair faults and inspect MCC wiring.
Electronic	Link important signals to Master SCADA at Preekstoel WTW	R140 000	
	SCADA reporting system to monitor performance of infrastructure e.g. do comparisons m <sup>3</sup> /d/kWh	R590 000	
General	Computer for data capturing and communication	R10 000	Price for general desktop
	Pepper spray system	N/A	Need more information
	Fencing	R975 000	Site fence and security kiosk

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Table C.3.27: Refurbishment Priority Items for the Kleinmond WWTW			
Process Area	Refurbishment	Cost (Excl. VAT)	Comment with regard to Cost
	Site lighting	R50 000	General lighting upgrade across site
Sub-Total		R6 133 000	
P&Gs		R3 050 000	
Contingency		R1 060 000	
<b>Total</b>		<b>R10 243 000</b>	
Priority 3: Nice to have			
Dewatering Facility	Add a second belt press	R6 000 000	
Electrical	New MCC building	R330 000	
	Move MCC to new building	R175 000	
	MIS: Management Information System	N/A	Further investigation is required
General	Relocate admin building	R750 000	Build new admin building
Sub-Total		R7 255 000	
P&Gs		R3 630 000	
Contingency		R1 250 000	
<b>Total</b>		<b>R12 135 000</b>	

**Hawston WWTW:** The 2021 Green Drop score for the WWTW was 89% and the wastewater risk rating increased from 52.9% in 2022 to 62.5% in 2023. **It can be noted from Tables C.3.23 and C.3.24 that the Hawston WWTW also needs to be upgraded in the nearby future.** The approved 2023/2024 Capital Budget of the Municipality include a total budget of R37.537 million for the 2024/2025 to 2026/2027 financial years for the upgrade.

The recommendations from the detail Hawston WWTW Process Audit (June 2022), as completed during the 2021/2022 financial year, are summarised in the table below.

Table C.3.28: Recommendations from the detail Hawston WWTW Process Audit
<ul style="list-style-type: none"> <li>As there is no grit removal prior to the transfer pumpstation scheduled cleaning of the sump should be prioritised.</li> <li>Look into ways of reducing the concentrated velocity onto the Head of Works screen.</li> <li>Provide a dedicated area for vacuum tanker discharge / secure the operation by providing a built-in quick-couple connection for discharge (eliminate the need to open and close the manhole). As an interim measure, ensure the team follows a Standard Operating Procedure which includes securing the area while they are working and ensure the manhole cover is replaced once they leave.</li> <li>Reduce the MLSS concentration to no more than 3 500 mg/l and then maintain these levels by daily wasting.</li> <li>Measure alkalinity and ensure it remains in excess of 871 mg/l.</li> <li>Install standby dosing pump / ensure standby unit is available (in safe storage) for quick installation should the need arise.</li> <li>Running the press 12 hours per day, every day.</li> <li>Clean the drying beds and prepare them for use. Should they be required on a regular basis one could consider laying some bricks with holes in them onto the sand - this minimises weed re-growth and facilitates easy sludge removal while still allowing drainage to take place.</li> <li>Ensure spreadsheet is being kept up to date and not only populated once a month.</li> <li>Process Controllers to interact with the data collected on site - draw graphs etc. to track operational changes (quality &amp; quantities).</li> <li>Process Controllers should receive feedback from both the internal lab and the independent laboratory.</li> <li>The calibration of the equipment used on site should be verified by the internal lab.</li> <li>Consider expanding the spreadsheet to provide operational feedback and not act as database only.</li> <li>Ensure Process Controllers are aware of the Preventative Maintenance Schedule.</li> <li>Ensure records / logbooks pertaining to preventative maintenance are also available on site.</li> <li>Start sensitising Process Controllers to take more responsibility for aspects related to risk management pertaining to the operation of the works.</li> </ul>

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The Refurbishment of the Hawston WWTW Report, March 2018, recommended the following Operation-, Refurbishment- and Upgrade interventions for the Hawston WWTW.

**Operation Interventions:** Operation interventions include changing or optimising sludge age, recycle rates, etc. The capacity assessment in Section 8 of the Report showed that operating at 20 days sludge age can provide compliant wastewater treatment of up to 700 m<sup>3</sup>/d ADWF capacity.

However, the 700 m<sup>3</sup>/d ADWF capacity can only be achieved under average influent concentrations and with adequate sludge wasting. The latter requirement is approximately 253 kgDS/d, or 4.3 m<sup>3</sup>/h @ 0.58% TSS sludge feed to dewatering plant for 9.8 hours per day. Operating the dewatering plant under these conditions is not practical and thus the Municipality should consider upgrading the entire dewatering system.

No other operation interventions were identified that can improve plant performance as there is limited flexibility in the disinfection system and RAS recycle pumps.

**Refurbishment Interventions:** These interventions are primarily civil and mechanical in nature. The table below gives an overview of the recommended refurbishment items.

Table C.3.29: Refurbishment Interventions for the Hawston WWTW		
Process Area	Refurbishment	Comment / Description
<b>Priority 1: Critical: Failure will result in complete process failure or cause plant shutdown or increased risk of severe health and safety events. Estimated Project Cost R13 490 000 (Excl. Fees)</b>		
Sludge Treatment	New sludge feed pump (2 No)	Feed pump and conveyer is undersized for the capacity of the screw press.
	Maintenance of screw press (see note on right)	Screw press capacity is not adequate for activated sludge plant. Recommended to service current press and relocate to a more suitable works.
	New wash water pump and intake location reconfiguration	Provide new sludge belt-press sized sufficiently for this application.
	New belt press 2m wide	The intake sump is a collection point for scum and debris.
	Dewatering MCC and related cabling	
General	New MCC building for bioreactor, dosing system and dewatering MCC	New building to house all MCC equipment
Bioreactor	Replace aerator (22kW)	Has exceeded operational lifespan
	Replace aerator (30kW)	
	Replace two mixers	Mixer shafts are damaged/bent
	Bioreactor MCC and related cabling	
	New disinfection system – Contact Tank	
Disinfection	New disinfection system – Pumps and Equipment	A disinfection system does not exist on site, operators are dosing chemicals manually.
	Disinfection system MCC and related cabling.	
	Reconfiguration of pipework at pump station (Separate RAS / WAS and ML Recycle)	
RAS / WAS / ML Recycle	New pipework for RAS / WAS and ML Recycle	The combined RAS / WAS / Mixed liquor pump station and pipe work is undesirable. System is difficult to operate and flooding issues are occurring.
	New ML pump station	
	Second RAS / WAS Pump	Standby pumps are not available and valves show signs of deterioration. It is proposed that a new pump station with a new pipework configuration and standby pumps be installed.
	Second ML Recycle Pump	
	New valves for RAS / WAS / ML Recycle	
<b>Priority 2: Urgent: Failure will result in reduced plant capacity, or poor effluent compliance or difficult process control and operation. Such failure will however not cause plant shutdown or severe health and safety events. Estimated Project Cost R1 155 000 (Excl. Fees)</b>		
Inlet works	Additional hand-rake screen at lower inlet works	Screening facility is difficult to operate. A drying slab and second hand-screen will improve operation.
	Improve screening removal and disposal and concrete repairs/adjustments	
SCADA	Integrate reporting of influent, effluent and sludge flow into telemetry system at inlet works	Better reporting will assist in plant monitoring, operation and control.
Settling Tank	Settling bridge motor	General maintenance on settling tank is needed. Emphasis on scum box and the discharge chamber.
	Settling tank inspection of scraper blades	
	Settling tank emptying and cleaning	
	Scum box repair	
<b>Priority 3: Moderate: Items or issues that do not pose imminent plant failure or health and safety risks. Estimated Project Cost R980 000 (Excl. Fees)</b>		
Inlet works	Replace hand stops with sluice gates	
Sludge Treatment	Drying beds repairs and refurbishment	Repairs to concrete and sand-layer is needed
General	Site perimeter fence repairs	

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**Upgrade Interventions:** The activated sludge system does not need an upgrade as the bioreactor and settling tank are sufficiently sized. Improvements to the sludge dewatering plant and RAS/WAS pump station are however recommended.

**Hermanus WWTW:** The 2021 Green Drop score for the WWTW was 89% - 96% and the wastewater risk rating increased from 36.4% in 2022 to 57.1% in 2023. **The capacity of the WWTW is adequate to meet the short term future treatment requirements.** The approved 2023/2024 Capital Budget of the Municipality include a total budget of R5.9 million over the 2023/2024 to 2025/2026 financial years for the upgrading of the screens, RAS and sludge dewatering facilities.

The recommendations from the detail Hermanus WWTW Process Audit (June 2022), as completed during the 2021/2022 financial year, are summarised in the table below.

Table C.3.30: Recommendations from the detail Hermanus WWTW Process Audit
<ul style="list-style-type: none"> <li>• Ensure tankers keep on discharging in the same way that they are currently doing. It would however be advisable to do periodic spot-check analyses on the contents being discharged.</li> <li>• As the mechanical degritters seem to break down quite frequently, it would be advisable to consider a full refurbishment of these units.</li> <li>• Aerators seems to be switching on and off quite frequently (DO control) – consider providing some delay function on the switchgear as to prevent this frequent switching from causing damage to the motors (also refer to O&amp;M manual for maximum number of starts per hour recommended).</li> <li>• Calibration / verification of the in-line DO meters should be done on a routine basis.</li> <li>• Reduce the MLSS concentration to no more than 3 500 mg/l and then maintain these levels by daily wasting.</li> <li>• Monitor and maintain raw alkalinity at levels above 420 mg/l.</li> <li>• Investigate options for dealing with scum. As installing a scum draw-off system would be quite complex, one could consider a sprayer system to break up the scum and allow it to settle. This would have to include the installation of scum baffles. If scum is going to continue flowing into the Maturation Ponds, regular cleaning would be required.</li> <li>• Increase RAS Pump capacity, i.e. provide bigger motors for pumps.</li> <li>• Investigate options of dealing with back-flow from maturation ponds after heavy rains.</li> <li>• Do not be over-reliant on the automated system - Process Controllers should be encouraged to closely monitor the performance of this section of their Works.</li> <li>• Operate the press for 4.5 hours per day, every day.</li> <li>• Continue cleaning the drying beds and prepare them for use as and when required. Clean more beds as to provide more standby capacity.</li> <li>• Process Controllers to interact with the data collected on site - draw graphs etc. to track operational changes (quality &amp; quantities).</li> <li>• The calibration of the equipment used on site should be verified by the internal lab</li> <li>• Consider expanding the spreadsheet to provide operational feedback and not act as database only.</li> <li>• Ensure Process Controllers are aware of the Preventative Maintenance Schedule.</li> <li>• Ensure records / logbooks pertaining to preventative maintenance are also available on site.</li> <li>• Start sensitising Process Controllers to take more responsibility for aspects related to risk management pertaining to the operation of the works.</li> </ul>

The Hermanus Clarifier Flow Balance Investigation, June 2020, recommended the following mitigation measures for the Hermanus WWTW at an estimated cost of R1 100 000.

- Fixed V-notch weirs should be introduced to the splitter boxes to ensure a proportional distribution of flows to the SSTs is achieved across the range of flows that the clarification system would need to handle. Alternatively the system could be left as it is as even though flow is distributed unevenly the SSTs performance would remain within guideline values, with the exception that SST2 would be borderline at PWWF.
- V-notch sluice gates should be introduced at the discharge point of the RAS return lines to the RAS WAS pumpstation sump. The V-notch weirs would allow the operators to approximate the RAS flows and thus optimise them, while the sluice gates would enable the operators to flush the sludge collection lines to discourage blockages from forming.
- The provision of additional facilities to enable the operators to service the SSTs more readily such as a portable centrifugal pump to drain the SSTs more readily and an eductor to enable the operators to prime the siphon more easily.
- The pumpstation itself requires ongoing maintenance. In particular the handrailing at the RAS WAS pumpstation sump needs to be repaired.

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- The pumpstation inspection revealed that the RAS pumps are in good condition and are performing as per the original design intent. A RAS flow meter should be introduced on the RAS pipeline. This would require a flow meter chamber with connections into the existing AC pipeline. This would enable the operators to optimise the RAS return flow and better maintain the pumps.
- The removal of scum was considered, but the authors experience is that scum removal mechanisms merely provide another layer of complexity to the plant and tend to become an operational headache. It is thus preferable to address the source of the scum, which is likely to either be biological, or due to the presence of fats, oils and grease (FOG). To determine this the samples of the MLSS was sent for analysis to determine the presence FOG, as well as a microbiological analysis report to describe the bacterial composition of the sludge to confirm if the source of scum accumulation is biological.
- The analysis indicated that there was no bulking sludge which could cause scum, but nor could it demonstrate that FOG was present in appreciable quantities. This will need to be investigated further through a sampling campaign for FOG.

**Stanford WWTW:** The 2021 Green Drop score for the WWTW was 89% - 90% and the wastewater risk rating decreased from 64.0% in 2022 to 29.4% in 2023. The WWTW was recently upgraded and an updated Process Audit was therefore not done during 2021/2022 for the new plant. **The capacity of the WWTW is adequate to meet the short term future treatment requirements.**

**Gansbaai WWTW:** The 2021 Green Drop score for the WWTW was 89% - 96% and the wastewater risk rating decreased from 41.2% in 2022 to 31.3% in 2023. **The capacity of the WWTW is adequate to meet the short term future treatment requirements.** The approved 2023/2024 Capital Budget of the Municipality include a budget of R2.0 million for the 2025/2026 financial year for the commissioning of the second reactor.

The recommendations from the detail Gansbaai WWTW Process Audit (June 2022), as completed during the 2021/2022 financial year, are summarised in the table below.

<b>Table C.3.31: Recommendations from the detail Gansbaai WWTW Process Audit</b>
<ul style="list-style-type: none"> <li>• Ensure maintenance is performed in a way that will ensure minimum downtime of equipment.</li> <li>• Reduce the MLSS concentration to no more than 3 500 mg/l and then maintain these levels by daily wasting.</li> <li>• Measure Alkalinity and ensure it remains in excess of 814 mg/l.</li> <li>• Clean out Chlorine Contact Channel.</li> <li>• Continue running the press 3.5 hours per day, every day.</li> <li>• Clean the drying beds to ensure spare capacity as / when required.</li> <li>• Ensure spreadsheet is being kept up to date and not only populated once a month.</li> <li>• Process Controllers to interact with the data collected on site - draw graphs etc. to track operational changes (quality &amp; quantities).</li> <li>• The calibration of the equipment used on site should be verified by the internal lab.</li> <li>• Consider expanding the spreadsheet to provide operational feedback and not act as database only.</li> <li>• Ensure Process Controllers are aware of the Preventative Maintenance Schedule.</li> <li>• Ensure records / logbooks pertaining to preventative maintenance are also available on site.</li> <li>• Start sensitising Process Controllers to take more responsibility for aspects related to risk management pertaining to the operation of the works.</li> </ul>

**Pearly Beach WWTW:** The 2021 Green Drop score for the WWTW was 88% and the wastewater risk rating for the plant decreased from 52.9% in 2022 to 50.0% in 2023. **The capacity of the WWTW is still adequate to meet the short to medium term future treatment requirements.**

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The recommendations from the detail Pearly Beach WWTW Process Audit (June 2022), as completed during the 2021/2022 financial year, are summarised in the table below.

<b>Table C.3.32: Recommendations from the detail Pearly Beach WWTW Process Audit</b>
<ul style="list-style-type: none"> <li>• Clean screen on a regular basis (as the plant is left unattended this should not be neglected).</li> <li>• Ensure screenings are periodically removed from the primary pond (Anaerobic Pond).</li> <li>• Ensure the grit channels are cleaned on a routine basis (as the plant is left unattended this should not be neglected).</li> <li>• Check grit channel flow velocity during tanker discharge – velocity not to exceed 0.3 m/s.</li> <li>• Ensure that screenings are periodically removed from the primary pond.</li> <li>• Remove floating “grass island” from primary pond.</li> <li>• Investigate grit accumulation in the primary pond / Clean out the primary pond.</li> <li>• Consider “boosting” the process in an attempt to improve process performance (short-term remedial step).</li> <li>• Check Residual Chlorine readings on regular basis.</li> <li>• Ensure grit is removed, screenings are cleared, required readings recorded and grounds are maintained.</li> <li>• Ensure operational monitoring, including flowmeter readings and residual chlorine testing is done on a frequent basis.</li> <li>• Filtered COD analyses could provide a different perspective on the system’s compliance.</li> <li>• Ensure records pertaining to maintenance are in line with best-practice principles.</li> </ul>

The WWTWs to be upgraded in Overstrand Municipality are summarised in the table below.

<b>Table C.3.33: WWTWs to be Upgraded in the Future</b>		
<b>WWTW</b>	<b>Short, Medium, Long Term</b>	<b>Estimated Cost (Vat Excluded)</b>
Upgraded Kleinmond WWTW (Option 1)	Short	Actual R45 900 000
Refurbishment of Kleinmond WWTW (Important and Semi-important priority items)	Short	R13 688 000
Upgrade Kleinmond WWTW to 3.5 MI/d	Medium	R50 000 000
Upgrade Hawston WWTW to 2.0 MI/d	Short	R30 000 000
Upgrade Stanford WWTW to 2.0 MI/d	Medium	R20 000 000
High priority interventions recommended for the Hermanus WWTW	Short	R1 100 000
Refurbishment interventions for the Hawston WWTW (Priority 1, 2 and 3)	Short	R16 154 000
<b>Total</b>		<b>R146 842 000</b>

## TOPIC 4: WATER SERVICES OPERATION AND MANAGEMENT

<b>Topic C.4.1: Water Services O&amp;M</b>						
<b>Section</b>	<b>Intervention Required?</b>	<b>% (1)</b>	<b>Solution description as defined by topic situation assessment</b>	<b>% (2)</b>	<b>Is there an Existing project / activity addressing this problem?</b>	<b>Current Demand Overall Scoring % (3)</b>
O & M Plan	No	100.0	All required O&M tasks for the various water and sewerage infrastructure components should be implemented. Ensure the required O&M schedules are in place and signed off on a monthly basis at least.	100.0	Partially	92.9
Is There an O & M Plan?						
Resources	No	100.0	A budget of approximately 2% of the total asset value per annum should be allocated towards the replacement of existing water and sewerage infrastructure (Best Practice). 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 (Best Practice).	100.0	Partially	92.9
	No	100.0	The External Service Provider is responsible to ensure that the number of process controllers at each of the WTWs and WWTWs and the class of process controller complies with the required number of process controllers and class of process controller per plant. Overstrand Municipality will monitor the External Service Provider’s compliance with regard hereto.	100.0	Partially	92.9
Information	No	100.0	All incidents at the WTWs and WWTWs and on the water reticulation networks and sewer drainage networks need to be recorded and the Incident Management Protocols, as included in the Water Safety Plan and W <sub>2</sub> RAPs, need to be followed.	100.0	Yes	100.0
	No	100.0	Ensure that the required O&M Manuals are in place for all the water and sewerage infrastructure.	100.0	Partially	92.9
Activity Control & Management	No	100.0	Groundwater: Implement recommended daily, weekly, monthly and six monthly O&M activities for the boreholes.	100.0	Yes	100.0

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Topic C.4.1: Water Services O&M						
Section	Intervention Required?	% (1)	Solution description as defined by topic situation assessment	% (2)	Is there an Existing project / activity addressing this problem?	Current Demand Overall Scoring % (3)
	No	100.0	Surface water infrastructure: Implement preventative maintenance procedures.	100.0	Partially	92.9
	No	100.0	Bulk and water reticulation networks and fittings: Compile daily, weekly, monthly and annual maintenance checklists for the maintenance activities for the water reticulation networks and fittings.	100.0	Partially	92.9
	No	100.0	WTWs: Evaluate the existing O&M schedules for the WTWs against the recommended O&M tasks and ensure all required activities are adequately monitored and recorded.	100.0	Partially	92.9
	No	100.0	Water PSs: Compile weekly and monthly maintenance checklists for the recommended activities for all the water PSs and continue to inspect all PSs on at least a weekly basis.	100.0	Partially	92.9
	No	100.0	Reservoirs: Compile maintenance checklists for the recommended reservoir maintenance activities and document all inspections.	100.0	Partially	92.9
	No	100.0	Remote monitoring and Control Systems: Ensure adequate maintenance is carried out on the SCADA systems and compile maintenance checklists for the recommended activities.	100.0	Partially	92.9
	No	100.0	Sewer PSs: Compile weekly and quarterly maintenance checklists for the recommended activities for all the sewer PSs and all centrifugal pump stations need to be inspected on at least a weekly basis.	100.0	Partially	92.9
	No	100.0	Bulk and sewer drainage networks: Annual, monthly and weekly schedules for maintenance should be drawn up for the bulk and sewerage networks. Regular cleaning of sewer lines and all blockages and their precise locations should be recorded.	100.0	Partially	92.9
	No	100.0	WWTWs: Evaluate the existing O&M schedules for the WWTWs against the recommended O&M tasks and ensure all required activities are adequately monitored and recorded.	100.0	Partially	92.9

Notes: (1) Is this section addressed in the WSDP?

(2) Were solutions identified for the possible gaps?

(3) Percentage calculated based on the above two percentages and whether there is an existing project/activity addressing this problem? Does this current listed project/activity address the problem totally? Project/Activity approved by Council as part of WSDP database? Approved by Council in project activity database and part of 5yr IDP cycle projects? Project/Activity listed in 3yr MTEF Cycle?

It is important for Councils to understand the value of maintenance and provide the necessary funding to properly operate and maintain infrastructure. It is the responsibility of the municipal and technical managers to educate and inform Councils on this and help councillors explain these issues to their communities. **Successful municipalities depend to a large extent on a single principle – effective and efficient management!**

Much of the routine work of technical departments involves managing and undertaking the O&M of services that is done in-house by municipal staff. A second major aspect of work is managing O&M undertaken by external service providers. The third major area is new or capital projects, also usually undertaken by external service providers.

Each service area in Overstrand Municipality needs an O&M system that monitors and assesses infrastructure condition and plans for the required preventative maintenance, and when necessary, rehabilitation, upgrading or replacement of the infrastructure. This is a major part of an overall Asset Management System, which

- records and describes all infrastructure assets;
- monitors and assesses their condition;
- plans and monitors maintenance;
- plans upgrading, rehabilitation and replacement; and
- values assets and the costs of maintenance, upgrading, rehabilitation and replacement.

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There is a wide range of **desirable objectives** that should be achieved with the help of maintenance.

- Retain an asset in a serviceable condition during its designed life span.
- Optimize the reliability of equipment and infrastructure.
- Ensure that the equipment and infrastructure are kept in a good condition.
- Ensure prompt emergency repair of equipment and infrastructure to sustain service delivery.
- Take action before repair costs become too high.
- Ensure operation by eliminating breakdown risks or limiting them as much as possible.
- Improve delivery by upgrading infrastructure.
- Enable repairs under the best possible conditions.
- Improve operational safety and remove causes of accidents.
- Reduce the overall management burden through better work preparation and reduced unforeseen production stoppages.
- Protect the environment.

To achieve these objectives, it is necessary to train personnel in specific maintenance skills and to influence their attitudes, as better operational results depend on motivated staff who are committed to proper maintenance procedures and standards.

Setting up a preventative maintenance programme is one of the most effective ways of reducing breakdowns and keeping equipment and infrastructure in good condition. It is important to implement such a programme as soon as new equipment or infrastructure is put into service.

Implementing a preventative maintenance programme requires a **maintenance plan**, with particular emphasis placed on the following:

- Periodic inspection of equipment according to a pre-established programme so that working conditions may be checked.
- Systematic servicing – the first step in devising this programme is to forecast the life of parts and components subject to wear, i.e. the study of reliability, failure modes and effects and fault analysis.
- Overhauls, which often require considerable work, should be planned during low production periods.

### **The Water and Wastewater Bulk Works Contract of Overstrand Municipality includes both Operational services and Maintenance services for the bulk water and sewerage infrastructure.**

The complexity of maintenance activities should be analysed to set up an efficient maintenance plan and to take management decisions, e.g. regarding use of own resources and unskilled or skilled resources. **Five levels of maintenance** can be distinguished, depending on the complexity of the work and the urgency of action.

- Simple adjustments are generally applicable to accessible components and require no dismantling or opening of the equipment. These adjustments involve the completely safe replacement of accessible consumable components such as signal lights or some types of fuses. Servicing of this type may be performed by the operator on site, without tools, following the instructions for use. The stock of consumable parts required is very small.
- Troubleshooting entails minor preventative maintenance operations such as greasing or checking for proper functioning. Servicing of this type may be performed on site by an authorised technician. An authorised technician has received training that enables him/her to perform such maintenance work safely and is well aware of potential problems.
- Breakdowns require identification, diagnosis and repairs by replacing components or working parts. Servicing of this type must be carried out by trained persons, on site or in the maintenance shop, using the documentation (manuals, spare part lists, etc.) necessary for maintenance of equipment.

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- **Major maintenance work** covers all major corrective or preventative work except modernization and rebuilding. Servicing of this type must be carried out by a team that comprises highly skilled technical specialists, using the relevant documentation.
- **Modernising and rebuilding** equipment or executing major repairs is usually done by the manufacturer or builder. Resources are specified and usually very similar to those used in the original manufacturing or construction.

In order to ensure **good quality O&M**, technical managers firstly need to ensure that staff responsible for in-house O&M

- understand equipment and infrastructure;
- understand and implement the proper O&M requirements and procedures;
- understand the required service and operating standards;
- have and develop the necessary O&M skills;
- assess equipment and infrastructure conditions;
- understand and identify typical defects and problems;
- solve problems and make necessary repairs, or engage experts to do so; and
- record all activities to provide data for planning and analysis of O&M.

Secondly technical managers must ensure that they contract competent external service providers.

The bulk of O&M activities should be of a preventative nature. That is regular checking all the water and sewerage infrastructure and ensuring that everything is in good operational condition. Overstrand Municipality and the Contractor appointed for the Water and Wastewater Bulk Works Contract need to continue to implement the standard recommended O&M tasks, for the various water and sewerage infrastructure components.

### TOPIC 5: CONSERVATION AND DEMAND MANAGEMENT

Topic C.5.1: Conservation and Demand Management - Water Resource Management						
Section	Intervention Required?	% <sup>(1)</sup>	Solution description as defined by topic situation assessment	% <sup>(2)</sup>	Is there an Existing project/activity addressing this problem?	Current Demand Overall Scoring % <sup>(3)</sup>
Reducing unaccounted water and water inefficiencies	Yes	100.0	The Municipality will continue with the implementation of their WDM Strategy and Action Plan and the proposed WC/WDM Strategy to further reduce the NRW and Water Losses for the various water distribution systems.	100.0	Partially	92.9
	Yes	100.0	Continue with the implementation of the pipeline replacement programme. The location of pipe failures is recorded with accurate GPS coordinates. This improves the integrity of the output of the pipe failure model. It was recommended in the pipe replacement study that the pipe replacement in Overstrand Municipality is performed in accordance with the PRP values calculated in the study. Pipes with the highest PRP values should be considered to be replaced first.	100.0	Partially	92.9
Leak and meter repair programmes.	Yes	100.0	Continue with the monitoring of the MNFs for specific zones in order to identify areas for the implementation of specific WDM activities (Pressure Management, Repair of leaks, etc.).	100.0	Partially	92.9
	Yes	100.0	The Municipality will continue with the repairing of leaks at all the indigent households and the phased pro-active replacement of the old water meters, as identified through the detail water meter audit.	100.0	Partially	92.9
Consumer/end-use demand management: Public Information & Education Programmes	Yes	100.0	Continue to focus on the installation of water saving devices (specific water efficient toilets) and raising awareness regarding conservation projects and the installation of these products in order to reduce water demand. The use and installation of these fittings should be included as a condition for the approval of building plans as well as provided for in the Water Services By-law.	100.0	Partially	92.9
	Yes	100.0	Continue to support schools with WDM initiatives (Especially during Water Week). Raise awareness amongst the public of water efficient devices and water conservation projects.	100.0	Partially	92.9

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Topic C.5.1: Conservation and Demand Management - Water Resource Management						
Section	Intervention Required?	% (1)	Solution description as defined by topic situation assessment	% (2)	Is there an Existing project/activity addressing this problem?	Current Demand Overall Scoring % (3)
Conjunctive use of surface - and groundwater	No	100.0				100.0
Working for Water	No	100.0				100.0

- Notes: (1) Is this section addressed in the WSDP?  
 (2) Were solutions identified for the possible gaps?  
 (3) Percentage calculated based on the above two percentages and whether there is an existing project/activity addressing this problem? Does this current listed project/activity address the problem totally? Project/Activity approved by Council as part of WSDP database? Approved by Council in project activity database and part of 5yr IDP cycle projects? Project/Activity listed in 3yr MTEF Cycle?

Topic C.5.2: Conservation and Demand Management - Water Balance						
Section	Intervention Required?	% (1)	Solution description as defined by topic situation assessment	% (2)	Is there an Existing project/activity addressing this problem?	Current Demand Overall Scoring % (3)
Water Balance	No	100.00				100.00

- Notes: (1) Is this section addressed in the WSDP?  
 (2) Were solutions identified for the possible gaps?  
 (3) Percentage calculated based on the above two percentages and whether there is an existing project/activity addressing this problem? Does this current listed project/activity address the problem totally? Project/Activity approved by Council as part of WSDP database? Approved by Council in project activity database and part of 5yr IDP cycle projects? Project/Activity listed in 3yr MTEF Cycle?

A WDM Strategy and Action Plan is in place for Overstrand Municipality. DWS's Municipal Scorecard for assessing the potential for WC/WDM efforts in Municipalities was used to assess the potential for WC/WDM efforts in Overstrand Municipality. The proposed WC/WDM Strategy for Overstrand Municipality is based on the 25 items included in the Scorecard and the sections below discuss each of these items in detail.

Table C.5.3: Proposed WC/WDM Strategy Items for Overstrand Municipality
<b>Item 1: Development of a Standard Water Balance</b>
<p><b>Recommendation and Strategy:</b></p> <ul style="list-style-type: none"> <li>Continue with the monthly updating of the IWA Water Balances for all the systems and reporting on the NRW and Water Losses for each of the systems to management.</li> <li>Continue with the drafting of the annual WSDP Performance and Water Services Audit Report, which include the IWA Water Balances, as required by the Water Services Act.</li> <li>Implement the recommended WC/WDM activities in order to reduce the NRW and Water Losses further.</li> <li>Continue to calculate and quantify all unbilled authorized consumption by firstly identifying all the relevant consumers, e.g. Municipal buildings, parks, fire services, sport fields, etc. Unbilled consumption does not generate income but will enable the municipality to better quantify their actual water losses.</li> </ul>
<p><b>Funding and Budget Requirements:</b></p> <p>The IWA Water Balances for the systems are updated on a monthly basis by the municipality.</p>
<b>Item 2: Pressurised System at all times</b>
<p><b>Recommendation and Strategy:</b></p> <ul style="list-style-type: none"> <li>Adequate human resources, technical skills and O&amp;M budgets need to be allocated towards the operation, maintenance and refurbishment of the existing infrastructure, in order to ensure that systems are always pressurised.</li> <li>Existing water pump stations that are in a poor condition needs to be refurbished.</li> </ul>
<p><b>Funding and Budget Requirements:</b></p> <p>Budgets as indicated under the individual items of the WC/WDM Strategy. Increase O&amp;M budget allocations towards the refurbishment and replacement of old water infrastructure.</p>
<b>Items 3 and 4: Metering System</b>
<p><b>Recommendation and Strategy:</b></p> <ul style="list-style-type: none"> <li>All un-metered water connections need to be provided with water meters. Meters need to be read on a monthly basis and consumers need to be billed monthly according to their actual water usage. In addition to water theft, many water accounts go unnoticed in the system or have some type of data inconsistency that results in no revenue being generated for the particular water use event. Overstrand Municipality therefore needs to continue with the cleaning of the Treasury data and the municipality needs to identify and correct any inaccurate data in the system (See Table 7.5.1 of the Administration, Information and Comprehensive Overview Report for the 2021 Swift results).</li> </ul>

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<b>Table C.5.3: Proposed WC/WDM Strategy Items for Overstrand Municipality</b>
<ul style="list-style-type: none"> <li>Consumer consumption checks / investigations need to be carried out where water usage is very low, but there are households on the property. This project will give a clear indication of where illegal or unregistered connections is being made and whether the meter is under reading the actual consumption, thus water is being used but not billed or recorded.</li> <li>The Municipality needs to continue with their meter audits for all the towns. All illegible / broken / old meters should be replaced. Any un-metered stands should be metered and meter readings in the billing system should be updated where required. All meter boxes should also be cleaned as part of the audits.</li> <li>Municipality needs to continue with the implementation of their Meter Management / Replacement program. An effective Meter Management / Replacement Program needs to achieve the following objectives: <ul style="list-style-type: none"> <li>Determine the on-going meter replacement programme;</li> <li>Determine exception reports on meters which are suspected to be faulty;</li> <li>Test and replace faulty meters; and</li> <li>Size meters correctly.</li> </ul> <p>The activities of this program that needs to be budgeted for are as follows:</p> <ul style="list-style-type: none"> <li>Research and development of a meter replacement policy and meter management / replacement programme;</li> <li>Implementation of a uniform meter management information system;</li> <li>Testing and replacing faulty meters reported by consumers (Part of reticulation function).</li> <li>Replacement of domestic meters with AMR enabled format (where appropriate) in accordance with meter management / replacement programme.</li> </ul> </li> </ul>
<p><b>Funding and Budget Requirements:</b> Continue to install water meters for all un-metered water connections. Estimated annual budget requirement for the installation of individual water meters is R1 000 000.</p>
<b>Item 5: Effective and Informative Billing System</b>
<p><b>Recommendation and Strategy:</b></p> <ul style="list-style-type: none"> <li>Municipality needs to continue to ensure that all customer's meters are read on a monthly basis and that the customers are billed on a monthly basis according to the actual volume of water used for the specific month.</li> <li>Municipality needs to continue with the commercial data analysis done on the billed metered consumption data, which include the identification of un-metered even, investigating meters with zero consumption, investigating abnormal low and high consumption readings, oversized / undersized meters, etc.</li> <li>The Municipality should continue with measures to keep the consumer bills informative and to improve on it. <ul style="list-style-type: none"> <li>Overstrand Municipality provides a moving 24-month water consumption graph on each account on a monthly basis. Hints on water usage are included on the accounts from time to time.</li> <li>Alert consumers of possible leaks on their properties. For instance if the consumption for a particular month is &gt;25% than the average consumption of the previous months the consumer may be alerted of a possible leak on the property.</li> <li>Monitor trends and follow up telephonically.</li> </ul> </li> </ul>
<p><b>Funding and Budget Requirements:</b> Estimated cost to enhance the user friendliness of the municipal bill is R300 000.</p>
<b>Items 6 and 7: General Complaints System</b>
<p><b>Recommendation and Strategy:</b> The municipality needs to continue to ensure that all consumers are familiar with the telephone numbers to lodge complaints and report leaks. Telephone numbers to lodge complaints and report leaks are included on the monthly water bills and on the Municipality's website. Suggestions would be to also include it on strategically located notice boards, radio broadcasts, etc.</p> <p>The projects and measures that can be implemented for passive leakage control are as follows:</p> <ul style="list-style-type: none"> <li>Improve the help-line and install an automated answering system.</li> <li>Advertise the help-line.</li> <li>Investigate current problems in responding to leaks and allocate adequate resources to avoid lengthy delays.</li> <li>Review and develop a policy regarding responses to leaks with the aim of reducing response time, prioritising and keeping consumers informed.</li> <li>Develop a monitoring system and quality assurance measures to ensure problems are resolved adequately. Link such a KPI to the SDBIP.</li> </ul> <p>The Customer Services Charter should include the following information:</p> <ul style="list-style-type: none"> <li>Commitment to deliver excellent services to our clients (Executive Mayor and Municipal Manager).</li> <li>Standards of services (Enquiries written and telephonic; Accounts enquiries and distribution of accounts).</li> <li>Response times for different services (Water: Repairs to networks, installation of new household water connections, etc.)</li> <li>Contact details for different areas.</li> </ul>
<p><b>Funding and Budget Requirements:</b> Budget requirement for improved customer awareness raising with regard to the Municipality's Complaints System R150 000/annum.</p>
<b>Item 8: Asset Register for Water Infrastructure</b>
<p><b>Recommendation and Strategy:</b> Continue to ensure that all the existing water and sewerage infrastructure are included in the Asset Register.</p>
<p><b>Funding and Budget Requirements:</b></p>

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<p><b>Table C.5.3: Proposed WC/WDM Strategy Items for Overstrand Municipality</b></p> <p>None - To be done as part of the annual updating of the Asset Register by the municipality.</p>
<p><b>Item 9: Asset Management Capital Works</b></p> <p><b>Recommendation and Strategy:</b> Allocate a budget of at least 2% of the total water asset value per annum towards the replacement of existing infrastructure. Municipality needs to differentiate in their capital budget between new projects and projects that are for the replacement of existing infrastructure, in order to accurately calculate the annual percentage allocated towards the replacement of existing infrastructure (Best Practice).</p> <p><b>Funding and Budget Requirements:</b> Capital budget of at least 2% of the total water and sewerage asset value allocated annually towards the replacement of the existing water and sewerage infrastructure (Best Practice).</p>
<p><b>Item 10: Asset Management Operation and Maintenance</b></p> <p><b>Recommendation and Strategy:</b> The municipality needs to continue to differentiate between the budget allocated towards the operation and maintenance of the water infrastructure and the budget allocated towards the replacement of the water and sewerage infrastructure. A budget of approximately 1% to 2% of the value of the system is typically required for the operations and maintenance of the system to ensure that the system remains in good condition (Best Practice).</p> <p>The municipality needs 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.</p> <p>It is important for the municipality to develop an AMP from their Asset Register. The objective of an AMP is to support the achievement of the strategic goals of the Municipality and facilitate prudent technical and financial decision-making. It is also a vehicle for improved internal communication and to demonstrate to external stakeholders the Municipality's ability to effectively manage its existing infrastructure as well as the new infrastructure to be developed over the next 20 years.</p> <p>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. The municipality needs to ensure that the maintenance and rehabilitation plan is part of the WSDP and that the plan is implemented. Assets must be rehabilitated and / or replaced before the end of their economic life and the necessary capital funds must be allocated for this purpose. Priority should be given to rehabilitating existing infrastructure as this generally makes best use of financial resources and can achieve an increase in (operational) services level coverage's most rapidly. The preparation of maintenance plans and the allocation of sufficient funding for maintenance are required to prevent the development of a large condition backlog. The potential renewal projects for the water infrastructure need to be identified from the Asset Register. All assets with a condition grading of "poor" and "very poor" need to be prioritised.</p> <p>The O&amp;M Budget allocated towards repairs and maintenance should include the replacement of malfunctioning and old bulk water meters and consumer water meters, clearing of meter chambers, buying replacement mechanisms for bulk water meters, speedy repair of leaks, leak detection in areas with high water losses and NRW and higher than expected night flows, etc.</p> <p><b>Funding and Budget Requirements:</b> Municipality needs to continue to allocate adequate budget towards the repairs and maintenance of the existing water and sewerage infrastructure. A budget of approximately 1% to 2% of the value of the system is typically required for the operations and maintenance of the system to ensure that the system remains in good condition (Best Practice).</p> <p>An estimated budget for the drafting of an AMP for all the water and sewerage infrastructure is R750 000.</p>
<p><b>Item 11: Dedicated WC/WDM Support</b></p> <p><b>Recommendation and Strategy:</b> The municipality should allocate at least one (1) person to head WC/WDM for a start. The number of people involved with WC/WDM measures can later be increased as and when required.</p> <p><b>Funding and Budget Requirements:</b> The municipality may be able to use one of their existing staff members. If a new person has to be appointed the municipality can determine the costs involved with such an appointment.</p>
<p><b>Item 12: Active Leakage Control</b></p> <p><b>Recommendation and Strategy:</b> The following process needs to be followed for active leakage control of the reticulation network: <u>Decide on how the work will be undertaken:</u></p> <ul style="list-style-type: none"> <li>• Option 1: The appointment and training of additional staff.</li> <li>• Option 2: The training of existing staff.</li> <li>• Option 3: Appoint an external contractor in the first few years with the objective of using this contractor to train the internal teams and build capacity to do all work internally.</li> <li>• Option 4: Complete outsourcing of the activity.</li> </ul> <p>The first three options need to include the purchase or re-allocation of equipment.</p> <p><u>Leak detection:</u> Identify areas with highest leaks and send teams into the field to detect leaks. <u>Repair of leaks once identified:</u> Once leaks were detected they will need to be repaired. Depending on the extent of the leaks and other workloads, the leak repairs need to be carried out by either the internal teams or a contractor.</p> <p><b>Funding and Budget Requirements:</b> R300 000 to undertake leak detection in zones with high excess night flows. In addition allocate approximately R200 000 per year for general visual leak inspections.</p>

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<b>Table C.5.3: Proposed WC/WDM Strategy Items for Overstrand Municipality</b>
<b>Item 13: Sectorization of Reticulation Systems</b>
<p><b>Recommendation and Strategy:</b></p> <p>The billed metered data currently linked to the various water distribution systems should also be linked to the different reservoir zones in the future where possible, in order to accurately determine the NRW and water losses for the specific reservoir zones in the future. Faulty bulk water meters need to be replaced and new meters need to be installed for the reservoirs with no bulk water meters.</p> <p>The Financial Department needs to provide the billed metered consumption data separately for the different zones in the future in order to assist with the following:</p> <ul style="list-style-type: none"> <li>• Clear indication of how much water is being used per area / zone.</li> <li>• Areas with high NRW and water losses can easily be identified.</li> <li>• Leakage and pressure control can be better managed.</li> <li>• Water demand per area / zone can be determined.</li> </ul> <p>Night flows need to be measured for zones with expected high water losses. It is recommended to re-log the night flows every few years to determine if there was an increase in leakage.</p>
<p><b>Funding and Budget Requirements:</b></p> <p>The estimated cost for the logging of flows and pressures for zones with expected high water losses is R450 000. The logging exercise should be repeated at least every three years.</p> <p>A budget should be allocated to investigate and resolve possible zone interconnections. It is however difficult to price such investigations at this stage.</p>
<b>Item 14: Effective Bulk Metering Management System</b>
<p><b>Recommendation and Strategy:</b></p> <ul style="list-style-type: none"> <li>• Continue to read and record all the bulk water meter readings at the existing WTWs, reservoirs and pump stations on at least a weekly basis.</li> <li>• Broken bulk water meters need to be repaired or replaced.</li> <li>• Meter chambers need to be cleaned.</li> <li>• All bulk water meters need to be installed in lockable meter chambers and reservoir sites and water pump stations need to be secured in order to prevent unauthorised access and possible damage to the water meters.</li> <li>• New bulk water meters need to be correctly installed. Ideally a straight pipe section upstream of the meter of at least 5x the meter diameter and 3x the meter diameter downstream of the meter. Strainers need to be installed to protect the meters. These strainer elements must be removable from the top, for ease of cleaning. Gate valves are required for maintenance before and after meters.</li> <li>• Every informal area with unmetered communal services to be supplied with a bulk water meter in order to determine the unbilled metered consumption. All discrete zones are to be supplied with a bulk water meter. The meter readings must be recorded on at least a weekly basis. The readings can be used to quantify both the water supplied and the leakage for a specific area.</li> </ul>
<p><b>Funding and Budget Requirements:</b></p> <p>Allow an annual budget of approximately R350 000 for the installation of new bulk water meters, the replacement of faulty bulk water meters and to adequately protect existing bulk water meters.</p>
<b>Item 15: Effective Zone Meter Management and Assessment of Night Flows</b>
<p><b>Recommendation and Strategy:</b></p> <p>See recommendations under Item “Effective Bulk Metering Management System” above.</p>
<p><b>Funding and Budget Requirements:</b></p> <p>See funding and budget requirements included under Item “Effective Bulk Metering Management System” above.</p>
<b>Item 16: Pressure Management</b>
<p><b>Recommendation and Strategy:</b></p> <p>The reticulation networks need to be divided into pressure zones, prior to implementing pressure management, and the pressures and flows need to be metered and logged. The activities of such a programme are as follows:</p> <ul style="list-style-type: none"> <li>• Undertake feasibility studies to determine the ranking of areas / projects (Desktop Study, Logging of pressures and flows, Analysis of data).</li> <li>• Implement advanced pressure management in areas identified (Design PRV Chambers, Pressure management implementation of new PRVs, Supply and installation of smart electronic pressure controllers for existing PRVs).</li> <li>• Impact assessment (Post pressure management logging to determine impact of new PRVs and / or installation of smart pressure controllers on existing PRVs).</li> <li>• The on-going operation, maintenance and optimisation of advanced pressure management installations.</li> </ul>
<p><b>Funding and Budget Requirements:</b></p> <p>Funding and Budget requirements for pressure management to be determined once a decision is taken on the further areas prioritised for pressure management (From recommended flow and pressure logging exercise).</p>
<b>Item 17: As-built Drawings of Bulk and Reticulation Infrastructure</b>
<p><b>Recommendation and Strategy:</b></p> <p>Continue with the current record system for all “as-built” drawings and the regular updating of the Water and Sewer Master Plans with this information.</p>
<p><b>Funding and Budget Requirements:</b></p> <p>The Municipality currently adequately budgeted for the updating of their Water and Sewer Master Plans with the most recent “As-built” drawings.</p>

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<b>Table C.5.3: Proposed WC/WDM Strategy Items for Overstrand Municipality</b>
<b>Item 18: Schematic Layouts of Water Reticulation Systems</b>
<b>Recommendation and Strategy:</b> Municipality needs to continue to update the schematic layouts and the Aerial Maps on a regular basis, in order to ensure they remain accurate.
<b>Funding and Budget Requirements:</b> None
<b>Item 19: Regulation and Bylaws</b>
<b>Recommendation and Strategy:</b> The updated Water Supply and Sanitation Services By-law needs to be enforced and adequate human resources need to be allocated for this purpose.
<b>Funding and Budget Requirements:</b> No additional budget and funding requirements.
<b>Item 20: Tariffs</b>
<b>Recommendation and Strategy:</b> See Section 7.3 under Topic 7 of the Future Demand and Functionality Requirements WSDP Report.
<b>Funding and Budget Requirements:</b> None
<b>Item 21: Technical Support to Customers</b>
<b>Recommendation and Strategy:</b> The objective of a Technical Support programme is not limited to assisting consumers in reducing their water demand, but is also to look at wastewater, monitor compliance with by-laws and service conditions and offer general customer support. Once a dedicated person has been allocated to WC/WDM it is recommended to engage with large customers and to identify areas where the municipality can provide assistance. The proposed activities of this programme that can be budgeted for are as follows:
<ul style="list-style-type: none"> <li>• Train existing staff;</li> <li>• Identify and visit large consumers (Checking that large consumers are correctly metered and billed, providing tips on WC/WDM, test the accuracy of all large consumer meters, install data-loggers on all large consumer meters and informing consumers of any sudden change in consumption patterns).</li> <li>• Arrange leakage inspections in public buildings;</li> <li>• Provide assistance and technical know-how for large consumers; and</li> <li>• Introduce compulsory water management plan for large consumers.</li> </ul>
<b>Funding and Budget Requirements:</b> No additional funding – pending the appointment of a dedicated person for WC/WDM.
<b>Item 22: Removal of Un-authorized Connections</b>
<b>Recommendation and Strategy:</b> Meters need to be installed at the estimated 409 unmetered erven, as identified through the 2021 Swift analyses.
<b>Funding and Budget Requirements:</b> Estimated budget of R1.227 million is required to install water meters at the unmetered erven.
<b>Item 23: Community Awareness on WDM</b>
<b>Recommendation and Strategy:</b> See Section 5.1.3 of the Future Demand and Functionality Requirements WSDP Report.
<b>Funding and Budget Requirements:</b> It is estimated that R250 000 / year should be allocated for WC/WDM awareness campaigns and activities, material to be included with monthly water bills, placing notices in newspapers, billboards, competitions, etc.
<b>Item 24: Schools Education on WDM</b>
<b>Recommendation and Strategy:</b> See Section 5.1.3.1 of the Future Demand and Functionality Requirements WSDP Report.
<b>Funding and Budget Requirements:</b> Continue with the current schools education programme in Overstrand Municipality. The DWS can also assist the municipality with pamphlets and posters on WC/WDM initiatives.
<b>Item 25: Retrofitting</b>
<b>Recommendation and Strategy:</b> See Sections 5.1.2.1 and 5.1.2.2 of the Future Demand and Functionality Requirements WSDP Report.
<b>Funding and Budget Requirements:</b> Leak repair assistance programmes: R400 000 per annum for ongoing exercise to repair leakages at indigent properties using in excess of 18 kl/month. WSIG funding or “War on Leaks” funding from DWS can be requested in this regard.

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The way forward for Overstrand Municipality with the implementation of the proposed WC/WDM Strategy is as follows:

- Develop a detailed methodology for measuring the performance criteria for each of the twenty-five (25) WC/WDM Strategy items;
- Allow for budget required to implement the various measures;
- Monitor the impact of all WC/WDM measures on an on-going basis;
- Develop key benchmarks for all KPIs and categories and assign responsibility; and
- Review WC/WDM Strategy as necessary.

Overstrand Municipality needs to ensure that adequate funding is allocated under their Capital and Operational budgets towards the implementation of the WC/WDM Strategy. Key WDM projects to be taken into account during Overstrand Municipality's capital and operational budgeting process are as follows:

- Replacement of old water networks (Areas with regular pipe bursts);
- Replacement of old bulk and consumer water meters (Meter replacement programme);
- Telemetry systems to provide for early warning;
- Installation of zone meters;
- Pressure Management;
- Leak detection; and
- Data loggers to establish MNFs

The WDM initiatives can deliver excellent return on investment if well implemented and well managed. All external funding that could be utilised by Overstrand Municipality for this purpose should be sourced. The O&M Budget allocated to repairs and maintenance should be increased to address amongst other tasks the following:

- Replacement of malfunctioning and old bulk water meters and consumer meters;
- Construction of meter chambers for all bulk water meters not adequately protected against vandalism;
- Cleaning of bulk water meter boxes;
- Buying replacement mechanisms for bulk meters;
- Speedy repair of leaks; and
- Leak detection in areas with higher than expected night flows.

Overstrand Municipality has responded to the need to address NRW and water losses within their jurisdiction by implementing various WC/WDM initiatives. The Municipality will continue with the active implementation of their WDM Strategy and Action Plan in order to reduce the percentage of NRW and Water Losses and improve water use efficiency within the various schemes as follows.

Distribution System	2022/2023		Committed Future NRW	
	NRW (%/a)	Water Losses (%/a)	2027 (%/a)	2047 (%/a)
Buffels River	35.99%	26.29%	30.0	20.0
Kleinmond	34.54%	34.06%	30.0	25.0
Greater Hermanus	19.67%	18.85%	15.0	15.0
Stanford	5.13%	4.52%	15.0	15.0
Greater Gansbaai	31.08%	30.77%	25.0	15.0
Pearly Beach	18.25%	17.89%	15.0	15.0
Baardskeerdersbos	47.67%	44.82%	40.0	30.0
Buffeljags Bay	35.11%	34.09%	30.0	20.0

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**IWA Water Balance:** A segregated single variable future water requirement model was developed for the WSDP and is available in electronic format. The future water requirement for each of the schemes is obtained by means of this model. It is used in this analysis to estimate the future water requirement for each of the distribution systems. The model differentiates between the different income levels.

Water services must be provided in a manner that is consistent with the broader goals of integrated water resources management. There is therefore a need for an integrated planning approach between the development of water services and water resources.

The Infrastructure Leakage Index (ILI) can be used by Overstrand Municipality 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 towns' distribution networks are therefore important indicators of the performance of the water supply and distribution systems.

The current water balance information database is adequate from a water services management perspective and Overstrand Municipality is committed to continue to record all flows, both water and sewerage, that are strategic in terms of medium and long term planning. Overstrand Municipality is committed to keep record of all bulk meter readings, flows at WWTWs and to continue to update their IWA water balance models on a monthly basis in order to determine locations of wastage and to enable Overstrand Municipality to actively implement the WC/WDM Strategy in order to reduce their current NRW and water losses even further. The water balance will not directly lead to the reduction of the demand, but is an imperative management tool that will inform the implementation of demand side management initiatives.

### **Overstrand Municipality needs to focus on the following for the IWA water balances of all the systems.**

- Continue to use IMQS (Swift analysis) to identify treasury records that cannot be linked to GIS data, occupied stands with water meters, but with no water demand, occupied stands with no water meters, occupied stands with very low consumption and stands where the water demands have reduced or increased substantially in recent months.

### **The following areas need to be focused on for the IWA water balances of each of the systems.**

- Buffels River: Quantify the monthly volume of effluent discharged at the Kleinmond WWTW from Betty's Bay, Pringle Bay and Rooi Els.
- Kleinmond: Install final effluent flow meter at the Kleinmond WWTW.
- Greater Hermanus:
  - Sum of monthly abstraction volumes per individual borehole for the Gateway, Camphill and Volmoed wellfields to be monitored against the total supply volume at the WTW, in order to identify any potential bulk raw water distribution losses.
  - Groundwater abstraction volumes per individual borehole to be included in water balance model, in order to monitor abstraction volumes against safe yields of boreholes and licence volumes (Results from current Groundwater Monitoring Programme to be incorporated where possible).
- Stanford: Repair vandalised cables and display unit of the Magflow meter at the balancing tank.
- Greater Gansbaai: Adequate
- Pearly Beach:
  - Calibrate Koekemoer and Pearly Beach inflow meters at the Pearly Beach WTW, because the inflow at the plant was less than the outflow (System Input Volume) for the 2020/2021 financial year.
  - Calibrate raw water meters at the Koekemoer and Pearly Beach dams, in order to accurately calculate the bulk raw water distribution losses between the dams and the treatment plant.
- Baardskeerdersbos: Adequate

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- **Buffeljags Bay:** Calibrate borehole meter and meter at reservoir, because raw water abstraction volume is less than the system input volume for the last two financial years.

### TOPIC 6: WATER RESOURCES

Topic C.6.1: Water Resource						
Section	Intervention Required?	% (1)	Solution description as defined by topic situation assessment	% (2)	Is there an Existing project/activity addressing this problem?	Current Demand Overall Scoring % (3)
Current Water Sources	No	100.0				100.0
Additional Sources Available	Yes	100.0	Continue with the further augmentation of the Greater Hermanus water resources.	100.0	Yes	92.9
Monitoring	Yes	100.0	Ensure that all industries apply for the discharge of industrial effluent into the sewer system, to monitor the quality and volume of industrial effluent discharged and to implement the set of by-laws with regard to the discharge of industrial effluent into Overstrand Municipality's sewer system in order to determine whether the quality comply with the standards and criteria.	100.0	Yes	57.1
Water Quality	No	100.0				100.0
Operation	Yes	100.0	Ensure all surface and groundwater resources are registered with the DWS.	100.0	Yes	92.9

Notes: (1) Is this section addressed in the WSDP?

(2) Were solutions identified for the possible gaps?

(3) Percentage calculated based on the above two percentages and whether there is an existing project/activity addressing this problem? Does this current listed project/activity address the problem totally? Project/Activity approved by Council as part of WSDP database? Approved by Council in project activity database and part of 5yr IDP cycle projects? Project/Activity listed in 3yr MTEF Cycle?

Groundwater sources were developed successfully in Hermanus, Stanford, Baardskeerdersbos and Buffeljags Bay, resulting in a significant reduction in the Municipality's dependence on surface water sources. The drilling of two additional production boreholes for Hermanus was completed at Gateway during 2020, with the expansion of the well fields in the Hemel-en-Aarde Valley planned for the near future. In the medium term (5 to 10 years), a seawater desalination scheme is planned for the Greater Hermanus area, to assist in providing for the future water needs of the growing population.

Metering of all water supplied is one of the most significant steps in order to properly plan and manage water sources. Without metering no management is possible. Overstrand Municipality needs to continue with the monthly reading of all their existing bulk water meters, which is a valuable source of information.

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

Detail future water requirement projection models were developed for each of the distribution systems in Overstrand Municipality's Management Area. These models include the future projections up to 2047 and were calibrated by using historic billed metered consumption data and bulk metered abstraction data. The percentage NRW was determined for each of the distribution systems and growth in demand was based on agreed population and growth figures.

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The table below gives an overview of the future water requirement projections for the various distribution systems and the yield / licence volume surplus or shortfall, based on the WSDP projection.

Distribution System	Projection	PROJECTED FUTURE WATER REQUIREMENTS (Ml/a)				
		2027	2032	2037	2042	2047
Buffels River	2.5% Annual Growth	759.851	859.702	972.674	1 100.492	1 245.105
	3.5% Annual Growth	797.648	947.355	1 125.161	1 336.338	1 587.151
	<b>WSDP Model</b>	745.108	857.817	993.334	1 156.791	1 354.545
	<b>Yield surplus (+) / shortfall (-)</b>	<b>+971.892</b>	<b>+859.183</b>	<b>+723.666</b>	<b>+560.209</b>	<b>+362.455</b>
Kleinmond	2.5% Annual Growth	1 038.773	1 175.276	1 329.717	1 504.453	1 702.151
	3.5% Annual Growth	1 090.443	1 295.105	1 538.178	1 826.873	2 169.752
	<b>WSDP Model</b>	985.509	1 109.252	1 253.130	1 420.889	1 617.045
	<b>Yield surplus (+) / shortfall (-)</b>	<b>+1 603.861</b>	<b>+1 480.118</b>	<b>+1 336.240</b>	<b>+1 168.481</b>	<b>+972.325</b>
Greater Hermanus	3.0% Annual Growth	4 946.905	5 734.819	6 648.227	7 707.117	8 934.661
	4.0% Annual Growth	5 191.755	6 316.564	7 685.065	9 350.057	11 375.774
	<b>WSDP Model</b>	4 991.192	6 203.258	7 744.927	9 711.343	12 225.926
	<b>Licence surplus (+) / shortfall (-)</b>	<b>+1 008.808</b>	<b>-203.258</b>	<b>-1 744.927</b>	<b>-3 711.343</b>	<b>-6 225.926</b>
Stanford	2.5% Annual Growth	563.827	637.919	721.746	816.590	923.896
	3.5% Annual Growth	591.873	702.959	834.895	991.593	1 177.702
	<b>WSDP Model</b>	672.039	813.216	986.980	1 201.093	1 465.185
	<b>Licence surplus (+) / shortfall (-)</b>	<b>+927.961</b>	<b>+786.784</b>	<b>+613.020</b>	<b>+398.907</b>	<b>+134.815</b>
Greater Gansbaai	3.0% Annual Growth	1 891.196	2 192.414	2 541.609	2 946.421	3 415.710
	4.0% Annual Growth	1 984.801	2 414.814	2 937.991	3 574.515	4 348.944
	<b>WSDP Model</b>	1 813.842	2 137.851	2 536.408	3 028.394	3 637.724
	<b>Yield surplus (+) / shortfall (-)</b>	<b>+954.139</b>	<b>+630.130</b>	<b>+231.573</b>	<b>-260.413</b>	<b>-869.743</b>
Pearly Beach	2.5% Annual Growth	168.111	190.203	215.197	243.475	275.470
	3.5% Annual Growth	176.474	209.595	248.933	295.655	351.145
	<b>WSDP Model</b>	177.371	220.326	275.486	346.616	438.694
	<b>Yield surplus (+) / shortfall (-)</b>	<b>+129.529</b>	<b>+86.574</b>	<b>+31.414</b>	<b>-39.716</b>	<b>-131.794</b>
Baardskeerdersbos	2.5% Annual Growth	21.807	24.672	27.914	31.583	35.733
	3.5% Annual Growth	22.891	27.188	32.291	38.351	45.549
	<b>WSDP Model</b>	17.567	17.661	17.879	18.239	18.768
	<b>Licence surplus (+) / shortfall (-)</b>	<b>+72.433</b>	<b>+72.339</b>	<b>+72.121</b>	<b>+71.761</b>	<b>+71.232</b>
Buffeljags Bay	2.5% Annual Growth	6.644	7.517	8.504	9.622	10.886
	3.5% Annual Growth	6.974	8.283	9.838	11.684	13.877
	<b>WSDP Model</b>	5.992	6.459	7.058	7.818	8.779
	<b>Yield surplus (+) / shortfall (-)</b>	<b>+22.391</b>	<b>+21.923</b>	<b>+21.325</b>	<b>+20.564</b>	<b>+19.603</b>

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

Distribution System	Total Sustainable Yield (Y) / License Volume (L) (x 10 <sup>6</sup> m <sup>3</sup> /a)	Annual Growth on 2022/2023 requirement (2.5% or 3%)	Annual Growth on 2022/2023 requirement (3.5% or 4%)	WSDP Projection Model
Buffels River	1.717 (Y)	> 2047 (2.5%)	> 2047 (3.5%)	> 2047
Kleinmond	2.589 (Y)	> 2047 (2.5%)	> 2047 (3.5%)	> 2047
Greater Hermanus	6.000 (L) *	2033 (3.0%)	2030 (4.0%)	2031
Stanford	1.600 (L)	> 2047 (2.5%)	> 2047 (3.5%)	> 2047
Greater Gansbaai	2.768 (Y)	2039 (3.0%)	2035 (4.0%)	2039
Pearly Beach	0.307 (Y)	> 2047 (2.5%)	2043 (3.5%)	2039
Baardskeerdersbos	0.090 (Y)	> 2047 (2.5%)	> 2047 (3.5%)	> 2047
Buffeljags Bay	0.028 (Y)	> 2047 (2.5%)	> 2047 (3.5%)	> 2047

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

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Overstrand Municipality continues with their groundwater monitoring programmes for Hermanus (Gateway and Hemel & Aarde Wellfields), Stanford and Baardskeerdersbos. **The water resources for the different systems are all considered to be adequate for the projected population and future growth until at least 2035, except for the Greater Hermanus system, where additional sources will have to be developed within the next 5 to 10 years to satisfy the growing demand.** Exploration for groundwater is in progress in Pearly Beach as potential supplement to the existing surface water sources which are under pressure due to changes in water quality in recent years.

The DWS is currently busy with the updating of the All Towns Reconciliation Strategies for the Western Cape, but updated strategies for Overstrand Municipality are not yet available. The table below gives an overview of the recommended potential future water resources, as included in the 2015 All Towns Reconciliation Strategies, for the towns in Overstrand Municipality (**Additional comments by Municipality**).

Table C.6.4: Potential Future Water Resources for the Various Towns (Summary of DWS's All Towns Reconciliation Strategies)	
Distribution System	Recommended Summary Options
Betty's Bay, Rooi Els and Pringle Bay	<p><b>The current water sources have adequate supply to cater for the medium and longer term future water requirements. The following sources are identified as potential sources to augment the water supply (In order of priority and implementation sequence):</b></p> <ul style="list-style-type: none"> <li>Continue with the implementation of the WC/WDM Strategy and measures.</li> <li>Groundwater development in the TMG Aquifer.</li> <li>Raising of Buffels River dam wall</li> <li>Abstraction from the Palmiet River</li> <li>Abstraction from the Rooi Els River</li> </ul>
Kleinmond	<p><b>The current water sources have adequate supply to cater for the medium and longer term future water requirements. The following sources are identified as potential sources to augment the water supply in the future if required (In order of priority and implementation sequence):</b></p> <ul style="list-style-type: none"> <li>Continue with the implementation of the WC/WDM Strategy and measures.</li> <li>Increase allocation from the Palmiet River, when required.</li> <li><b>Regional scheme with Overberg Water for possible bulk supply from the Theewaterskloof Dam.</b></li> </ul>
Hermanus	<p><b>Hermanus will experience a shortfall by 2030 in water supply under all growth scenarios. This will increase to 2.874 million m<sup>3</sup>/a by 2040 under the low-growth scenario and to 8.632 million m<sup>3</sup>/a under the high-growth scenario. The following sources are identified as potential sources to augment the water supply in the future if required (In order of priority and implementation sequence):</b></p> <ul style="list-style-type: none"> <li>Full implementation of the WC/WDM Strategy and measures.</li> <li><b>Develop groundwater to its full potential (Licenced volumes).</b></li> <li><b>Desalination of seawater.</b></li> <li><b>Regional scheme with Overberg Water for possible bulk supply from the Theewaterskloof Dam or the Palmiet River.</b></li> <li>Direct and indirect potable water re-use.</li> </ul>
Stanford	<p><b>The current water sources have adequate supply to cater for the medium and longer term future water requirements, if the Municipality continues with the full implementation of their WC/WDM Strategy. The following sources are identified as potential sources to augment the water supply in the future (In order of priority and implementation sequence):</b></p> <ul style="list-style-type: none"> <li>Continue with the implementation of the WC/WDM Strategy and measures.</li> <li>Further Kouevlakte Wellfield development, if required.</li> </ul>
Greater Gansbaai	<p><b>The current water sources have adequate supply to cater for the medium and longer term future water requirements. The Kraaibosch Dam will provide for Gansbaai until 2030. The following sources are identified as potential sources to augment the water supply in the future if required (In order of priority and implementation sequence):</b></p> <ul style="list-style-type: none"> <li>Continue with the implementation of the WC/WDM Strategy and measures.</li> <li>Groundwater development in the TMG Aquifer.</li> <li>Re-use of water</li> </ul>
Pearly Beach	<p><b>The current water sources have adequate supply to cater for the medium and longer term future water requirements up to 2030. The following sources are identified as potential sources to augment the water supply in the future if required (In order of priority and implementation sequence):</b></p> <ul style="list-style-type: none"> <li>Continue with the full implementation of the WC/WDM Strategy and measures.</li> <li>Groundwater development, if required. <b>Exploration in progress.</b></li> </ul>
Baardskeerdersbos	<p><b>The current water sources have adequate supply to cater for the medium and longer term future water requirements. If the town may require alternative water resource options in the future, the following sources were identified as potential sources to augment future water requirements (In order of priority and implementation sequence):</b></p> <ul style="list-style-type: none"> <li>Continue with the full implementation of the WC/WDM Strategy and measures.</li> <li>Further groundwater development, if required.</li> </ul>

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Table C.6.4: Potential Future Water Resources for the Various Towns (Summary of DWS's All Towns Reconciliation Strategies)	
Distribution System	Recommended Summary Options
Buffeljags Bay	<p>The current water sources have adequate supply to cater for the medium and longer term future water requirements. If the town may require alternative water resource options in the future, the following sources are identified as potential sources to augment future requirements (In order of priority and implementation sequence):</p> <ul style="list-style-type: none"> <li>Continue with the full implementation of the WC/WDM Strategy and measures.</li> <li>Further groundwater development, if required.</li> </ul>

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

**Greater Hermanus Area:** The Gateway, Camphill and Volmoed wellfields were developed by Overstrand Municipality as additional groundwater resources for the greater Hermanus Area. These boreholes are in production and the Municipality is maintaining their Groundwater Monitoring Programmes for all their wellfields, in order to comply with the License conditions. The License for the next phase of the Camphill and Volmoed wellfields was also received from the DWS. Environmental authorization was issued by DEADP for the augmentation of the Hemel & Aarde (Camphill and Volmoed well fields) boreholes.

A Scoping Report was also completed during August 2018 for the "Augmentation of potable water supplies to Hermanus". The report discusses various potable water augmentation schemes for the provision of 3 Ml/d of potable water to Hermanus. The following augmentation schemes were considered:

- Seawater reverse osmosis.
- Desalination-based direct reuse scheme.
- Non-desalination based direct reuse scheme.
- Remix scheme.
- Palmiet River abstraction and transfer scheme.
- Aquifer recharge.

In considering various potable water augmentation schemes for Hermanus, the following conclusions were made:

- Managed aquifer recharge does not seem to be a viable water augmentation solution for Hermanus as the process required to render the reclaimed wastewater suitable for aquifer recharge will be very similar to that of a direct potable water reuse scheme. This makes the option particularly unattractive due to the relatively high treatment costs which would be further compounded by the additional cost of abstracting the water and treating for consumption at a later date. On this basis, it will be better to rather implement a direct potable water reuse scheme before aquifer recharge is considered. In addition, the shallow water levels of the porous media aquifer in the area indicate that the aquifer will be unable to accept the required yield and there is a risk of flooding due to the limited available volume of unsaturated sands;
- The basis of financially ranking the various treatment options will be the cost of delivering a unit volume of treated water. Based on this criterion, abstraction of water from the Palmiet River seems to be most feasible option with a treated water delivery cost of R9.61/m<sup>3</sup> and a capital cost of ~R99,5 million. Included in the treated water delivery cost is the cost of treatment at Preekstoel WTW, which was estimated at R2.50/m<sup>3</sup>. Of particular concern to the implementation of such a scheme is the reliability of this water source as the Palmiet river flow is too low during the summer months to accommodate the required 3.6 Ml/d of abstracted water, and during drought periods it can result in a lack of water security. In addition to the possibility of inadequate water supply, the pipeline route from the abstraction point to the De Bos dam covers extremely sensitive environmental areas and the need to route the pipeline through the coastal town of Kleinmond. Environmental & public approval for construction of such a pipeline may well be a stumbling block for implementation of this option. In addition, a new Water Use License Application (WULA) may well also be required for this option, while it will trigger a need for environmental authorisation from the Department of Environmental Affairs and Development Planning (DEADP). The latter will be difficult to obtain;

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- Seawater desalination is the second most feasible solution with a treated water delivery cost of R16.10/m<sup>3</sup> and a capital cost of ~R88.5 million. However, there is an additional surcharge cost that Abagold may charge for using their facilities (seawater intake and brine discharge infrastructure), which is unknown at this moment. This cost may be charged per volume of abstracted water or as a flat cost, but this is still to be determined. Therefore, Overstrand Municipality will have to discuss this with Abagold and come to an agreement. Once this cost is determined, it will have to be added to the R16.10/m<sup>3</sup> operating cost figure of the seawater desalination process to determine the real cost of this scheme. From an environmental perspective, this option will require an amendment to Abagold's Coastal Water Discharge Permit (CWDP) for brine disposal, while it will trigger a need for environmental authorisation from the Department of Environmental Affairs and Development Planning (DEADP);
- The non-desalination-based reuse scheme has a capital cost of ~R122.5 million and an operating cost of R19.45/m<sup>3</sup>. This cost could however be reduced if the reclaimed water is not pumped to the Preekstoel WTW for re-treatment via the Preekstoel WTW but rather introduced directly into the reticulation system via the Hermanus Reservoirs 1 & 2, similar to the desalination-based re-use scheme. If so, the capital cost would reduce to ~R118.5 million with an operational cost of R16.35/m<sup>3</sup>. This could make it the most feasible scheme after the Palmiet River abstraction option. From a water quality perspective, the treated water from the non-desalination-based reuse scheme will comply with potable water standards, but the salinity will be on the high side. For this reason, blending with an alternative low salinity water source is recommended. Provided that the public perception of the potential risks associated with the elimination of a RO plant barrier as part of the treatment process can be addressed, the water does not require additional treatment and can be directly introduced into the reticulation system. The option of feeding the water to the Preekstoel WTW was made based on the fact that part of the pipeline was already constructed and further knowing that the additional barriers at Preekstoel WTW will give further comfort to the negative stigma of water reuse. From an environmental perspective, the reuse scheme options will require an amendment to Overstrand's Coastal Water Discharge Permit (CWDP), while it will trigger the need for environmental authorisation from the Department of Environmental Affairs and Development Planning (DEADP);
- The desalination-based reuse scheme requires a capital investment of ~R151 million and an operating cost of R21.53/m<sup>3</sup>. The operational cost would increase with ~R3.00/m<sup>3</sup> to R24.53/m<sup>3</sup> if the water cannot be introduced into the Hermanus reservoirs 1 & 2 but is pumped to the Preekstoel WTW for introduction into the balancing reservoir at Preekstoel. From an environmental perspective, the desalination-based reuse scheme option will require an amendment to Overstrand's Coastal Water Discharge Permit (CWDP), while it will trigger a need for environmental authorisation from the Department of Environmental Affairs and Development Planning (DEADP);
- Despite having a slightly lower capital cost (~R147 million) than the desalination-based reuse scheme, the Remix scheme is the most expensive scheme to operate at R21.77/m<sup>3</sup>. The operational cost would increase further with ~R3.00/m<sup>3</sup> to R24.77/m<sup>3</sup> if the treated water is not introduced into the Hermanus reservoirs 1 & 2 but rather pumped to the Preekstoel WTW for introduction into the balancing reservoir at Preekstoel. From an environmental perspective, the remix scheme option will require an amendment to Overstrand's Coastal Water Discharge Permit (CWDP), while it will trigger a need for environmental authorisation from the Department of Environmental Affairs and Development Planning (DEADP);
- The Hermanus wastewater treatment plant site assessment has identified the need for maintenance activities on certain components of the wastewater treatment plant. When considering a reuse scheme, the need to undertake maintenance on the wastewater treatment plant that feeds the reuse plant should also be considered as part of the capital outlay for a reuse scheme as the latter would rely on a stable source water supply. The site assessment undertaken by Zutari has identified the need to spend at least ~R17 million on maintenance activities. Whilst one can argue that maintenance on the wastewater treatment plant would be required in any event, it would not be that critical if the wastewater is discharged to sea. A reuse plant on the other hand relies on a stable quality water and without a proper functioning wastewater treatment plant, it would not be an option to consider.

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- It was recommended that a further investigation is undertaken to explore the feasibility of utilising renewable energy as a potential energy source to support a seawater desalination plant. This would be the only way to reduce the operation cost of a SWRO plant. Some of the available renewable energy technologies have already been tested in Hermanus and although there is not excess energy available for the desalination or reuse plants from these sources, it is worth looking into it as a potential source (or partial source). There has also been significant technology development in harvesting wave energy and if such a system can be installed, SWRO may well just prove to be a very cost-effective solution for Hermanus;
- Overstrand Municipality completed a separate seawater sampling program over a 12-month period to confirm the design parameters for a SWRO plant.

The following additional work was completed during October 2019, after the completion of the previously mentioned “Augmentation of potable water supplies to Hermanus” Scoping Report.

- Sea water quality tests.
- Renewable energy options.
- Electricity cost sensitivity analysis.
- Contracting modes.
- Recommended water price plan.
- Suitability of earmarked SWRO site.

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

Greater Gansbaai: A Reverse Osmosis Filtration Plant was constructed during the 2010/2011 financial year in order to fully utilise the Klippgat and Grotte resources and improve the quality of the water. Resource augmentation options will be investigated in the future in order to meet the medium- and long-term future water requirements for the greater Gansbaai area.

Pearly Beach: Overstrand Municipality is committed to manage the two dams as efficiently as possible, but it became challenging over the last few years mainly due to changes in raw water quality. Other future resource options include groundwater development and the possible Kraaibosch scheme.

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

Buffeljags Bay: The current supply from the borehole is adequate to supply the medium- and long-term future water requirements of Buffeljags Bay.

**Existing Lawful Use**: Volumes are registered on the DWS’s WARMS for the various resources. A registered water use however does not guarantee that the water use is accurate or lawful. Validation and verification of the accuracy and lawfulness of the water use is needed to qualify as an Existing Lawful Use. **It is important for the municipality to confirm the correct registration volumes and existing lawful use volumes for all their sources. This information, with the safe yields of the surface and groundwater sources, is critical to accurately determine which sources need to be augmented for the different schemes. Overstrand Municipality further needs to continue to ensure that all the individual sources are metered and that the abstraction volumes are recorded on at least a monthly basis.**

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**Water Quality:** The operational water sampling programmes of Overstrand Municipality complies with the minimum monitoring requirements of the SANS 241-2:2015 (Table 1: Minimum monitoring for prescribed process risk indicators) for the various WTWs and distribution systems, as summarised below.

Table C.6.5: Minimum Monitoring Frequency for Process Risk Indicators (SANS241-2:2015: Table 1)			
Determinand	Raw Water	Final Water	Distribution System
Conductivity or total dissolved solids	Daily	Daily	Not applicable
pH value	Daily	Once per shift <sup>a</sup>	Fortnightly
Turbidity	Daily	Once per shift <sup>a</sup>	Fortnightly
Disinfectant residuals	Not applicable	Once per shift <sup>a</sup>	Fortnightly
E.Coli (or faecal coliforms) <sup>b</sup>	Not applicable	Weekly	Fortnightly but dependent on population served <sup>d</sup>
Heterotrophic plate count <sup>c</sup>	Not applicable	Weekly	Fortnightly
Treatment chemicals <sup>d</sup>	Not applicable	Monthly	Not applicable
a: A shift is defined as an eight-hour work period.			
b: If non-compliant with the numerical limits specified in SANS 241-1, implement corrective action and immediate follow-up sampling at an increased sampling frequency.			
c: If non-compliant with the numerical limits specified in SANS 241-1, implement corrective action and follow-up sampling.			
d: Includes all risk determinands that are added or formed as a result of the use of treatment chemicals (for example aluminium, iron and chlorine). If non-compliant with the numerical limits specified in SANS 241-1 in the final water, the distribution system monitoring frequencies of Table 3 in SANS241-2:2015 apply.			

Comprehensive Compliance Sampling Programmes are also implemented for all the WTWs and water distribution systems.

**Effluent Quality:** Comprehensive Operational and Compliance Sampling programmes of the wastewater at the WWTWs are implemented by Overstrand Municipality. The Compliance Monitoring Programme includes the monthly sampling of the final effluent at the various WWTWs and analyses of all the main quality criteria. Results of the samples taken are loaded onto DWS's IRIS system. Monthly monitoring and inspection reports are also compiled by the external Service Provider for all the WWTWs. The Municipality and the Contractor appointed for the Water and Wastewater Bulk Works Contract takes immediate action to rectify problems and / or improve operational aspects as and when may be required. For serious failures, an Incident Response Management Protocol is followed to ensure rapid remedying of the problems, which includes notification to the DWS as may be necessary.

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

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

Overstrand Municipality needs to adopt an approach whereby the various parameters at all the industrial consumers are monitored, as well as volumetric monitoring at the larger users. Adaptation of procedures must be undertaken in accordance with any changes to the wastewater discharge criteria set by DWS. It will also be necessary to consider limits above which volumetric monitoring will be necessary at new industries and existing smaller industries, where expansion is likely to take place.

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

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### TOPIC 7: FINANCIAL

The 2023/2024 IDP list the following key long term financial considerations to be considered by Overstrand Municipality in order to remain financially sound.

- Overstrand LM has incurred a second consecutive operating deficit (excluding capital grants), but profitability is expected to recover as the Covid-19 pandemic dissipates and the global response to international events stabilises.
- Notwithstanding the impact of the Covid-19 pandemic and economic volatility due to other international events such as the Russian invasion of Ukraine and tensions between global superpowers, a strong liquidity ratio of 2.57 was achieved in FY2022, suggesting that the municipality will be able to service its liabilities as and when it becomes due.
- Strong consumer debtors' aging profile and a high consumer debtors' collection rate in FY2022. This is partly due to the relief measures applied during the height of pandemic lockdowns and some lasting effects thereof, but also reflects the strong collection efforts implemented by management.
- The cash generated by operations increased and was at similar levels to those observed between 2018 and 2019. As expected, debtors older than 90+ days increased as a percentage of total consumer debtors, though this should normalise as the residents and the municipality adjust to the setbacks that have been observed. The provision for bad debts decreased and were insufficient to cover all debtors older than 90+ days.
- Higher reliance on cash and reserves in the capital funding mix.
- Reasonably low level of grant dependency, supported by the municipality's ability to generate cash from operations.
- The Covid-19 pandemic had substantial detrimental effects, that are still being recovered from, on many municipalities and sectors of the economy. Many businesses were forced to close down and lay off employees. Much of which had an impact on municipalities, as the affected persons were subsequently unable to pay for municipal services and still are.
- Overstrand is in the fortunate position of having sufficient reserves and was able to absorb much of the pressure exerted by the continued fallout of the pandemic.
- In addition, the ongoing exorbitant increases in bulk electricity tariffs from ESKOM create additional pressure on tariff policies of municipalities with ever increasing spells of loadshedding driving consumers to alternative sources of electricity provision.
- To maintain gross surplus margins on electricity municipalities often pass on these increases to consumers to the extent possible. In tariff determination, however, the household bill (or full cost of the basket of municipal services) and households' ability to pay is considered, which lead to lower increases in other tariffs. This skews the tariff structure and makes it difficult to apply the principle of cost-reflective tariffs.
- Notwithstanding the addition of 625 households(1.9% household formation) in 2021, the Infrastructure Index remained high at 0.90, on par with both the province (0.90) and the district (0.90). This suggests that, on average, 90% of households receive the basic level of service with regards to all municipal services and housing.
- The household formation over the last ten years was 20.2% which indicate the longer-term trend of urbanisation, which adds additional pressure on the municipality to deliver municipal services.
- By comparing backlogs of sanitation, water, electricity and refuse removal in urban as well as non-urban areas, Overstrand municipality performed better with regards to all four services than the average of all the municipalities in the Overberg district. Overstrand also outperformed the average across the province in three of the infrastructure categories. Electricity services could still improve compared to the provincial average. Based on these averages, service provision in Overstrand compares very well with other municipalities in the province.

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- A comparison of the Average Household Bill for the Middle Income- and Affordable Range of a selected number of municipalities in the WC (extracted from Budget Table SA14 as posted on the National Treasury local government database or the municipalities' websites), based on the 2022/23 tariffs, implies that Overstrand's household bill is currently toward the lower end of the scale when compared to its peers. Although this might imply that there is scope to increase tariffs, the effect on the entire household bill of the residents should be considered, especially in light of the appetite that exists to absorb such increases.
- Considering the high percentage of lower income households in the area, the household bill may become unaffordable to households and the rate of increases in tariffs need to be considered carefully.
- The municipality's indigent benefit for qualifying households offers one of the highest household income levels as criteria. Indigent consumers also receive 10 kl of water, 7 kl of sewerage and 50 units of electricity free per month.

A Long Term Financial Plan is in place for Overstrand Municipality, which is updated annually since 2015 with the latest financial information. The independent financial assessment list the following strengths and weaknesses (2023/2024 IDP).

### Strengths:

- Overstrand Municipality has a proven ability to generate cash from operations despite experiencing total operating deficits (Excl. capital grants) in recent years.
- A high liquidity ratio of 2.57 in 2022, supported by a high cash and cash equivalents balance, suggesting that the municipality will be able to service its liabilities as and when it becomes due. The liquidity ratio has improved from the previous year and is supported by historically strong liquidity management.
- Strong Consumer Debtors aging profile and a high Consumer Debtors Collection Rate, as well as historically prudent financial management, helped the municipality maintain a healthy financial position despite the serious detrimental effects that the Covid-19 pandemic has had.
- Low level of grant dependency.
- Sufficient cash coverage for minimum liquidity requirements as well as three months' operating expenditure.
- Expenditure on repairs and maintenance on capital assets as a percentage of Property, Plant & Equipment as well as Investment property improved.

### Weaknesses:

- Continued influx of lower income households.

The table below gives an overview of the Financial Strategies of Overstrand Municipality to ensure sound financial management over the medium to long term (2023/2024 IDP).

Table C.7.1: Financial Strategies	
Strategy	Status of the Strategy
Revenue Raising Strategies	<p>The Municipality's revenue streams will be maximised:</p> <ul style="list-style-type: none"> <li>• Assessment rates;</li> <li>• Revenue from trading services;</li> <li>• Agency fees and fines;</li> <li>• Sundry revenue e.g. property management and other revenue;</li> <li>• Grants;</li> <li>• Donor funding from international agencies;</li> <li>• Public Private Partnership; and</li> <li>• Applying strict credit control measures.</li> </ul>
Asset Management Strategies	<ul style="list-style-type: none"> <li>• Asset conservation and supply of basic services as a constitutional obligation.</li> </ul>

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Table C.7.1: Financial Strategies	
Strategy	Status of the Strategy
	<ul style="list-style-type: none"> <li>Ensure that assets are properly accounted for and safeguarded, as averaging on the municipal assets will drive the economic growth and development of the Municipality.</li> </ul>
Financial Management Strategies	<ul style="list-style-type: none"> <li>Compliance with GRAP standards;</li> <li>Prepare annual financial statements timeously;</li> <li>Compliance with the municipal Standard Chart of Accounts;</li> <li>Maintain an effective financial management system, to ensure proper reporting;</li> <li>Sustainable multi-year forecasts.</li> </ul>
Capital Financing Strategies	<p>Municipal infrastructure has a long term economic life and the general principle will be applied that future users of infrastructure should contribute towards the payment for capital expenditure by servicing the loans taken up to provide adequate infrastructure as required.</p> <ul style="list-style-type: none"> <li>Overstrand will maintain its process of utilizing the following main sources of financing to fund CAPEX, e.g. Grants, External Borrowing and Internal Revenue generated.</li> <li>Bulk infrastructure contributions as might be available, to fund applicable capital projects.</li> </ul>
Operational Financing Strategies	<ul style="list-style-type: none"> <li>Business planning links back to priority needs and master planning, and informs the detail operating budget appropriations.</li> <li>Consideration of the economic realities and the subsequent prioritisation criteria for compilation of the Operational budget.</li> <li>Requirement of Top Management to discuss budget proposals and affordability.</li> </ul>
Strategies that would enhance cost effectiveness	<ul style="list-style-type: none"> <li>Further operational efficiencies to be identified.</li> <li>Reduction in non-core expenditure and consideration of reviewing service levels standards.</li> </ul>

**Overstrand Municipality's KPA 3 is "Optimizing Financial Resources" and the Strategy is "Effective Financial Management"**. The draft 2022/2023 Annual Report indicated that the Municipality has already implemented the following financial management reforms to ensure that resources are used efficiently.

- Efficient costing of services and projects by identifying and managing the cost drivers, inclusive of a sustained focus on cost containment, also in view of the promulgation of the Municipal Cost Containment Regulations on 7 June 2019 by the Minister of Finance, in concurrence with the Minister of Cooperative Governance and Traditional Affairs, in an attempt to "ensure that resources of a municipality and municipal entity are used effectively, efficiently and economically".
- Active use of forecasts and projections to manage cash flow efficiently.
- Active monitoring of income and expenditure against pre-determined budget targets/projections.
- Set financial benchmarks and monitor performance against them.
- Development of a feasible capital funding strategy.
- Development of a feasible cash and investment strategy.
- Exploring additional funding sources.

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### Expenditure:

**Operational:** The future planned expenditure by type for Overstrand Municipality, as included in the approved 2023/2024 Budget, is as follows.

Expenditure Items	% of total 2022/2023 Expenditure	2022/2023 Full Year Forecast	2023/2024 Budget	2024/2025 Budget	2025/2026 Budget
Employee related costs	31.45%	R505 935 000	R537 911 000	R549 447 000	R577 299 000
Remuneration of Councillors	0.77%	R12 335 000	R12 514 000	R13 014 000	R13 540 000
Bulk purchases - Electricity	23.10%	R371 533 000	R429 805 000	R484 562 000	R533 019 000
Inventory consumed	3.95%	R63 584 000	R62 499 000	R68 235 000	R66 340 000
Debt Impairment	1.22%	R19 617 000	R19 414 000	R19 608 000	R19 804 000
Depreciation and Asset Impairment	9.11%	R146 596 000	R149 154 000	R151 672 000	R154 226 000
Interest	2.99%	R48 056 000	R49 658 000	R51 817 000	R49 865 000
Contracted Services	16.85%	R270 967 000	R300 624 000	R323 452 000	R341 534 000
Transfers and Grants	0.92%	R14 786 000	R16 380 000	R17 143 000	R17 944 000
Operational costs	9.64%	R155 038 000	R164 252 000	R164 418 000	R144 263 000
<b>Total</b>	<b>100.00%</b>	<b>R1 608 448 000</b>	<b>R1 742 212 000</b>	<b>R1 843 369 000</b>	<b>R1 917 834 000</b>

Source: Medium Term Revenue and Expenditure Framework for Overstrand 2023/2024: Table A4 – Budgeted Financial Performance (Revenue and Expenditure)

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

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

It is important to note that the maintenance budget requirements are going to increase substantially over the next twenty years in real terms, in line with the envisaged pace of development and the upgrading of the treatment works that were completed over the last number of years. It is estimated that the budget requirements will double over this period.

The recommendations for Overstrand Municipality, with regard to their Operational Budgets, are as follows:

- Continue with the implementation of the Asset Maintenance Plan, 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. Current gaps include unrealistically low depreciation charges, which have to be rectified and ring-fenced into an asset replacement fund, as well as additional budget requirements above inflation for infrastructure development.
- The new depreciation charges will have to form part of the operating budget and subsequent tariffs, linked to a ring-fenced asset replacement fund.
- It is critical for Overstrand Municipality to ensure that sufficient funding is allocated towards an asset replacement fund, in order to ensure adequate rehabilitation and maintenance of the existing infrastructure.
- Water services operational surpluses have to be allocated to essential water services requirements in the future.

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- Overstrand Municipality needs to ensure that the Credit Control and Debt Collection By-laws are strictly enforced.

**Capital:** The future estimated capital expenditure per functional classification are summarised in the table below.

Capital Expenditure Standard	2022/2023 Full Year Forecast	2023/2024 Budget	2024/2025 Budget	2025/2026 Budget
Executive and Council	R5 000	R5 005 000	-	-
Finance and Administration	R1 870 000	R4 070 000	-	-
Internal Audit	-	-	-	-
Community and Social Services	R4 781 000	R1 330 000	-	-
Sport and Recreation	R3 047 000	R5 041 000	R11 704 000	R16 241 000
Public Safety	R6 042 000	R900 000	-	-
Housing	R44 311 000	R41 890 000	R30 090 000	R63 220 000
Health	-	-	-	-
Planning and Development	R1 844 000	R1 108 000	-	-
Road Transport	R16 824 000	R4 640 000	-	R2 981 000
Environmental Protection	-	-	-	-
Energy Sources	R58 907 000	R59 526 000	R33 500 000	R34 000 000
Water Management	R35 789 000	R25 963 000	R35 510 000	R25 700 000
Wastewater Management	R32 921 000	R59 445 000	R19 521 000	R17 800 000
Waste Management	R5 876 000	R490 000	-	R4 500 000
<b>Total Capital Expenditure Functional</b>	<b>R212 216 000</b>	<b>R209 409 000</b>	<b>R130 325 000</b>	<b>R164 442 000</b>

Source: Medium Term Revenue and Expenditure Framework for Overstrand 2023/2024: Table A5 - Capital Expenditure by Vote, Functional Classification and Funding Source

The Water and Sewer Master Plans (June 2021) for the various towns in Overstrand Municipality's Management Area recommends upgrades to the water and sewer networks to the value of R458.698 million and R1 003.424 million respectively in the foreseeable future in order to accommodate development and population growth according to the SDF. Most of the capital projects for water and sewerage are currently funded through the Municipality's own budget.

The CRC of the water and sewerage infrastructure that will need to be replaced over the next five years (RUL <5 yrs) is R674.743 million. The asset renewal needs for the water infrastructure assets over the next ten years is R65.436 million per year. The reinvestment required is R602.700 million in the first five years and R51.664 million in the second five-year period. The age of 56.9% of the water infrastructure assets is greater than twenty years. The CRC of the water infrastructure with a condition grading of "Very Poor" is R380.493 million. The asset renewal needs for the sewerage infrastructure assets over the next ten years is R17.435 million per year. The reinvestment required is R72.044 million in the first five years and R102.306 million in the second five-year period. The age of 65.4% of the sewerage infrastructure assets is greater than twenty years. The CRC of the sewerage infrastructure with a condition grading of "Very Poor" is R18.125 million.

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

The recommendations for Overstrand Municipality, with regard to their Capital Funding, are as follows:

- Take the recommended projects, as identified through the Water and Sewer Master Plans and the WSDP, into account during the planning and prioritization process for new infrastructure. Prioritize from the desired list, those items which can be implemented from available funding in the particular financial year.
- Undertake revised master planning at least every three to five years and to use the Master Plans to list the desired infrastructure development requirements and reflect these in the IDP.

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- Assign a high priority to the implementation of the WC/WDM Strategy in order to postpone additional capital investment for as long as possible, both from the water availability perspective as well as from the treatment of increased effluent volumes. The costs of physical water loss, the capital requirements for new water resources infrastructure, and the constraints of poor water availability on water dependent economic growth means that WC/WDM is a critical management priority for stretching the financial resources of the Municipality. WC/WDM is almost always a more cost-effective solution than the implementation of new infrastructure, and no new infrastructure should be developed until unauthorized water has been reduced to manageable volumes.
- To adopt appropriate technology solutions for the water and sewerage infrastructure challenges. Techniques such as value engineering should also be adopted to ensure that investments in infrastructure and other solutions are cost effective over the full life-cycle and designed to be fit for purpose.
- To ensure adequate funding for the full lifecycle cost of the new water and sewerage infrastructure, which will include funds for the operation and maintenance of the infrastructure and regular refurbishment.
- Balance land-use and development planning (SDFs) in accordance with the availability of water and the capacity of WTWs and WWTWs that are in place or that will be implemented.
- To focus strongly on revenue collection, in order to improve the Municipality's own funding sources, over and above the Grants received from National and Provincial Government. The Municipality also needs to actively implement their Customer Care, Credit Control and Debt Collection Policy in order to minimize the percentage of non-payment for municipal services.
- To identify all possible sources of external funding over the next three years to assist Overstrand Municipality to address the bulk infrastructure backlogs that exist in the various towns as indicated in the tables under Topic 3.
- Continue with the implementation of the Asset Maintenance Plan for all the water and sewerage infrastructure, which indicates the real replacement values, the service life of the assets and the funds required to provide for adequate asset replacement. The renewals burden is set to increase sharply over the next 20 years and it is therefore important for Overstrand Municipality to commit to a substantial and sustained programme of capital renewal works.

### Income:

Operational: The future planned revenue sources for Overstrand Municipality, as included in the approved 2023/2024 Budget, is as follows.

Table C.7.4: Revenue Items by Source, as Included in the 2023/2024 Budget				
Revenue Item	2022/2023 Full Year Forecast	2023/2024 Budget	2024/2025 Budget	2025/2026 Budget
Service Charges - Electricity	R528 044 000	R577 969 000	R638 802 000	R693 798 000
Service Charges - Water	R138 138 000	R147 269 000	R156 593 000	R166 263 000
Service Charges – Waste Water Man.	R90 962 000	R104 715 000	R111 237 000	R117 912 000
Service Charges – Waste Man.	R78 850 000	R85 430 000	R90 563 000	R95 995 000
Sale of Goods & Rendering of Services	R116 250 000	R131 673 000	R112 040 000	R119 146 000
Agency Services	R7 858 000	R8 319 000	R8 818 000	R9 346 000
Interest	-	-	-	-
Interest earned from receivables	R3 136 000	R6 400 000	R6 700 000	R7 100 000
Interest earned from current and non current assets	R34 671 000	R41 800 000	R44 600 000	R47 700 000
Rent on land	R1 229 000	R1 127 000	R1 149 000	R1 173 000
Rental from fixed assets	R4 573 000	R5 646 000	R5 975 000	R6 290 000
Licences and Permits	R953 000	R964 000	R1 016 000	R1 071 000
Operational revenue	R7 819 000	R8 242 000	R8 556 000	R8 867 000
Property Rates	R287 941 000	R340 506 000	R357 532 000	R375 408 000
Surcharges and taxes	-	-	-	-

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Revenue Item	2022/2023 Full Year Forecast	2023/2024 Budget	2024/2025 Budget	2025/2026 Budget
Fines, penalties and forfeits	R20 344 000	R20 421 000	R21 687 000	R23 013 000
Licences and Permits	R1 683 000	R1 943 000	R2 060 000	R2 184 000
Transfers and subsidies – Operational	R177 496 000	R184 953 000	R200 916 000	R213 137 000
Interest	R846 000	R1 300 000	R1 378 000	R1 461 000
Other gains	R8 225 000	R7 900 000	R8 000 000	R8 100 000
<b>Total</b>	<b>R1 509 017 000</b>	<b>R1 676 577 000</b>	<b>R1 777 621 000</b>	<b>R1 897 966 000</b>

Source: Medium Term Revenue and Expenditure Framework for Overstrand 2023/2024: Table A4 – Budgeted Financial Performance (Revenue and Expenditure)

**Capital:** Capital funding will have to increase substantially if existing service levels are to be sustained, which has to be the goal. In this regard Overstrand Municipality's own funding, as well as the grant funding must significantly exceed inflation. Other possible sources of funding and innovative funding mechanisms have to be explored.

It is important for Overstrand Municipality to manage their charges for water and sanitation services and the control of consumer payments effectively, in order to ensure that adequate income is generated to fund their water and sewerage capital projects.

The future funding sources of Overstrand Municipality's total capital budget are summarised in the table below.

Capital Funding Source	2022/2023 Full Year Forecast	2023/2024 Budget	2024/2025 Budget	2025/2026 Budget
National Government	R81 741 000	R54 293 000	R40 235 000	R41 222 000
Provincial Government	R5 400 000	-	-	-
District Municipality	-	-	-	-
Transfers and Subsidies	R56 853 000	R41 890 000	R30 090 000	R63 220 000
Public contributions and Donations	-	-	-	-
Borrowing	R38 411 000	R95 214 000	R60 000 000	R60 000 000
Internally generated funds	R29 811 000	R18 013 000	-	-
<b>Total Capital Funding</b>	<b>R212 216 000</b>	<b>R209 409 000</b>	<b>R130 325 000</b>	<b>R164 442 000</b>

Source: Medium Term Revenue and Expenditure Framework for Overstrand 2023/2024: Table A5 - Capital Expenditure by Vote, Standard Classification and Funding

**Tariff and Charges:** The state of the economy, due to the Corona Virus pandemic, has an adverse effect on the consumers and their ability to pay for services. As a result municipalities' revenues and cash flows are expected to remain under pressure. Furthermore municipalities should carefully consider affordability of tariff increases, especially as it relates to domestic consumers while considering the level of services versus the associated cost. Water tariffs should always be cost reflective and the water tariff structure must therefore ensure that:

- Water tariffs are fully cost-reflective, including the cost of maintenance and renewal of purification plants, water networks and the cost associated with reticulation expansion;
- Water tariffs are structured to protect basic levels of service and ensure the provision of free water to the poorest of the poor (indigent); and
- Water tariffs are designed to encourage efficient and sustainable consumption.

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

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The table below gives some comments on the specific blocks, with regard to Overstrand Municipality’s residential block step tariff structure, for the various years for water services.

Block (kl/month)	2019/2020	2020/2021	2021/2022	2022/2023	Comments
0 - 6	R5-60	R5-85	R6-08	R6-38	Free Basic Water
7 - 15	R11-47	R11-99	R12-47	R13-08	Low volume use
16 - 18					Typical use volume, including garden irrigation
19 - 30	R18-61	R19-45	R20-23	R21-22	Above average use, including garden irrigation
31 - 45	R28-66	R29-95	R31-15	R32-68	Wasteful use and/or severe garden irrigation
46 - 60	R37-22	R38-89	R40-45	R42-43	Significant waste and/or unnecessary garden irrigation
61 - 70	R49-64	R51-87	R53-94	R56-58	
> 70					

Overstrand Municipality will continue with their stepped block tariff system for water supply services. Wasteful or inefficient use of water is discouraged through increased tariffs. Overstrand Municipality also started in 2010/2011 with the implementation of volumetric sewerage tariffs.

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

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

The MFMA Circular No.78 of 7 December 2015 stipulated the following with regard to the water and sanitation tariff increases:

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

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

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

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The recommendations for the water and sewerage tariffs of Overstrand Municipality are as follows:

- Overstrand Municipality will continue to re-evaluate the tariffs they charge for their water and sanitation services on an annual basis in order to put the Municipality in a better financial position and to ensure that all the O&M expenditure for water and sanitation services are always recovered through their water and sanitation services income, to address the bulk infrastructure backlogs and to ensure the adequate rehabilitation and maintenance of all existing water and sewerage infrastructure within the various towns.
- The large commercial and industrial consumers could lower their current water demand by means of improved practices or re-use of wastewater. Overstrand Municipality should note that revenue could potentially decrease as a result of reuse practices.
- Overstrand Municipality needs to start with the monitoring of the volume and nutrient loading of all industrial effluent discharged by industrial consumers into the sewer system. A formula for the calculation of the extraordinary treatment cost to industrial consumers for the industrial effluent they discharge into Overstrand Municipality's sewer system needs to be put in place to form part of the existing tariff structure. The performance of WWTWs in general can be severely compromised by certain industrial effluent discharges. It is therefore also important for Overstrand Municipality to recalculate their treatment costs annually, in order to ensure that there is no under or over recovery of costs from industrial consumers.

Regular sampling of the quality of industrial effluent discharged into the sewer system needs to be done and all industrial consumers need to be charged according to the quality of the effluent discharged into the Municipality's sewer system.

- The current water tariff codes adequately differentiate between the different types of consumers and their water usage.

### TOPIC 8: WATER SERVICES INSTITUTIONAL ARRANGEMENTS AND CUSTOMER SERVICES

Sections 12 and 13 of the Water Services Act (Act No 108 of 1997) place a duty on WSAs to prepare and maintain a WSDP, as part of the process of preparing an IDP. The DWS has developed a new WSDP website to assist WSAs with the WSDP process and to provide a framework for the capturing of the data. The WSDP of Overstrand Municipality needs to be updated regularly.

The Municipality will also continue to report annually and in a public way on progress in implementing the plan (WSDP Performance- and Water Services Audit Report), as part of Overstrand Municipality's Annual Report, as required in terms of Section 18 of the Water Services Act, 1997 (Act No.108 of 1997), as well as the "Regulations relating to compulsory national standards and measures to conserve water", as issued in terms of Sections 9(1) and 73(1)(j) of the Water Services Act.

The Water Safety Plans for the various WTWs and water distribution systems and the W<sub>2</sub>RAPs for the WWTWs and drainage networks need to be updated regularly. The WTW and WWTW Process Audits also needs to be updated regularly.

The 2021 Water and Sewer Master Plans of Overstrand Municipality summarise the projects (Master Plan Items) necessary in order to cope with the increased future demands and developments within the Overstrand Municipality's systems. The Water and Sewer Master Plans need to be updated regularly.

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

Overstrand Municipality will continue with their mentoring role for operational personnel ensuring an adequately trained and DWS classified workforce with dedicated training programmes for supervisors and operational personnel. A Work Place Skills Plan for 2023/2024 is in place, which lists the training to be provided during the current financial year.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

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The effective management and monitoring of Veolia Services Southern Africa (Pty) Ltd, who was appointed for the Water and Wastewater Bulk Contract, is a very important factor that will determine the ability of Overstrand Municipality to sustainably deliver safe and reliable water and to treat the effluent at the WWTWs to an acceptable standard. Monitoring the Contractor's compliance with the KPIs related to treatment processes and quality monitoring and control is essential because the Contractor's actions (or failure to act) will have a major impact on the well-being of the communities and the environment as well as the reputation of the municipality.

Overstrand Municipality will continue to actively focus on training, which requires the identification of trainers (from senior operators / officers / professional ranks) for the development and facilitation of courses which relate to specific organizational knowledge and systems requirements. Overstrand Municipality's internal reports such as the Water Safety Plan, W<sub>2</sub>RAP and this WSDP contain some information on which the courses can be based. This will assist Overstrand Municipality's Human Resources Department in general and the skills development facilitator in particular to develop and implement effective workplace skills plans relevant to Human Capacity Development requirements.

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

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

The Water Safety Plans of Overstrand Municipality includes Improvement / Upgrade Plans. The purpose of the Improvement / Upgrade Plans is to address the existing significant risks where the existing controls were not effective or absent.

### **SECTION D: WATER SERVICES OBJECTIVES AND STRATEGIES**

The water services strategies presented below were derived from the 2023/2024 Top Layer SDBIP and the water services situational analysis as summarized in Section C: Water Services Existing Needs Perspective and presents the 5-year Water Services strategies as established in the WSA's WSDP.

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table: Table D.1: Water Services Objectives and Strategies							
Objective / Strategy	Key Performance Indicator	Baseline (FY2022/2023 status quo)	WSDP	WSDP	WSDP	WSDP	WSDP
			FY2023/24	FY2024/25	FY2025/26	FY2026/27	FY2027/28
			TARGET	TARGET	TARGET	TARGET	TARGET
<b>Topic 1: Settlement Demographics &amp; Public Amenities</b>							
<i>Sustainable Integrated Human Settlements</i>	<i>Implement SDF and Growth Management Strategy for each of the towns and ensure new developments are in line with these priority action plans.</i>	<i>Targets to be set by other Department.</i>	<i>Targets to be set by other Department.</i>	<i>Targets to be set by other Department.</i>	<i>Targets to be set by other Department.</i>	<i>Targets to be set by other Department.</i>	<i>Targets to be set by other Department.</i>
<b>Topic 2: Service Levels</b>							
<i>Ensure all households on the farms are provided with at least basic water services, subject to DWS guidance and provision of resources.</i>	<i>Support all applications received for basic water services on the farms (Subject to availability of financial resources and sustainability of type of service).</i>	-	-	-	<i>100% of applications received are supported (Subject to availability of funding and sustainability of type of service).</i>	<i>100% of applications received are supported (Subject to availability of funding and sustainability of type of service).</i>	<i>100% of applications received are supported (Subject to availability of funding and sustainability of type of service).</i>
<i>Ensure all households on the farms are provided with at least basic sanitation services, subject to DWS guidance and provision of resources.</i>	<i>Support all applications received for basic sanitation services on the farms (Subject to availability of financial resources and sustainability of type of service).</i>	-	-	-	<i>100% of applications received are supported (Subject to availability of funding and sustainability of type of service).</i>	<i>100% of applications received are supported (Subject to availability of funding and sustainability of type of service).</i>	<i>100% of applications received are supported (Subject to availability of funding and sustainability of type of service).</i>
Provision of water to informal households based on the standard of 1 water point to 25 households.	Number of taps installed in relation to the number of informal households.	328	Provide at least 1 water point to every 25 households in informal areas.	Provide at least 1 water point to every 25 households in informal areas.	Provide at least 1 water point to every 25 households in informal areas.	Provide at least 1 water point to every 25 households in informal areas.	Provide at least 1 water point to every 25 households in informal areas.
Provision of cleaned piped water to all formal households within 200m from the household.	Number of formal households that meet agreed service standards for piped water.	30 412	Target to be set in future year.	Target to be set in future year.	Target to be set in future year.	Target to be set in future year.	Target to be set in future year.
The provision of sanitation services to informal households based on the standard of 1 toilet to 5 households.	Number of toilet structures provided in relation to the number of informal households.	1 020	Provide at least 1 toilet to every 5 households in informal areas.	Provide at least 1 toilet to every 5 households in informal areas.	Provide at least 1 toilet to every 5 households in informal areas.	Provide at least 1 toilet to every 5 households in informal areas.	Provide at least 1 toilet to every 5 households in informal areas.
Provision of sanitation services to formal residential households.	Number of formal households which are billed for sewerage in accordance to the SAMRAS financial system.	30 724	Target to be set in future year.	Target to be set in future year.	Target to be set in future year.	Target to be set in future year.	Target to be set in future year.
Provision of sanitation services to informal households on invaded land with available funding.	The number of toilets provided for informal households on invaded land with available funding.	105	Target to be set in future year.	Target to be set in future year.	Target to be set in future year.	Target to be set in future year.	Target to be set in future year.
Provision of water to informal households on invaded land with available funding.	The number of taps installed for informal households on invaded land with available funding.	80	Target to be set in future year.	Target to be set in future year.	Target to be set in future year.	Target to be set in future year.	Target to be set in future year.
<b>Topic 3: Water Services Asset Management</b>							

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table: Table D.1: Water Services Objectives and Strategies							
Objective / Strategy	Key Performance Indicator	Baseline (FY2022/2023 status quo)	WSDP	WSDP	WSDP	WSDP	WSDP
			FY2023/24	FY2024/25	FY2025/26	FY2026/27	FY2027/28
			TARGET	TARGET	TARGET	TARGET	TARGET
<i>The provision and maintenance of municipal services.</i>	<i>Ensure adequate storage capacity for all towns (At least 48hrs AADD).</i>	-	-	<i>All eight areas with an overall storage capacity above 48hrs AADD.</i>	<i>All eight areas with an overall storage capacity above 48hrs AADD.</i>	<i>All eight areas with an overall storage capacity above 48hrs AADD.</i>	<i>All eight areas with an overall storage capacity above 48hrs AADD.</i>
<i>Implement projects included in the Water Master Plan</i>	<i>Ensure adequate water pump station and water reticulation capacity.</i>	-	-	<i>Upgrade existing water pump stations and provide new pump stations as identified in the Water Master Plan. Upgrade water reticulation networks as proposed in the Water Master Plan.</i>	<i>Upgrade existing water pump stations and provide new pump stations as identified in the Water Master Plan. Upgrade water reticulation networks as proposed in the Water Master Plan.</i>	<i>Upgrade existing water pump stations and provide new pump stations as identified in the Water Master Plan. Upgrade water reticulation networks as proposed in the Water Master Plan.</i>	<i>Upgrade existing water pump stations and provide new pump stations as identified in the Water Master Plan. Upgrade water reticulation networks as proposed in the Water Master Plan.</i>
<i>Implement projects included in the Sewer Master Plan</i>	<i>Ensure adequate sewer pump station and drainage network capacity.</i>	-	-	<i>Upgrade existing sewer pump stations and provide new pump stations as identified in the Sewer Master Plan. Upgrade sewer drainage networks as proposed in the Sewer Master Plan.</i>	<i>Upgrade existing sewer pump stations and provide new pump stations as identified in the Sewer Master Plan. Upgrade sewer drainage networks as proposed in the Sewer Master Plan.</i>	<i>Upgrade existing sewer pump stations and provide new pump stations as identified in the Sewer Master Plan. Upgrade sewer drainage networks as proposed in the Sewer Master Plan.</i>	<i>Upgrade existing sewer pump stations and provide new pump stations as identified in the Sewer Master Plan. Upgrade sewer drainage networks as proposed in the Sewer Master Plan.</i>
<i>The provision and maintenance of municipal services</i>	<i>Ensure all water and sewerage infrastructure assets are included in the Asset Register, with accurate CRC, DRC, RUL and Age.</i>	-	-	<i>Annual reporting to the Financial Department on water and sewerage assets not yet included in the Asset Register and assets for which the CRC, DRC, RUL and Age in the Asset Register is not correct.</i>	<i>Annual reporting to the Financial Department on water and sewerage assets not yet included in the Asset Register and assets for which the CRC, DRC, RUL and Age in the Asset Register is not correct.</i>	<i>Annual reporting to the Financial Department on water and sewerage assets not yet included in the Asset Register and assets for which the CRC, DRC, RUL and Age in the Asset Register is not correct.</i>	<i>Annual reporting to the Financial Department on water and sewerage assets not yet included in the Asset Register and assets for which the CRC, DRC, RUL and Age in the Asset Register is not correct.</i>
Topic 4: Water Services Operation and Maintenance							
<i>The provision and maintenance of municipal services.</i>	<i>% Of recommendations, as included in the WTW Process Audits, implemented.</i>	-	-	<i>60% of recommendations implemented.</i>	<i>70% of recommendations implemented.</i>	<i>80% of recommendations implemented.</i>	<i>90% of recommendations implemented.</i>
<i>The provision and maintenance of municipal services.</i>	<i>% Of recommendations, as included in the WWTW Process Audits, implemented.</i>	-	-	<i>60% of recommendations implemented.</i>	<i>70% of recommendations implemented.</i>	<i>80% of recommendations implemented.</i>	<i>90% of recommendations implemented.</i>
<i>The provision and maintenance of municipal services.</i>	<i>% Of recommendations, as included in the Improvement / Upgrade Plan of the Water Safety Plan, implemented.</i>	-	-	<i>60% of recommendations implemented.</i>	<i>70% of recommendations implemented.</i>	<i>80% of recommendations implemented.</i>	<i>90% of recommendations implemented.</i>

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table: Table D.1: Water Services Objectives and Strategies							
Objective / Strategy	Key Performance Indicator	Baseline (FY2022/2023 status quo)	WSDP	WSDP	WSDP	WSDP	WSDP
			FY2023/24	FY2024/25	FY2025/26	FY2026/27	FY2027/28
			TARGET	TARGET	TARGET	TARGET	TARGET
<i>The provision and maintenance of municipal services.</i>	<i>% Of recommendations, as included in the Improvement / Upgrade Plan of the W<sub>2</sub>RAP, implemented.</i>	-	-	60% of recommendations implemented.	70% of recommendations implemented.	80% of recommendations implemented.	90% of recommendations implemented.
<i>The provision and maintenance of municipal services</i>	<i>Ensure a budget of at least 1% of the total value of the water and sewerage assets is allocated towards the annual O&amp;M of the systems.</i>	-	-	<i>A budget of 1% or more of the value of the water and sewerage assets is allocated towards the O&amp;M of the systems.</i>	<i>A budget of 1% or more of the value of the water and sewerage assets is allocated towards the O&amp;M of the systems.</i>	<i>A budget of 1% or more of the value of the water and sewerage assets is allocated towards the O&amp;M of the systems.</i>	<i>A budget of 1% or more of the value of the water and sewerage assets is allocated towards the O&amp;M of the systems.</i>
<i>The provision and maintenance of municipal services.</i>	<i>Ensure a budget of at least 2% of the total value of the water and sewerage assets is allocated towards the replacement of existing infrastructure per annum.</i>	-	-	<i>A budget of 2% or more of the value of the water and sewerage assets is allocated towards the replacement of existing infrastructure.</i>	<i>A budget of 2% or more of the value of the water and sewerage assets is allocated towards the replacement of existing infrastructure.</i>	<i>A budget of 2% or more of the value of the water and sewerage assets is allocated towards the replacement of existing infrastructure.</i>	<i>A budget of 2% or more of the value of the water and sewerage assets is allocated towards the replacement of existing infrastructure.</i>
<i>Reporting on water quality and wastewater quality compliance percentages.</i>	<i>Report at least annually on the percentage of water quality and wastewater quality compliance.</i>	-	-	<i>At least annual publication of water quality and wastewater quality compliance percentages.</i>	<i>At least annual publication of water quality and wastewater quality compliance percentages.</i>	<i>At least annual publication of water quality and wastewater quality compliance percentages.</i>	<i>At least annual publication of water quality and wastewater quality compliance percentages.</i>
Monthly monitoring of water and waste water quality results of all treatment plants and reporting to DWS via website.	Number of months monitored.	12	12	12	12	12	12
Quality of effluent comply 75% with general or special limit in terms of the Water Act (Act 36 of 1998).	% Compliance	80%	75%	75%	80%	85%	90%
Quality of potable water comply 95% with SANS241.	% Compliance with SANS241.	98%	95%	95%	95%	95%	95%
<b>Topic 5: Conservation and Demand Management (Topic 5.1: Water Resources)</b>							
Limit unaccounted water to less than 25%.	% of water unaccounted for	25%	25%	23%	22%	21%	20%
<b>Topic 5: Conservation and Demand Management (Topic 5.2: Water Balance)</b>							
<i>The provision and maintenance of municipal services.</i>	<i>Ensure all bulk water is metered at source, at WTW (incoming and outgoing) and at bulk storage reservoirs and the meters are read and recorded on at least a monthly basis.</i>	-	-	<i>95% of all sources metered and bulk water meters read and recorded at least monthly.</i>	<i>96% of all sources metered and bulk water meters read and recorded at least monthly.</i>	<i>97% of all sources metered and bulk water meters read and recorded at least monthly.</i>	<i>98% of all sources metered and bulk water meters read and recorded at least monthly.</i>
<i>The provision and maintenance of municipal services.</i>	<i>Ensure all incoming and outgoing flows at WWTWs are metered, as</i>	-	-	<i>95% of all flows at WWTWs metered and</i>	<i>96% of all flows at WWTWs metered</i>	<i>97% of all flows at WWTWs metered</i>	<i>98% of all flows at WWTWs metered and</i>

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table: Table D.1: Water Services Objectives and Strategies							
Objective / Strategy	Key Performance Indicator	Baseline (FY2022/2023 status quo)	WSDP	WSDP	WSDP	WSDP	WSDP
			FY2023/24	FY2024/25	FY2025/26	FY2026/27	FY2027/28
			TARGET	TARGET	TARGET	TARGET	TARGET
	<i>well as final effluent re-used for irrigation purposes and that meters are read and recorded on at least a monthly basis.</i>			<i>meters read and recorded at least monthly.</i>	<i>and meters read and recorded at least monthly.</i>	<i>and meters read and recorded at least monthly.</i>	<i>meters read and recorded at least monthly.</i>
<b>Topic 6: Water Resources</b>							
<i>The provision and maintenance of municipal services.</i>	<i>% Of abstraction from sources registered and authorized by the DWS.</i>	-	-	<i>70% Compliance</i>	<i>80% Compliance</i>	<i>90% Compliance</i>	<i>95% Compliance</i>
<i>The provision and maintenance of municipal services.</i>	<i>Ensure yields and allocations are adequate to meet at least the projected five year water requirements for all eight areas.</i>	-	-	<i>100% adequate supply to meet water requirements for all eight areas.</i>	<i>100% adequate supply to meet water requirements for all eight areas.</i>	<i>100% adequate supply to meet water requirements for all eight areas.</i>	<i>100% adequate supply to meet water requirements for all eight areas.</i>
<i>The provision and maintenance of municipal services.</i>	<i>% Monitoring of effluent discharged by industrial consumers (Quantity and Quality)</i>	-	-	<i>50% of all industrial consumers monitored wrt quality and quantity of effluent discharged by them.</i>	<i>60% of all industrial consumers monitored wrt quality and quantity of effluent discharged by them.</i>	<i>70% of all industrial consumers monitored wrt quality and quantity of effluent discharged by them.</i>	<i>80% of all industrial consumers monitored wrt quality and quantity of effluent discharged by them.</i>
<b>Topic 7: Financial</b>							
<i>95% Of the approved capital budget spent.</i>	<i>% Of the capital budget spent</i>	-	-	<i>95%</i>	<i>95%</i>	<i>95%</i>	<i>95%</i>
<b>Topic 8: Institutional Arrangements and Customer Care</b>							
<i>Maintenance of sanitation services (tankers and networks) measured by the daily recording/completion of enquiries within 30 days.</i>	<i>% completed</i>	<i>92%</i>	<i>92%</i>	<i>92%</i>	<i>92%</i>	<i>92%</i>	<i>92%</i>
<i>Maintenance of water services measured by the daily recording/completion of enquiries/completed within 30 days</i>	<i>% completed</i>	<i>92%</i>	<i>92%</i>	<i>92%</i>	<i>92%</i>	<i>92%</i>	<i>92%</i>
<i>Report on the implementation of the WSDP annually by the end of October.</i>	<i>Report submitted.</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>

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### SECTION E: WATER SERVICES MTEF PROJECTS

The draft 2024/2025 Water Services Medium-Term Expenditure Framework (MTEF) projects are presented below and outline the water services projects which might be funded for implementation within the next three financial years. Table E.2a provides the projects identified for implementation in FY2024/25, Table E.2b provides the projects identified for implementation in FY2025/26 and Table E.2c provides the projects identified for implementation in FY2026/27.

It should be highlighted that the projects included herein, represents only projects for which funding might be secured, and therefore does not comprise the comprehensive water services project requirements of Overstrand Municipality.

The summary of the draft MTEF water services projects are presented as follows.

Project Main Category	FY2024/25		FY2025/26		FY2026/27		MTEF Total	
	Nr	Value (R'000)	Nr	Value (R'000)	Nr	Value (R'000)	Nr	Value (R'000)
Water Projects	13	R39 945	9	R40 610	8	R57 070	<b>15</b>	<b>R137 625</b>
Sanitation Projects	7	R22 087	7	R25 000	5	R21 200	<b>9</b>	<b>R68 287</b>
<b>Combined Water &amp; Sanitation Projects</b>	<b>20</b>	<b>R62 032</b>	<b>16</b>	<b>R65 610</b>	<b>13</b>	<b>R78 270</b>	<b>24</b>	<b>R205 912</b>

## WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025

Table E.2a: Water Services MTEF Projects - FY2024/25 (1 <sup>st</sup> year MTEF period)																			
Nr	Project Reference Number (Dept)	Project Name	Description	Project Driver	Main Category "W" or "S"	Sub Category	Component type	Project Budget / Funding Sources										MTEF Project Source	
								Prev spent FY2023/24	Budget	FY2024/25									Total Cost
										Own	MIG	RBIG	WSIG	DR	MWIG	Other			
<b>1. Infrastructure Projects</b>								<b>R0</b>	<b>R20 587</b>									<b>R20 587</b>	
1.1		Fencing at water installations	Install fencing at water infrastructure	Security	Water	Other	Security		R500	R500							R500	Water Safety Plans	
1.2		Water Facilities (Contingency)	Ensure adequate equipment at water facilities.	Water Quality	Water	Bulk	WTW		R500	R500							R500	WTW Process Audits	
1.3		Mount Pleasant Reservoir Link Water Lines	Install water pipelines	Services	Water	Internal	Reticulation		R6 000		R6 000						R6 000	Water Master Plan	
1.4		Sewerage Facilities (Contingency)	Ensure adequate equipment at sewerage facilities.	Effluent Quality	Sewerage	Bulk	WWTW		R700	R700							R700	WWTW Process Audits	
1.5		Hawston WWTW refurbishment and upgrade.	Upgrade and refurbish WWTW	Effluent Quality	Sewerage	Bulk	WWTW		R6 537		R6 537						R6 537	WSDP and WWTW Process Audit	
1.6		Fencing at sewerage installations	Install fencing at sewerage infrastructure	Security	Sewerage	Other	Security		R600	R600							R600	WSDP, W <sub>2</sub> RAP, WWTW Process Audit	
1.7		Upgrading of pump stations and rising mains	Upgrade pump stations and rising mains	Waterborne sanitation	Sewerage	Bulk	Pump stations and rising mains		R2 550	R2 550							R2 550	WSDP and Sewer Master Plans	
1.8		Hermanus WWTW upgrade Screens RAS Sludge Dewatering	Upgrade screens, RAS and Sludge dewatering	Effluent Quality	Sewerage	Bulk	WWTW		R3 200	R3 200							R3 200	WWTW Process Audit	
<b>2. Source Development Projects</b>								<b>R0</b>	<b>R8 025</b>								<b>R8 025</b>		
2.1		Upgrade Hermanus Wellfields Phase 2	Further groundwater development for Hermanus	Security of Supply	Water	Bulk	Sources		R8 025	R2 100			R5 925				R8 025	WSDP	
<b>3. Demand Management projects</b>								<b>R0</b>	<b>R7 000</b>								<b>R7 000</b>		
3.1		Replacement of water pipelines	Replace old sections of water reticulation network	Refurbishment	Water	Internal	Water reticulation		R7 000	R7 000							R7 000	Refurbishment	
<b>4. O&amp;M Commitments</b>								<b>R0</b>	<b>R26 310</b>								<b>R26 310</b>		
<b>Operations</b>																			
4.1		Telemetry system upgrade	Telemetry system upgrade	Services	Sewerage	Other	Operations		R500	R500							R500	Operations	
<b>Maintenance</b>																			
4.2		Refurbishment of bulk water infrastructure	Replace old bulk water pipelines	Refurbishment	Water	Bulk	Bulk pipelines		R1 000	R1 000							R1 000	Refurbishment and WSDP	
4.3		Refurbishment of the Buffels River WTW	Refurbishment of WTWs	Refurbishment	Water	Bulk	WTW		R5 000	R5 000							R5 000	Refurbishment and WSDP	
4.4		Replacement of Water Pipes Proteadorp	Replace old sections of water reticulation network	Refurbishment	Water	Internal	Water reticulation		R2 010		R2 010						R2 010	Refurbishment	
4.5		De Kelders WTW Membrane Replacement	Replacement of Membranes	Refurbishment	Water	Bulk	WTW		R800	R800							R800	Refurbishment	
4.6		Pearly Beach Water Tower Refurbishment	Refurbishment of Water Tower	Refurbishment	Water	Internal	Reservoir		R1 000	R1 000							R1 000	Refurbishment	
4.7		New Disinfection System at Preekstoel WTW	Installation of new Disinfection System	Water Quality	Water	Bulk	WTW		R3 000	R3 000							R3 000	WTW Process Audit	
4.8		Pearly Beach WTW Process Upgrade	Upgrading of treatment process	Water Quality	Water	Bulk	WTW		R5 000	R5 000							R5 000	WTW Process Audit	
4.9		New Disinfection Systems at WWTW	Install new disinfection facilities	Effluent Quality	Sewerage	Bulk	WWTW		R8 000	R8 000							R8 000	WWTW Process Audits	
<b>5. Institutional</b>								<b>R0</b>	<b>R0</b>								<b>R0</b>		
<b>6. Water Services Programmes</b>								<b>R0</b>	<b>R110</b>								<b>R110</b>		
<b>Awareness Programs</b>																			
6.1		School WC/WDM initiatives (OPEX)	Puppet shows and live shows (WC/WDM)						R110	R110							R110	WDM Strategy	
<b>WASH Programs</b>																			
<b>Total</b>								<b>R0</b>	<b>R62 032</b>								<b>R62 032</b>		

Note: Projects Water Facilities (Contingency) and Sewerage Facilities (Contingency) in the above table include i.a. the installation of standby generators in phases at critical water and sanitation facilities to ensure continuous operation during electricity supply interruptions.

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Table E.2b: Water Services MTEF Projects - FY2025/26 (2nd year MTEF period)																			
Nr	Project Reference Number (Dept)	Project Name	Description	Project Driver	Main Category "W" or "S"	Sub Category	Component type	Project Budget / Funding Sources										MTEF Project Source	
								Prev spent FY2023/24	FY2025/26								Total Cost		
									Budget	Own	MIG	RBIG	WSIG	DR	MWIG	Other			
<b>1. Infrastructure Projects</b>								<b>R0</b>	<b>R24 800</b>									<b>R24 800</b>	
1.1		Fencing at water installations	Install fencing at water infrastructure	Security	Water	Other	Security		R500	R500							R500	Water Safety Plans	
1.2		Water Facilities (Contingency)	Ensure adequate equipment at water facilities.	Water Quality	Water	Bulk	WTW		R500	R500							R500	WTW Process Audits	
1.3		Sewerage Facilities (Contingency)	Ensure adequate equipment at sewerage facilities.	Effluent Quality	Sewerage	Bulk	WWTW		R700	R700							R700	WWTW Process Audits	
1.4		Fencing at sewerage installations	Install fencing at sewerage infrastructure	Security	Sewerage	Other	Security		R600	R600							R600	WSDP, W <sub>2</sub> RAP, WWTW Process Audit	
1.5		Upgrading of pump stations and rising mains	Upgrade pump stations and rising mains	Waterborne sanitation	Sewerage	Bulk	Pump stations and rising mains		R10 000	R10 000							R10 000	WSDP and Sewer Master Plans	
1.6		Hawston WWTW refurbishment and upgrade.	Upgrade and refurbish WWTW	Effluent Quality	Sewerage	Bulk	WWTW		R11 000	R4 000	R7 000						R11 000	WSDP and WWTW Process Audit	
1.7		Hermanus WWTW upgrade Screens RAS Sludge Dewatering	Upgrade screens, RAS and Sludge dewatering	Effluent Quality	Sewerage	Bulk	WWTW		R1 500	R1 500							R1 500	WWTW Process Audit	
<b>2. Source Development Projects</b>								<b>R0</b>	<b>R2 700</b>								<b>R2 700</b>		
2.1		Upgrade Hermanus Wellfields Phase 2	Further groundwater development for Hermanus	Security of Supply	Water	Bulk	Sources		R2 700	R2 700							R2 700	WSDP	
<b>3. Demand Management projects</b>								<b>R0</b>	<b>R9 500</b>								<b>R9 500</b>		
3.1		Replacement of water pipelines	Replace old sections of water reticulation network	Refurbishment	Water	Internal	Water reticulation		R9 500	R9 500							R9 500	Refurbishment	
<b>4. O&amp;M Commitments</b>								<b>R0</b>	<b>R28 500</b>								<b>R28 500</b>		
<b>Operations</b>																			
4.1		Telemetry system upgrade	Telemetry system upgrade	Services	Water	Other	Operations		R300	R300							R300	Operations	
4.2		Telemetry system upgrade	Telemetry system upgrade	Services	Sewerage	Other	Operations		R200	R200							R200	Operations	
<b>Maintenance</b>																			
4.3		Refurbishment of bulk water infrastructure	Replace old bulk water pipelines	Refurbishment	Water	Bulk	Bulk pipelines		R1 000	R1 000							R1 000	Refurbishment and WSDP	
4.4		Refurbishment of the Buffels River WTW	Refurbishment of WTWs	Refurbishment	Water	Bulk	WTW		R20 000	R10 000	R10 000						R20 000	Refurbishment and WSDP	
4.5		New Disinfection System at Preekstoel WTW	Installation of new Disinfection System	Water Quality	Water	Bulk	WTW		R6 000	R6 000							R6 000	WTW Process Audit	
4.6		New Disinfection Systems at WWTW	Install new disinfection facilities	Effluent Quality	Sewerage	Bulk	WWTW		R1 000	R1 000							R1 000	WWTW Process Audits	
<b>5. Institutional</b>								<b>R0</b>	<b>R0</b>								<b>R0</b>		
<b>6. Water Services Programmes</b>								<b>R0</b>	<b>R110</b>								<b>R110</b>		
<b>Awareness Programs</b>																			
6.1		School WC/WDM initiatives (OPEX)	Puppet shows and live shows (WC/WDM)						R110	R110							R110	WDM Strategy	
<b>WASH Programs</b>																			
<b>Total</b>								<b>R0</b>	<b>R65 610</b>								<b>R65 610</b>		

Note: Projects Water Facilities (Contingency) and Sewerage Facilities (Contingency) in the above table include i.a. the installation of standby generators in phases at critical water and sanitation facilities to ensure continuous operation during electricity supply interruptions.

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Table E.2c: Water Services MTEF Projects - FY2026/27 (3 <sup>rd</sup> year MTEF period)																			
Nr	Project Reference Number (Dept)	Project Name	Description	Project Driver	Main Category "W" or "S"	Sub Category	Component type	Project Budget / Funding Sources										MTEF Project Source	
								Prev spent FY2023/24	FY2026/27								Total Cost		
									Budget	Own	MIG	RBIG	WSIG	DR	MWIG	Other			
<b>1. Infrastructure Projects</b>								<b>R0</b>	<b>R22 000</b>									<b>R22 000</b>	
1.1		Fencing at water installations	Install fencing at water infrastructure	Security	Water	Other	Security		R500	R500							R500	Water Safety Plans	
1.2		Water Facilities (Contingency)	Ensure adequate equipment at water facilities.	Water Quality	Water	Bulk	WTW		R500	R500							R500	WTW Process Audits	
1.3		Kleinmond sewer network extension	Installation of sewer drainage network	Services	Sewerage	Internal	Drainage network		R2 000	R2 000							R2 000	WSDP and Sewer Master Plans	
1.4		Gansbaai CBD sewer network extension	Installation of sewer drainage network	Services	Sewerage	Internal	Drainage network		R2 000	R2 000							R2 000	WSDP and Sewer Master Plans	
1.5		Upgrading of pump stations and rising mains	Upgrade pump stations and rising mains	Waterborne sanitation	Sewerage	Bulk	Pump stations and rising mains		R7 000	R7 000							R7 000	WSDP and Sewer Master Plans	
1.6		Hawston WWTW refurbishment and upgrade.	Upgrade and refurbish WWTW	Effluent Quality	Sewerage	Bulk	WWTW		R10 000	R10 000							R10 000	WSDP and WWTW Process Audit	
<b>2. Source Development Projects</b>								<b>R0</b>	<b>R30 000</b>								<b>R30 000</b>		
2.1		Sea Water Desalination Plant	Sea Water Desalination plant for Hermanus	Security of Supply	Water	Bulk	Sources		R30 000				R30 000				R30 000	WSDP	
<b>3. Demand Management projects</b>								<b>R0</b>	<b>R7 660</b>								<b>R7 660</b>		
3.1		Replacement of water pipelines	Replace old sections of water reticulation network	Refurbishment	Water	Internal	Water reticulation		R7 660	R7 660							R7 660	Refurbishment	
<b>4. O&amp;M Commitments</b>								<b>R0</b>	<b>R18 500</b>								<b>R18 500</b>		
<b>Operations</b>																			
4.1		Telemetry system upgrade	Telemetry system upgrade	Services	Water	Other	Operations		R300	R300							R300	Operations	
4.2		Telemetry system upgrade	Telemetry system upgrade	Services	Sewerage	Other	Operations		R200	R200							R200	Operations	
<b>Maintenance</b>																			
4.3		Refurbishment of bulk water infrastructure	Replace old bulk water pipelines	Refurbishment	Water	Bulk	Bulk pipelines		R1 000	R1 000							R1 000	Refurbishment and WSDP	
4.4		Refurbishment of the Buffels River WTW	Refurbishment of WTWs	Refurbishment	Water	Bulk	WTW		R17 000	R7 000	R10 000						R17 000	Refurbishment and WSDP	
<b>5. Institutional</b>								<b>R0</b>	<b>R0</b>								<b>R0</b>		
<b>6. Water Services Programmes</b>								<b>R0</b>	<b>R110</b>								<b>R110</b>		
<b>Awareness Programs</b>																			
6.1		School WC/WDM initiatives (OPEX)	Puppet shows and live shows (WC/WDM)						R110	R110							R110	WDM Strategy	
<b>WASH Programs</b>																			
<b>Total</b>								<b>R0</b>	<b>R78 270</b>								<b>R78 270</b>		

Note: Projects Water Facilities (Contingency) and Sewerage Facilities (Contingency) in the above table include the installation of standby generators in phases at critical water and sanitation facilities to ensure continuous operation during electricity supply interruptions.

### SECTION F: WSDP PROJECTS

The identification of projects necessary to ensure the provision of adequate levels of water and sanitation services is based primarily, but not limited to, on the findings of the Water and Sewer Master Plans. Master Planning is typically based on a forward planning horizon of 20 years, but is usually updated every three to five years, taking into account improved water demand estimates and subsequent infrastructure developments which may have taken place. The recommended projects from the 2021 Master Plans were incorporated into the WSDP.

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

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

- Water and Sewer Master Plans and Water and Wastewater Treatment Works Master Plans/studies;
- Infrastructure replacement needs (Asset Register);
- Ad hoc technical investigations;
- Budget proposals; and
- Asset Management Plans.

Overstrand Municipality's 2023/2024 IDP list the following major water services projects, which are planned for the short to medium term.

- Expansion of the well fields in Hermanus;
- New reservoirs at Sandbaai, Onrus River and Betty's Bay;
- Phased replacement and upgrade of the bulk and reticulation water systems in all areas;
- Refurbishment of the Kleinmond and Buffels River Water Treatment Plants;
- Seawater Desalination scheme for the Greater Hermanus area;
- Installation of alternative disinfection systems at water treatment facilities; and
- Installation of power generators at several treatment facilities and pump stations.
- Improvement of the treatment process at the Pearly Beach WTW, development of groundwater sources, and refurbishment of the water tower.
- Energy efficiency and alternative energy projects at treatment plants.
- Improvement of security measures and telemetry systems.

The following major sanitation services projects are planned for the short to medium term.

- Upgrade of the Kleinmond and Hawston WWTWs and some processes at the Hermanus WWTW;
- Upgrade of sewerage pump stations at e.g. Zwingers Corner, Peach Houses, Zwelihle Sports Grounds and at inlet of Hermanus WWTW and Onrus Main EIA to commence;
- Extension of sewer networks in Kleinmond, Gansbaai and Hawston;
- Replacement of sewer rising main pipelines in Kleinmond and Greater Hermanus;
- Installation of generators at several treatment facilities and pumpstations;
- Improvement of security measures at wastewater facilities (e.g., fencing and CCTV cameras); and
- Upgrade of telemetry systems.

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- Energy efficiency and alternative energy projects at treatment plants.

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

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

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

The current needs projects are estimated at R435.706 million of which 47% are funded over the next three years, as included in the MTEF project list. It should however be emphasised that additional funding will be required to address the full achievement of the water services strategies as outlined in Section D, but that the extent of such additional funding can only be determined once initial investigations and activities have been concluded.

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Table F.1: WSDP FY2024/25: LIST OF CONCEPTUAL PROJECTS										
Nr	Situation Assessment (Problem Definition)	Solution description as defined by topic situation assessment (Strategy)	Conceptual project	Is there an existing project addressing this problem?	Existing Projects Information			Does this current listed project address the problem totally?	Approved by Council, in project database and part of 5 year IDP cycle projects?	Project listed in 3yr MTEF - cycle?
					Project Number (Dept)	Project Title	Project Cost R'000			
<b>CURRENT NEEDS</b>										
<b>Topic 1: Settlements and Demographics</b>										
	Done by other Department									
<b>Topic 2: Service Levels</b>										
2.1	Some of the households on the farms without basic water services.	Ensure all households on farms are provided with at least basic water services, DWS guidance. (As soon as funding is provided by DWS)	WSDP	No	OS2425001	Provide basic water services on the farms in the rural areas without basic water services.	R664	Yes	No	No
2.2	Some of the households on the farms without basic sanitation services.	Ensure all households on farms are provided with at least basic sanitation services, DWS guidance. (As soon as funding is provided by DWS)	WSDP	No	OS2425002	Provide basic sanitation services on the farms in the rural areas without basic sanitation services.	R2 160	Yes	No	No
<b>Topic 3: Water Services Asset Management (Infrastructure)</b>										
3.1	Security at water installations not adequate	Ensure all water installations are adequately secured	MTEF Project	Yes	OS2425003	Fencing at water installations	R2 500	No	Yes	Yes
3.2	Some equipment at water facilities needs to be replaced	Ensure compliance with water quality standards SANS241	MTEF Project	Yes	OS2425004	Water Facilities (Contingency)	R2 500	No	Yes	Yes
3.3	Water Master Plan indicate recommended upgrades of water network	Implement recommended Water Master Plan items	MTEF Project	Yes	OS2425005	Mount Pleasant Reservoir Link Water Lines	R6 000	Yes	Yes	Yes
3.4	Inadequate supply to consumers	Ensure adequate supply for De Kelders	MTEF Project	Yes	OS2425006	New Booster pump station Gansbaai to De Kelders & Pipeline Refurbishment	R10 000	Yes	Yes	No
3.5	Lack of adequate storage capacity for treated water	Ensure adequate storage capacity	MTEF Project	Yes	OS2425007	New reservoir Onrus River	R9 000	Yes	Yes	No
3.6	Lack of adequate storage capacity for treated water	Ensure adequate storage capacity	MTEF Project	Yes	OS2425008	New reservoir Bettiesbaai Voorberg	R9 000	Yes	Yes	No
3.7	Capacity of existing bulk water pipeline is inadequate	Ensure adequate bulk water pipeline capacity	MTEF Project	Yes	OS2425009	New bulk supply pipeline to reservoir (Baardskeerdersbos)	R2 000	Yes	Yes	No
3.8	Lack of adequate storage capacity for treated water	Ensure adequate storage capacity	MTEF Project	Yes	OS2425010	New reservoir Sandbaai	R9 000	Yes	Yes	No
3.9	Some equipment at sewerage facilities needs to be replaced	Ensure compliance with final effluent quality standards	MTEF Project	Yes	OS2425011	Sewerage Facilities (Contingency)	R1 400	No	Yes	Yes
3.10	Area not yet fully service with drainage networks	Sewer drainage network extension	MTEF Project	Yes	OS2425012	Kleinmond sewer network extension	R8 000	No	Yes	Yes
3.11	Area not yet fully service with drainage networks	Sewer drainage network extension	MTEF Project	Yes	OS2425013	Gansbaai CBD sewer network extension	R8 000	No	Yes	Yes
3.12	Area not yet fully service with drainage networks	Sewer drainage network extension	MTEF Project	Yes	OS2425014	Hawston sewer network extension	R2 000	No	Yes	No
3.13	Security at sewerage installations not adequate	Ensure all sewerage installations are adequately secured	MTEF Project	Yes	OS2425015	Fencing at sewerage installations	R1 200	No	Yes	Yes
3.14	Inadequate pump and bulk rising mains capacity	Upgrade capacity of sewer pump stations and rising mains	MTEF Project	Yes	OS2425016	Upgrading of pump stations and rising mains	R39 550	No	Yes	Yes
3.15	Capacity of existing WWTW is inadequate	Ensure adequate treatment capacity	MTEF Project	Yes	OS2425017	Hawston WWTW refurbishment and upgrade.	R37 537	Yes	Yes	Yes
3.16	Capacity of existing WWTW is inadequate	Ensure adequate treatment capacity	MTEF Project	Yes	OS2425018	Hermanus WWTW upgrade Screens, RAS and Sludge Dewatering	R4 700	Yes	Yes	Yes
<b>Topic 4: Water Services Operation and Maintenance</b>										
4.1	Some of the bulk water pipelines are in a poor or very poor condition and needs to be replaced.	Refurbish all bulk water pipelines that are in a poor or very poor condition, with regular pipeline failures.	MTEF Project	Yes	OS2425019	Refurbishment of bulk water infrastructure	R5 000	No	Yes	Yes
4.2	Old sections of the water reticulation network need to be replaced.	Implementation of Pipeline Replacement Programme	MTEF Project	Yes	OS2425020	Replacement of water pipes Proteadorp	R2 010	No	Yes	Yes
4.3	Recommendations from WTW Process Audit need to be implemented.	Ensure water quality compliance	MTEF Project	Yes	OS2425021	Pearly Beach WTW Process Upgrade	R5 000	Yes	Yes	Yes
4.4	Some of the components of the Buffels River WTW need to be refurbish (WTW Process Audits)	Refurbish existing WTW	MTEF Project	Yes	OS2425022	Refurbishment of the Buffels River WTW	R42 000	Yes	Yes	Yes
4.5	Recommendations from WTW Process Audit need to be implemented.	Ensure water quality compliance	MTEF Project	Yes	OS2425023	New disinfection system at Preekstoel WTW	R9 000	Yes	Yes	Yes
4.6	RO Membranes need to be replaced	Ensure regular replacement of RO membranes	MTEF Project	Yes	OS2425024	De Kelders WTW Membrane Replacement	R800	Yes	Yes	Yes
4.7	Pearly Beach Water Tower needs to be refurbished	Refurbish existing Water Tower	MTEF Project	Yes	OS2425025	Pearly Beach Water Tower Refurbishment	R1 000	Yes	Yes	Yes
4.8	The Telemetry system needs to be upgraded.	Ensure adequate operation of the water infrastructure	MTEF Project	Yes	OS2425026	Telemetry system upgrade	R600	No	Yes	Yes
4.9	The Telemetry system needs to be upgraded.	Ensure adequate operation of the sewerage infrastructure	MTEF Project	Yes	OS2425027	Telemetry system upgrade	R900	No	Yes	Yes
4.10	Recommendations from WWTW Process Audit need to be implemented.	Ensure final effluent compliance	MTEF Project	Yes	OS2425028	New disinfection systems at WWTWs	R9 000	Yes	Yes	Yes
4.11	WTW Process Audits need to be done annually	Sustainable operation of WTW	WSDP	Yes	OS2425029	Annual WTW Process Audits	R150	Yes	Yes	O&M
4.12	WWTW Process Audits need to be done annually	Sustainable operation of WWTW	WSDP	Yes	OS2425030	Annual WWTW Process Audits	R150	Yes	Yes	O&M
<b>Topic 5: Conservation and Demand Management (Topic 5.1 Water Resources)</b>										
5.1	Done internally through O&M Budget									
<b>Topic 5: Conservation and Demand Management (Topic 5.2 Water Balance)</b>										
5.2	Sections of the existing water reticulation networks are in a poor or very poor condition and need to be replaced.	Refurbish all water reticulation pipelines that are in a poor or very poor condition, with regular pipeline failures.	MTEF Project	Yes	OS2425031	Replacement of Overstrand water pipelines	R44 160	No	Yes	Yes
5.3	Meter Replacement Programme	Replace old / broken / leaking meters	WSDP	Yes	OS2425032	Replacement of Overstrand water meters (Part of O&M Budget)	R0	No	Yes	O&M
5.4	WC/WDM programmes are required at schools to raise awareness	Schools Awareness Programme	WSDP	Yes	OS2425033	WC/WDM Awareness Raising Programmes for Schools (Part of O&M Budget)	R0	No	Yes	O&M
<b>Topic 6: Water Resources</b>										
6.1	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	MTEF Project	Yes	OS2425034	Upgrade Hermanus Wellfields Phase 2	R10 725	Yes	Yes	Yes
6.2	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	MTEF Project	Yes	OS2425035	Sea Water Desalination Plant	R150 000	No	Yes	Yes
<b>Topic 7: Financial</b>										
	Done by other Department									
<b>Topic 8: Institutional Arrangements and Customer Care</b>										
<b>TOTAL: CURRENT NEEDS</b>										
	Funded						R435 706			
	% funded						R205 912			
							47%			

**WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025**

**Table F.1: WSDP FY2024/25: LIST OF CONCEPTUAL PROJECTS**

Nr	Situation Assessment (Problem Definition)	Solution description as defined by topic situation assessment (Strategy)	Conceptual project	Is there an existing project addressing this problem?	Existing Projects Information			Does this current listed project address the problem totally?	Approved by Council, in project database and part of 5 year IDP cycle projects?	Project listed in 3yr MTEF - cycle?
					Project Number (Dept)	Project Title	Project Cost R'000			
<b>FUTURE NEEDS</b>										
<b>Infrastructure</b>										
F.1	Inadequate capacity of existing internal water reticulation networks	Ensure adequate internal water reticulation capacity	Water Master Plan	No	OS2425036	Future internal reticulation network items for Buffels River	R14 320	Yes	No	No
F.2			Water Master Plan	No	OS2425037	Future internal reticulation network items for Kleinmond	R5 573	Yes	No	No
F.3			Water Master Plan	No	OS2425038	Future internal reticulation network items for Greater Hermanus	R48 403	Yes	No	No
F.4			Water Master Plan	No	OS2425039	Future internal reticulation network items for Stanford	R5 716	Yes	No	No
F.5			Water Master Plan	No	OS2425040	Future internal reticulation network items for Greater Gansbaai	R65 683	Yes	No	No
F.6			Water Master Plan	No	OS2425041	Future internal reticulation network items for Pearly Beach	R2 305	Yes	No	No
F.7			Water Master Plan	No	OS2425042	Future internal reticulation network items for Baardskeerdersbos	R102	Yes	No	No
F.8	Inadequate bulk water pipeline distribution capacity	Ensure adequate bulk water pipeline distribution capacity	Water Master Plan	No	OS2425043	Future bulk water pipeline items for Buffels River	R10 012	Yes	No	No
F.9			Water Master Plan	No	OS2425044	Future bulk water pipeline items for Greater Hermanus	R44 968	Yes	No	No
F.10			Water Master Plan	No	OS2425045	Future bulk water pipeline items for Greater Gansbaai	R12 739	Yes	No	No
F.11			Water Master Plan	No	OS2425046	Future bulk water pipeline items for Baardskeerdersbos	R987	Yes	No	No
F.12	Inadequate reservoir storage capacity to meet future requirements	Ensure adequate reservoir storage capacity	Water Master Plan	No	OS2425047	Future reservoirs for Buffels River	R23 070	Yes	No	No
F.13			Water Master Plan	No	OS2425048	Future reservoirs for Greater Hermanus	R93 343	Yes	No	No
F.14			Water Master Plan	No	OS2425049	Future reservoirs for Stanford	R10 962	Yes	No	No
F.15			Water Master Plan	No	OS2425050	Future reservoirs for Greater Gansbaai	R78 073	Yes	No	No
F.16			Water Master Plan	No	OS2425051	Future reservoirs for Pearly Beach	R6 888	Yes	No	No
F.17			Water Master Plan	No	OS2425052	Future reservoirs for Baardskeerdersbos	R1 201	Yes	No	No
F.18	Inadequate water pump station capacity to meet future requirements	Ensure adequate water pump station capacity	Water Master Plan	No	OS2425053	Future pump stations for Buffels River	R4 510	Yes	No	No
F.19			Water Master Plan	No	OS2425054	Future pump stations for Greater Hermanus	R3 663	Yes	No	No
F.20			Water Master Plan	No	OS2425055	Future pump stations for Greater Gansbaai	R16 437	Yes	No	No
F.21			Water Master Plan	No	OS2425056	Future pump stations for Pearly Beach	R693	Yes	No	No
F.22			Water Master Plan	No	OS2425057	Future pump stations for Baardskeerdersbos	R1 765	Yes	No	No
F.23	Water losses and NRW need to be reduced further	Implement WDM infrastructure on internal water reticulation networks	Water Master Plan	No	OS2425058	Future WDM items for Buffels Rivier	R200	Yes	No	No
F.24			Water Master Plan	No	OS2425059	Future WDM items for Kleinmond	R50	Yes	No	No
F.25			Water Master Plan	No	OS2425060	Future WDM items for Greater Hermanus	R700	Yes	No	No
F.26			Water Master Plan	No	OS2425061	Future WDM items for Stanford	R100	Yes	No	No
F.27			Water Master Plan	No	OS2425062	Future WDM items for Greater Gansbaai	R5 985	Yes	No	No
F.28			Water Master Plan	No	OS2425063	Future WDM items for Pearly Beach	R100	Yes	No	No
F.29			Water Master Plan	No	OS2425064	Future WDM items for Baardskeerdersbos	R100	Yes	No	No
F.30			Water Master Plan	No	OS2425065	Future WDM items for Buffeljags Bay	R50	Yes	No	No
F.31	Inadequate capacity of existing bulk and internal sewer drainage network	Ensure adequate bulk and internal sewer drainage capacity	Sewer Master Plan	No	OS2425066	Future bulk and internal sewer drainage network items for Buffels River	R319 062	Yes	No	No
F.32			Sewer Master Plan	No	OS2425067	Future bulk and internal sewer drainage network items for Kleinmond	R64 363	Yes	No	No
F.33			Sewer Master Plan	No	OS2425068	Future bulk and internal sewer drainage network items for Greater Hermanus	R171 151	Yes	No	No
F.34			Sewer Master Plan	No	OS2425069	Future bulk and internal sewer drainage network items for Stanford	R11 432	Yes	No	No
F.35			Sewer Master Plan	No	OS2425070	Future bulk and internal sewer drainage network items for Greater Gansbaai	R259 376	Yes	No	No
F.36			Sewer Master Plan	No	OS2425071	Future bulk and internal sewer drainage network items for Pearly Beach	R47 402	Yes	No	No
F.37			Sewer Master Plan	No	OS2425072	Future bulk and internal sewer drainage network items for	R5 424	Yes	No	No
F.38			Sewer Master Plan	No	OS2425073	Future bulk and internal sewer drainage network items for Buffeljags Bay	R537	Yes	No	No
F.39	Inadequate capacity of existing sewer pump stations	Ensure adequate pump station capacity	Sewer Master Plan	No	OS2425074	Future sewer pump stations for Buffels River	R43 892	Yes	No	No
F.40			Sewer Master Plan	No	OS2425075	Future sewer pump stations for Kleinmond	R1 097	Yes	No	No
F.41			Sewer Master Plan	No	OS2425076	Future sewer pump stations for Greater Hermanus	R15 083	Yes	No	No
F.42			Sewer Master Plan	No	OS2425077	Future sewer pump stations for Stanford	R2 026	Yes	No	No
F.43			Sewer Master Plan	No	OS2425078	Future sewer pump stations for Greater Gansbaai	R55 148	Yes	No	No
F.44			Sewer Master Plan	No	OS2425079	Future sewer pump stations for Pearly Beach	R7 431	Yes	No	No
-	Existing WTW needs to be refurbished	Ensure adequate treatment capacity	WSDP	Yes	-	Refurbish Buffels River WTW Option 1 (Included under Current Needs )	-	Yes	Yes	Yes
F.45	Existing WTW needs to be refurbished	Ensure adequate treatment capacity	WSDP	Yes	OS2425080	Refurbish Kleinmond WTW	R9 780	Yes	Yes	Yes
F.46	Water is currently only disinfected, no WTW	Ensure adequate treatment capacity	WSDP	No	OS2425081	New Buffeljags Bay WTW	R3 000	Yes	No	No
-	Capacity of existing WWTW is inadequate	Ensure adequate treatment capacity	WSDP	Yes	-	Upgraded Kleinmond WWTW Option 1 (Included under Current Needs )	-	Yes	Yes	Yes
-	Existing WWTW needs to be refurbished	Ensure adequate treatment capacity	WSDP	Yes	-	Refurbishment of Kleinmond WWTW (Important and Semi-important priority items)(Included under Current Needs )	-	Yes	Yes	Yes
-	Some components of the WWTW are inadequate	Ensure adequate treatment capacity	WSDP	Yes	-	High priority interventions recommended for the Hermanus WWTW (Included under Current Needs )	-	Yes	Yes	Yes
-	Existing WWTW needs to be refurbished	Ensure adequate treatment capacity	WSDP	Yes	-	Refurbishment interventions for the Hawston WWTW (Priority 1, 2 and 3) (Included under Current Needs )	-	Yes	Yes	Yes
F.47	No sewer dainage network or plant	Ensure adequate treatment capacity	Sewer Master Plan	No	OS2425082	New conservancy tank or package plant for existing erven	R3 500	Yes	No	No
F.48	No sewer dainage network or plant	Ensure adequate treatment capacity	Sewer Master Plan	No	OS2425083	New conservancy tank or package plant for existing erven	R1 500	Yes	No	No
F.49	Capacity of existing WWTW is inadequate	Ensure adequate treatment capacity	WSDP	No	OS2425084	Upgrade Kleinmond WWTW to 3.5 MI/d	R50 000	Yes	No	No
F.50	Capacity of existing WWTW is inadequate	Ensure adequate treatment capacity	WSDP	No	OS2425085	Upgrade Hawston WWTW to 2.0 MI/d	R30 000	Yes	No	No
F.51	Capacity of existing WWTW is inadequate	Ensure adequate treatment capacity	WSDP	No	OS2425086	Upgrade Stanford WWTW to 2.0 MI/d	R20 000	Yes	No	No

**WSDP-IDP WATER SECTOR INPUT REPORT FOR 2024/2025**

Table F.1: WSDP FY2024/25 LIST OF CONCEPTUAL PROJECTS										
Nr	Situation Assessment (Problem Definition)	Solution description as defined by topic situation assessment (Strategy)	Conceptual project	Is there an existing project addressing this problem?	Existing Projects Information			Does this current listed project address the problem totally?	Approved by Council, in project database and part of 5 year IDP cycle projects?	Project listed in 3yr MTEF - cycle?
					Project Number (Dept)	Project Title	Project Cost R'000			
<b>FUTURE NEEDS</b>										
<b>Resources</b>										
F.52	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	WSDP	No	OS2425087	Augmentation of Greater Gansbaai existing sources	R30 000	Yes	No	No
F.53	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	WSDP	No	OS2425088	Augmentation of Pearly Beach existing sources	R15 000	Yes	No	No
F.54	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	WSDP	Yes	-	3MI/day Seawater desalination plant (Phase 1)	-	Yes	Yes	Yes
F.55	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	WSDP	No	OS2425089	3MI/day Seawater desalination plant (Phase 2)	R90 000	Yes	No	No
F.56	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	WSDP	No	OS2425090	4MI/day Seawater desalination plant (Phase 3)	R120 000	Yes	No	No
F.57	Capacity of existing water resources is inadequate to meet projected future water requirements	Ensure yields of existing sources are adequate to meet future water requirements	WSDP	No	Not part of Overstrand Projects	Bulk provision to Hermanus by Overberg Water (Theewaterskloof Dam)	Not part of Overstrand Budget	Yes	No	No
<b>TOTAL: FUTURE NEEDS</b>							<b>R1 834 902</b>			