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# WATER & SANITATION DEPARTMENT

# ANNUAL WSDP PERFORMANCE AND WATER SERVICES AUDIT REPORT 2013/14

# Table of Contents


***LIST OF TABLES*** ..... **6**

***LIST OF FIGURES*** ..... **7**

***ABBREVIATIONS AND DEFINITIONS*** ..... **7**

**1. EXECUTIVE SUMMARY** ..... **8**

1.1 THE PURPOSE OF THE ANNUAL WSDP PERFORMANCE AND WATER SERVICES AUDIT REPORT ..... 8
1.2 METHODOLOGY FOLLOWED ..... 8
1.3 WSA'S AREA OF JURISDICTION ..... 8
1.4 AVAILABILITY OF THE WATER SERVICES AUDIT REPORT ..... 8

**2. POLICY AND REGULATION** ..... **9**

2.1 POLICY AND BY-LAWS ..... 9
2.2 REGULATION ..... 9
2.3 EDUCATION & AWARENESS ..... 10
2.4 ENFORCEMENT ..... 10

**3. PERFORMANCE MEASUREMENT AND ACHIEVEMENTS** ..... **11**

3.1 PERFORMANCE MANAGEMENT SYSTEM ..... 11
*3.1.1 Service points provided to Informal Settlements* ..... *11*
3.2 PERFORMANCE HIGHLIGHTS ..... 11
*3.2.1 Drinking Water Quality* ..... *11*
*3.2.2 Waste Water Quality* ..... *12*

**4. DEMOGRAPHICS AND SOCIO–ECONOMIC ENVIRONMENT** ..... **13**

4.1 LOCATION ..... 13
*4.1.1 Brief History* ..... *15*
*4.1.2 Situation Assessment* ..... *15*
*4.1.2.1 Organisational assessment* ..... *15*
*4.1.3 Topography* ..... *17*
*4.1.4 Climate* ..... *19*
*4.1.5 Urban Growth Perspective* ..... *19*
*4.1.5 Economics* ..... *23*
4.2 SOCIAL ECONOMIC PROFILE ..... 28
*4.2.1 Dwellings* ..... *28*
*4.2.2. Poverty* ..... *30*
*4.2.3. Health Status: HIV/AIDS* ..... *30*
4.3. TOTAL POPULATION ..... 30
4.4. TOTAL NUMBER OF HOUSEHOLDS AND AVERAGE HOUSEHOLD SIZE ..... 31

**5. SERVICE LEVELS** ..... **33**

5.1 SERVICE LEVEL ..... 33
*5.1.1. None or inadequate* ..... *33*
*5.1.2. Basic water supply comprises* ..... *33*
*5.1.3. Basic sanitation comprises* ..... *33*
*5.1.4. Water Service Levels* ..... *34*
*5.1.5. Uncontrolled volume supply* ..... *34*
5.2. SERVICE LEVEL PROFILE OF CCT ..... 35
*5.2.1. Residential consumer units* ..... *35*
*5.2.2. Residential consumer units for water* ..... *37*
*5.2.3. Residential consumer units for sanitation* ..... *38*
*5.2.4. Backyard Dwellers* ..... *39*
*5.2.5. Grey Water Management* ..... *40*
*5.2.6. Residential consumer units for water and sanitation* ..... *41*
*5.2.7 Pit emptying and sludge disposal* ..... *41*

*5.2.8. Types of sanitation technology options* ..... *41*
*5.2.9. Informal Settlements – maintain basic service* ..... *41*

**6. INFRASTRUCTURE** ..... **42**

6.1 INFRASTRUCTURE PROFILE ..... 42
*6.1.1. Situation assessment* ..... *42*
*6.1.2 Status of All Water and Sanitation Infrastructure* ..... *42*
*6.1.3 Trends and goals* ..... *43*
*6.1.4 Strategic gaps.* ..... *43*

**7. OPERATION AND MAINTENANCE** ..... **46**

7.1. OPERATION AND MAINTENANCE ..... 46
*7.1.1. Water Network Performance* ..... *46*
*7.1.2. Sewer Network Performance* ..... *47*
*7.1.3. Water Process Control, Maintenance and Management Skill* ..... *48*
*7.1.4. Waste Water Operations (Process Control), Maintenance and Management Skill* ..... *50*
*7.1.5 Wastewater Effluent non-compliance* ..... *51*
*7.1.7 Wastewater Final Effluent Quality* ..... *55*
*7.1.8 Status of Equipment and Plant at Bulk Water Installations (June 2014)* ..... *57*
*7.1.9 Status of Equipment and Plant on Pump Stations (as at August 2013)* ..... *61*

**8. ASSOCIATED SERVICES** ..... **62**

8.1. WATER SERVICES ..... 62
*8.1.1. Education Plan* ..... *62*
*8.1.2 Health Plan* ..... *62*
*8.1.3 Police Services* ..... *62*
8.2 SANITATION SERVICES ..... 63
*8.2.1 Education Plan* ..... *63*
*8.2.2 Health Plan* ..... *63*
*8.2.3 Police services* ..... *64*

**9. WATER CONSERVATION AND DEMAND MANAGEMENT** ..... **65**

9.1 PRESSURE MANAGEMENT (MAJOR AND MINOR PROJECTS) ..... 65
9.2 RETROFITTING AND LEAK FIXING ..... 66
9.3 WATER AWARENESS AND EDUCATION ..... 66

**10. WATER RESOURCES** ..... **68**

10.1 MAJOR DAM LEVELS ..... 68
10.2 MINOR DAM LEVELS ..... 68
10.3 WATER USE EFFICIENCY (POTABLE WATER) ..... 69

**11. FINANCIAL PERFORMANCE** ..... **72**

11.1 CAPITAL EXPENDITURE AND SOURCES ..... 72
11.2 TARIFFS AND CHARGES ..... 73
11.3 OPERATING BUDGET ..... 74

**12. WATER SERVICES INSTITUTIONAL ARRANGEMENTS** ..... **75**

12.1 SITUATION ASSESSMENT ..... 75
12.2 FUTURE TRENDS AND GOALS ..... 76
*12.2.1. Strategic gap analysis* ..... *76*
*12.2.2. Implementation strategies* ..... *76*
*12.2.3. Bylaws affecting water services* ..... *77*

**13. SOCIAL AND CUSTOMER REQUIREMENTS** ..... **78**

13.1 SITUATION ASSESSMENT ..... 78
13.2 FUTURE TRENDS AND GOALS ..... 79
13.3 STRATEGIC GAP ANALYSIS ..... 79
13.4. IMPLEMENTATION STRATEGIES ..... 80
13.5. CUSTOMER SERVICES ..... 81
13.6. CUSTOMER/CONSUMER CHARTER ..... 81
*13.6.1. Customer right to access* ..... *81*
13.7. CUSTOMER SURVEYS ..... 82

*13.7.1. Water and Sanitation Objectives for Customer Surveys* ..... *82*
*13.7.2. Improved Metering of Informal Settlements Consumption* ..... *83*
*13.7.3. Key Strategic Issues* ..... *83*
13.8 QUALITY OF SERVICE FOR WATER: URBAN ..... 84
13.9 EDUCATION FOR BASIC WATER SERVICES ..... 85
**14. PROJECTS COMPLETED ..... 86**
**15. NON-FINANCIAL PERFORMANCE ..... 101**

## LIST OF TABLES


TABLE 1: SERVICE POINTS PROVIDED TO INFORMAL SETTLEMENTS ..... 11
TABLE 2: MUNICIPAL BLUE DROP SCORE ..... 12
TABLE 3: ESTIMATED HOUSEHOLDS LIVING IN DWELLING TYPES FOR 2011 CENSUS ..... 28
TABLE 4: INFORMAL DWELLING PER DISTRICT (INFORMAL SETTLEMENTS) AS DECEMBER 2012 ..... 29
TABLE 5: CAPE TOWN 2011 HOUSEHOLD AND POPULATION GROWTH ..... 31
TABLE 6: NATIONAL MINIMUM BASIC SERVICE STANDARDS ..... 34
TABLE 7: SERVICE LEVEL PROFILE IN INFORMAL SETTLEMENTS (AS AT JUNE 2014) ..... 35
TABLE 8: RESIDENTIAL CONSUMER UNITS ESTIMATED AS AT JUNE 2014 (FORMAL & INFORMAL) ..... 35
TABLE 9: CATEGORIZATION OF SERVICES STANDARDS IN INFORMAL SETTLEMENTS ..... 37
TABLE 10: WATER: PROFILE OF CONSUMERS AS AT JUNE 2014 ..... 38
TABLE 11: SANITATION: PROFILE OF CONSUMERS ..... 38
TABLE 12: BASIC SANITATION TECHNOLOGIES INSTALLED AND HOUSEHOLDS SERVICED IN INFORMAL SETTLEMENTS (JUNE 2014) ..... 39
TABLE 13: INFRASTRUCTURE OF WATER AND SANITATION SERVICES -ESTIMATED REPLACEMENT COST ..... 42
TABLE 14: CAPITAL SPEND DURING THE LAST 3 YEARS AS AT JUNE 2014 ..... 43
TABLE 15: CHAMBER COVERS REPLACEMENT ..... 44
TABLE 16: SEWER BLOCKAGE INCIDENTS ..... 44
TABLE 17: SEWER NETWORKS REPAIRS AND MAINTENANCE ..... 45
TABLE 18: TOTAL LENGTH OF PIPE NETWORK AS AT JUNE 2014 ..... 47
TABLE 19: ESTIMATED SEWER REHABILITATION LENGTHS AS AT JANUARY 2013 ..... 48
TABLE 20: POTABLE WATER QUALITY FOR THE MONTH OF JULY 2014 ..... 49
TABLE 21: AN EXCEPTION REPORT ON WASTEWATER EFFLUENT NON-COMPLIANCE AS AT JUNE 2013/14 FINANCIAL YEAR ..... 51
TABLE 22: LISTS MONTHLY TREATED EFFLUENT CONSUMPTION VOLUMES (ML/MONTH) PER WASTE WATER TREATMENT WORKS ..... 53
TABLE 23: FINAL EFFLUENT QUALITY FOR ALL THE WASTEWATER WORKS ..... 55
TABLE 24: STATUS OF EQUIPMENT AND PLANT AT BULK WATER INSTALLATIONS ..... 57
TABLE 25: WATER DISTRIBUTION NETWORKS ..... 58
TABLE 26: WATER METER CONNECTIONS (PERFORMED BY DEPOT) ..... 59
TABLE 27: SEWERAGE BLOCKAGES PER AREAS OF METRO FOR JUNE 2014 ..... 60
TABLE 28: PUMP STATIONS SEWER SPILLAGE ..... 61
TABLE 29: HEALTH PLAN FOR WATER SERVICES ..... 62
TABLE 30: THE 10 YEAR GROWTH IN POLICE STATIONS RECEIVING WATER SERVICES ..... 63
TABLE 31: HEALTH PLAN FOR SANITATION ..... 63
TABLE 32: STORAGE IN THE MAJOR DAMS OF THE WCWSS AT 30 JUNE 2014 ..... 68
TABLE 33: INDICATES THE CAPACITIES OF THE MINOR DAMS SUPPLYING WATER TO CAPE TOWN ..... 68
TABLE 34: POTABLE WATER PRODUCTION AND SUPPLY AS AT JUNE 2014 ..... 69
TABLE 35: WATER BALANCE , 2013/14 FINANCIAL YEAR ..... 71
TABLE 36: WATER AND SANITATION THREE YEAR CAPITAL EXPENDITURE ..... 72
TABLE 37: WATER AND SANITATION TARIFFS TRENDS (EXCL. VAT) ..... 73
TABLE 38: PRIOR YEARS OPERATING BUDGET ..... 74
TABLE 39: THE BYLAWS AFFECTING WATER SERVICES ARE LISTED IN THE TABLE BELOW ..... 77
TABLE 40: CUMULATIVE NOTIFICATION STATISTICS JULY 2013 - JUNE 2014 ..... 85
TABLE 41: 2013/14 PROGRESSIVE CAPITAL EXPENDITURE REPORT (PROVISIONAL) ..... 90
TABLE 42: THE LINK BETWEEN DEPARTMENTAL PROGRAMMES AND IDP FOCUS AREAS ..... 101
TABLE 43: 2013/2014 WATER AND SANITATION DEPARTMENT SDBIP – 4TH QUARTER PERFORMANCE ..... 103

## LIST OF FIGURES


FIGURE 1: LOCALITY MAP OF CCT ..... 14
FIGURE 2: STRUCTURE OF WATER AND SANITATION DEPARTMENT ..... 15
FIGURE 3: RETICULATION DISTRICTS ..... 15
FIGURE 4: TOPOGRAPHY ..... 18
FIGURE 5: LOCATION OF URBAN GROWTH ..... 20
FIGURE 6: EXISTING LAND USE AND POTENTIAL FUTURE DEVELOPMENT AREAS ..... 21
FIGURE 7: AREAS POTENTIALLY SUITED TO URBAN AND INDUSTRIAL DEVELOPMENT ..... 22
FIGURE 8: COMPARISON OF GDP CONTRIBUTIONS: CAPE TOWN AND SOUTH AFRICAN METROS ..... 24
FIGURE 9: EMPLOYMENT LEVELS IN CAPE TOWN, 2005-2013 ..... 25
FIGURE 10: SOCIO-ECONOMIC INDEX FOR CAPE TOWN – CENSUS SUBURBS ..... 27
FIGURE 11: PERCENTAGE CAPE TOWN HOUSEHOLDS LIVING IN DWELLINGS ..... 28
FIGURE 12: HOUSEHOLDS EARNING BELOW HOUSEHOLD SUBSISTENCE LEVEL ..... 30
FIGURE 13: HOUSEHOLD VS POPULATION GROWTH ..... 32
FIGURE 14: LOCATION OF INFORMAL AREAS WITHIN THE CITY ..... 36
FIGURE 15: BREAKDOWN OF RESIDENTIAL CONSUMER UNITS AS AT END OF JUNE 2014 ..... 41
FIGURE 16: WATER NETWORK PERFORMANCE AS AT JUNE 2014 ..... 46
FIGURE 17: SEWER NETWORK PERFORMANCE AS AT JUNE 2014 ..... 47
FIGURE 18: DISTRIBUTION OF INSTITUTIONS BEING SERVICED ..... 64
FIGURE 19: WATER DEMAND PROJECTION ..... 67
FIGURE 20: WATER DEMAND AND NON-REVENUE WATER FOR THE CITY OF CAPE TOWN ..... 70
FIGURE 21: WATER SERVICE INSTITUTIONAL ARRANGEMENTS ..... 75
FIGURE 22: CUSTOMER SATISFACTION LEVELS OVER TIME ..... 78
FIGURE 23: BUDGET EXPENDITURE BY BRANCH ..... 100


## ABBREVIATIONS AND DEFINITIONS

| Term / Acronym | Definition |
|---|---|
| CCT | City of Cape Town |
| CMA | Cape Metropolitan Area |
| DWS (National) | Department of Water and Sanitation |
| EAM | Engineering Asset Management |
| IDP | Integrated Development Plan |
| RPMS | Regulatory Performance Measurement System |
| SDBIP | Service Delivery Business Implementation Plan |
| USPC | Utility Services Portfolio Committee |
| WDM & S | Water Demand Management & Strategy |
| WSA | Water Service Authority |
| WSDP | Water Services Development plan |
| WSP | Water Service Provider |
| WWTW | Waste Water Treatment Works |
| YTD | Year-to-date |

# 1. EXECUTIVE SUMMARY

## 1.1 THE PURPOSE OF THE ANNUAL WSDP PERFORMANCE AND WATER SERVICES AUDIT REPORT

- To provide a record of the Water and Sanitation-related activities of the Water Service Authority (City of Cape Town) and specifically that of the Water and Sanitation Department, during the reviewed financial year;
- To provide an audit of performance against the budget and Water Services Development Plan (WSDP) of the WSA for that financial year; and
- To promote accountability to the community for the decisions made by the municipality (as WSA) during the year.

## 1.2 METHODOLOGY FOLLOWED

The Branch Managers and their responsible staff within the department were consulted for input covering their respective areas of responsibility as follows:

- Reticulation
- Water Demand Management and Strategy (WDM&S)
- Scientific services
- Bulk Water
- Wastewater Treatment
- Finance (Water and Sanitation)
- Engineering Asset Management (EAM)
- Support Services (Water and Sanitation)

Monthly Utility Services Portfolio Committee Reports (USPC), monthly branch reports and the WSDP were used as a source of information for input and verification. Lastly the draft report was circulated for comment to Branch Managers and revised.

## 1.3 WSA'S AREA OF JURISDICTION

The City (WSA/WSP) provides water and sanitation services to the City of Cape Town Metro and also supplies a portion of the requirement for bulk water to Stellenbosch and Drakenstein municipalities.

## 1.4 AVAILABILITY OF THE WATER SERVICES AUDIT REPORT

The audit report is made available annually and is accessible on the City's website.

# 2. POLICY AND REGULATION

## 2.1 POLICY AND BY-LAWS

Following on the introduction of an incentive rebate-based provision in the Tariff policy to encourage compliance, a rebate contract was drafted, approved and a pilot implementation commenced. A rebate is given to dischargers who invest in infrastructure that serve to improve the quality of effluent discharged.

Furthermore, polluters will pay more as more stringent measures have been introduced to calculate the charges thereof; the formula is in the approved tariff policy, becoming effective 1 July 2014.

The Wastewater & Industrial effluent by-law has been finalised and promulgated on 7 February 2014, PG 7227. The Fine schedule for this by-law was approved by the Chief Magistrate on 13 June 2014. The erstwhile Department of Water Affairs' (DWA's) General Authorisations have been finalised and promulgated on 6 September 2013. The Treated Effluent by law, together with the water by-law, has been reviewed and is currently in the process of amendment. National legislation changes and other challenges experienced on the ground have been the basis for the review of these by-laws.

## 2.2 REGULATION

The City takes guidance from the National Water Services Regulation Strategy drafted on the Draft 8.1, May 2007.

The core of regulation is to protect the consumer and the public interest by ensuring the following:

- Compliance with minimum national norms and standards.
- Good performance and efficient use of resources.
- Good contracting practice.

The National Strategy calls for a developmental approach that has the following key components:

- Implementing priority programmes
- Building foundation for effective regulation
- Implement the full scope of regulation

The city endorses this approach and is committed to playing a lead role in implementing and maintaining the full scope of regulation.

The Department continues to participate in the Department of Water and Sanitation's (DWS) annual Regulatory Performance Management System audits. The key focus areas for 2013 were: customer satisfaction, contract management and risk management. .

## 2.3 EDUCATION & AWARENESS

Creating awareness on water by-laws is an on-going programme, which is carried out on a daily basis by inspectors and, now a normal part of compliance monitoring. The media platforms are also used to impart information and raise awareness on a number of issues. The approach used in the residential sector is to make use of and support the Expanded Public Works Programme, wherein fieldworkers are sourced from the sub-council areas, trained and employed to conduct door-to-door education and awareness on a specific subject matter.

The sewer blockages awareness campaign continues to be rolled out in phases in other parts of the City of Cape Town. In the 2013/14 year, the areas covered include: Gugulethu, Bonteheuwel, Macassar, Delft, Bishop Lavis, Netreg/Charlesville, Delft/South, Strand, Durbanville, Philippi, Dunoon, Bellville, Khayelitsha, Parow, Mitchells Plain, Grassy Park, Kraaifontein, Ottery & Parkwood, Goodwood and Elsies River.

## 2.4 ENFORCEMENT

A total of 30 fines were issued in the 2013/14 year. Law enforcement training is on-going for all new inspectors, followed by their appointments as Peace Officers. Revenue relating to by-law enforcement for the 13/14 financial year was as follows:

- Miscellaneous amounted to R1 648,342, 64.
- Treated Effluent amounted to R5, 670, 022,32 and
- Industrial Effluent to R21, 326, 023, 84.

# 3. PERFORMANCE MEASUREMENT AND ACHIEVEMENTS

## 3.1 PERFORMANCE MANAGEMENT SYSTEM

Performance management is developed around progress measurement and reporting regularly to different council committees. At the moment performance reporting is done monthly, quarterly and annually. These reports track progress against the Water Services Development Plan with specific targets set in the SDBIP, presented in full in Chapter 15: Non-Financial Performance.

The SDBIP is the basis for performance measurement, and progress reporting. Certification such as Blue Drop, Green Drop, and No Drop is the public notification of performance achievement for water quality, wastewater treatment and water loss reduction respectively.

### 3.1.1 Service points provided to Informal Settlements

**Table 1: Service Points provided to Informal Settlements**

| Additional Service points provided (Financial Year-To-Date) | | | | | | |
|---|---|---|---|---|---|---|
| **Month** | **Water (Number of Taps)** | | | **Sanitation (Number of Toilets)** | | |
| | **Informal Settlement** | **Backyarders** | **Total** | **Informal Settlement** | **Backyarders** | **Total** |
| August 2013 | 36 | 0 | 36 | 118 | 0 | 118 |
| September 2013 | 83 | 120 | 203 | 1 868 | 120 | 1 988 |
| October 2013 | 371 | 160 | 531 | 3 309 | 160 | 3 469 |
| November 2013 | 698 | 210 | 908 | 4 624 | 210 | 4 834 |
| December 2013 | 954 | 210 | 1 164 | 4 624 | 210 | 4 834 |
| January 2014 | 982 | 305 | 1 287 | 4 948 | 305 | 5 253 |
| February 2014 | 982 | 394 | 1 376 | 5 028 | 394 | 5 422 |
| March 2014 | 1 019 | 412 | 1 431 | 5 509 | 412 | 5 921 |
| April 2014 | 1 087 | 412 | 1 499 | 5 805 | 412 | 6 217 |
| May 2014 | 1 223 | 573 | 1 796 | 6 405 | 573 | 6 978 |
| June 2014 | 1 438 | 591 | 2 029 | 8 382 | 591 | 8 973 |
| **SDBIP TARGET - June 2014** | | | **1 020** | | | **3 100** |

## 3.2 PERFORMANCE HIGHLIGHTS

### 3.2.1 Drinking Water Quality

As witnessed by the DWS's Blue Drop system, Figure 1 below indicates how well City of Cape Town (CCT) compares to the rest of the country's Metros. DWS dropped the number of assessment categories since 2009 (from 9 to 5). The City's Blue Drop score is still an extremely high 98.14 %.

**Table 2: Municipal Blue Drop Score**

| YEAR OF ASSESSMENT | № OF ASSESSMENT CATEGORIES | BD SCORE % | COMMENT |
|---|---|---|---|
| 2009 | 9 | 100 | One of only 3 municipalities to get 100% |
| 2010 | 9 | 98.18 | 2nd in SA Top 10 |
| 2011 | 8 | 97.61 | 2nd in SA Top 10 Platinum Award for 3 successive BD Awards |
| 2012 | 5 | 98.14 | 6th in SA Top 10 Platinum Award for 4 successive BD Awards |

The Blue Drop System was initiated by DWS as part of the Drinking Water Quality (DWQ) regulation programme to instil public confidence in drinking water. To qualify for a Blue Drop certificate a water service authority must score at least 95% in meeting the criteria set by the DWS. The water quality has to meet the standard from where it is stored until it is used by the consumer. Adequate staffing with suitable skills coupled to a training regime also forms part of the certification process which is done by virtue of a physical audit conducted by DWS officials.

These include additional aspects like the maintenance and monitoring of the catchment and storage areas and facilities, the pipeline and distribution systems, and the water treatment facilities and processes.

City of Cape Town has been awarded the Blue Drop certification every year since the launch of this programme in 2008/9. At the latest awards ceremony in 2012 the City obtained the highest score in the Western Cape of 98.14% and is one of ten municipalities in the Western Cape that achieved Blue Drop status. This was the 6th best score in the country. The City also received a Platinum Blue Drop Award for its consistent excellent performance for four years (2009 - 2012) and remains in the top performing group of water service authorities in South Africa.

### 3.2.2 Waste Water Quality

In order to facilitate a more transparent way to indicate the level of confidence the Department of Water and Sanitation (DWS), the Regulator, has in waste water quality management, the Department initiated a method of awarding towns within Water Services Authorities with Green Drop status. This status is achieved if the WSA complies with waste water legislative requirements and other best practice requirements are being implemented.

According to DWS's latest Green Drop report (for 2013), the average Green Drop score was 89.23%. This measures the quality of the City's wastewater treatment facilities. It showed a steady improvement on the 2011 Green Drop score of 86.80%, as well as the 2009 score of 82.00%. Ten of the WWTWs scored higher than 90%, including Cape Flats, Macassar-Strand, Kraaifontein, Scottsdene, Zandvliet, Wildevoëlvlei and Parow, thereby qualifying for Green Drop status.

# 4. DEMOGRAPHICS AND SOCIO–ECONOMIC ENVIRONMENT

Although South Africa's urbanisation is advancing at a slower rate compared to the African average, urban areas were home to 63% of the population in 2013, having increased from the urban tipping point reached in the early 1990s, when 50% of the population were urban. By 2030, it is projected that 71% of the population will have urbanised. This places pressure on urban water services infrastructure and suggests the focus for planning and delivery of water services in the future.

## 4.1 LOCATION

The City of Cape Town (CCT) is located in the Western Cape Province on the south-eastern corner of South Africa as indicated on Figure 1. The total area is approximately 2 461 km2 and its coastline is 294 km long (Annual Report).

Description of settlement types within the City of Cape Town:

- Urban – Formal towns within vicinity of urban cores
- Dense – Dense rural settlements with population > 5000
- Village – Rural village with population between 500 and 5000
- Scattered – Scattered rural village with population less than 500
- Farmlands – Farming.


**Figure 1: Locality Map of CCT**

### 4.1.1 Brief History

At the time of the formation of the new City of Cape Town in 2000, it had more than 27 000 staff and a budget of R8.9 billion. At a practical level, there was the huge challenge of merging staff, functions, systems, infrastructure and equipment from the seven administrations into one entity. Just over a decade later, the City now has a staff complement of just over 25 000 employees, and a budget of R27.1 billion (R5,070 billion capital, R22.1 billion operating).

### 4.1.2 Situation Assessment

#### 4.1.2.1 Organisational assessment

Currently, the CCT carries both the constitutional responsibility for water services provision, as the Water Services Authority, and the operational responsibility, as the Water Services Provider, through the Water and Sanitation Services Department.

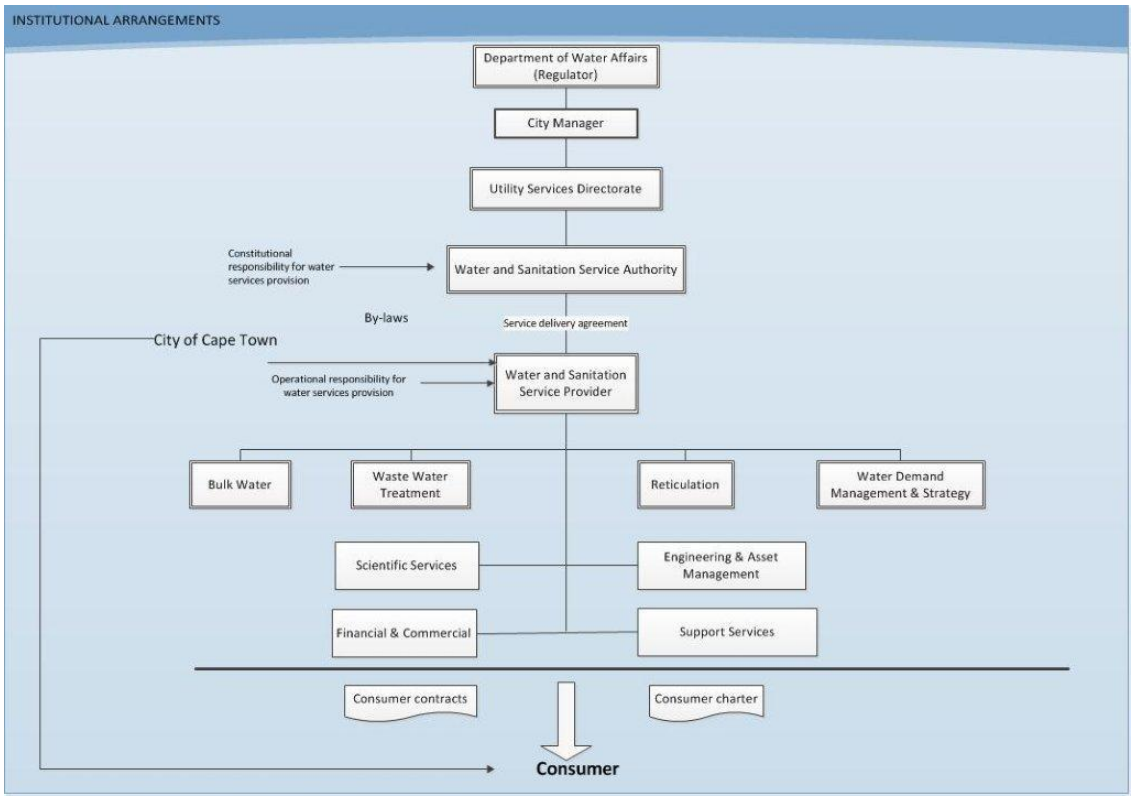


**Figure 2: Structure of Water and Sanitation department**

The Bulk Water Branch of the CCT operates the bulk water supply system. The metro consists of eight reticulation districts shown in Figure 3 below:

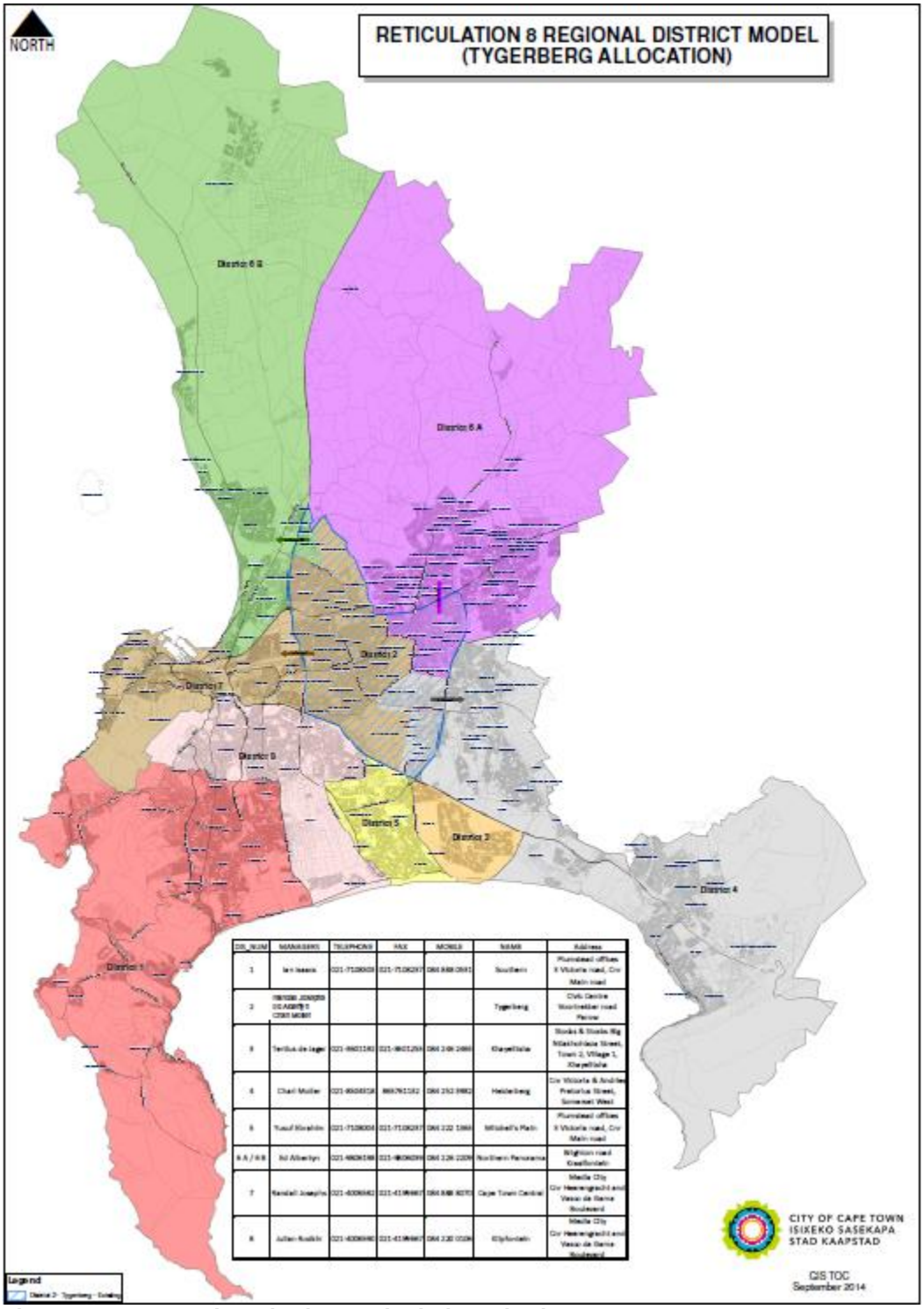


**Figure 3: Water and Sanitation Reticulation Districts**

From a value-chain perspective, catchment areas above the dams are managed; raw water is impounded in the dams then conveyed to and treated at water treatment plants. The bulk treated water is then strategically conveyed via a network of large diameter pipelines and bulk reservoirs to the bulk meters of the various districts of the City and the neighbouring Local Municipalities. The Bulk Water Branch allocates demand load to the various bulk supply sub-systems in order to maximise the yield of the dams of the Western Cape Water Supply System, which incorporates both City-owned and DWS-owned dams. The Bulk water branch is responsible for the value chain to this point.

The districts of the Reticulation Branch then distribute the water through the secondary distribution network to the end-users.

Wastewater collection and treatment is also carried out by the Water and Sanitation Department. The wastewater collection function falls under the Reticulation Branch, whereas treatment is undertaken by the Wastewater Treatment Branch.

### 4.1.3 Topography

The area consists of varying topography which includes flat plains, hills and mountains. High mountains are located fairly close to the sea; e.g. Table Mountain which exceeds 1 000 m in elevation. Other high mountains on the perimeter include the Hottentots-Holland, Helderberg, Stellenbosch, Jonkershoek, Franschhoek, Wemmershoek, Du Toitskloof, Paarl, Slanghoek, Limiet and Elandskloof mountains. These mountains form an eastern perimeter of mountains around the CCT, as shown on Figure 4.

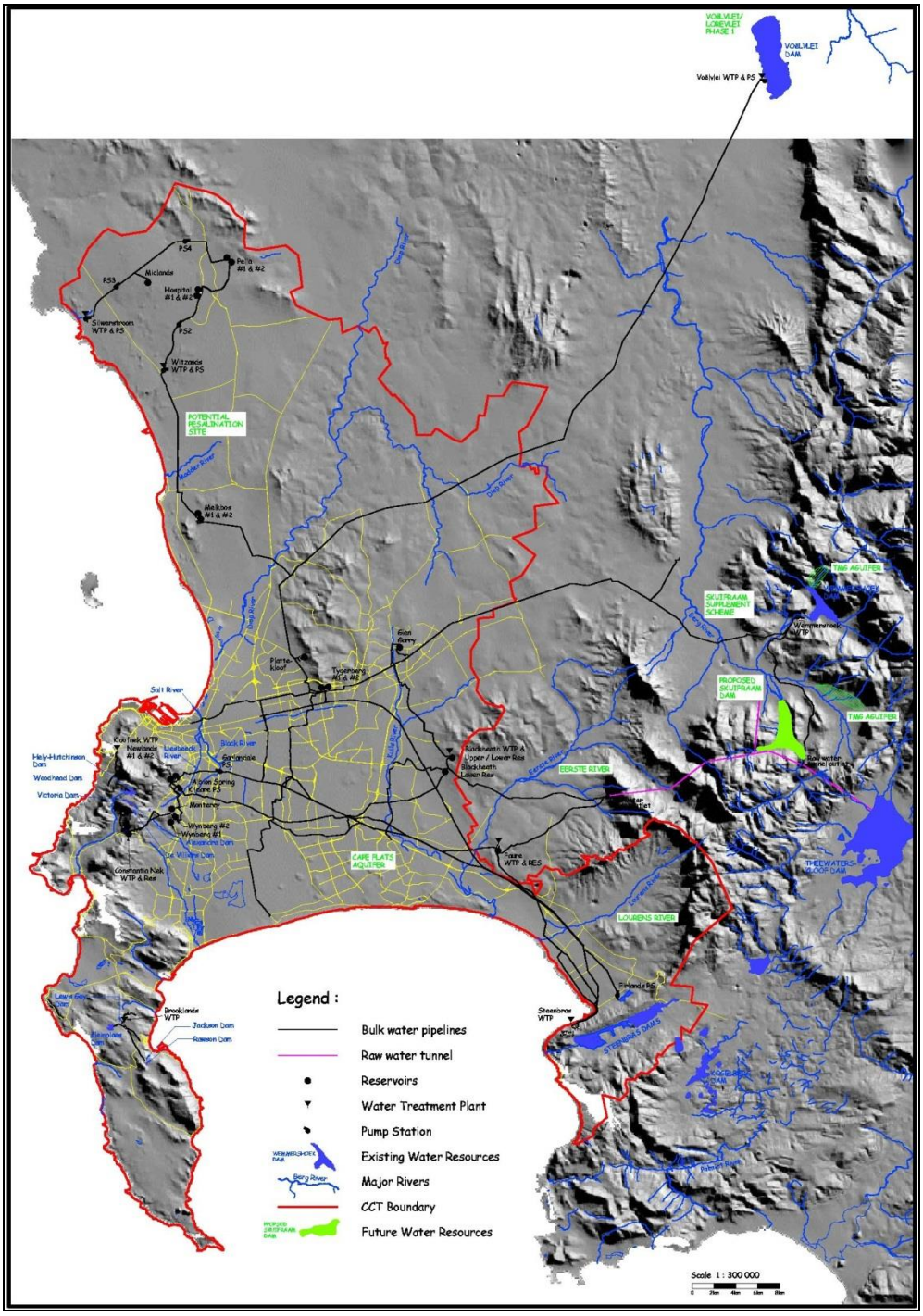


**Figure 4: Topography**

This topography has helped to establish a reliable water resource supply, network and storage for metro.

A major portion of the CCT consists of the area known as the Cape Flats, which has an elevation of between 20 and 45 m above sea level. This area is relatively low-lying and can be supplied via the bulk supply network from large reservoirs with top water levels at 110 m above mean sea level (AMSL). The mountainside developments in Somerset-West, along Table Mountain and the Peninsula mountain range, as well as the hilly development in Durbanville, Brackenfell-north, and the Atlantis area are at elevations, which are too high to be supplied from the 110 m ASL reservoirs. Very few areas with water demand are located at elevations higher than 200 m ASL.

The rivers in the CCT are relatively small. Some rivers worth mentioning are the Salt-, the Diep-, the Black-, the East-, Quills-, Moderate- and Lorenz rivers. The rivers which are utilised as water sources lie mostly outside of the CCT. These are the tributaries to the Berg River namely the Wolwekloof and Banhoek tributaries, Sonderend-, Palmiet-, Klein Berg- and Leeu rivers. Of these, the Berg River that flows in a northerly and later westerly direction is by far the largest.

### 4.1.4 Climate

Cape Town has a Mediterranean-type climate with well-defined seasons. Cape Town has a mean annual rainfall of 515mm/annum and an average temperature of 16.7ºC. The CMA is a winter rainfall area.

In the winter months, May through August, cold fronts sweep across the Atlantic and bombard Cape Town with rain and the north-west gales. The winters are cool with an average minimum temperature of about 7° C. Most of the rainfall occurs in winter, but due to the topography the rainfall varies quite dramatically. In the valleys and coastal plains it averages 500mm per year, while in the mountainous areas it can average as much as 1500mm a year.

The meteorological depressions that typically bring rain to this area during winter move past to the south of the area (and the land mass) during summer; resulting in long dry spells. It is during the dry summer, November through to February, that the water demands are highest, due to the higher temperatures and the fact that watering of gardens is the norm in almost all the residential areas. Summer temperatures average at maximum around 26°C.

The contrast between the winter and summer season complicates the management of a bulk water supply system, as sufficient run-off needs to be stored during winter in order to meet the increased water demand in the hot and dry summer months.

### 4.1.5 Urban Growth Perspective

As of September 2007, the extent of the City of Cape Town urban sprawl is calculated to be 38 408 ha. Cape Town is growing at a rate of 650 ha per year. Currently (mid 2014), the population of Cape Town is estimated to be 3 860 589, constituting 64.12% of the Western Cape's population which makes the province predominantly urban. Refer to Figure 5 for location of Urban Growth (Expansion of Urban CT, 2009).

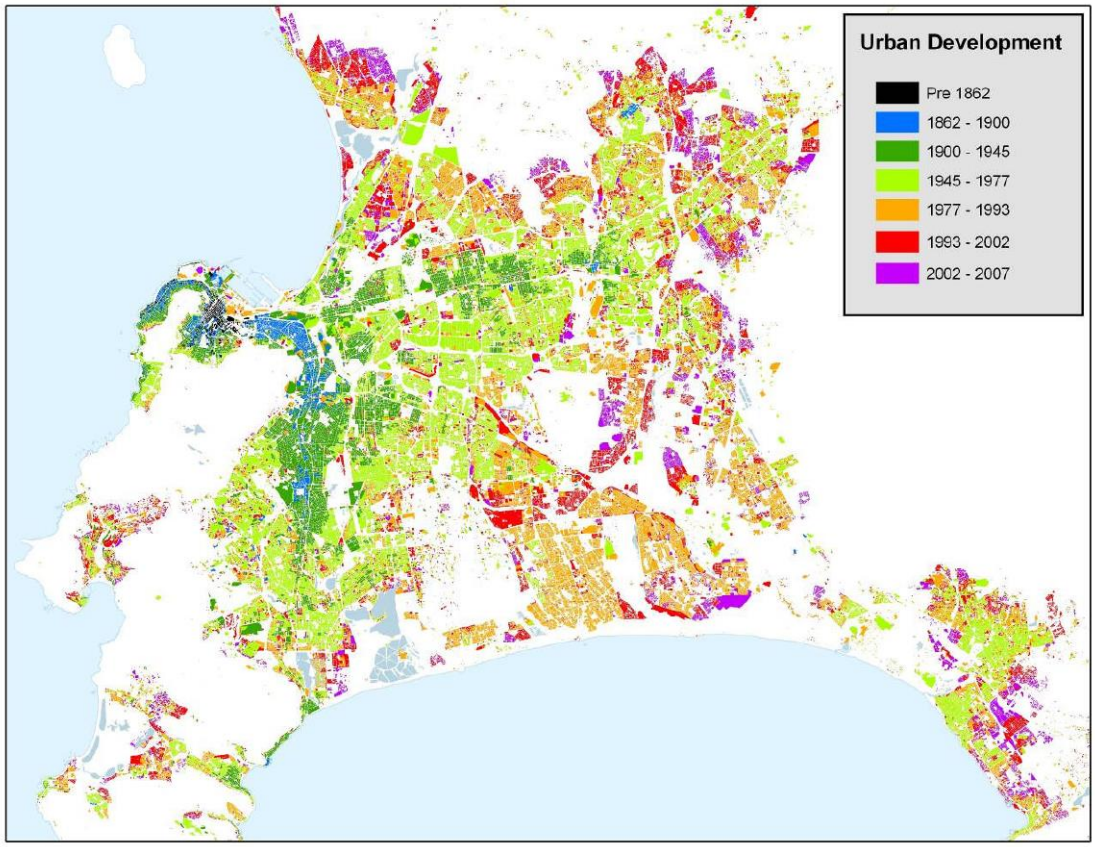


**Figure 5: Location of Urban Growth**
**Source:** *Expansion of Urban CT, 2009*

Much of the recent growth has contributed to sprawl with relatively low density suburban residential development driving this process, although higher density, higher income residential development in the CBD has accelerated in the past few years. Concentration of populations in urban areas greatly reduces the unit cost of piped water, sewers, drains and roads. The use of environmentally friendly energy sources and transport can reduce these costs even further.

The existing land use and potential future development areas are shown in Figure 6 and Figure 7 below.

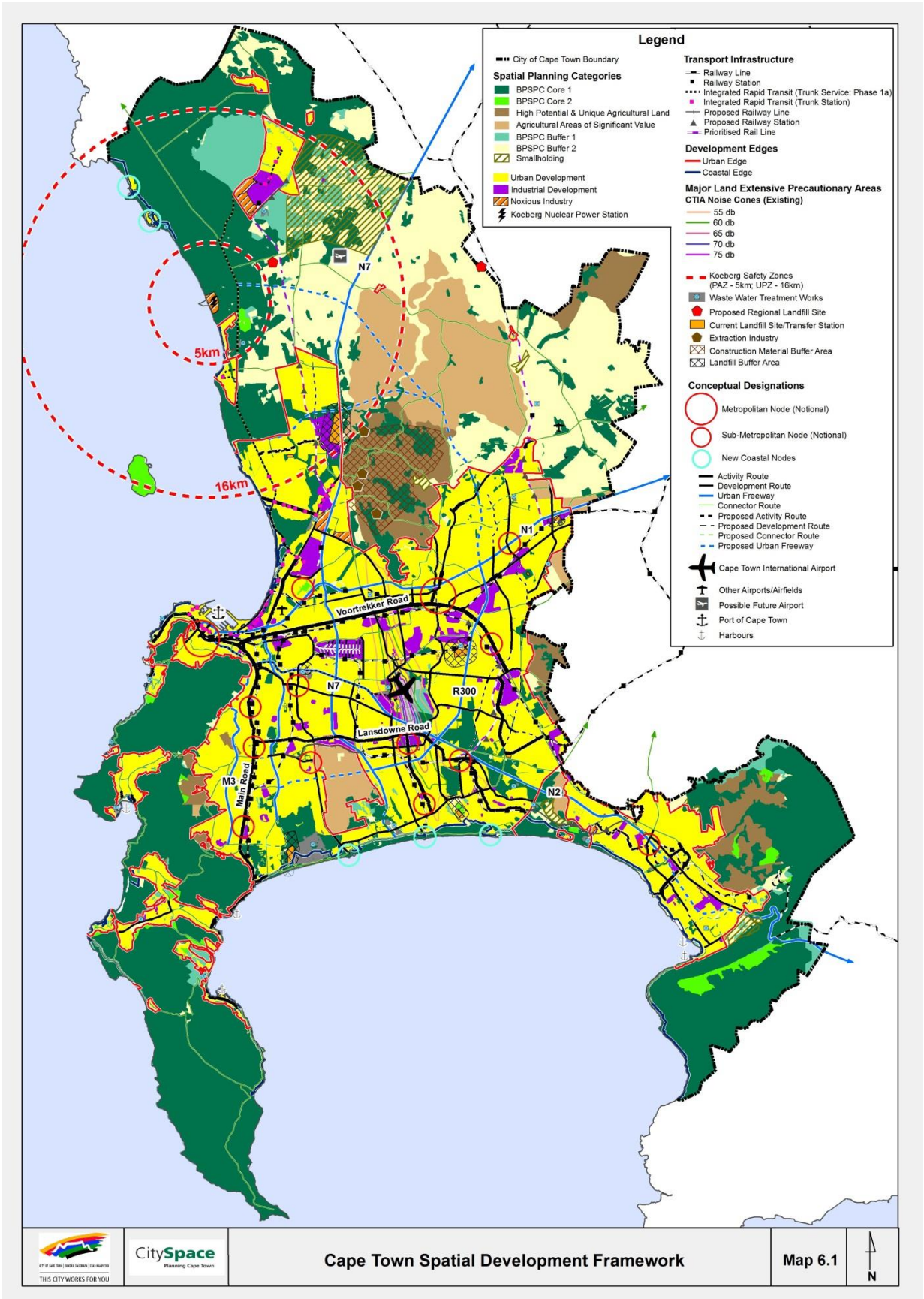


**Figure 6: Existing Land Use and Potential Future Development Areas**
**Source:** *Cape Town Spatial Development Framework: Technical Report 2012*

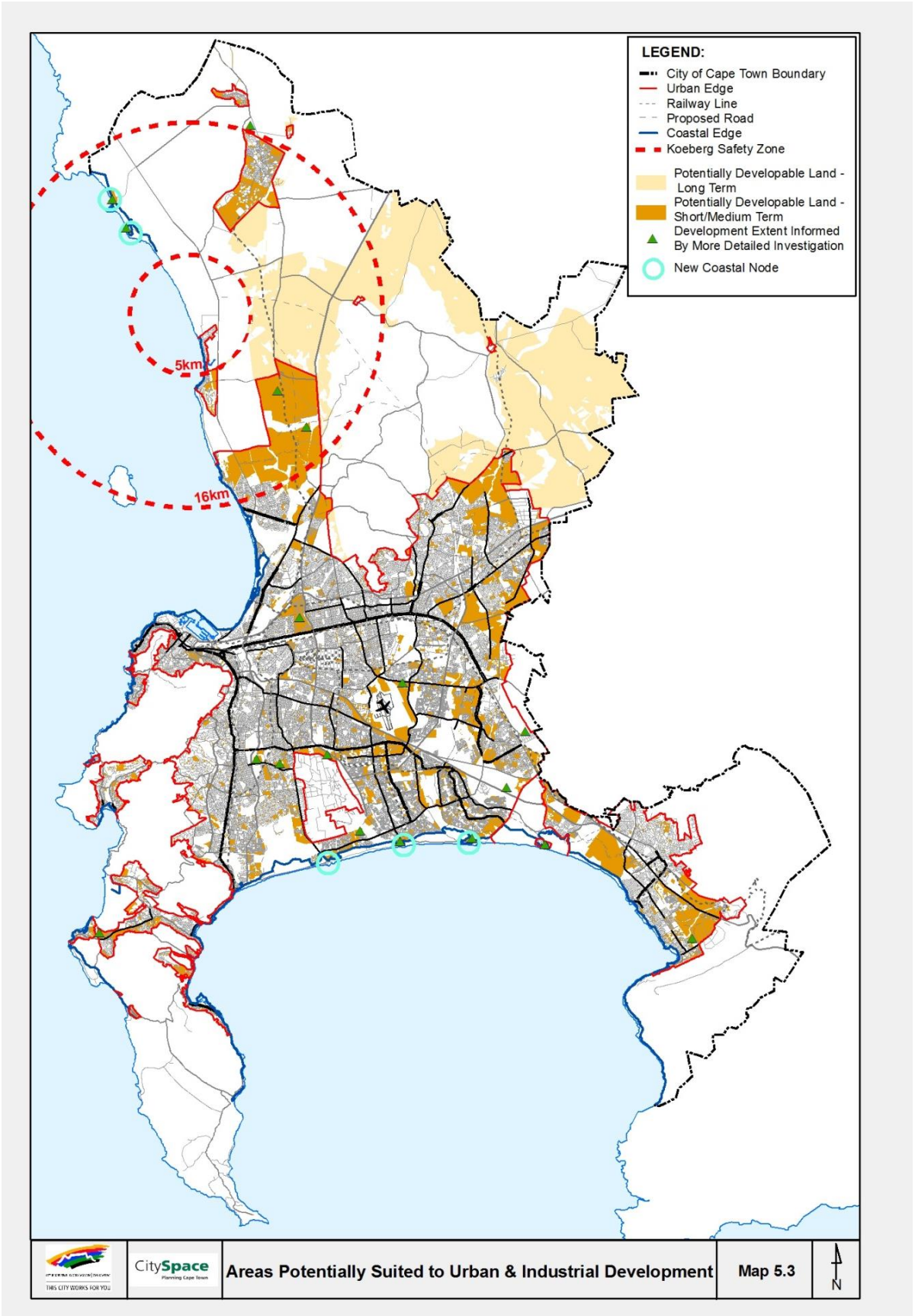


**Figure 7: Areas Potentially Suited to Urban and Industrial Development**
**Source:** *Cape Town Spatial Development Framework: Technical Report 2012*

The major dams from which the CCT is supplied are situated outside the mountainous eastern perimeter of the area, except for the Steenbras Upper and the Steenbras Lower Dams:

- The Theewaterskloof dam near Villiersdorp is the major water source of the CCT and forms part of a large inter-basin water transfer scheme that regulates the flow from the Sonderend-, Berg- and Eerste rivers.
- The Voëlvlei dam is the furthest north near Gouda and relies on diversion works in the Klein Berg, Leeu and 24 Rivers for its water supply.
- The Wemmershoek dam is situated in the mountains near Franschhoek and is supplied from various small rivers in the Wemmershoek Mountains (e.g. Tierkloof- and Olifants rivers).
- The Steenbras Upper dam and Steenbras Lower dam are situated in the Hottentots-Holland mountain range near Gordon's Bay, and serve a dual purpose of providing an upper reservoir for the Steenbras Pumped Storage Scheme and for supplying water for domestic/industrial use to the CMA.
- The Berg River Dam is located in the upper reaches of the Berg River near Franschhoek.
- Other smaller dams include the dams on Table Mountain (Woodhead, Hely Hutchinson, De Villiers, Victoria and Alexandra) which are used to supply water to the southern suburbs and the Peninsula, and the dams at Simons Town ( Kleinplaats and Lewis Gay) which provide water to the Peninsula.

### 4.1.5 Economics

In the last decade (2003-2013) the growth of Cape Town's economy has largely tracked that of the country as a whole. However, while matching the direction of national growth trends, Cape Town's economy has, on average, grown faster during the period 2003-2013 (4,0% compared to 3,4% nationally). Cape Town's fastest period of economic growth came between 2003 and 2007 (5.3%), prior to the economic recession. During this period, the national average annual growth rate was 4.8%. The greatest divergence from the national growth rate, however, came in the period 2008-2013, when Cape Town recorded an average annual growth rate of 2,8% and South Africa recorded only 2,2%. This would point to the greater resilience of Cape Town's economy during the recession period.

The cumulative growth of Cape Town's economy between 2003 and 2013 was 48.5%, while South Africa's was 39.7%. Naturally, this has resulted in Cape Town contributing an increasing share of South Africa's GDP. The growing national importance of Cape Town's economy is evident from Figure 8.

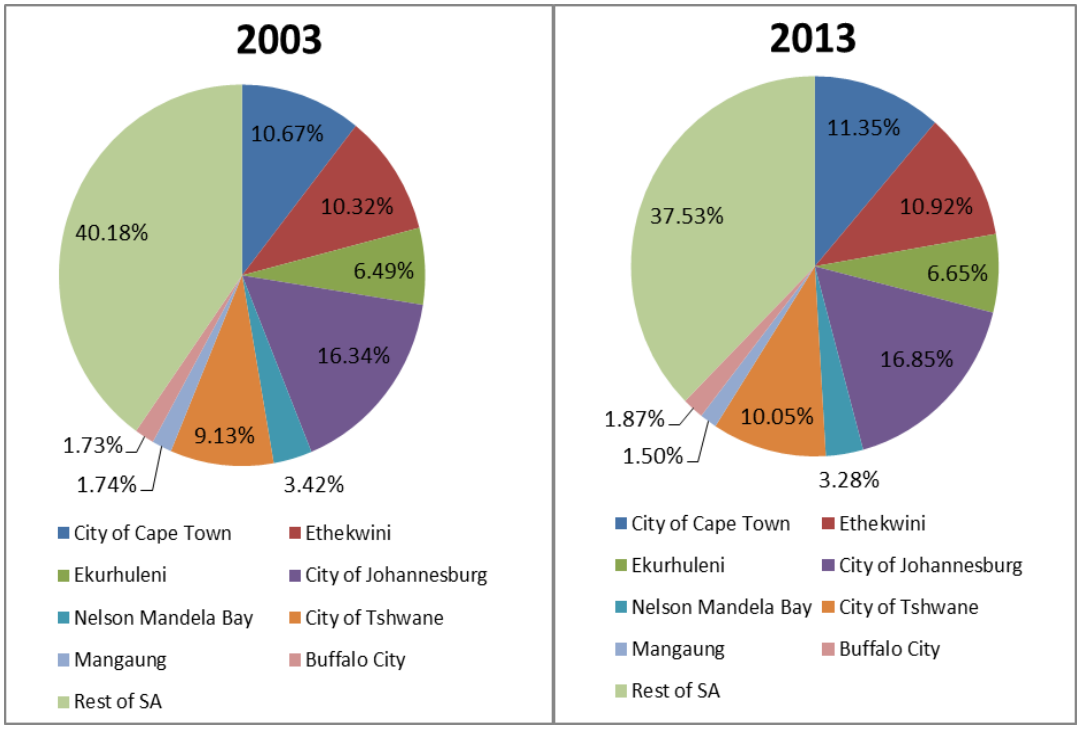


**Figure 8: Comparison of GDP contributions: Cape Town and South African metros (2003 and 2013)**
**Source**: *City Economic Development Department calculations, based on Global Insight ReX Regional data, 2014.*

From 2003 to 2013, Cape Town's share of national GDP increased from 10.7% to 11.4%. This is in line with a broader trend, which saw metro areas increase their share of national GDP from 59.8% to 62.5% in the same period. Metro areas contributed even more strongly to growth in this period, cumulatively accounting for 69.2% of South Africa's GDP growth, while Cape Town contributed 13.1% of national growth.

It is not surprising that economic growth in cities has been faster than in the rest of South Africa since 2003, as an ongoing process of urbanisation has also increased the number of people living in large cities. According to the 2011 Census, Cape Town in particular was one of the largest receiving areas of South African and international migrants, with close to 40% of the population growth in Cape Town between 2001 and 2011 comprising new arrivals from outside the Western Cape.[1] It is necessary, then, to ascertain whether economic growth in Cape Town simply reflects population growth in the city, or represents increased productivity and value addition. The easiest way to do this is to control for the impact of population growth by analysing GDP per capita.

Cape Town's real GDP per capita (in constant prices) in 2013 was R59 502, compared to a national figure of R37 633 and an average of R55 254 among South Africa's metros. This finding points to the greater productivity of Cape Town's economy, and lends credibility to the belief that cities are the growth engines of countries' economies and are essential to the "miracle of productivity", which has seen the rapid increase in the value of human production. This can be attributed to the increased "scale and specialisation" that can be achieved in cities as a result of the densification and clustering of human settlements.

Cape Town's positive growth in GDP per capita would indicate that economic growth over the period 2003 to 2013 was not only an outcome of population growth, but also of increased productivity as a result of scale and specialisation. That being said, Cape Town's GDP per-capita average annual growth rate of 1,8% between 2003 and 2013 was lower than South Africa's metro average, which was 2,1%.

A city's ability to transform economic growth into benefits for its residents is normally measured in the number of jobs that are created. In this respect, the number of employed individuals in Cape Town grew steadily from 2005, when it was around 1,2 million, peaking at 1,5 million in the fourth quarter of 2011. The average annual growth rate of employment during the 2005-2013 period was 2,4%, while the corresponding GDP growth rate was 3,9%. This indicates a certain capital intensity of growth, as well as growth in labour productivity, necessitating fewer labour inputs to produce output units.

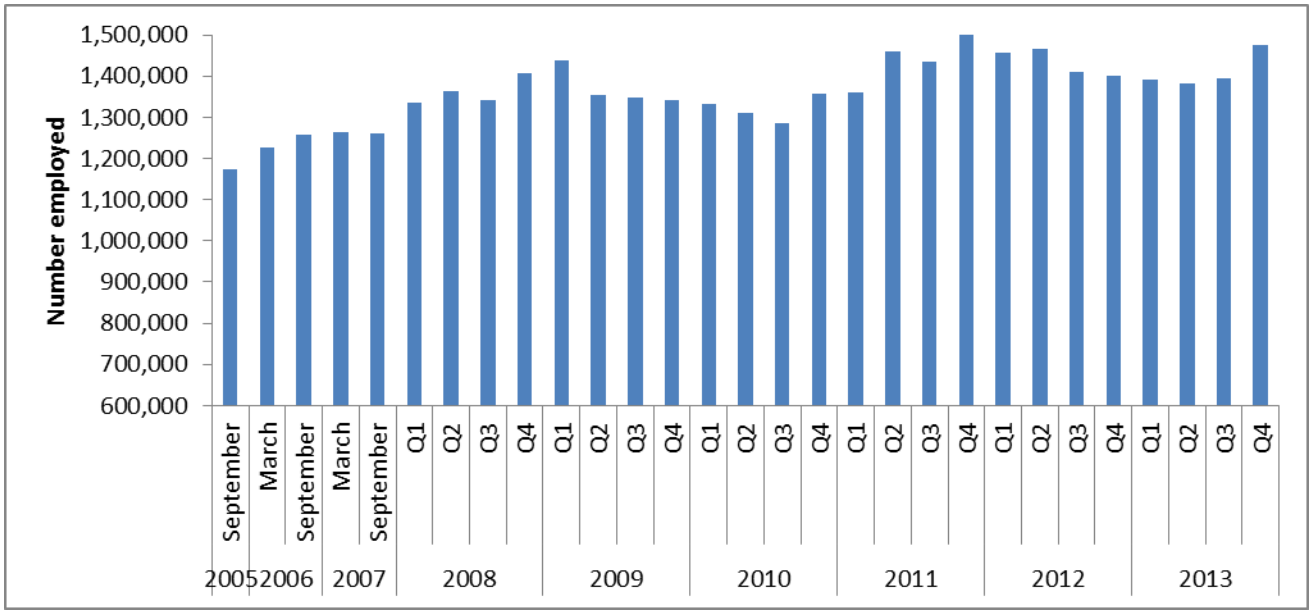


**Figure 9: Employment levels in Cape Town, 2005-2013**
**Source**: *City Economic Development Department based on Stats SA quarterly labour force survey, 2014.*

On average, in the period 2005-2013, employment growth was not sufficient to accommodate the growth in the number of new labour market entrants, which could have been the reason for the relatively slow growth in GDP per capita shown in the previous section. As labour force growth exceeded employment growth, the strict unemployment rate in Cape Town increased from 19.2% to 24.9%[2] between 2005 and 2013. The increase in the unemployment rate in this period must be seen in the light of adverse global economic conditions, particularly in 2009, in which millions of jobs were lost across the globe, and total job losses in South Africa amounted to almost one million.

Although South Africa's strict unemployment rate increased less dramatically (from 22.5% to 24.7%) than Cape Town's, this must also be viewed in light of the broad dynamics of the labour market. In Cape Town, labour force participation remained at relatively high rates of

around 68% for the majority of the period, while South Africa's labour force participation rate dropped substantially to 57.1% in the fourth quarter of 2013. This is on account of the increasing numbers of discouraged work seekers in South Africa.

Cape Town's labour market conditions, including its labour force participation and unemployment rate, improved markedly in 2013. However, if Cape Town is to achieve its objective of being an opportunity city, employment growth must be at the forefront of improving labour market outcomes. Encouragingly strong employment creation in 2013 absorbed more people than what the labour force increased by, thereby driving the decrease in the unemployment rate in this period. In order to ensure greater opportunities for people to actively participate in the local economy, Cape Town needs to exploit the employment-creation potential of its key strategic industries.

The City's EPWP continues to contribute to the reduction of poverty and unemployment and generated 4 934 temporary jobs, within Water and Sanitation, for Cape Town citizens and residents.

HIV and Aids also influence population growth, and current trends indicate a lower mortality rate than that originally predicted. In the period 2001 – 2011, the population of Cape Town has increased by 29% and in the 15 year period 1996 – 2011 by 46%.

The overall trend is that Cape Town's population will continue to grow each year although at a slower rate than previous years. The number of people living in informal settlements has been growing at an increasing rate and the current housing waiting list is estimated at approximately 282 017 units (Housing Information Branch, Strategy Support and Co-ordination.)

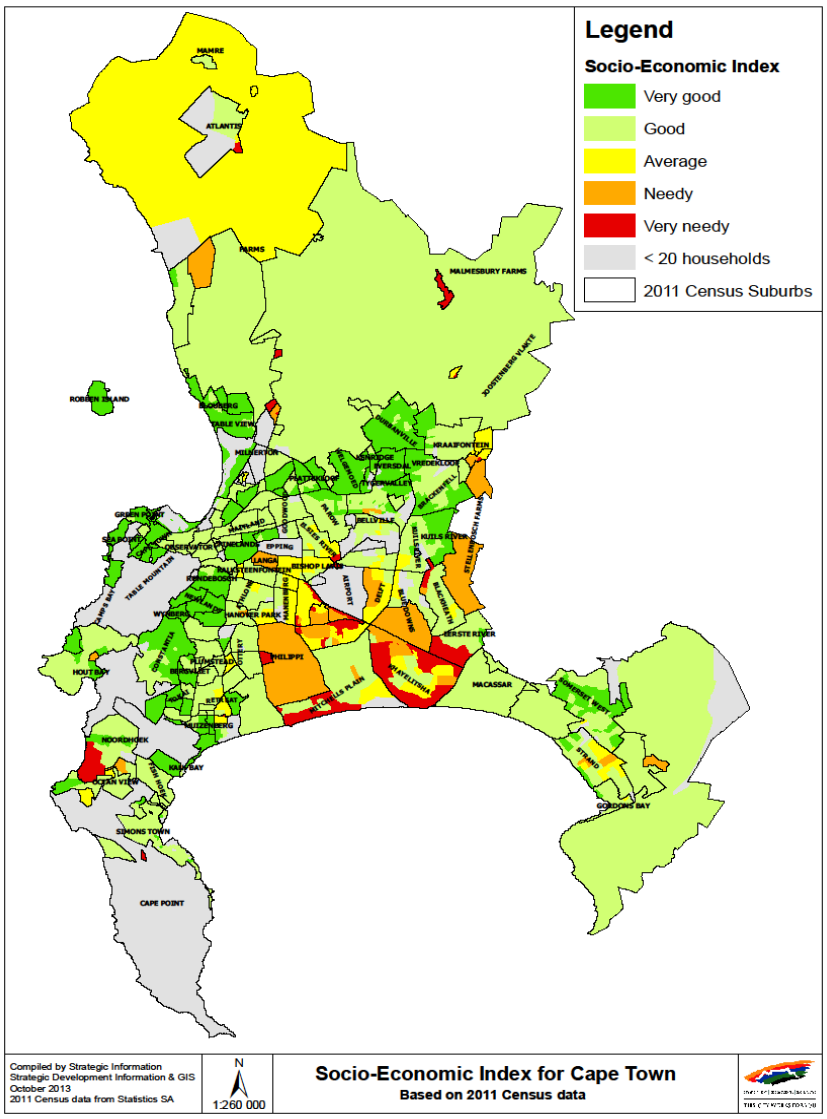


**Figure 10: Socio-Economic Index for Cape Town – Census Suburbs**
(based on 2011 Census data)

The map indicates the areas in Cape Town which were classified into “very needy”, “needy” and “average”. The index which can be used as a broad proxy for poverty uses a weighted index of household information as follows:

- Household Services (energy for lighting, water, refuse toilet facilities) 30%;
- Education (literacy, no schooling, adults with less than Grade 12 or no tertiary education) 20%;
- Housing (Dwelling type and room density) 20%;
- Economic (employment, income and economic dependency) 30%.

## 4.2 SOCIAL ECONOMIC PROFILE

### 4.2.1 Dwellings

A formal dwelling is defined as a structure built according to approved plans, i.e. house on a separate stand, flat or apartment, townhouse, room in backyard, rooms or flat-let elsewhere. An informal dwelling is defined as a makeshift structure not erected according to approved architectural plans, for example shacks or shanties in informal settlements or in backyards.

**Table 3: Estimated households living in dwelling types for 2011 Census**

| Cape Town Type of Dwelling | Black African | | Coloured | | Asian | | White | | Other | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # | % | # | % | # | % | # | % | # | % | # | % |
| Formal Dwelling | 250 762 | 56.4 | 327 383 | 91.3 | 13 852 | 97.1 | 230 575 | 99.0 | 14 961 | 82.8 | 837 533 | 78.4 |
| Informal dwelling / shack in backyard | 54 500 | 12.3 | 18 082 | 5.0 | 150 | 1.1 | 337 | 0.1 | 1 889 | 10.5 | 74 958 | 7.0 |
| Informal dwelling / shack NOT in backyard | 134 914 | 30.3 | 7 531 | 2.1 | 141 | 1.0 | 387 | 0.2 | 850 | 4.7 | 143 823 | 13.5 |
| Other | 4 607 | 1.0 | 5 634 | 1.6 | 123 | 0.9 | 1 528 | 0.7 | 369 | 2.0 | 12 261 | 1.1 |
| Total | 444 783 | 100 | 358 630 | 100 | 14 266 | 100 | 232 827 | 100 | 18 069 | 100 | 1 068 575 | 100 |

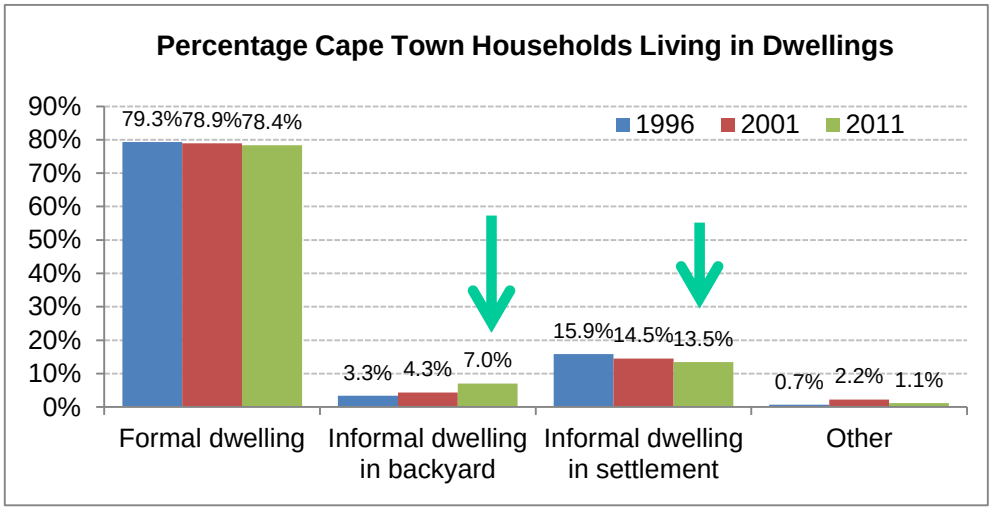


**Figure 11: Percentage Cape Town Households Living in Dwellings**

Compiled by Strategic Development Information and GIS Department, City of Cape Town1996, 2001 and 2011 Census data supplied by Statistics South Africa (Based on Census 2011 information available at the time of compilation, as released by Statistics South Africa)

In the period 2001 – 2011 (10 years):

- The percentage of households in Cape Town in formal, informal and other types of dwellings has largely remained the same.

- In 2011, 78% of households in Cape Town live in formal dwellings (similar to 2001 79%); 14% of households (144 000 households) live in informal dwellings in informal settlements (15% in 2001).
- However there has been a large growth in the number of households living in informal dwellings in backyards, with 7% of households (74 958 households) in 2011, an increase of more than 3% from 4.3% in 2001.
- In 2011, 43% of Black African households in Cape Town were living in informal settlements and informal dwellings in backyards. This is a decrease from 2001 where the percentage was 52% of Black African households.
- Both in 2001 and 2011, 87% of households living in either informal settlements or informal dwellings in backyards are Black African.
- In 2011, 25 613 (7%) Coloured households in Cape Town are living in informal settlements and informal dwellings in backyards, an increase from 2001 with 17 083 (5.5%) Coloured households.

**Table 4: Informal Dwelling per District (informal settlements) as December 2012**

| DISTRICT | Informal Settlements: No. Dwellings |
|---|---|
| D1 – South Peninsula | 7 992 |
| D2 – Tygerberg | 4 105 |
| D3 – Khayelitsha | 38 700 |
| D4 – Helderberg | 12 371 |
| D5 – Mitchells Plain | 26 019 |
| D6A – North East | 3 645 |
| D6B – Blaauwberg | 10 108 |
| **Total** | **102 940** |

There are many areas that are characterised by severe social and economic conditions, high levels of poverty, unemployment, illiteracy, alcoholism, low health status and other deviant behaviour such as crime and delinquency. The health status of residents in informal settlements is low; this is partly due to poor living conditions.

The Water and Sanitation Department has an ongoing programme to ensure access to suitable sanitation facilities that meets the National Standard.

### 4.2.2. Poverty

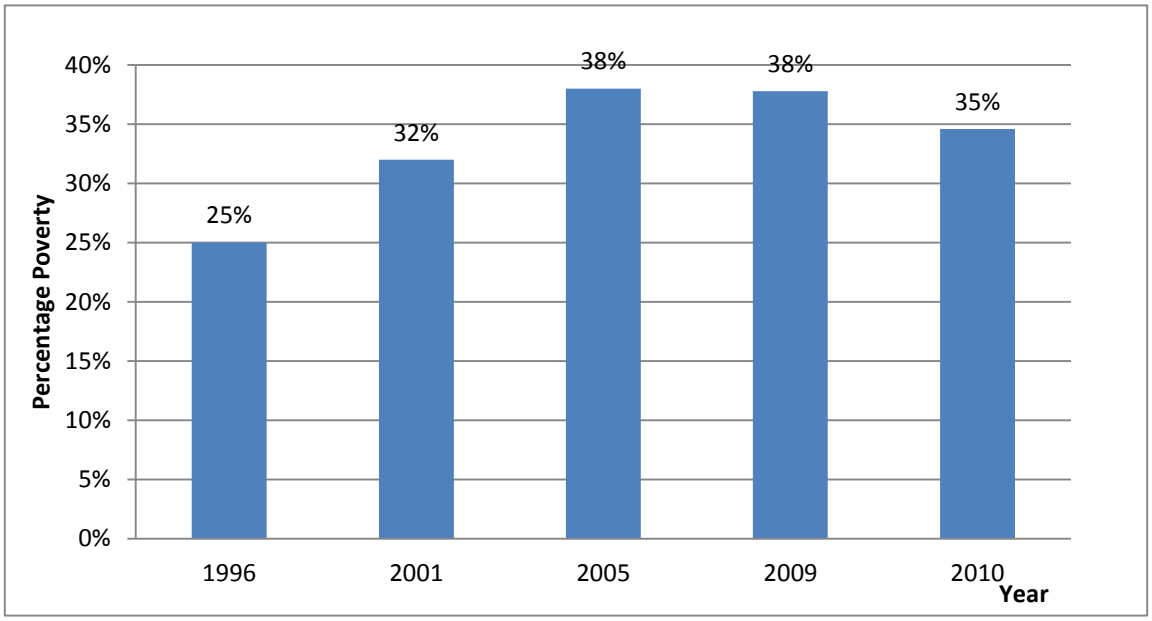


**Figure 12: Households earning below Household Subsistence Level**
(household income below R3500)
**Source:** *Statistics South Africa, 1996, 2001, and 2005 and Strategic Development information and GIS*

### 4.2.3. Health Status: HIV/AIDS

The antenatal prevalence of HIV in Cape Town has increased to a peak in 2011 and decreased slightly since then; from 18.2% in 2006 to 20.9% in 2011 to 19.7% in 2013 (the latest released data from the National and Provincial annual survey). This is higher than that for the Western Cape which was at 17.1% in 2013 but significantly lower than that for South Africa which has plateaued at about 30% over the last number of years.

However, some areas within Cape Town have an antenatal HIV prevalence as high as, or higher than, the National average, including Khayelitsha at 34.4% in 2013. It is not clear what effect longevity of clients on antiretroviral treatment (ART) is having on prevalence (especially in more recent years while ART coverage has been increasing), but it is probably a contributing factor.

The number of people living with HIV receiving ART in Cape Town has increased to 117 948 4 in June 2014. The number of facilities dispensing ART has increased to 72: of these, most are at primary health care level. These figures do not include treatment at private facilities.

## 4.3. TOTAL POPULATION

Cape Town has seen a 29.3 % increase in population over the 10 years from Census 2001 to 2011, to reach 3 740 000 people, or a 46% increase in 15 years (1996- 2011).

The estimated population for Cape Town is 3 882 662 as at June 2014 and It continues to grow, both from natural births (although at a slower rate, with fertility levels declining) as well as in-migration.

Average household sizes have been slowly decreasing from 3.92 in 1996 to 3.72 in 2001, with the 2011 average 3.50 likely to continue to decline into the future.

The population is starting to show aging trends – especially the White population group. There is a need to analyse the impact of aging population on affordability of rates and services. There is a large cohort in the 15-64 year age group..

The following demographical analysis is the most recent available and reflects information and estimates as at 2011:

***In 10 year period 2001 – 2011:***

- Number of households in Cape Town increased 38% (Population increase 29%)
- Number of Black African households increased 77% (Population increase 58%)
- Number of Coloured households increased 16% (Population increase 14%).

***In 15 year period 1996 – 2011:***

- Number of households in Cape Town increased 64% (Population increase 46%)
- Number of Black African households increased 165% (Population increase 124%)
- Number of Coloured households increased 38% (Population increase 28%).

**Table 5: Cape Town 2011 household and population growth**

| | Households | | | Population | | |
|---|---|---|---|---|---|---|
| | 1996 to 2001 % change 5 years | 2001 to 2011 % change 10 years | 1996 to 2011 % change 15 years | 1996 to 2001 % change 5 years | 2001 to 2011 % change 10 years | 1996 to 2011 % change 15 years |
| Black African | 49.5% | 77.1% | 164.8% | 42.3% | 57.6% | **124.3%** |
| Coloured | 19.4% | 15.5% | 37.9% | 12.3% | 13.8% | **27.9%** |
| Asian | 15.1% | 41.7% | 63.2% | 9.6% | 24.7% | **36.7%** |
| White | 5.5% | 13.2% | 19.4% | -0.2% | 8.0% | **7.8%** |
| **Total** | **19.0%** | **37.5%** | **63.6%** | **12.9%** | **29.3%** | **45.9%** |

## 4.4. TOTAL NUMBER OF HOUSEHOLDS AND AVERAGE HOUSEHOLD SIZE

The estimated number of households in Cape Town in 2013/2014 is 1 109 332, having risen from an estimate of 1 103 025 in 2012/13. The average household size is 3.50 persons per household. The number of households is expected to increase to about 1.2 million by 2021 (City's Development Information and GIS Department, 2014).

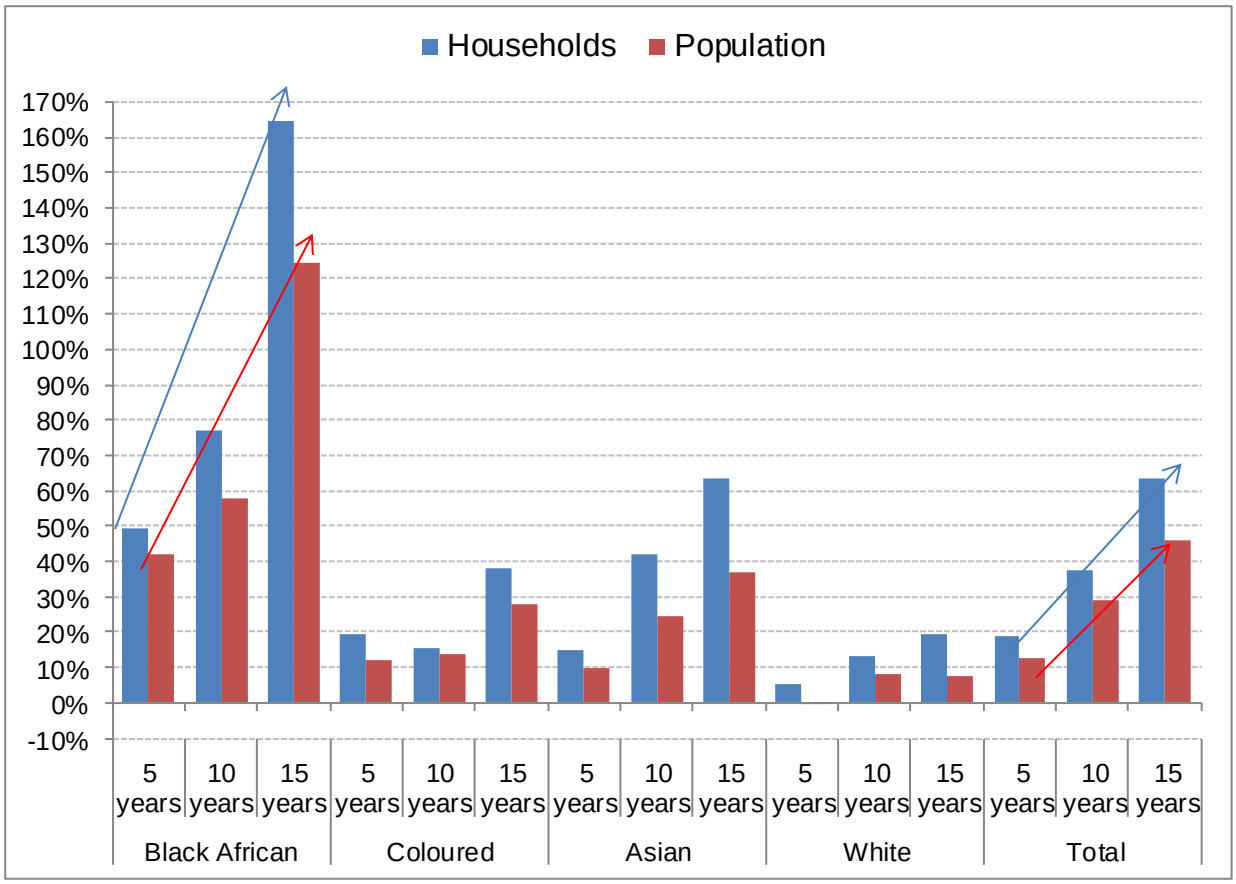


**Figure 13: Household vs population growth**

# 5. SERVICE LEVELS

Having an understanding of the current situation allows service level targets to be set and updated. This section sets out what services will be provided to consumers, both in terms of level of service and quality of service.

Service level relates to the options which consumers can be given with regard to the convenience of the service and hence the amount of water which they will consume and the associated wastewater they will generate. There are a range of different service types which can be provided. These are clarified below according to the types reported in the tables.

## 5.1 SERVICE LEVEL

### 5.1.1. None or inadequate

This refers to the number of consumer units (or households) that do not have access to basic water supply or sanitation.

### 5.1.2. Basic water supply comprises

The Strategic Framework for Water Services (2003), Basic Water Supply is defined as follows:

- a minimum quantity of potable water of 25 litres per person per day;
- at a minimum flow rate of not less than 10 litres per minutes (in the case of communal water points)
- within 200 metres of a household, and
- 6 000 litres of potable water supplied per formal connection per month (in the case of yard or house connections).

The City of Cape Town added the following targeted improved level of service for communal taps/standpipes:

- Within 100 metres of a household;
- At a ratio of not more than 25 households per tap.

### 5.1.3. Basic sanitation comprises

The Strategic Framework further defines basic Sanitation Facilities as follows:

- to provide a sanitation facility which is safe, reliable, private, protected from the weather and ventilated, keeps smells to the minimum, is easy to keep clean, minimises the risk of the spread of sanitation-related diseases by facilitating the appropriate control of disease carrying flies and pests;
- enables safe and appropriate treatment and/or removal of human waste and wastewater in an environmentally sound manner.

The City of Cape Town added the following targeted improved level of service for communal taps/standpipes:

- the provision of a shared toilet (at a ratio of not more than 5 families per toilet) which is safe, reliable, environmentally sound, easy to keep clean, provides privacy and protection against the weather, well ventilated, keeps smells to a minimum;
- to prevent the entry and exit of flies and other disease-carrying pests.

The City of Cape Town's Basic Service Level Targets which included the National Norms and Standard and the City's additional minimum standards as described above is summarized in Table 6 below:

**Table 6: National minimum basic service standards**

| Service | National Standard (1) |
|---|---|
| Sanitation | Easy access to a safe, reliable, private toilet facility which is protected from the weather, ventilated, low smell, hygienic, minimises the risk of spreading diseases and enables safe treatment and/or removal of human waste and wastewater in an environmentally sound manner including communicating hygiene. |
| Water | A basic water supply facility within 200m of dwelling, delivering at least 25 l/ person/ day at a minimum flow of 10 l/min in the case of communal water points, or 6 000 litres of water per month in the case of yard or house connections. |

### 5.1.4. Water Service Levels

- **Communal water supply**
  See 'basic water supply' explained above.

- **Controlled volume supply**
  E.g. Yard Tanks
  Each house is provided with a tank which holds about 200 litres. The tank gets filled up once a day. This type of service is often referred to as an intermediate level of supply.

### 5.1.5. Uncontrolled volume supply

There are generally two types: either the tap stands outside the house on its own or on the wall of an outside toilet (yard tap) or water is piped into the house to take water to taps in the kitchen, bathroom, toilet, etc.

## 5.2. SERVICE LEVEL PROFILE OF CCT

The latest June 2013/14 City estimates a total of 143 823 households in informal settlements, serviced as per the following table:

**Table 7: Service Level Profile in Informal Settlements (as at June 2014)**

| Description | Total 30 June 2014 |
|---|---|
| **Water** | |
| Number of taps on standpipes | 9 547 |
| **Sanitation** | |
| Est total number of sanitation points* | 45 370 |

Formal properties are serviced with on-site metered connections, with at least one meter to a property.

### 5.2.1. Residential consumer units

#### 5.2.1.1. Situation assessment (residential consumer units)

The total numbers of formal and informal households are given below:

**Table 8: Residential consumer units estimated as at June 2014 (Formal & Informal)**

| Category | No of households Oct 2011 | No of households June 2014 |
|---|---|---|
| Population | 3 740 026 | 3 882 662 |
| Households | 1 068 575 | 1 122 880 |
| **Household categories** | | |
| Formal | 924 752 | 971 748 |
| Informal | 143 823 | 151 132 |
| Total | 1 068 575 | 1 122 880 |

Source:StatsSA: 2011 census augmented with City of Cape Town updated estimate

Note: Informal dwellings in backyards are included within the formal category, as they obtain services from supply point to formal properties

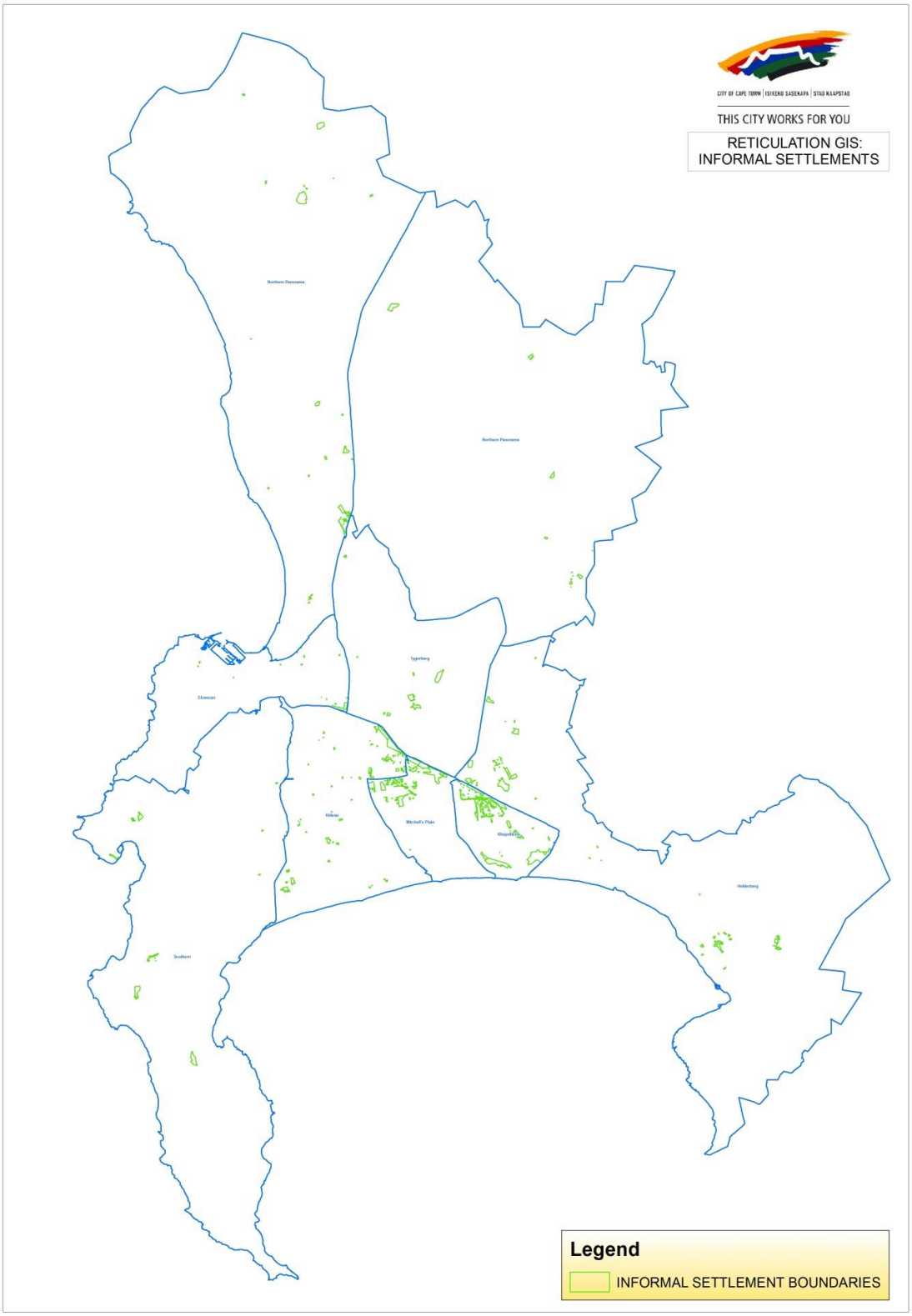


**Figure 14: Location of Informal Areas within the City**

**Table 9: Categorization of Services Standards in informal settlements**

| Category | Land Type | Bulk infrastructure | Distributed space available within settlement | Service Standard |
|---|---|---|---|---|
| A1 | Government owned land, occupation permitted | Available within economical distance.<br><br>Not available within economical distance | Adequate | 1 |
| | | | Inadequate | 2 |
| | | | Adequate | 3 |
| | | | Inadequate | 4 |
| A2 | Private land, occupation permitted | NA (No investment on private land allowed) | Adequate | 3 |
| | | | Inadequate | 4 |
| B | Adverse physical conditions, temporary occupation | NA | Adequate | 3 |
| | | | Inadequate | 4 |
| C | Occupation prohibited | NA | Adequate | 3 |
| | | | Inadequate | 4 |

| No. | City Set Targeted Desired Improved Service Level (over and above National Government Guidelines) |
|---|---|
| 1 | Waterborne sanitation 1:5; taps 1:25 |
| 2 | Managed all-in-one waterborne ablution facility with janitorial service, supplemented by portable flush toilets on demand. Incorporates taps and basins to 1:25 |
| 3 | Container or dry sanitation to technology-specific household ratio. Taps to 1:25 |
| 4 | Managed all-in-one conservancy tank ablution facility with janitorial service, supplemented by portable flush toilets on demand. Incorporates taps and basins to 1:25 |
| Note | All service points to be within 100m walking distance of households served |

### 5.2.2. Residential consumer units for water

Service levels of existing formal developed and informal areas (excluding rural areas) generally meet the minimum standards as required by the Water Services Act 108 of 1997.

Formal households have either a metered water connection to the house or to a yard toilet with water tap (uncontrolled volume supply). The first 6 kilolitres per month are supplied at no charge (free basic). Informal areas have communal standpipes and water is provided free.

**Table 10: Water: Profile of consumers as at June 2014**

| | Consumers with: | No of households Oct 2011* | No of households June 2014** |
|---|---|---|---|
| 1 | None or inadequate (Target) | 0 | 0 |
| 2 | Communal water supply | 143 823 | 151 132 |
| 3 | Controlled volume supply | 0 | 0 |
| 4 | Uncontrolled volume supply | 924 752 | 971 748 |
| 5 | Total served (2+3+4) | 1 068 575 | 1 122 880 |
| 6 | Total (1+5) | 1 068 575 | 1 122 880 |

Source: * StatsSA: 2011 census or ** Departmental estimate

### 5.2.3. Residential consumer units for sanitation

Service levels generally meet minimum national standards as shown in table 11. All formal urban households are serviced by a full waterborne sewerage connection, with the exception of a very few conservancy tanks in isolated areas, while households in informal settlements are serviced by a combination of sanitation technologies depending on local conditions. A breakdown of toilet technologies provided in informal settlements is shown in table 11.

**Table 11: Sanitation: Profile of consumers**

| | **Consumers with:** | **No of households Oct 2011*** | **No of households June 2014**** |
|---|---|---|---|
| 1 | None or inadequate | 0 | 0 |
| 2 | Communal toilets / Portable Flush (Informal Settlements) | 143 823 | 151 132 |
| 3 | Full flush with small number of conservancy tanks (formal) | 924 572 | 971 748 |
| 4 | Total | 1 068 575 | 1 122 880 |

* StatsSA: 2011 census
** Departmental estimate

**Table 12: Basic Sanitation Technologies Installed and Households Serviced in Informal Settlements (June 2014)**

| TOILET TYPE | COUNT | HOUSEHOLDS SERVICED TO CCT HIGHER STANDARD |
|---|---|---|
| Chemical Toilets | 5 816 | 29 080 |
| Container Toilets | 5678 | 28 390 |
| 25l Black Buckets * | 377 | 377 |
| Portable Flush Toilets | 19 828 | 19 828 |
| Un-ventilated Pit Toilets | 312 | 1 560 |
| Urine Diversion (Mobisan) | 187 | 935 |
| Pour Flush Toilets | 370 | 1 850 |
| Dehydration (Enviroloo) | 165 | 660 |
| Modified Afrisan Afrisan | 450 | 450 |
| Anaerobic Toilets | 48 | 96 |
| Full Flush Toilets | 12 139 | 60 695 |
| **TOTAL** | **45 370** | **143 921** |

(*)The City, as at June 2014, is servicing around 377 'buckets' in the City. These are all in the Boystown and KTC area. All the residents who are using these 377 'bucket system' toilets have been offered a portable flush toilet but have declined it, despite the City wanting to eradicate these remaning 'bucket system toilets'. The City cannot force anyone to not use it. These areas are currently part of a Human Settlements development and therefore these buckets will be eradicated as the residents are absorbed into the project

Formal households generally have water-borne sewer connections with the first 4.2 kilolitres of sewerage conveyed at no charge (free basic). Water and Sanitation Services aim to provide an affordable service to poor households.

A free basic service is provided in the form of the first 6 kℓ/month water supply and the first 4.2kℓ of sewerage conveyance and treatment free of charge to all consumers per month. The City is providing an indigent grant of R67.42/month during 2013/14 financial year to cover an additional water consumption of 4.5kl/month and the corresponding sewage treatment, taking the form of an account reduction to qualifying ratepayers.

### 5.2.4. Backyard Dwellers

A policy for the provision of services to backyarders has been finalised. The pilot project on Council-owned rental stock includes for the provision of backyarders with a metered water standpipe and sewer connection. The service is provided in the form of a concrete structure housing a water borne (flush) toilet on the inside, with a washing trough and tap fixed to the outside of the structure, being placed in the backyard where informal dwellings are in place .The water is connected through a water management device and a tag is allocated to each household to dispense the water.

A free allocation of 6kl per month of water is supplied to each backyard family. The supply to this unit will be taken off the main house supply, and all of the free portions, together with the main dwelling's free portion will be deducted from the account rendered to the main dwelling. Registered backyarders will be listed as indigent and therefore entitled to the free services that the City provides. This will put more users onto the billing system. This solution is intended to provide such households with a higher level of service. At this stage, the Backyarder policy as envisaged will only be on Council owned public rental stock.

The Indigent Grant is applicable to the water and sanitation tariff for qualifying households. The net result is that an Indigent household can consume an additional 4.5kℓ water per month and can discharge an additional 3.15kℓ wastewater per month (with sewerage disposal 70% of water consumption) without attracting any charges.

This subsidy would be ineffective without the ongoing Integrated Leaks Repair and Fixit Projects aimed at repairing leaks, reducing consumption, reducing monthly bills and eliminating arrears of properties occupied by Indigent households.

Through these Standpipe pilot projects, tag operated standpipes are installed on the road edge approximately 50 meters of all serviced backyarders. Programmed tags are allocated to only the backyard dwellers. The tag allows 200l of water to each backyard dwelling per day on the basis of use it or lose it.

There is an outcry from neighbouring areas of the Standpipe pilot projects to implement similar projects as the benefits to residents are becoming clearer. A survey has recently been conducted to measure the real success of these Standpipe pilot projects to determine future roll-out possibilities.

### 5.2.5. Grey Water Management

Space constraints, geological conditions and the lack of a gravity sewer connection points are major limiting factors for consistently reducing grey water problems within informal settlements.

### 5.2.6. Residential consumer units for water and sanitation

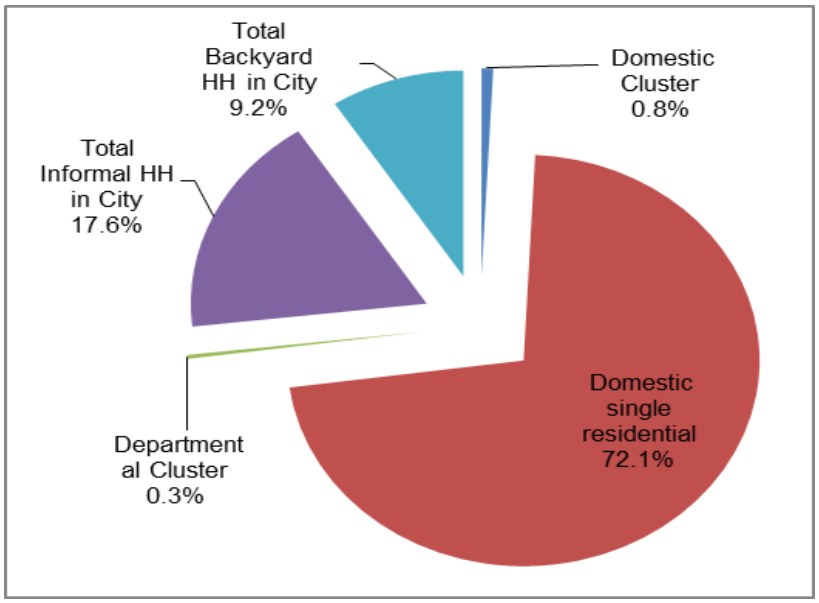


**Figure 15: Breakdown of residential consumer units as at end of June 2014**

This break down in residential consumers emphasises the need to focus on improved water and sanitation services onto informal household consumers and backyarders. The break down includes the back yarders.

### 5.2.7 Pit emptying and sludge disposal

Pit emptying is not applicable, while the disposal of container toilets is taken into the waste stream.

### 5.2.8. Types of sanitation technology options

Refer to Table 12.

### 5.2.9. Informal Settlements – maintain basic service

To prevent households not having access to sanitation, while growing the service to support any influx of people in informal settlements, the Water and Sanitation department is implementing a service provision programme that is integral to the 10-year Housing Plan.

The replacement of buckets has been ongoing but approximately 300 remain in service due to a specific community preference, despite a communal facility alternative being available. The medium term goal will therefore be to maintain a basic service to all households, while ensuring the quality of the cleaning service for all the existing buckets in use.

The City's Housing programme is funded through National grants. Servicing of the informal settlements is funded by the Water and Sanitation department with partial recovery of cost from the national Equitable Share. Depending on the speed of implementing this programme, as for in-situ upgrading or the movement of households in such settlements to developed formal areas, the informal settlement programme needs to adapt.

# 6. INFRASTRUCTURE

## 6.1 INFRASTRUCTURE PROFILE

### 6.1.1. Situation assessment

**Table 13: Infrastructure of Water and Sanitation Services -Estimated Replacement cost**

| Description | Asset Count | Replacement Value (R M) | Annual Maintenance Norm | Annual Maint. req, Bulk Water separate (R M) |
|---|---|---|---|---|
| Dams | 11 | R 1 839 | 0.50% | R 3.32 |
| Bulk Pipelines | 658.5 (km) | R 8 644 | | R 6.91 |
| Bulk Reservoirs | 24 | R 1 748 | | R 5.62 |
| Water Treatment Plants & Wellfields | 12 | R 2 077 | 1% Civil, 4% Mech/Elec | R 22.70 |
| Bulk Pump Stations | 24 | R 374 | | R 6.57 |
| Other (Canals, Tunnels, Meter, etc.) | - | R 127 | | R 1.65 |
| Waste Water Treatment Works incl three Sea Outfalls and two oxidation ponds | 27 | R 7 600 | 1% Civil, 4% Mech/Elec | R 380.00 |
| Water Reticulation (as at end of June 2014) | 10353.31 (km) | R 12 480 | 1% | R 124.80 |
| Sewer Reticulation (as end of June 2014) | 8970.84 (km) | R 15 593 | 1% | R 155.93 |
| Depots | 37 | R 63 | 0.50% | R 0.31 |
| Water Pump Stations | 82 | R 640 | 0.5% Civil, 4% Mech/Elec | R 28.80 |
| Sewer Pump Stations | 386 | R 1 135 | 0.5% Civil, 4% Mech/Elec | R 51.08 |
| Reticulation tanks | 108 | R 1 218 | 0.50% | R 6.09 |
| | | **53 536.1** | | **793.8** |

The water supply and wastewater reticulation networks jointly account for 52% of the total replacement value.

### 6.1.2 Status of All Water and Sanitation Infrastructure

Existing infrastructure has a finite life span and it is essential that it is maintained, upgraded and replaced within the relevant time frames to ensure the sustainability of the City's water and sanitation services. Particular emphasis has been put on this over the last few years and the current year in this regards. However, these are usually very expensive exercises and budget in this regard is constrained.

An estimated minimum of R150 million/annum (2012/13 - 2016/17) and R 84 million/annum is required for water and sewer pipe replacement respectively, including for Bulk lines. For reticulation water mains the aim is to achieve an acceptable burst rate of less than 10 bursts/100km/ yr.

Key components of existing infrastructure, in rapidly-developing regions of the City, do operate at peak level during periods of high demand. Capacity improvements will be required to enable development. The Department has developed an Infrastructure Master Plan that identifies the Water and Sewer upgrading requirements for all development areas.

It is projected that the bulk water supply system in the north eastern and north western corridors of the City will come under increasing stress in the future due to the growth of these areas. Augmentation of the bulk water system will be required to ensure that supply capacity can meet the future demand for water. The proposed Bulk Water Augmentation Scheme, comprising a 500 Ml/day water treatment works, two 300 Ml bulk reservoirs and bulk water conveyance pipelines, will increase the overall capacity of the bulk water supply system, as well as increased supply capacity to the northern areas of the city.

### 6.1.3 Trends and goals

The number of burst mains in the first eleven months of each year has steadily decreased: 4 085 in 2011/12, 3 306 in 2012/13 and 3 313 in 2013/14. The corresponding rate of bursts per 100 km per year is as follows: 40 in 2011/12, 32 in 2012/13 and 31 in 2013/14. Approximately 55.4 km of water mains were replaced during the 2013/14 financial year.

### 6.1.4 Strategic gaps

The Department is increasingly investing in pro-active maintenance measures.

The capital expenditure on the development and maintenance of its extensive infrastructure is outlined in the table below.

**Table 14: Capital spend during the last 3 years as at June 2014**

| Branch | 2013/14 | 2012/13 | 2011/12 |
|---|---|---|---|
| **WWTW** | 160 859 733 | 166 613 750 | 223 192 549 |
| **Reticulation** | 361 265 537 | 355 229 929 | 260 063 202 |
| **BW** | 39 452 330 | 28 664 004 | 17 037 756 |
| **EAM** | 75 468 909 | 74 823 457 | 62 713 466 |
| **WDM & Strategy** | 52 047 734 | 38 399 362 | 24 639 078 |
| **Other (Support, Scientific and Finance)** | 134 384 066 | 18 448 000 | 17 510 474 |
| **Total** | **823 478 309** | **682 178 502** | **605 156 524** |

*Value as at June 2014

The Reticulation operational statistics below highlight some of the challenges faced by the Department. Some of the challenges have increased over the past three years, while for others we could maintain the status quo. Causes are mostly budget affordability constraints, socio-economic pressure and consumer indifference (in particular as experienced from sewer blockages caused by foreign objects).

**Table 15: Chamber Covers Replacement**

| 2013/14 YEAR STATS AS AT END JUNE 2014 | | | | | | | YTD - ANNUAL COMPARISON | | |
|---|---|---|---|---|---|---|---|---|---|
| **CHAMBER COVER REPLACEMENT** | **BLAAUWBERG** | **CAPE TOWN** | **HELDERBERG** | **KHAYELITSHA** | **SOUTH PEN.** | **TYGERBERG** | **YTD-2013/14** | **YTD-2012/13** | **YTD-2011/12** |
| Meter Box Cover | 29 | 155 | 273 | 7 | 222 | 405 | 1 091 | 1 025 | 763 |
| Hydrant Cover | 135 | 25 | 271 | 0 | 99 | 99 | 629 | 729 | 596 |
| Valve Cover | 24 | 2 | 227 | 1 | 18 | 79 | 351 | 696 | 323 |
| Sewer | 172 | 369 | 592 | 28 | 10 | 452 | 1 623 | 1 717 | 1 831 |
| **TOTAL** | **360** | **551** | **1 363** | **36** | **349** | **1 035** | **3 694** | **4 167** | **3 513** |

**Table 16: Sewer Blockage Incidents**

| 2013/14 YEAR STATS AS AT END JUNE 2014 | | | | | | | YTD – ANNUAL COMPARISON | | |
|---|---|---|---|---|---|---|---|---|---|
| **SEWER BLOCKAGES INCIDENTS** | **BLAAUWBERG** | **CAPE TOWN** | **HELDERBERG** | **KHAYELITSHA** | **SOUTH PEN.** | **TYGERBERG** | **YTD-2013/14** | **YTD-2012/13** | **YTD-2011/12** |
| Building Material | 136 | 2 | 1 645 | 986 | 12 | 2 524 | 5 305 | 6 568 | 6 136 |
| Collapses | 43 | 11 | 487 | 4 | 11 | 289 | 845 | 1 051 | 871 |
| Fats | 3 697 | 5 983 | 5 826 | 1 020 | 3 118 | 4 180 | 23 824 | 23 600 | 22 052 |
| Other foreign objects | 4 314 | 18 445 | 7 104 | 582 | 5 683 | 8 313 | 44 441 | 39 466 | 42 110 |
| Roots | 3 637 | 2 669 | 2 836 | 23 | 3 248 | 3 130 | 15 543 | 18 857 | 17 175 |
| Sand | 199 | 5 518 | 4 087 | 1 160 | 75 | 1 255 | 12 294 | 12 765 | 11 808 |
| **TOTAL** | **12 026** | **32 628** | **21 985** | **3 775** | **12 147** | **19 691** | **102 252** | **95 739** | **94 016** |

**Table 17: Sewer Networks Repairs and Maintenance**

| 2013/14 YEAR STATS AS AT END JUNE 2014 | | | | | | | YTD - ANNUAL COMPARISON | | |
|---|---|---|---|---|---|---|---|---|---|
| **SEWER NETWORK REPAIRS AND MAINTENANCE** | **BLAAUWBERG** | **CAPE TOWN** | **HELDERBERG** | **KHAYELITSHA** | **SOUTH PEN.** | **TYGERBERG** | **YTD-2013/14** | **YTD-2012/13** | **YTD-2011/12** |
| Sewer Pipe Breakage Repair (No.) | 86 | 325 | 391 | 3 | 95 | 44 | 944 | 930 | 808 |
| Sewer Manhole Repair (No.) | 77 | 128 | 267 | 9 | 60 | 21 | 562 | 759 | 570 |
| New Sewer Mains Installed (m) Total | 5 223 | 10 496 | 18 418 | 4 710 | 13 414 | 0 | 52 261 | 23 536 | 4 987 |
| Sewer Mains - Replacement (m) | 5 828 | 10 196 | 2 954 | 3 064 | 5 102 | 2 692 | 29 836 | 32 515 | 25 119 |
| New connections to sewer network (No.) | 33 | 43 | 109 | 0 | 36 | 75 | 296 | 258 | 359 |
| Pest Control (No.) | 218 | 1 212 | 210 | 0 | 124 | 136 | 1 900 | 2 055 | 8 649 |

# 7. OPERATION AND MAINTENANCE

The focus on improvement of levels of service through creating new infrastructure at great cost can result in overlooking the importance of the development and implementation of sound asset management practices.

Through the assessment of this important function, WSAs are enabled to identify areas of concern and it should form the base for the development of an Asset Management Plan. Neglecting the implementation of best practice operational and maintenance procedures would result in ineffective service delivery and shortened life span expectancy of assets. Additional capital expenditure for refurbishment or replacement will eventually be unavoidable.

The two important aspects of asset management under consideration are Operations and Maintenance.

## 7.1. OPERATION AND MAINTENANCE

### 7.1.1. Water Network Performance

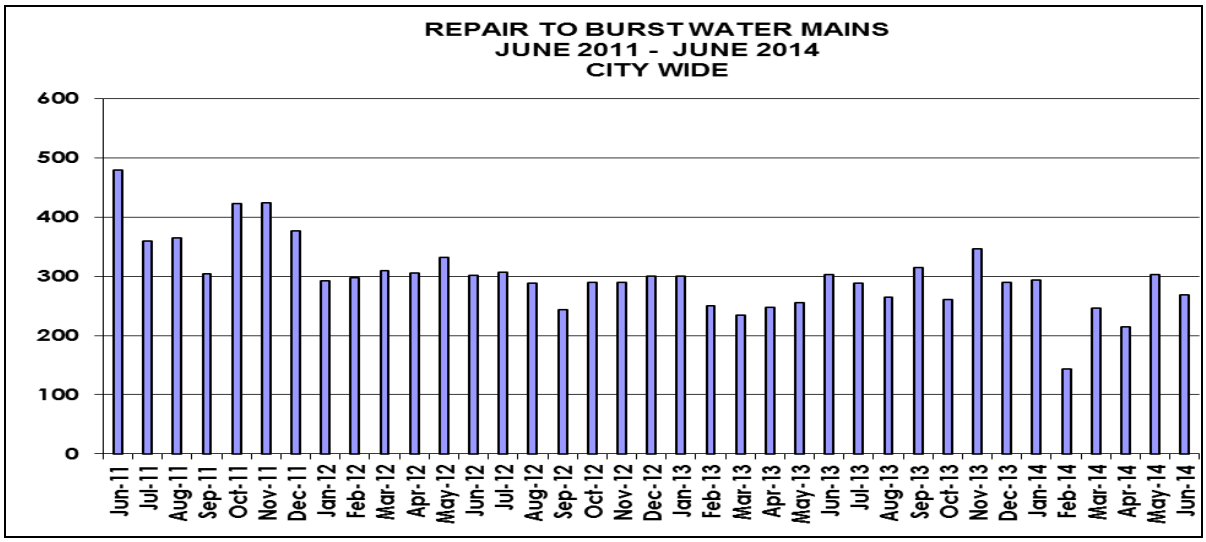


**Figure 16: Water Network Performance as at June 2014**

There is a general downward trend in burst water mains. This is a result of:

- Primarily, increased water main relays;
- Pressure management (this only ameliorates the symptoms of ageing infrastructure; it does not arrest the aging process);
- Improved management of network operations.

**Table 18: Total length of pipe network as at June 2014**

| Regions | Sewer (Km) | Water (Km) |
|---|---|---|
| Northern Panorama (Blaauwberg) | 777.35 | 1 032.51 |
| Northern Panorama (Kraaifontein) | 1 324.94 | 1 419.52 |
| Tygerberg | 1 505.09 | 1 709.97 |
| Ebenezer | 610.52 | 744.05 |
| South Peninsula | 1 459.66 | 1 616.89 |
| Helderberg | 1 487.44 | 1 624.82 |
| Hillstar | 877.26 | 1150 |
| Mitchells Plain | 566.44 | 642.62 |
| Khayelitsha | 362.14 | 412.93 |
| **Total** | **8 970.84** | **10 353.31** |

Source: TOC GIS as at June 2014

### 7.1.2. Sewer Network Performance

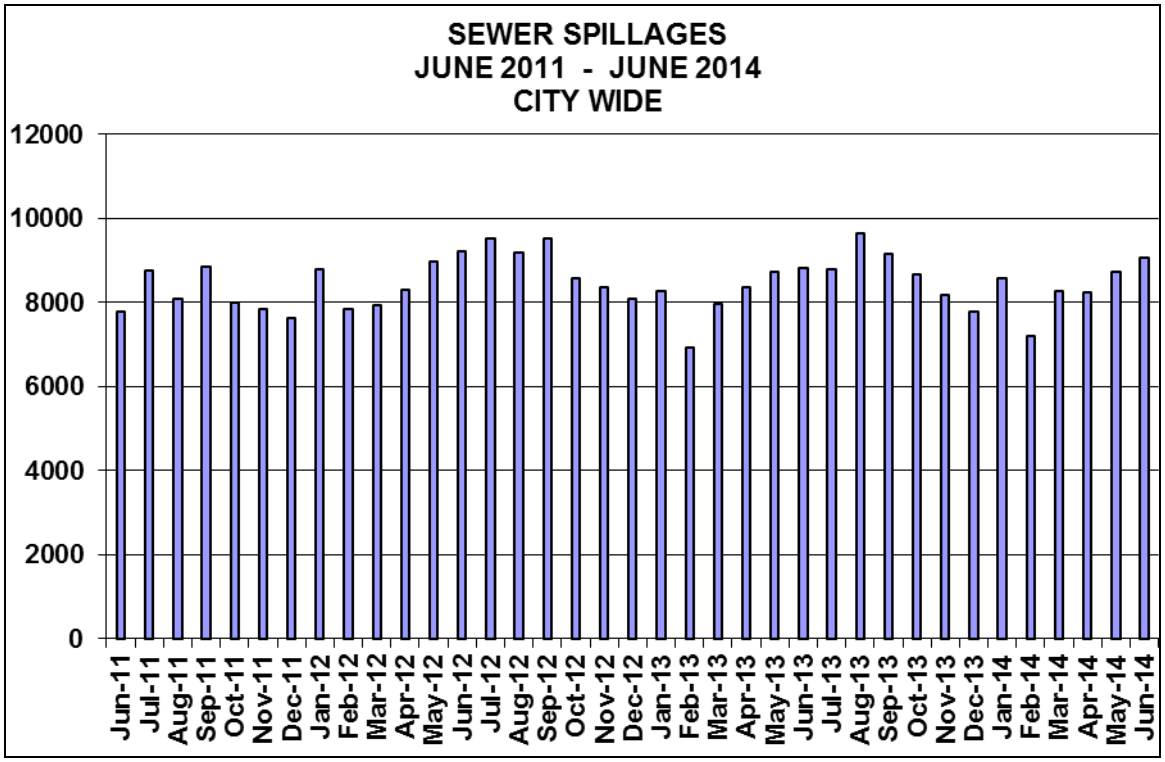


**Figure 17: Sewer Network Performance as at June 2014**

- The causes of blockages are elaborated on in other sections of this report.
- Increased management of blockages, sewer mains cleaning and sewer inspections is urgently required.
  The following actions have been taken:
  - Consultants investigating stormwater ingress in worst affected catchments (e.g. Kuils River area).
  - Increased enforcement of By-laws (Certificate of Compliance of Water Installation on Transfer of Ownership in accordance with Water By-law).
  - Sewer Blockage Awareness Campaign.
  - Capital projects to clean major collector sewers, e.g. Cape Flats 1 and 2.

- Construction of sandtraps on sewer pipelines to facilitate debris removal which reduces blockages and wear on mechanical equipment eg. Bridgetown Sandtrap.
- Term tenders for sandtrap cleaning.
- Term tenders with specialized equipment for programmed cleaning of sewer networks to reduce blockages.
- Term tenders using mechanical equipment to clean bulk sewers to prevent spillages.

GIS records indicate the following:

**Table 19: Estimated Sewer Rehabilitation Lengths as at January 2013**

| Material | Length (m) |
|---|---|
| Pitch fibre | 142 502 m |
| Clay sewers | 265 531 m |

Source: Budget Plan (Vol 4), Reticulation, Five year replacement programme

### 7.1.3. Water Process Control, Maintenance and Management Skill

The current classification of the WTW's follows Section 26 of the National Water Act (Act No.36 of 1998).

#### 7.1.3.1 Monitoring Process

The quality of water produced at the CCT's water treatment plants is strictly monitored on a continual basis to ensure compliance with the South African National Standard 241:2011 on drinking water quality. The Scientific Services Branch conducts routine sampling and analysis of potable water produced at all water treatment plants, distribution as well as inspection of treatment processes.

Scientific services have acquired SANS 17025 certification for laboratory quality testing. Expansion of the laboratory is a necessity for improving its capability to undertake a wide spectrum of tests. To comply with the requirements of SANS 241:2011 Scientific Services has expanded the list of determinants analysed and increased the amount of monitoring points to comply with the population within the Cape Metropolitan distribution area.

The water quality report below indicates the analytical data and approximate distribution for Cape Town drinking water. The 12 month rolling average is for the period August 2013 to July 2014. The South African National Standards (SANS 241:2011) Specification for Class I water is also stipulated on this report. This report indicates the quality of the drinking water leaving each of the major water treatment plants and the approximate distribution areas they service.

**Table 20: Potable Water Quality for the month of July 2014**

| Water Supply Outlets | Sample Points Per Water Supply Outlet | Sample Points Sampled | Number of Samples taken for July | | % Compliance SANS 241 | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Chemical | Micro-biological | July Month | | 12 Month Rolling Average | |
| | | | | | Chemical | Micro-biological | Chemical | Micro-biological |
| **Water Treatment Plants** | 10 | 9 | 38 | 39 | 99 | 99 | 99 | 100 |
| **Reservoir** | 24 | 23 | 89 | 96 | 100 | 100 | 100 | 100 |
| **Distribution** | 132 | 122 | 535 | 549 | 100 | 100 | 100 | 100 |
| **Total** | **166** | **154** | **662** | **684** | **99.7** | **99.7** | **99.7** | **100** |

REMARKS: Sample points BBW 01 (Brooklyn library, c/o Koeberg & Bancroft Rds, Koeberg) and MPW 04 (Directorate of Works, Weltevrede Road) failed SANS 241:2011due to high iron values. Overall the water is safe to drink.

#### 7.1.3.2 Chemical Results

The analyses that failed SANS 241:2011 at the WTP's for July were aluminium and Turbidity.

Note::

1) pH, Conductivity, Turbidity and Alkalinity were done weekly.

2) Aluminium, Chloride, Calcium, Iron, Manganese, Potassium, Sodium, Sulphate, Nitrate, Nitrite, TDS, Total Hardness, Chromium, Cadmium, Cobalt, Copper, Nickel, Lead, Vanadium, Zinc, Antimony, Selenium and Fluoride were done every 8 to 9 weeks.

#### 7.1.3.3 Microbiology Results

In the month of July 2014 the following sample site did not comply with SANS 241 bacteriological requirements (<1 E. coli per 100ml). On 2014-07-08 Wemmershoek Water Treatment had an E. coll counts on of 2 CFU's per 100 ml. All other sites complied.

#### 7.1.3.4 Microbiological monitoring in informal settlements

The following operational challenges may lead to contamination of samples and 'false' non-compliance results in informal settlements:

- Plastic communal taps are being used for sampling. These taps cannot be flamed prior to sample collection, as required by the sampling procedure, because of the plastic material.
- Taps are not dedicated for sampling, as required by sampling procedure, and are used by the community.

- Location of sample taps in close proximity to or just behind the communal toilets can introduce cross contamination to the tap as users wash, touch and drink directly from the taps.
- Taps are often dirty and leaking.

### 7.1.4. Waste Water Operations (Process Control), Maintenance and Management Skill

An Operational and Compliance Monitoring Programme that meets the requirements of DWS as stipulated in the Green Drop Criteria was drawn up by CCT and is implemented by the Municipality. Operational samples are taken on a daily basis at all the WWTWs. The compliance samples that are taken on a monthly basis at all the WWTWs are analysed at CCT accredited Scientific Services laboratories and monthly monitoring and inspection reports are compiled.

### 7.1.5 Wastewater Effluent non-compliance

**Table 21: An exception report on Wastewater Effluent non-compliance as at June 2013/14 financial year**

| WWTW | PROBLEM DEFINITION | CAUSES | REMEDIAL ACTIONS |
|---|---|---|---|
| **Athlone** | Non-compliance on conductivity, residual chlorine, nitrate nitrite | Impact of new licence conditions. | Conductivity removal technologies and licence conditions under discussion with Department of Water Affairs (DWA). The chlorine dosage and aeration to be optimised. |
| **Bellville** | Non-compliance on TSS, E.Coli, COD, conductivity, ortho-phosphate and ammonia. | The Works is operating under stressed conditions with the aeration system compromised due to aging. Chemical P removal temporarily stopped due to secondary reactions. High stormwater ingress flows impacted on compliance. UV disinfection defective and temporary dosing system has short retention time. Plant not designed for conductivity removal. | The Works is presently being upgraded and the new plant will be commissioned from August 2014. New dewatering presses testing commence in July. Ferric dosing failure investigation to determine adverse process conditions. Temporary chlorine dosing retention time evaluated. Electrical conductivity removal technologies under discussion with the DWA. |
| **Borcherds Quarry** | Non-compliance on conductivity, ortho-phosphate and ammonia | The plant operating above designed capacity. Regular equipment failures at SSTs and presses. Recontamination of effluent in some ponds. Treatment works not designed for the removal of electrical conductivity and phosphate. | The A-works will be refurbished to provide additional treatment capacity, and SST bridges and presses will be replaced. Ponds bypass line being installed. Electrical conductivity removal technologies under discussion with the DWA. |
| **Camps Bay** | Non-compliance TKN | Cannot comply due to DWA licence standards. | Licence conditions as part of discussions with DWA to amend the licence. |
| **Cape Flats** | Non-compliance on E.Coli and ammonia | Overflow of raw influent at Inlet works. | Ongoing flushing out of ponds. |
| **Gordons' Bay** | Non-compliance on nitrate and nitrite, residual chlorine, ortho-phosphate and conductivity | Plant not designed to remove phosphates. Impact of new licence conditions. | Optimise Aeration. Monitor Chlorine dosing. Install Chemical dosing. Conductivity removal technologies and licence conditions under investigation. |

| WWTW | PROBLEM DEFINITION | CAUSES | REMEDIAL ACTIONS |
|---|---|---|---|
| **Green Point** | Non-compliance TKN | Cannot comply due DWA licence standards. | Licence conditions as part of discussions with DWA to amend the licence. |
| **Klipheuwel** | Non-compliance on TSS, E.Coli, residual chlorine COD and ammonia. | The plant is impacted upon by the high hydraulic and organic loading, as well as illegal septic tank waste dumping from informal settlements, as well as other nearby depots' chemical users. | Plant design parameters are being reviewed with on-site tests to obtain a baseline performance and improvement recorded. Continuous automatic sampling and monitoring of influent to detect dumping. |
| **Kraaifontein** | Non-compliance on residual chlorine and conductivity. | Impact of new licence conditions. | Licence conditions under investigation. |
| **Llandudno** | Non-compliance on nitrates/nitrites | Cannot comply due DWA licence standards. | Licence conditions as part of discussions with DWA to amend the licence. |
| **Macassar** | Non-compliance on conductivity, ammonia and ortho-phosphate | Impact of new licence conditions. Aerator failure; install chemical ferric dosing system. | Conductivity removal technologies and licence conditions under investigation. Repair aerator. Install Ferric plant to reduce phosphate. |
| **Melkbosstrand** | Non-compliance on ortho-phosphate, conductivity and residual chlorine | Impact of new licence conditions. Plant not designed for biological phosphorus removal, and also not designed for conductivity removal. | Licence conditions as part of discussions with DWA to amend the licence. Maturation ponds back in operation. |
| **Mitchells Plain** | Non-compliance on E.Coli and ammonia | Sludge in ponds. Under aeration. | Remove sludge from ponds. Replace blowers. |
| **Parow** | Non-compliance on ammonia, nitrate/nitrite, COD, TSS and residual chlorine | Defective screening and flow control at inlet led to blockages and limited flow conditions. Impact of new licence conditions. | Screening and flow control equipment repaired and control reinstated. Licence conditions under investigation. |
| **Scottsdene** | Non-compliance on ortho-phosphate, nitrate and nitrite, and residual chlorine | Works not designed for biological phosphate removal. Impact of new licence conditions. | Reactor oxygen control and process configuration being optimised. Licence conditions as part of discussions with DWA to amend the licence. |
| **Simons Town** | Non-Compliance on nitrates/nitrites | Trickling filter plant and therefore cannot remove nitrates. | Licence conditions as part of discussions with DWA to amend the licence. |
| **Zandvliet** | Non-compliance ammonia and residual chlorine | Plant overloaded, not designed to remove phosphates biologically to new license. | Licence conditions as part of discussions with DWA to amend the licence. Upgrade plant, increase capacity. |

### 7.1.6 Treated Effluent Re-use

**Table 22: Lists monthly treated effluent consumption volumes (Ml/month) per waste water treatment works**

| PLANT | 13-Jul | 13-Aug | 13-Sep | 13-Oct | 13-Nov | 13-Dec | 14-Jan | 14-Feb | 14-Mar | 14-Apr | 14-May | 14- Jun | Plant WW Capacity<br><br>Megalitres per month Avg 5 years | Plant TE capacity<br><br>Megalitres per month | % of plant WW capacity Reused (Current month) | % of TE capacity used (Current month) | COMMENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cape Flats | 0.9 | 1.1 | 0.7 | 29.6 | 119.6 | 119.3 | 240.9 | 166.1 | 182.2 | 165.2 | 117.8 | **44.0** | 4 828.6 | 483 | 0.91 | 9.11 | The drop since May was due to a decrease in effluent use at Steenberg Golf. |
| Potsdam | 431.7 | 375.3 | 329.7 | 415.4 | 607.1 | 457.1 | 835.5 | 645.4 | 802.7 | 595.3 | 620.1 | **430.9** | 1 288.2 | 1 398 | 33.45 | 30.82 | Potsdam usage decreased which was expected due to rainy season. |
| Melkbosstrand | 29.2 | 20.6 | 18.2 | 40.9 | 17.4 | 63.5 | 78.2 | 71.2 | 54.0 | 53.3 | 59.3 | **11.0** | 110.9 | 66 | 9.92 | 16.67 | Usage from the WWTW and Atlantic Beach Golf. |
| Parow | 5.7 | 5.6 | 6.6 | 9.8 | 2.8 | 2.2 | 3.8 | 2.6 | 2.2 | 1.3 | 2.2 | **0.5** | 27.6 | 57 | 1.81 | 0.88 | Inflow to the WWTW is diverted to Athlone. An Athlone to Parow TE link is under construction and should be commissioned by end 2014. |
| Macassar | 30.2 | 30.1 | 28.3 | 28.1 | 37.7 | 28.6 | 44.4 | 74.4 | 41.0 | 48.3 | 56.2 | **31.0** | 973.8 | 333 | 3.18 | 9.31 | The WWTW bulk meter needs repair/ replacement. Strand Golf Club, Greenways Golf Estate and WWTW plant usage and Somerset West Golf club accounted for the usage. |
| Kraaifontein | 11.4 | 16.8 | 10.4 | 11.7 | 35.3 | 7.0 | 5.9 | 12.1 | 21.5 | 22.1 | 5.2 | **2.5** | 667.6 | 270 | 0.37 | 0.93 | The usage is on the plant's belt press, Pinehurst Estate and for the Durbanville line. |
| Scottsdene | 0.0 | 0.0 | 0.0 | 0.1 | 1.0 | 1.2 | 1.3 | 1.2 | 0.9 | 0.0 | 0.0 | **0.0** | 292.3 | 249 | 0.00 | 0.00 | Zero consumption due to no end-users. |

**Table 22 continued**

| PLANT | 13-Jul | 13-Aug | 13-Sep | 13-Oct | 13-Nov | 13-Dec | 14-Jan | 14-Feb | 14-Mar | 14-Apr | 14-May | 14-Jun | Plant WW Capacity<br><br>Megalitres per Month Ave 5 years | Plant TE capacity<br><br>Megalitres per month | % of plant WW capacity Reused (Current month) | % of TE capacity used (Current month) | COMMENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bellville | 42.6 | 32.3 | 25.7 | 19.8 | 26.7 | 44.7 | 113.2 | 156.4 | 100.7 | 83.8 | 40.4 | **25.3** | 1 698.9 | 585 | 1.49 | 4.32 | Wastewater currently upgrading the pump station which will result in higher TE utilisation by the end-users not currently receiving TE. |
| Atlantis | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **0.0** | 299.5 | 192 | 0.00 | 0.00 | Contractor procured incorrectly sized meter. |
| Athlone | 9.8 | 5.9 | 4.7 | 18.6 | 53.0 | 54.4 | 101.5 | 97.1 | 80.9 | 42.0 | 32.0 | **25.2** | 3 628.7 | 459 | 0.69 | 5.49 | Athlone's TE usage for the month was expected due to rainy season. |
| Mitchell's Plain | 0.0 | 5.9 | 13.4 | 0.4 | 0.9 | 4.2 | 8.6 | 11.7 | 2.5 | 1.3 | 9.6 | **8.7** | 1 063.6 | 183 | 0.82 | 4.75 | The usage is from the WWTW's belt press. |
| Gordon's Bay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **0.0** | 105.6 | 60 | 0.00 | 0.00 | Zero consumption due to no end-users. |
| Fisantekraal | 242.1 | 341.4 | 299.0 | 175.8 | 216.9 | 222.1 | 184.2 | 174.2 | 155.2 | 0.0 | 0.0 | **0.0** | n/a | 600 | n/a | 0.00 | A new meter will be installed after corn harvesting, resulting in more accurate metering in future. Currently no irrigation and thus consumption as corn crops have been harvested. |
| **TOTAL** (Ml/month) | **803.6** | **835.0** | **736.7** | **750.2** | **1118.4** | **1004.3** | **1617.5** | **1412.4** | **1443.8** | **1012.6** | **942.8** | **579.1** | 14 985.3 | 4 935.0 | 3.86 | 11.73 | Consumption decreased from May 2014 as expected due to the winter rains and thus less effluent being used for irrigation. |

### 7.1.7 Wastewater Final Effluent Quality

Wastewater final effluent quality is now reported in accordance with the DWS new WWTW license requirements. For most of the works the new standard has resulted in the decrease in % compliance, especially with regards to electrical conductivity, nitrate/nitrite, ortho-P, ammonia and the TKN for the sea outfall.

**Table 23: Final Effluent Quality for all the Waste Water Works**

| June 2014 | Dry weather Flow $ Ml/month | Flow for this month Ml | Column (1) = no. of samples taken; Column (2) = no. complying; Column (3) = % complying; Column (4) = mean value. | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wastewater Treatment Works | | | TSS (25 mg/l) | | | | COND. (75 mS/m,70 mS/m ) | | | | pH (5.5-9.5, 6.5-8.0) | | | | E.Coli (1 000/100ml) | | | | Chloride (200mg/l) | | | |
| | | | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) ¶ | (1) | (2) | (3) | (4) |
| | | | no. | no. | % | mg/l | no. | no. | % | mS/m | no. | no. | % | pH | no. | no. | % | no. | no. | no. | % | no. |
| **Athlone** | 3 532 | 4 652 | 4 | 4 | 100 | 9 | 4 | 0 | 0 | 87 | 4 | 4 | 100 | 7.0 | 4 | 4 | 100 | 90 | 4 | 4 | 100 | 136 |
| **Bellville** | 1 567 | 1 929 | 4 | 2 | 50 | 126 | 4 | 0 | 0 | 85 | 4 | 4 | 100 | 7.6 | 4 | 0 | 0 | 297 750 | | | | |
| **Borcherds Quarry** | 1 167 | 1 116 | 4 | 4 | 100 | 3 | 4 | 0 | 0 | 105 | 4 | 4 | 100 | 7.5 | 4 | 3 | 75 | 875 | 4 | 4 | 100 | 139 |
| **Cape Flats*** | 3 525 | 4 620 | 4 | 4 | 100 | 18 | 4 | 4 | 100 | 77 | 4 | 4 | 100 | 7.3 | 4 | 1 | 25 | 3 373 | | | | |
| **Fisantekraal*** | 339 | 487 | 4 | 4 | 100 | 5 | 4 | 4 | 100 | 67 | 4 | 4 | 100 | 7.6 | 4 | 3 | 75 | 373 | | | | |
| **Gordons Bay** | 117 | 195 | 4 | 4 | 100 | 6 | 4 | 0 | 0 | 115 | 4 | 4 | 100 | 7.4 | 4 | 4 | 100 | 13 | 4 | 2 | 50 | 193 |
| **Klipheuwel #** | 4 | 5 | 4 | 4 | 100 | 14 | 4 | 4 | 100 | 68 | 4 | 4 | 100 | 7.2 | 4 | 3 | 75 | 1 023 | | | | |
| **Kraaifontein** | 399 | 504 | 4 | 4 | 100 | 7 | 4 | 2 | 50 | 77 | 4 | 4 | 100 | 7.5 | 4 | 4 | 100 | 28 | 4 | 4 | 100 | 118 |
| **Llandudno #** | 6 | 6 | 4 | 4 | 100 | 12 | 4 | 4 | 100 | 84 | 4 | 4 | 100 | 7.1 | 4 | 4 | 100 | 1 | | | | |
| **Macassar** | 972 | 1 677 | 4 | 4 | 100 | 5 | 4 | 3 | 75 | 85 | 4 | 4 | 100 | 7.9 | 4 | 4 | 100 | 408 | 4 | 4 | 100 | 119 |
| **Melkbosstrand** | 124 | 137 | 4 | 4 | 100 | 6 | 4 | 0 | 0 | 116 | 4 | 4 | 100 | 8.0 | 4 | 4 | 100 | 218 | 4 | 3 | 75 | 207 |
| **Millers Point #** | 1 | 1 | 4 | 4 | 100 | 6 | 4 | 4 | 100 | 65 | 4 | 4 | 100 | 7.5 | 4 | 4 | 100 | 72 | | | | |
| **Mitchells Plain*** | 1 041 | 1 098 | 4 | 4 | 100 | 10 | 4 | 4 | 100 | 75 | 4 | 4 | 100 | 7.6 | 4 | 0 | 0 | 137 750 | | | | |
| **Oudekraal #** | 0.27 | 0.4 | 4 | 4 | 100 | 2 | 4 | 4 | 100 | 25 | 4 | 4 | 100 | 8.1 | 4 | 4 | 100 | 5 | | | | |
| **Parow #** | 38 | 23 | 4 | 3 | 75 | 49 | 4 | 3 | 75 | 130 | 4 | 4 | 100 | 6.9 | 3 | 3 | 100 | 270 | | | | |
| **Potsdam*** | 1 533 | 2 012 | 4 | 4 | 100 | 2 | 4 | 4 | 100 | 90 | 4 | 4 | 100 | 7.7 | 4 | 4 | 100 | 125 | | | | |
| **Scottsdene** | 345 | 445 | 4 | 4 | 100 | 5 | 4 | 4 | 100 | 43 | 4 | 4 | 100 | 7.2 | 4 | 4 | 100 | 8 | 4 | 4 | 100 | 60 |
| **Simons Town** | 56 | 92 | 4 | 4 | 100 | 13 | 4 | 4 | 100 | 80 | 4 | 4 | 100 | 7.2 | 4 | 4 | 100 | 165 | | | | |
| **Wesfleur DOM*** | 344 | 335 | 4 | 4 | 100 | 2 | 4 | 4 | 100 | 99 | 4 | 4 | 100 | 7.9 | 4 | 4 | 100 | 165 | | | | |
| **Wesfleur IND*** | 0 | | Flow was diverted to domestic works. | | | | | | | | | | | | | | | | | | | |
| **Wildevoëlvlei*** | 315 | 476 | 4 | 4 | 100 | 3 | 4 | 4 | 100 | 83 | 4 | 4 | 100 | 7.9 | 4 | 3 | 75 | 615 | | | | |
| **Zandvliet** | 2 748 | 3 251 | 4 | 4 | 100 | 9 | 4 | 2 | 50 | 73 | 4 | 4 | 100 | 7.4 | 4 | 4 | 100 | 199 | 4 | 4 | 100 | 76 |
| **TOTAL-LAND (ML)** | 18 176 | 23 061 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **No. samples taken** | | **84** | | | | **84** | | | | **84** | | | | **83** | | | | **32** | | | |
| **No. samples complying** | | | **81** | | | | **58** | | | | **84** | | | | **68** | | | | **29** | | |
| **MONTH Average % Compliance** | | | | **96** | | | | **69** | | | | **100** | | | | **81.9** | | | | **90.6** | |
| **Month Average Value** | | | | | **15** | | | | **82** | | | | **7** | | | | **21 120** | | | | **131** |

### 7.1.8 Status of Equipment and Plant at Bulk Water Installations (June 2014)

**Table 24: Status of Equipment and Plant at Bulk Water Installations**

| Item no | WTP | Description | Intervention Required | Estimated Cost |
|---|---|---|---|---|
| 1 | Faure WTP (BW) | Obsolete and aging SCADA equipment | Replacement of all PLCs:<br>{Tender for consultants cancelled (advertised 80/20, both tenders received >R1 000 0000). Tender to be re-advertised}. | R 6 million |
| 2 | Blackheath WTP (BW) | PAC Dosing System | Replace PAC dosing system: {Complete Part B of works. Commissioning and operational acceptance period for Part A completed, but Contract terminated due to non-performance of contractor on Part B.<br>Tender for completion of Part B to be advertised}. | R 700 000 |
| 3 | Blackheath WTP (BW) | Treatment Residue Water Recovery PS | Replace pump motor and associated equipment – Works completed, Contract in Defects Notification Period | R 902 572 |
| 4 | Steenbras WTP (BW) | Lime Storage and Transfer system | Complete existing contract – Contractor to address items as per snag list [Completed] | Completed |
| 5 | Voëlvlei WTP (BW) | Pump System Surge Vessels | Phased refurbishment of 4 large pressure vessels.<br>Inspection by Competent Person completed, and only minor refurbishment required. | R 500 000 |
| 6 | Voëlvlei WTP (BW) | Air-scour Blowers | Phased replacement of 2 blowers. One blower replaced during 2010/11, and the second during 2012/13.[Completed]. | R 250 000 |
| 7 | Witzands WTP (BW) | Acid Regeneration System | Refurbish Acid System<br>To be advertised | R 2 million |
| 8 | Firlands PS (BW) | Obsolete and aging Variable Frequency Drives (VFD) | Replacement of 4 off VFD's.<br>Phase 1 (replacement of 2 VFD's): Works completed, contract in defects notification period.<br>Phase 2 (replacement of remaining 2 VFD's): advertised on 26th September 2014. | R 15 million |
| 9 | Kildare PS (BW) | Obsolete motors and electrical control equipment | Replace pump motors and control equipment – Contract complete. | R 1 968 000 |
| 10 | Molteno Reservoir PS No. 2 (BW) | Obsolete and aging pump starter panel | Replace pump starter panel – Contract completed. | R 406 200 |
| 11 | Voëlvlei WTP (BW) | Electrical protection of Low Lift Pump Station Variable Frequency Drives | Install UPS's to Low Lift Pump Station VFDs – Works completed, contract in defects notification period. | R 450 000 |

**Table 25: Water Distribution Networks**

| 2013/14 YEAR STATS AS AT END JUNE 2014 | | | | | | | YTD - ANNUAL COMPARISON | | |
|---|---|---|---|---|---|---|---|---|---|
| WATER NETWORKS | BLAAUWBERG | CAPE TOWN | HELDERBERG | KHAYELITSHA | SOUTH PEN. | TYGERBERG | YTD-2013/14 | YTD-2012/13 | YTD-2011/12 |
| Discoloured Water complaints | 61 | 44 | 22 | 0 | 29 | 37 | 193 | 200 | 310 |
| Repair to Burst Water Mains | 685 | 441 | 587 | 55 | 569 | 876 | 3 213 | 3 306 | 4 085 |
| Valves Marked / Plated | 57 | 166 | 86 | 35 | 0 | 315 | 659 | 1 370 | 1 774 |
| Valves Replaced / Renewed | 95 | 37 | 90 | 40 | 6 | 203 | 471 | 789 | 875 |
| Valves Repacked | 197 | 125 | 88 | 26 | 442 | 255 | 1 133 | 1 590 | 1 393 |
| Fire Hydrants Replaced / Renewed | 101 | 6 | 30 | 52 | 34 | 113 | 336 | 566 | 525 |
| Fire Hydrants Repacked | 120 | 91 | 19 | 16 | 432 | 177 | 855 | 857 | 1 048 |
| Fire Hydrant Nozzles Replaced | 14 | 8 | 4 | 0 | 17 | 7 | 50 | 228 | 386 |
| Fire Hydrants Installed | 10 | 7 | 5 | 0 | 0 | 426 | 448 | 160 | 296 |
| New Mains Installed (m) | 8 436 | 6 322 | 8 585 | 1 380 | 4 198 | 0 | 28 921 | 18 491 | 1 330 |
| Water Mains Replaced (m) | 14 404 | 11 048 | 9 795 | 29 | 4 562 | 15 580 | 55 418 | 70 279 | 89 975 |
| Water Mains Cleaned (m) | 3 | 0 | 0 | 0 | 0 | 6 | 9 | 257 | 273 |

As indicated in the table above, burst main incidents for the corresponding period in the past financial years are as follows: 4 085 in 2011/12, 3 306 in 2012/13 and 3 213 in 2013/14. The corresponding rate of bursts per 100 km per year is as follows: 40 in 2011/12, 32 in 2012/13 and 31 in 2013/14.

**Table 26: Water Meter Connections (Performed by Depot)**

| 2013/14 YEAR STATS AS AT END JUNE 2014 | | | | | | | YTD – ANNUAL COMPARISON | | |
|---|---|---|---|---|---|---|---|---|---|
| | BLAAUWBERG | CAPE TOWN | HELDERBERG | KHAYELITSHA | SOUTH PEN. | TYGERBERG | YTD-2013/14 | YTD-2012/13 | YTD-2011/12 |
| Installed Meter Connections 15 mm | 78 | 0 | 36 | 4 | 3 | 1 | 122 | 416 | 425 |
| Installed Meter Connections 20 mm | 759 | 707 | 204 | 13 | 120 | 46 | 1 849 | 2 546 | 2 995 |
| Installed Meter Connections 25 mm | 20 | 137 | 41 | 1 | 34 | 35 | 268 | 259 | 290 |
| Installed Meter Connections 32 mm | 1 | 1 | 1 | 0 | 0 | 1 | 4 | 4 | 5 |
| Installed Meter Connections 40 mm | 19 | 52 | 4 | 0 | 4 | 7 | 86 | 121 | 119 |
| Installed Meter Connections 50 mm | 10 | 34 | 1 | 0 | 7 | 4 | 56 | 59 | 52 |
| Installed Meter Connections 80 mm | 2 | 15 | 0 | 0 | 5 | 0 | 22 | 11 | 22 |
| Installed Meter Connections 100 mm | 0 | 48 | 0 | 0 | 0 | 0 | 48 | 42 | 46 |
| Installed Meter Connections 150 mm | 0 | 5 | 0 | 0 | 2 | 1 | 8 | 12 | 19 |
| Water Meters Replaced | 750 | 369 | 825 | 552 | 0 | 954 | 3 450 | 4 031 | 4 836 |
| Relocate / Re-fix Meters | 565 | 419 | 106 | 533 | 85 | 498 | 2 206 | 2 352 | 3471 |
| Water Meters Stolen | 86 | 196 | 544 | 4 | 100 | 320 | 1 250 | 1 571 | 1403 |
| Remove Water Meter Connections | 257 | 0 | 25 | 345 | 1 | 13 | 641 | 632 | 903 |
| Repair Leaks on Water Connections | 5 512 | 11 816 | 6 022 | 2 244 | 8 160 | 3 214 | 36 968 | 37 830 | 37118 |
| Locate Water Meters | 505 | 0 | 8 | 29 | 0 | 309 | 851 | 1 319 | 1512 |
| **TOTAL** | **8 564** | **13 799** | **7 817** | **3 725** | **8 521** | **5 403** | **47 829** | **51 205** | **53 216** |

**Table 27: Sewerage Blockages per areas of Metro for June 2014**

| | BUILDING MATERIAL | COLLAPSES | FATS | FOREIGN OBJECTS | ROOTS | SAND | TOTAL |
|---|---|---|---|---|---|---|---|
| South Peninsula Area | 0 | 0 | 257 | 413 | 294 | 0 | 964 |
| Blaauwberg Area | 0 | 1 | 60 | 49 | 56 | 16 | 182 |
| Durbanville | 0 | 0 | 87 | 52 | 7 | 0 | 146 |
| Kraaifontein/Brackenfell | 0 | 0 | 199 | 186 | 130 | 0 | 515 |
| Atlantis | 0 | 1 | 54 | 181 | 71 | 14 | 321 |
| Bellville Area | 2 | 0 | 35 | 57 | 85 | 15 | 194 |
| Goodwood Area | 4 | 9 | 60 | 284 | 89 | 23 | 469 |
| Parow Area | 201 | 0 | 267 | 299 | 37 | 57 | 861 |
| Khayelitsha | 137 | 0 | 149 | 0 | 0 | 140 | 426 |
| CBD & Atlantic Seaboard | 0 | 0 | 0 | 359 | 8 | 0 | 367 |
| Mitchells Plain/Philippi | 0 | 0 | 173 | 439 | 7 | 40 | 659 |
| Maitland/Pinelands | 0 | 2 | 21 | 156 | 59 | 8 | 246 |
| Rosebank/Claremont | 0 | 0 | 57 | 175 | 120 | 21 | 373 |
| Athlone/Hanover Park | 0 | 0 | 161 | 340 | 51 | 61 | 613 |
| Ikapa | 0 | 0 | 76 | 329 | 34 | 296 | 735 |
| Delft/Eerste River/Kuils River | 0 | 7 | 493 | 580 | 159 | 187 | 1 426 |
| Somerset West/Strand | 98 | 15 | 79 | 120 | 78 | 164 | 554 |
| **TOTAL** | **442** | **35** | **2 228** | **4 019** | **1 285** | **1 042** | **9 051** |

### 7.1.9 Status of Equipment and Plant on Pump Stations (as at August 2013)

**Table 28: Pump Stations Sewer Spillage**

| ITEM NO. | REPORTED PUMP STATION AND RISING SEWER INCIDENTS: JUNE 2014 | | | | | | |
|---|---|---|---|---|---|---|---|
| | PUMP STATION | LOCATION | DATE | CAUSE | POINT OF OVERFLOW | ACTION TAKEN | IMPACT* |
| 1 | Alex Pienaar St | Strand | 06/06/2014 | Pumps not starting on automatic | Manholes in the road. | Electrical dept replaced burnt controls. | Minimum |
| 2 | Ouskip | Melkbosstrand | 08/06/2014 | Pumps 1 & 2 tripped on loss of phase | Sout Rivier | Pumps reset by EAM and river treated | Minimal |
| 3 | Lourens River | Strand | 10/06/2014 | Main incomer breaker failed | Lourens River | Fault rectified by EAM | Minimal |
| 4 | Da Gama St | Strand | 10/06/2014 | Pumps overheated | No overflow alert by Telemetry | Pumps attended to by EAM | Minimum |
| 5 | Dennehof | Gordon's Bay | 11/06/2014 | Pump faulty | Manholes in the road | Pumps attended to by EAM | Minimum |
| 6 | Pop In | Gordon's Bay | 11/06/2014 | Pumps tripped | Manholes in the road | Removed rags | Minimum |
| 7 | Helderberg | Strand | 14/06/2014 | Pump 3 tripped | From manhole into field | Reset pumps | Minimal |
| 8 | Hillary Close | Somerset West | 15/06/2014 | Pumps not switching on | At the station | Operate pumps on manual | Severe |
| 9 | Lourens River | Strand | 19/06/2014 | Pump 4 faulty inspection cover and pump 2 soft starter fault. | Lourens River | Fault rectified by EAM | Minimal |
| 10 | College Road | Athlone | 23/06/2014 | Pump 1 tripped and pump 2 out for repairs | Into canal | Removed rags and reset pump | Minimal |
| 11 | Phillippi Phase 4 | Crossroads | 26/06/2014 | Both pumps tripped due to rags | Spills onto the road | Removed rags and rest pump | Minimal |
| 12 | Sarepta 2 | Sacks Circle - Bellville South | 26/06/2014 | Pump 1 and 4 tripped due to excessive rainfall | Kuilsriver | Nothing could be done | Medium |
| 13 | Freezia | Macassar | 30,31/06/ 2014 | Pumps stolen | Manholes in the road | Empty with honeysuckers | Minimum |

# 8. ASSOCIATED SERVICES

## 8.1. WATER SERVICES

### 8.1.1. Education Plan

The cities 1 353 schools that are operational receive adequate water and sanitation services. Of these 185 are no fee schools due poor economic status of households it serves.

There is however a problem of repeated vandalism in some areas where ablution facilities are targeted for metals and pluming fittings. The education department has adopted a number of strategies to reduce the problem. Vandalism is more prevalent in the no fee schools thus compounding the negative effects on poorer households.

### 8.1.2 Health Plan

The city has a large number of health facilities that are receiving water and sanitation services. In addition the city has a number of treatment sites focusing on HIV and TB Treatment

In the reporting period the city had 116 421 ART patients being treated at 73 ART treatment sites and 26 305 TB patients being treated at 208 TB treatment sites. Most of these sites are at established health centers, clinics and hospitals and therefore receive water services as reflected in the tables below.

**Table 29: Health plan for Water Services**

| Associated Services Facility | Number of Facilities | Facilities with Adequate Services | Facilities with no Services | Facilities with inadequate Services | Total Potential Cost (Basic Level) RM |
|---|---|---|---|---|---|
| **Hospitals** | 9 District<br>2 Regional | 100% | 0 | 0 | - |
| **Health Centres** | 9 Community<br>38 Day | 100% | 0 | 0 | - |
| **Clinics (Mobile Incl.)** | 84 Fixed<br>18 Satelites<br>4 Mobiles | 79.3% | 3.4% | 17.3% | **-info not available** |

### 8.1.3 Police Services

Starting from a baseline in 2003 with a total number of 55 police stations was receiving water services. This figure excludes mobile / satellite stations.

Since then an extra 10 police stations have been constructed and serviced.

**Table 30: The 10 year Growth in Police Stations receiving Water Services**

| Year | Name and Location |
|---|---|
| 2004 | In Khayelitsha 3 police stations were developed namely Khayelitsha, Lingulethu West and Harare |
| 2005 | In Kuilsriver 2 police stations were developed namely Kuilsriver and Mfuleni. |
| 2007 | In Delft 2 police stations were developed namely Delft and Belhar |
| 2008 | In Somerset West 2 police stations were developed namely Somerset West and Lwandle |
| 2014 | The latest police station developed is Lentegeur police station in Mitchells Plain |

## 8.2 SANITATION SERVICES

### 8.2.1 Education Plan

As reflected in section 8.1.1

### 8.2.2 Health Plan

**Table 31: Health Plan for Sanitation**

| Associated Services Facility | Number of Facilities | Facilities with Adequate Services | Facilities with no Services | Facilities with inadequate Services | Total Potential Cost (Basic Level) RM |
|---|---|---|---|---|---|
| Hospitals | 9 District<br>2 Regional | 100% | 0 | 0 | - |
| Health Centres | 9 Community<br>38 Day | 100% | 0 | 0 | - |
| Clinics (Mobile Incl.) | 84 Fixed<br>18 Satelites<br>4 Mobiles | 79.3% | 3.4% | 17.3% | -info not available |

### 8.2.3 Police services

Sanitation services is provided as to polices stations as in paragraph 8.1.3

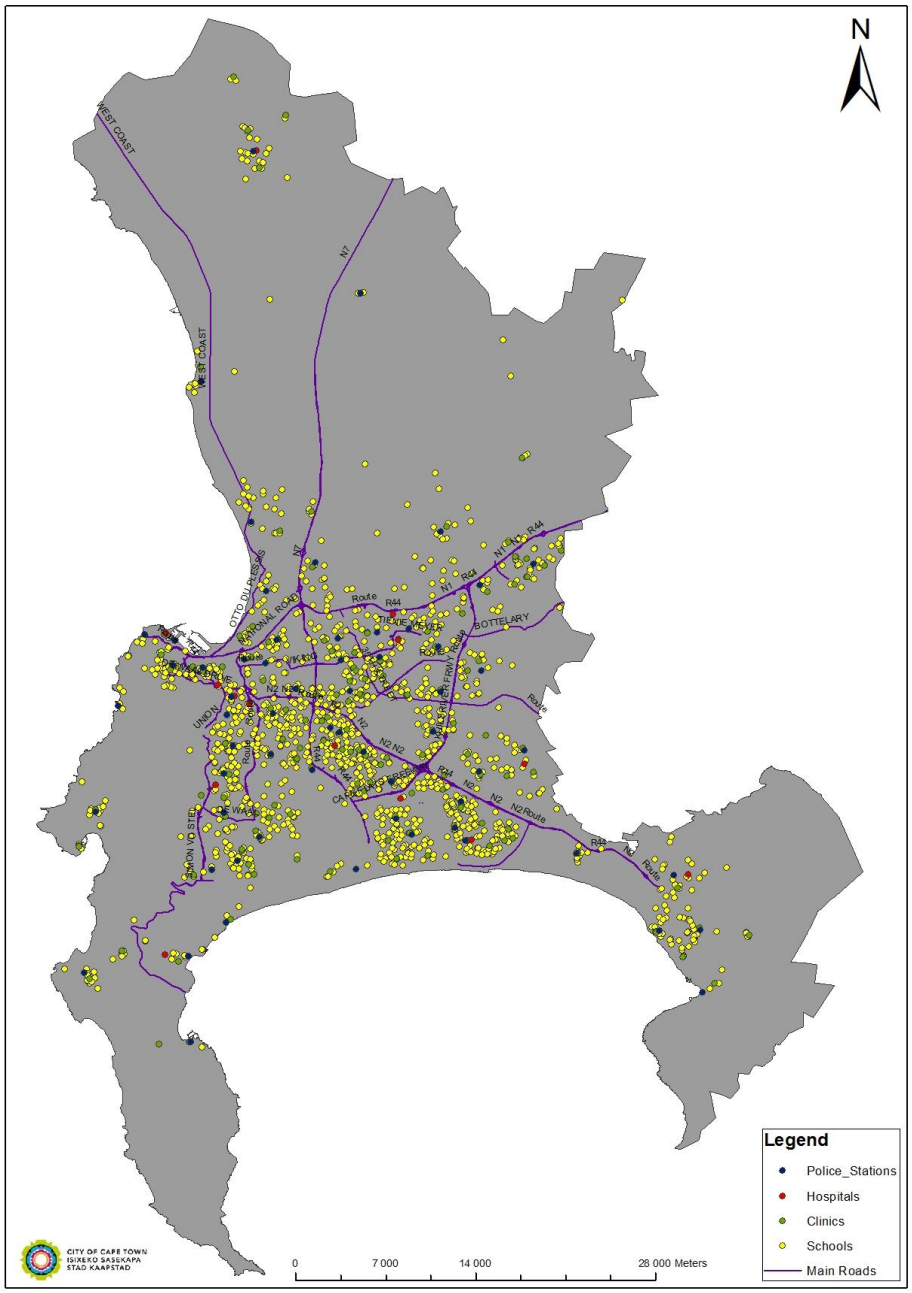


**Figure 18: Distribution Of institutions being serviced**

# 9. WATER CONSERVATION AND DEMAND MANAGEMENT

The purpose of the Water Demand Management and Water Conservation Strategy is to provide a long-term balance between available water resources and demand for these resources, minimise water losses from the system and postpone the need for expensive capital infrastructure projects for as long as economically viable.

CCT has a responsibility to provide and manage services (including water and sanitation services) to a constantly growing population. Added to this, the fact that Cape Town lies in a water scarce region and the options for further water augmentation schemes to supply the Cape Town area are extremely limited since the completion of the Berg Water Project. Good water conservation and water demand management principals therefore play a crucial role in ensuring we are equipped to manage the growth and development which is taking place within our boundaries.

Growth is vital for the economy, but the management of the provision of water and sanitation services in this growing economy can bring with it some challenges. The City's response to these challenges has been to grow and develop the Water Demand Management (WDM) Department to manage a full range of projects/activities in respect of water conservation and water demand management, a few of which are mentioned below.

The Water Demand Management Department and Strategy Branch cannot single out one project for this award as each project undertaken has an innovative and different approach. The projects are summarised below:

## 9.1 PRESSURE MANAGEMENT (MAJOR AND MINOR PROJECTS)

Pressure management is sustainable as it reduces losses in the system, reduces bursts, reduces internal leaks, prolongs the life of the reticulation system, saves the City water and money and has a 6-12 month payback period. The City has continued to roll out Pressure Management installations across the City with more installations.

With the implementation of a policy to install Water Management Devices (WMD's) on a prioritised basis, households defined as indigent now have a mechanism to prevent water consumption reaching unaffordable levels and also prevents leaks causing high water losses. WMD's are being installed across a range of household's income groups to the same end goal. A total of 17989 WDM devices were installed for 2013/14.

Effective water demand management is a core requirement for the sustainability of water supply to the city. If water consumption is controlled at the levels expected in the Water Demand Management and Water Conservation Strategy, it may allow the next water resource scheme to be deferred to approximately 2022.

## 9.2 RETROFITTING AND LEAK FIXING

Council buildings tender being reissued. Samora Machel Retrofit Project contractor is servicing his six months maintenance period for the installation.

## 9.3 WATER AWARENESS AND EDUCATION

In keeping and maintaining momentum with awareness and education on water saving, the City has managed to secure a number of significant achievements towards the end of 2013 which includes the Sector Awards for Water Conservation presented by DWA as well as a Certificate of Commendation from the Eco Logic Awards Competition.

During January and March 2014 the Department produced and flighted several radio adverts and newspaper adverts aimed at encouraging further behaviour change and water saving.

In November 2014 the City partnered with WWF to host the Journey of Water event, a week-long event where celebrities and key role players in the water sector embarked on a walk from catchment to source. The event raised a lot of media attention and awareness on a variety of environmental issues and the importance of protecting our valuable water resources.

During March 2014 the City also held a successful Water Month with a variety of activities and events which includes partnership events with DWA, Eskom and Hotel Verde, focussing on key issues facing government and municipalities, whilst also acknowledging the efforts by the private sector to save, recycle and re-use water. A certificate of appreciation for water conservation efforts was presented to the hotel.

In May and June of 2014 the Water Conservation section implemented another successful round of EPWP employment on a number of projects including consumer satisfaction surveys, job seeker registration, etc. The target of 500 job opportunities were far exceeded seeing almost 1280 people being employed.

During August 2014 the City entered the Eco-Logic awards competition for the second year and received a Certificate of Merit for its efforts towards water conservation.

The Keep Saving Water campaign launched in November 2011 will be coming to an end in November 2014 and the results and achievements will be reported on during December/January.

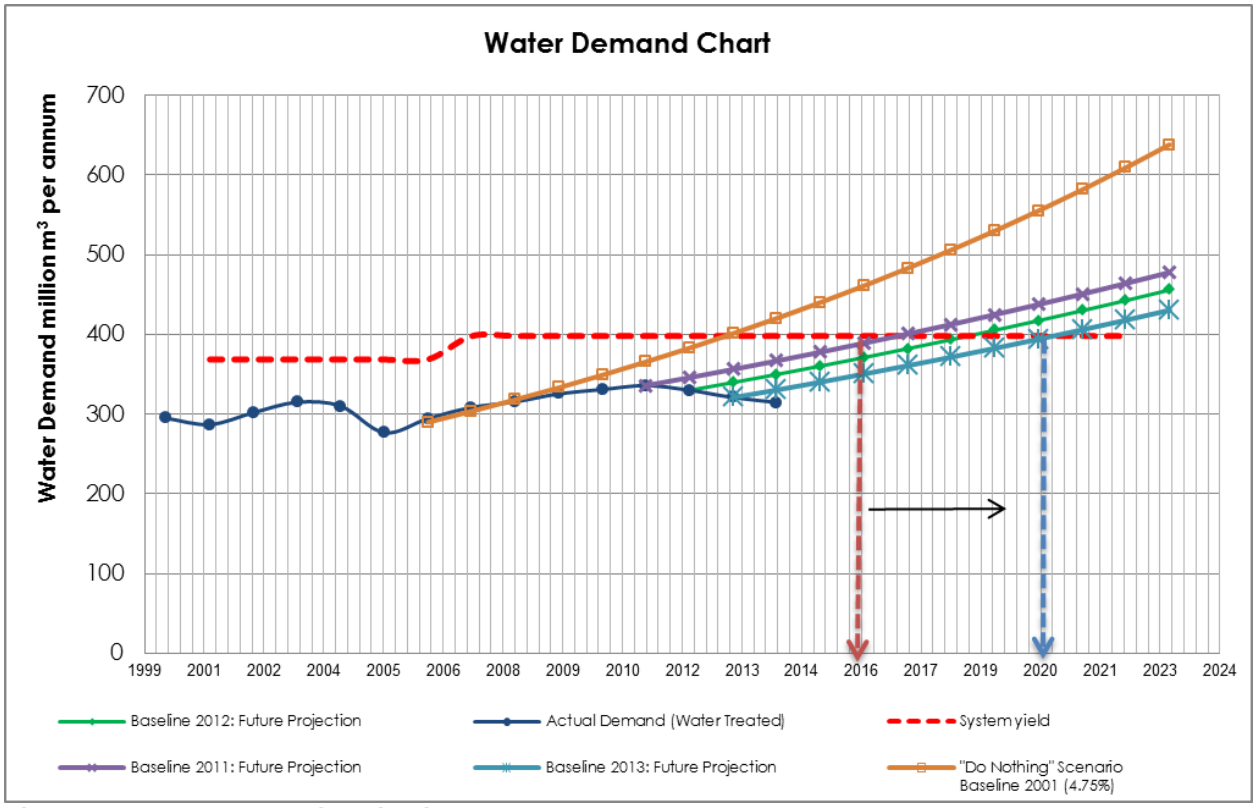


**Figure 19: Water Demand Projection**

Based on an average 3% water demand growth, from Figure 19, within the CCT, baseline 2011, and an allocation of 399 million m3 per annum, the next augmentation scheme would have been required by 2016 had no WCWDM initiatives been further implemented. Bearing in mind that the latter assumes that system yield remains constant (which is not the case). Using a baseline of 2013, and an average growth rate of 2.98%, it is anticipated that the next augmentation scheme be implemented by 2020.

# 10. WATER RESOURCES

## 10.1 MAJOR DAM LEVELS

The table below compares the storage in the six major dams of the Western Cape Water Supply System over the past five years.

**Table 32: Storage in the major dams of the WCWSS at 30 June 2014**

| MAJOR DAMS (99.6% of total capacity) | BULK STORAGE ON 30 JUNE 2010 – 2014 | | | | | | |
|---|---|---|---|---|---|---|---|
| | CAPACITY Ml | CAP. LESS DEAD STORAGE | % 2010 | % 2011 | % 2012 | % 2013 | % 2014 |
| **Wemmershoek** | 58 644 | 41.8 | 70.1 | 74.6 | 51.6 | 91.9 | 91.8 |
| **Steenbras Lower** | 33 517 | 33 517 | 61.4 | 60.3 | 54.8 | 77.4 | 76.8 |
| **Steenbras Upper** | 31 767 | 29 267 | 80.7 | 75.2 | 77.2 | 87.4 | 100.7 |
| **Voëlvlei** | 164 122 | 156 022 | 82.5 | 67.5 | 51.5 | 74.5 | 84.0 |
| **Theewaterskloof** | 480 250 | 432 250 | 85.8 | 74.2 | 61.0 | 84.9 | 100.6 |
| **Berg River** | 130 000 | 125 800 | 100.1 | 82.6 | 77.2 | 97.4 | 100.5 |
| **TOTAL STORED** | | | 764 828 | 662 215 | 550 940 | 764 355 | 863 277 |
| **TOTAL STORAGE** | 898 300 | 835 400 | 768 300 | 898 300 | 898 300 | 898 300 | 898 300 |
| **% STORAGE** | | | 85.1 | 73.7 | 61.3 | 85.1 | 96.1 |

The six major dams comprise 99.6% of the total system capacity.

The percentages in the above table include “dead storage” (water that is not available for use). The approximate dead storage for each dam is indicated in the table.

## 10.2 MINOR DAM LEVELS

**Table 33: Indicates the capacities of the minor dams supplying water to Cape Town**

| MINOR DAMS (0.4% of Total System Capacity) | CAPACITY Ml | % on 30 JUNE 2014 |
|---|---|---|
| Dams supplying Kloof Nek WTW: | | |
| Hely Hutchinson | 925 | 92.8 |
| Woodhead | 954 | 49.3 |
| Dams supplying Constantia Nek WTW: | | |
| Victoria | 128 | 101.2 |
| Alexandra | 126 | 100.0 |
| De Villiers | 243 | 100.3 |
| Dams supplying Brooklands WTW: | | |
| Kleinplaats | 1 368 | 95.3 |
| Lewis Gay | 182 | 93.1 |

The minor dams owned and operated by the City of Cape Town comprise 0.4% of the total system capacity.

The minor dams in the table above are grouped by systems: Hely Hutchinson and Woodhead Dams supply Kloof Nek WTP; Victoria, Alexandra and De Villiers Dams supply Constantia Nek WTP; and the Kleinplaats and Lewis Gay Dams supply Brooklands WTP.

## 10.3 WATER USE EFFICIENCY (POTABLE WATER)

**Table 34: Potable Water Production and Supply as at June 2014**

| MONTH | VOLUME WATER TREATED (kl) | | VOLUME WATER SUPPLIED (kl) | |
|---|---|---|---|---|
| | 2012 | 2013 | 2012 | 2013 |
| July | 23 006 654 | 22 778 000 | 22 749 190 | 24 104 918 |
| August | 22 508 576 | 22 514 141 | 23 515 678 | 22 255 298 |
| September | 22 416 626 | 21 579 512 | 22 031 382 | 21 090 014 |
| October | 25 496 328 | 26 280 152 | 26 036 048 | 27 068 260 |
| November | 29 237 591 | 26 539 397 | 27 443 101 | 24 289 811 |
| December | 32 943 615 | 31 083 589 | 29 624 434 | 22 138 521 |
| | 2013 | 2014 | 2013 | 2014 |
| January | 33 413 068 | 30 971 793 | 32 116 660 | 35 130 310 |
| February | 28 899 915 | 30 589 625 | 28 408 279 | 29 481 258 |
| March | 30 577 365 | 30 023 407 | 25 732 543 | 29 039 347 |
| April | 25 672 000 | 27 006 439 | 26 216 843 | 23 571 122 |
| May | 24 526 486 | 25 025 673 | 21 624 034 | 20 747 721 |
| June | 22 223 499 | 20 382 067 | 18 870 242 | 22 168 779 |

**Volume of water treated:** This is the total volume of potable water produced at the City's twelve water treatment works for the month.

**Volume of water supplied:** This is the total volume of potable water supplied from the bulk water supply system to bulk consumers i.e. the reticulation systems of the City of Cape Town, Drakenstein Municipality and Stellenbosch Municipality.

Using water and billing figures, the Water Losses (or unaccounted-for water (UAW)) and Non-Revenue Water (NRW) for the overall supply system from Bulk Water Treated to end consumer billing is 14.7% and 21.8% respectively (2013/14).

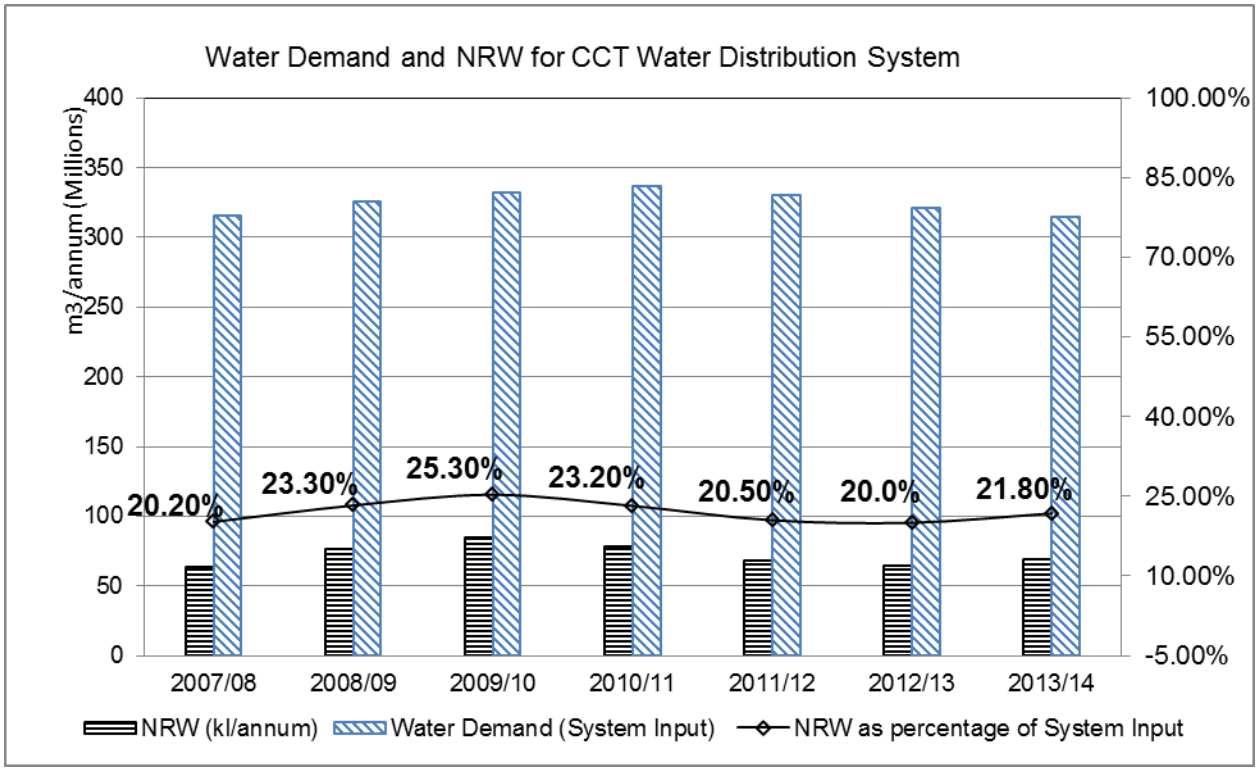


**Figure 20: Water Demand and Non-Revenue Water for the City of Cape Town**

**Table 35: Water Balance , 2013/14 Financial Year**

<table>
<tr><td rowspan="6">(A)<br>System Input<br>314 773 795<br><br>100%</td><td rowspan="3">(B)<br>Authorised<br>268 467 785<br>85.3%</td><td rowspan="3">(D)<br>Billed<br>246 017 052</td><td rowspan="2">(H) metered<br>246 017 052</td><td>External Customers</td><td>32 573 237</td><td rowspan="3">(Q)<br>Revenue<br>Water<br>246 017 052<br>78.2%</td></tr>
<tr><td>Internal Customers</td><td>213 443 815</td></tr>
<tr><td>(I) Unmetered</td><td colspan="2">0</td></tr>
<tr><td rowspan="3">(E)<br>Unbilled<br>22 450 733</td><td>(J) Metered<br>13 630 733</td><td>Informal Settlements</td><td>11 283 893</td><td rowspan="4">(R)<br>NRW<br>68 756 744<br>21.8%</td></tr>
<tr><td>Formal Metered Unbilled</td><td>2 346 840</td></tr>
<tr><td>(K) Unmetered<br>8 820 000</td><td>Formal Unmetered</td><td>8 820 000</td></tr>
<tr><td rowspan="5">(C)<br>Losses (UAW)<br>46 306 011<br>14.7%</td><td rowspan="2">(F)<br>Apparent Losses<br>21 734 923</td><td>(L) Unauthorised</td><td colspan="2">2 685 121</td></tr>
<tr><td>(M) Meter Inaccuracies</td><td colspan="2">19 049 802</td></tr>
<tr><td rowspan="3">(G)<br>Real Losses<br>24 571 088</td><td>(N) Mains</td><td colspan="2">13 743 334</td></tr>
<tr><td>(O) Storage</td><td colspan="2">665 100</td></tr>
<tr><td>(P) Connections</td><td colspan="2">10 162 654</td></tr>
</table>

Note: Free basic water (as part of the Revenue Water) equates to 133.77Ml/day as at 2013/14 financial year (billed at a zero rate).

# 11. FINANCIAL PERFORMANCE

CCT's unaudited financial statements are enclosed as a separate document, in which Annexure C lists the segmental Statement of Financial Performance, including those of the Water and Sanitation Services.

## 11.1 CAPITAL EXPENDITURE AND SOURCES

Capital expenditure incurred during the year 2013/14 amounted to R823.48 million with an expenditure level reached against the current budget.

**Table 36: Water and Sanitation three year capital expenditure**

| Area (R'million) | 2011/12 | 2012/13 | 2013/14 |
|---|---|---|---|
| Bulk Water | 17.0 | 28.23 | 39.45 |
| Reticulation | 216.3 | 276.42 | 330.13 |
| Wastewater Treatment | 223.2 | 164.70 | 160.86 |
| Water Demand management | 24.7 | 36.73 | 52.05 |
| EAMS | 62.6 | 49.60 | 75.47 |
| Informal Settlements | 28.4 | 12.58 | 20.26 |
| Meter Replacement | 12.3 | 11.01 | 103.52 |
| Information Technology | 12.7 | 6.53 | 8.68 |
| Technical Operation Centre | 2.8 | 0.38 | 7.47 |
| Master planning | 0.1 | - | 3.41 |
| Other | 4.9 | 10.47 | 22.18 |
| **TOTAL** | **605.2** | **596.64** | **823.48** |

Since 2011/12, the capital expenditure has increased by approximately 36%.

Capital expenditure is financed from

(i) CRR (Capital Replacement Reserve) a fund replenished from surplus in previous financial year,

(ii) EFF (External Financing Funds) loans obtained by the City, attracting interest and depreciation charges and having a direct impact on the tariffs or

(iii) CGD (Capital Grants & Donations).

## 11.2 TARIFFS AND CHARGES

Tariff increases implemented have been set higher than inflation during the last number of years due to the escalated focus on repairs and maintenance of current infrastructure as well as the growth in the capacity requirement in the capital infrastructure programme. City of Cape Town's block tariff structure for the various financial years in presented on the graph below:

**Table 37: Water and Sanitation tariffs trends (excl. VAT)**

| WATER TARIFFS (Rands) | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 |
|---|---|---|---|---|---|
| Domestic Full: 0-6 kℓ | - | - | - | - | - |
| +6-10.5 kℓ | 3.99 | 4.32 | 5.83 | 7.60 | 8.75 |
| +10.5-20 kℓ | 8.51 | 9.22 | 10.60 | 11.61 | 12.54 |
| +20-35 kℓ | 12.61 | 13.66 | 15.70 | 17.20 | 18.58 |
| +35-50 kℓ | 15.58 | 16.87 | 19.40 | 21.24 | 22.94 |
| +50 kℓ | 20.55 | 22.25 | 25.58 | 28.02 | 30.27 |
| Domestic cluster:>6kℓ | 8.62 | 9.33 | na | na | na |
| +6-20 kℓ | na | na | 9.07 | na | na |
| +6-10.5kℓ | na | na | na | 9.93 | 10.72 |
| +10.5-20 kℓ | na | na | 17.55 | 11.61 | 12.54 |
| +20-35 kℓ | na | na | na | 17.20 | 18.58 |
| +35-50 kℓ | na | na | na | 21.24 | 22.94 |
| +50 kℓ | na | na | na | 28.02 | 30.27 |
| Commercial | 9.18 | 9.93 | 11.42 | 12.51 | 13.51 |
| Industrial | 9.18 | 9.93 | 11.42 | 12.51 | 13.51 |
| Schools/sport | 8.11 | 8.78 | 10.09 | 11.06 | 11.94 |
| Government | 8.71 | 9.43 | 10.85 | 11.88 | 12.83 |
| Municipality | 8.11 | 8.78 | 10.09 | 11.06 | 11.94 |
| Miscellaneous | 8.71 | 9.43 | 10.85 | 11.88 | 12.83 |
| Misc. (external) | 10.41 | 11.27 | 12.96 | 14.19 | 15.33 |
| Bulk Tariff | 2.85 | 3.02 | 3.22 | 3.42 | 3.49 |
| **SANITATION TARIFF (RANDS)** | **2010/11** | **2011/12** | **2012/13** | **2013/14** | **2014/15** |
| Domestic Full:0-4.2 kℓ | | | | | |
| +4.2-7.35 kℓ | na | na | 5.81 | 7.20 | 8.25 |
| +8.4-14 kℓ | 4.67 | 5.05 | na | na | na |
| +7.35-14 kℓ | na | na | 12.38 | 13.56 | 14.64 |
| +14-28 kℓ | 9.94 | 10.76 | na | na | na |
| +14-24.5 kℓ | na | na | 13.53 | 14.83 | 16.01 |
| +28-35 kℓ | 10.87 | 11.77 | na | na | na |
| +24.5-35 kℓ | na | na | 14.21 | 15.56 | 16.81 |
| Industrial & Commercial | 7.05 | 7.63 | 8.78 | 9.62 | 10.39 |
| Departmental/Municipal | 6.49 | 7.03 | 8.08 | 8.85 | 9.56 |
| Domestic Cluster (>4.2 kℓ) | - | - | - | - | - |
| +4.2-14 kℓ | 9.65 | 10.45 | na | na | |
| +4.2-7.35 kℓ | na | na | 9.05 | na | 9.05 |
| +7.35-14 kℓ | na | na | na | 13.56 | 14.64 |
| +14-35 kℓ | na | na | 15.04 | na | na |
| +14-24.5 kℓ | na | na | na | 14.82 | 16.01 |
| +28.≤ 35 kℓ | na | na | na | 15.56 | 16.81 |

As we get closer to requiring an augmentation scheme, the tariffs will have to be reviewed in order to cover costs of augmentation. This awareness that we will constantly be faced with a decision of when, what method and cost of any scheme that will be implemented.

## 11.3 OPERATING BUDGET

The Operating budget will increase in line with the City's Medium-Term Revenue and Expenditure Framework (MTREF). This reflects the need for increasing demands to repair and maintain current infrastructure and the requirement of resources to operate new infrastructure. Consequently, there is pressure on annual tariffs increases.

**Table 38: Prior Years' Operating Budget**

| | **Prior Year Outcomes** | | | |
|---|---|---|---|---|
| | **Budget 2012/13** | **Actual Expenditure 2012/13** | **Budget 2013/14 Final** | **Adjustment Budget 2013/14 Final** |
| Operating Expenditure | R 5 490 332 757 | R 5 476 269 207 | R 5 829 671 690 | R 5 416 482 728 |
| % Spent | | 99.7% | | 92.9% |

# 12. WATER SERVICES INSTITUTIONAL ARRANGEMENTS

## 12.1 SITUATION ASSESSMENT

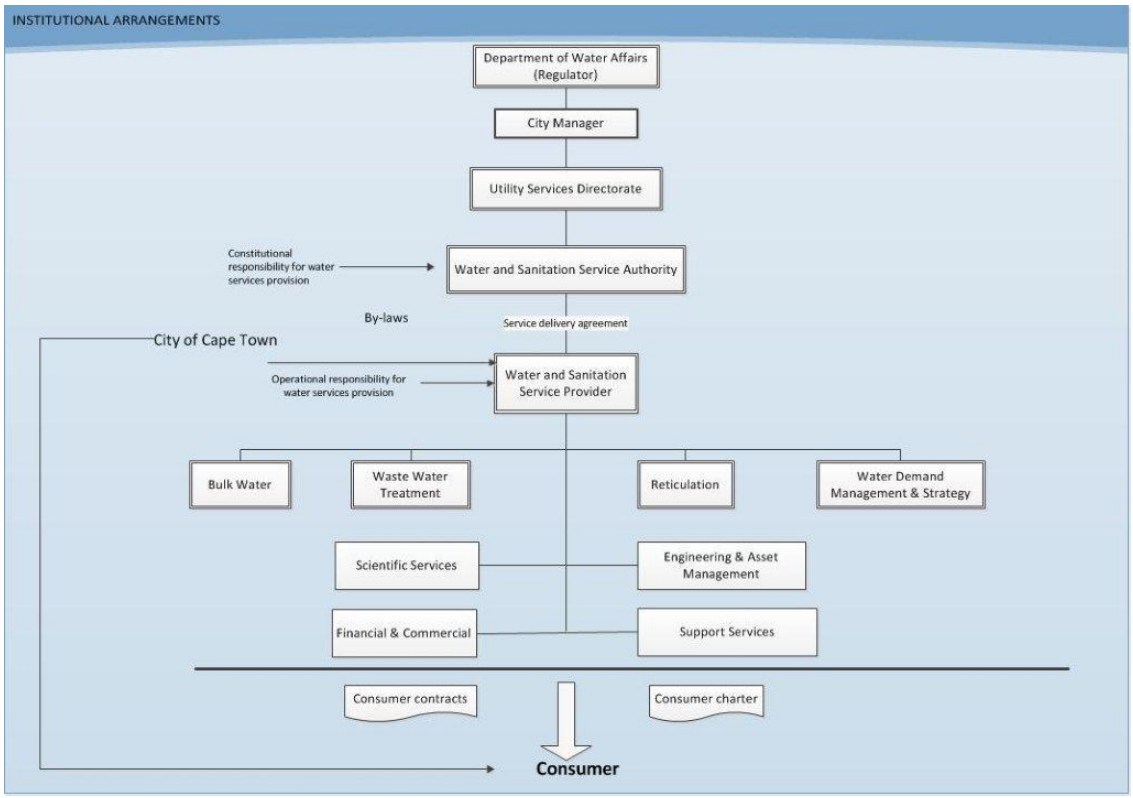


**Figure 21: Water Service Institutional Arrangements**
**Source:** *Water Demand Management Strategy*

Council authorized Water and Sanitation Services as it was called then to operate as fully-fledged and functional internal business unit in order to ensure maximum independence and minimum constraints. In practice this has not been implemented further and the service is now housed in the Utility Services Directorate as the Water and Sanitation Department.

## 12.2 FUTURE TRENDS AND GOALS

The appointment and retention of technical staff (engineers, scientists and IT personnel) remains a high priority.

### 12.2.1. Strategic gap analysis

The City of Cape Town is currently undertaking the constitutional responsibility for water service provision (as the Water Services Authority (WSA)) as well as the operational responsibility (as the Water Service Provider (WSP)). The City has not separated the service authority and service provision function to establish a municipal entity, preferring to operate the service as an internal ring-fenced department. At the moment, there is no service delivery agreement between WSA and WSP in place.

### 12.2.2. Implementation strategies

**Institutional reform:** The City's strategic intent, aligned with the national agenda and as stated in the IDP is:

- Sustainable use of scarce resources such as water
- Achieving operational, financial and other efficiencies which will enhance equitable, affordable and effective service delivery and sustainable development;
- Increase service provision (taps and toilets in formal settlements)

**Human resources:** It is the City's strategic intent to develop and retain a skilled and motivated staff according to the Staffing Strategy and the Workplace Skills Plan. A strategy to hold onto staff is a talent management programme currently underway which intends to hold onto qualified and experience staff through a career development and succession plan. This effort will help to hold onto institutional knowledge.

The following efficiency enhancements are receiving focused attention:

- Integration and standardisation of Automation control and monitoring of plants via Scada-telemetry.
- Integration of Information Management Systems through development of a Data Integration and Monitoring System.
- GIS geodatabase development for effective management and planning of the infrastructure.
- Water quality management through the Laboratory Information Management System (LIMS).
- Capacity building and training of staff.
- Following the successful Automatic Metering Reading (AMR) pilot project of 1 900 consumer meters in 2010, its further rollout in industrial/commercial areas is being planned.

- Adoption of an Integrated Master Plan in 2011 with the aim to, as from 2014, update it on an annual basis.
- An Integrated Asset Management Plan is being developed on a coordinated basis across directorates in the City, based on establishing an accurate infrastructure asset register, maintenance and life-cycle planning, geodatabase and master data.
- Integrated Risk Management and development of the staffing strategy.

### 12.2.3. Bylaws affecting water services

**Table 39: The bylaws affecting water services are listed in the table below**

| By-law | Date promulgated | Short Description | Effect on Water Services |
|---|---|---|---|
| Water | 18 February 2011 | To control and regulate water supply and use in the City of Cape Town and strive for continued availability and access of the resource to all. | Increased awareness on the need to save water, renders a more sustainable provision of the service where supply meets demand.<br>Punitive measures serve to deter non-compliance. |
| Wastewater and Industrial Effluent | February 2014 | To control and regulate sewerage and industrial effluent discharges for the protection of infrastructure and the environment. | Increased awareness amongst the target market continues to trigger behavioural change in terms of a better understanding of the principle of environmental protection<br>Punitive measures serve to deter non-compliance |
| Credit Control and Debt Collection | Latest as Approved by Special Council in May 2014 | To give effect to the Council's credit control and debt collection policy, its implementation and enforcement, as required by Section 98 of the Municipal Systems Act, 32 of 2000, and to give effect to the duty imposed by Section 96 of the Municipal Systems Act to collect all money that is due and payable to the Council. | Renders the service financially sustainable for current and future generations. |
| By-law relating to Stormwater Management | 23 September 2005 | To provide for the regulation of stormwater management and to regulate activities which may have a detrimental effect on the development, operation or maintenance of the stormwater system | Greater public awareness on the need to prevent environmental damage<br>Punitive measures serve to deter non-compliance. |
| Treated Effluent | 28 October 2009 | To control and regulate the supply and use of treated effluent in the City of Cape Town in line with the Integrated Water Resource Management and Water Conservation Water Demand Management goals. | Hence rendering its supply sustainable for current and future needs |

# 13. SOCIAL AND CUSTOMER REQUIREMENTS

## 13.1 SITUATION ASSESSMENT

Although under stress in certain regions, necessary infrastructure is in place to ensure an adequate quality of service to all households. All customers receive water that is fully treated. There are mechanisms in place to attend to customer complaints and queries.

The Water and Sanitation Department conducts their own customer satisfaction surveys. These surveys are undertaken on an annual basis to gauge the customer satisfaction in formal domestic, informal domestic and business sectors and to identify specific issues of concern.

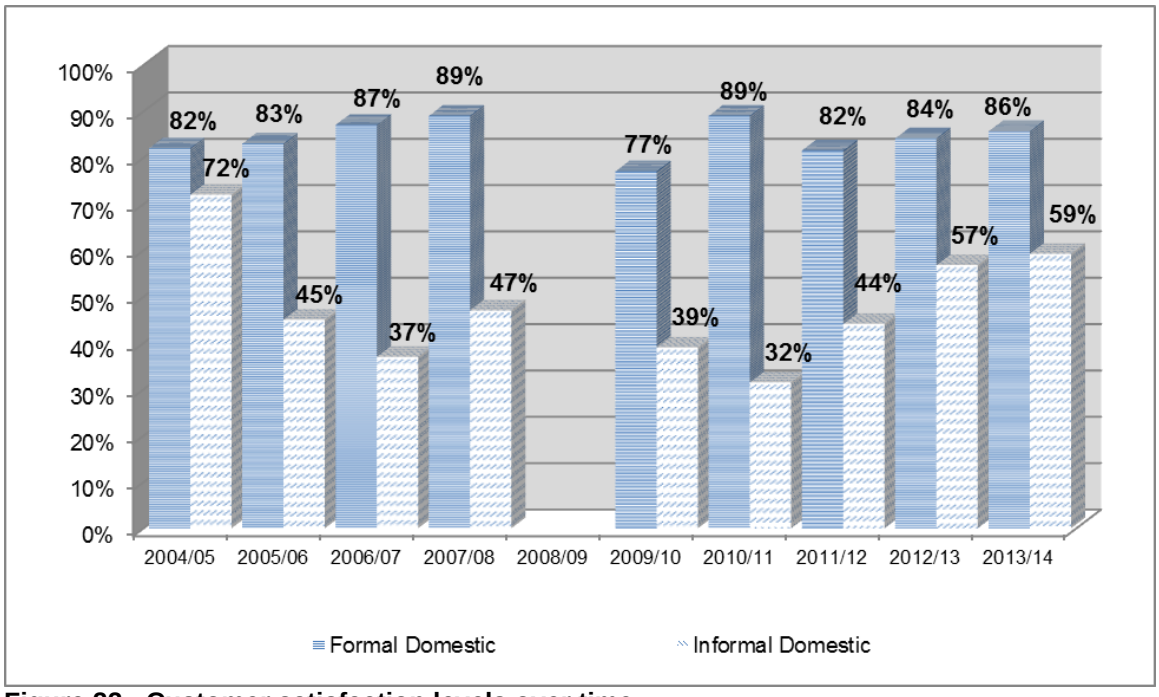


**Figure 22: Customer satisfaction levels over time**

The general conclusions for the 2013/14 financial year are as follows:

- There is a large increase in the overall satisfaction level on water availability and provision of sanitation and sewerage services as compared to 2012/2013. This indicates that the Department has improved in the provision of services.

**Formal Residents:**

The majority of the formal residents (85.78%) were satisfied with water availability and majority (84.49%) said they water quality was good. Majority of residents (85.24% in the formal areas said they did not experience any water related problem in the last year. The majority (85.50%) of residents in the formal areas said they were satisfied with the

City's sanitation or sewerage services. Most of the respondents (69.59%) indicated they were satisfied with the billing process. The majority of respondents in the formal residential areas (87.78%) indicated that they did not have any sewerage blockage or sanitation-related problems in the past year.

**Informal Areas**

There has been a notable increase in the satisfaction levels of respondents within informal areas as compared to the previous survey results. Most respondents (74.81%) in the informal areas reported that they are satisfied with water availability; Less than half of the respondents (43.64%) mentioned that they were satisfied with the sewerage and sanitation services.

**Business Areas**

Majority of businesses (84.45%) were satisfied with the water services provided by the City of Cape Town. Majority of businesses (87.31%) indicated they were satisfied with the City of Cape Town's water delivery services. Majority of the businesses (86.12%) were satisfied with the billing process

City of Cape Town also performs a citywide community survey within which Water and Sanitation Departments' service delivery performance is scored. The Department aims to equal or exceed the City average scores for both residential and business. This has been achieved within the residential end-user group, obtaining scores of 3.0 (2012/13) and 3.3 (2013/14) compared to the City average of 3.1 while obtaining an average of score of 3.8 for water and sanitation provision from Business end-user groups.

A study was conducted to measure the effectiveness of the standpipe installation which is part of the Retrofit programme owned by WDM Operations. The study was conducted in Fisantekraal and Ravensmead areas with backyarders as the target population. Results showed a 96.14% percentage of satisfaction with the intervention, with dissatisfied percentage needing address. An action plan with deadlines was drawn up by the section with items that have been attended to already. It is Business Development section strategic objective to undertake such studies for all projects undertaken by the department.

## 13.2 FUTURE TRENDS AND GOALS

The goal is to ensure that the percentage of customers satisfied with the service continues to increase and exceed or equals the City average.

## 13.3 STRATEGIC GAP ANALYSIS

There is no consolidated information on response times to complaints and queries and to repairing water and sewer mains. An integrated information system dealing with these matters is under development by the Technical Operating Centre.

## 13.4. IMPLEMENTATION STRATEGIES

- Ensuring water pressure standards are maintained to improve areas of extreme high or low pressures through creation and implementation of District Metered Areas (DMA's) and advanced pressure management, and improved network operations (valve configuration)
- The Education and Awareness Campaign will be extended to affect behaviour change in residential customers towards reducing water consumption, and that all customers have a better knowledge of water efficient fittings. The "Drop Drop" mobile app and telephonic consumer survey aims to improve consumer knowledge on how to use water more efficiently and enable the CCT engage with consumers and further determine the level of knowledge relating to water conservation techniques. Once the latter is determined, appropriate interventions will be applied
- Additional Education and Awareness presentation around blockages within sewer system needs to be implemented
- Establishment of a system at the Technical Operating Centre to ensure that customer complaints are measured and followed up to improve on overall satisfaction levels.
- The AMR project promises to bring improved customer satisfaction around metering and billing.
- Appointment of staff for critical vacancies.
- Have a public awareness on level of service and affordability.
- The survey question in informal settlements should be structured differently.

## 13.5. CUSTOMER SERVICES

Infrastructure and personnel is in place for this function and there are also projects to improve the performance.

## 13.6. CUSTOMER/CONSUMER CHARTER

This service charter provides our customers with a clear understanding of our commitment to service and product quality and of the standards we strive to meet.

It also explains the City of Cape Town's obligations and the obligations of the consumers. The charter includes a list of our service standards and we encourage all users and other stakeholders to measure our performance against these standards, and to communicate any deviations to our hotline number on 0860 10 30 54 or/and 0860 10 30 89. (Water option)

### 13.6.1. Customer right to access

The water service act (Act no. 108 of 1997) compels the City of Cape Town to provide water and sanitation services that are efficient, affordable, and sustainable.

The City of Cape Town water quality complies with world class standards (WHO & SANS 241).

The City of Cape Town wastewater complies with the DWA: Wastewater General Standards (1984), DWA: Wastewater special standards (1984), National Standards and by laws

The ISO 9001 Quality Management System will:

- Assist integration of previous administrations
- Improve customer satisfaction
- Ensure compliance to OHS and Environmental Standards
- Improve service delivery
- Improving the processes on a continual basis
- Improve efficiency/production- lower costs
- Facilitate performance management
- Boost staff morale
- Ensure documentation of best practices.

The Consumer (previously Customer) Charter was introduced as part of this process during 2001.

## 13.7. CUSTOMER SURVEYS

Water and Sanitation Services has been conducting research on annual basis to measure consumer satisfaction, needs and perceptions.

### 13.7.1. Water and Sanitation Objectives for Customer Surveys

The objectives of conducting a customer survey for Water and Sanitation Department are as follows:

- To enable Water and Sanitation to gain great insights about customer requirements
- To generate feedback about Water and Sanitation's products and services as well as customer service.
- To attune Water and Sanitation towards more focused customer service
- To develop better relationships with customers to achieve brand success
- To assist with quick measures to bring about the desired improvements or address grievances and placate relevant customers
- To drive innovative efforts and initiatives at Water and Sanitation branches
- To consistently and better address customer needs and expectations, maintain brand reputation and facilitate long-term relationships with Water and Sanitation Customers

The findings from the research are, inter alia, used:

- As an input to ISO 9001:2008 certification
- to ensure that an acceptable level of service satisfaction is achieved and maintained
- to identify areas needing improvement
- to develop continual improvement initiatives
- to uncover needs not currently being addressed, especially in informal areas or in commercial arena
- to ensure relevance of the Water Service Customer Charter.

The following issues are mainly addressed:

- Perception of services received: drinking water, effluent water or sewer(sanitation) drainage
- Evaluation of services rendered when reporting problems or enquiring about water services
- Awareness of environmental initiatives, including water conservation or restrictions
- Awareness of regulation in the sector
- Effectiveness of marketing drives such as around Water Week
- Issues relating to payment and billing procedures for services
- Importance rating and evaluation of services supplied.

### 13.7.2. Improved Metering of Informal Settlements Consumption

The Reticulation Branch has been busy with a process to more accurately account for the water consumption within Informal Settlements.

During this process the numbers of dwelling units had to be estimated as being supplied by a particular meter. This was a lengthy process, as within a settlement, one has to establish which standpipes are fed by which meters before one can attribute estimates of dwelling units served by particular meters. This process was extended into numerous settlements and currently totals 291 meters loaded, read and reported on SAP. These meters serve an estimated 87 269 households.

The Water & Sanitation Services Finance and Commerce Branch, has taken ownership for the monthly reading and reporting of the 291 meters loaded on SAP. A procedure has also been implemented for recording newly installed informal settlement meters on the SAP system for regular reading and reporting.

The strategic issues, policies, objectives and initiatives of the Customer and Meter Management Section are herewith briefly discussed:

### 13.7.3. Key Strategic Issues

There are seven key strategic issues on which CCT is basing its customer and meter management strategy:

- An Effective Debt Management Process
- Meter Verification and Meter Accuracy
- Meter Management and Billing
- Meter Reading
- 24/7 Technical Operation Centre
- Corporate Call Centre
- Customer Interaction

## 13.8 QUALITY OF SERVICE FOR WATER: URBAN

An overview of the quality of service provided is given in the table below:

**Table 39: Quality of Services Provided as at June 2014**

| | Item | # as at June 2014 |
|---|---|---|
| 1. | Total no. of consumers | 655 071 |
| 2. | No. of consumers experiencing greater than 7 days interruption in supply per year | Zero |
| 3. | No. of consumers receiving flow rate of less than 10 litres per minute | Zero |
| 4. | Water quality: no chlorination | Zero |
| 5. | Water quality: chlorinated | Zero |
| 6. | Water quality: full treatment | 655 071 |

*Technical Operation Centre (24hr Emergency Service)*

The Technical Operation Centre responds to all technical complaints and enquiries such as:

- Burst, leaking and damaged water and mains/leadings and meters
- Water taste and discoloration problems
- Low water pressure or interrupted supply
- Water restriction contravention reporting or advice

All calls are logged and responded to appropriately, becoming part of the Workflow process. All calls reaching the Corporate Call Centre but dealing with Water and Sanitation Services-related matters are re-routed to it.

A number of pilot applications for new technology utilisation towards improved operational processes such as GIS, GPS and Vehicle tracking have been implemented.

**Table 40: Cumulative Notification Statistics July 2013 - June 2014**

| Cumulative Notification Statistics 01 July 2013 – 30 June 2014<br>C3 Notifications created from all sources including TOC | | | | | | | |
|---|---|---|---|---|---|---|---|
| **FORMAL AREAS - WATER** | | | **FORMAL AREAS - SEWER** | | | **FORMAL** | |
| **CREATED** (YTD) | **CLOSED** (YTD) | **OPEN** (At end of period) | **CREATED** (YTD) | **CLOSED** (YTD) | **OPEN** (At end of period) | **WATER % OPEN** | **SEWER % OPEN** |
| 150 164 | 128 249 | 21 915 | 119 113 | 106 792 | 12 321 | 14.59% | 10.34% |
| **INFORMAL AREAS - WATER** | | | **INFORMAL AREAS - SEWER** | | | **INFORMAL** | |
| **CREATED** (YTD) | **CLOSED** (YTD) | **OPEN** (At end of period) | **CREATED** (YTD) | **CLOSED** (YTD) | **OPEN** (At end of period) | **WATER % OPEN** | **SEWER % OPEN** |
| 7 823 | 7 684 | 139 | 14 281 | 13 989 | 292 | 1.78% | 2.04% |

*Corporate Call Centre*

A Corporate Call Centre (Tel 086 010 3089, Fax 086 010 3090, e-mail accounts@capetown.gov.za) has been established by the City, which receives most complaints and requests, also those in respect of water account queries. Any technical complaints or others related to water that cannot be dealt with by the Corporate Call Centre, is forwarded via an electronic notification to the Technical Operation Centre for action.

## 13.9 EDUCATION FOR BASIC WATER SERVICES

*Customer Interaction*

This function includes engaging the public and educating them in the awareness of Water Conservation, Water Pollution and Water Demand Management. It also deals with broad-impact citizen queries and correspondence as well as matters that are logged at the Corporate Call Centre but which require specialist investigations.

Customer education, communication and liaison are accepted as key strategic issues and are being afforded a high priority in the new structure of Water and Sanitation Services. Water conservation, water pollution, water ingress and payment habits, among others, are all being addressed in a comprehensive and sustainable fashion.

## 14. PROJECTS COMPLETED

The project list of the Water and Sanitation department is given in the table below. It comprehensively lists each project's budget versus actual spent and percentage spent.

The Completion column uses a colour key to indicate 3 quantitative levels of performance:

| | |
|---|---|
| Performing well | |
| Fair performance | |
| Under-performing | |

GAMAP Funding source legend:

| | |
|---|---|
| CGD | Grants (normally from Central Government) |
| EFF | Funded against a loan taken out |
| CRR | Utilising Reserve from previous income |
| REV | Revenue (Income) |
| DC | Development Contribution from Developer |

**Table 41: 2013/14 Progressive Capital Expenditure Report (provisional)**

| WBS Element | Description | Current Budget | Actual Spent 12-Aug-14 | Completion | % Spent | Comments | Branch | GAMAP |
|---|---|---|---|---|---|---|---|---|
| C11.86077-F4 | Bulk Water Augmentation Scheme | R 5 300 000 | R 373 717 | In Progress | 7% | Made up of multiple sub-projects. For major contract 342Q/2006/07, the contractor defaulted and the contract was cancelled. | Bulk Water | CGD |
| C14.86037-F1 | Bulk Water Infrastructure Replacement | R 24 400 000 | R 23 817 018 | Project phase completed | 98% | Made up of multiple sub-projects. | Bulk Water | EFF |
| C14.86055-F3 | Development of Additional Infrastructure | R 5 000 000 | R 4 414 924 | In Progress | 88% | | Bulk Water | CGD |
| C14.86055-F2 | Development of Additional Infrastructure | R 10 000 000 | R 6 672 708 | In Progress | 67% | Several project underway, subject to high-risk, including: Contermanskloof 100Ml reservoir and Pipeline phase 3, OSEC Phase 1, Wemmershoek Access Control | Bulk Water | CRR |
| C13.86056-F1 | Plant and Equipment Additional BW | R 0 | -R 811 | Completed | 0% | Credit due to 2012/13 material returned to stores. | Bulk Water | EFF |
| C14.86051-F1 | Plant and Equipment Additional BW | R 500 000 | R 491 417 | Completed | 98% | Minor savings realised. | Bulk Water | EFF |
| C14.86050-F1 | Replacement of Plant & Equipment BW | R 250 000 | R 249 473 | Completed | 100% | Minor savings realised. | Bulk Water | EFF |
| C12.86019-F2 | TMS Aquifer Deep Borehole | R 3 600 000 | R 3 433 884 | Project phase completed | 95% | Project on programme. | Bulk Water | EFF |
| C12.86079-F1 | EAM Depot Realignment - 5 Nodal System | R 35 809 239 | R 34 266 637 | Project phase completed | 96% | Project was delayed due to an adjudicated dispute with professional team involved. | EAM | EFF |

| WBS Element | Description | Current Budget | Actual Spent 12-Aug-14 | Completion | % Spent | Comments | Branch | GAMAP |
|---|---|---|---|---|---|---|---|---|
| C14.86060-F1 | Furniture & Equipment Electrical | R 150 000 | R 134 409 | Completed | 90% | Minor savings realised. | EAM | EFF |
| C14.86011-F1 | Furniture, Tools & Equipment: Additional EAM | R 276 000 | R 229 187 | Completed | 83% | Savings realised. | EAM | EFF |
| C14.86033-F1 | Replacement of Plant & Equipment EAM | R 4 820 593 | R 4 744 179 | Completed | 98% | Minor saving realised. | EAM | EFF |
| C14.86007-F1 | Replacement of Vehicles | R 31 299 000 | R 31 179 714 | Completed | 100% | Minor savings realised. | EAM | EFF |
| C14.86003-F1 | Specialised Equipment: Additional Electrical | R 500 000 | R 495 996 | Completed | 99% | Minor savings realised. | EAM | EFF |
| C14.86063-F1 | Telemetry Automation (Reticulation) | R 2 000 000 | R 1 963 705 | Completed | 98% | Project complete. Minor saving realised. | EAM | EFF |
| C13.86065-F1 | Tools & Equipment: Additional (Mechanical) | R 0 | -R 4 041 | Completed | 0% | Credit due to 2012/13 material returned to stores. | EAM | EFF |
| C14.86031-F1 | Tools & Equipment: Additional (Mechanical) | R 1 000 000 | R 869 665 | Completed | 87% | Savings realised. | EAM | EFF |
| C14.86032-F1 | Tools & Equipment: Additional (PCS) | R 868 445 | R 833 694 | Completed | 96% | Savings realised. | EAM | EFF |
| C14.86030-F1 | Tools& Equipment: Additional Design contracts | R 800 000 | R 690 529 | Completed | 86% | Savings realised. | EAM | EFF |
| C14.86046-F1 | Tools,Sundry Equipment :Additional Fleet Maintenance | R 110 000 | R 65 235 | Completed | 59% | Savings realised. | EAM | EFF |
| C14.86070-F1 | Meter Replacement Programme | R 104 267 270 | R 103 522 457 | Completed | 99% | 1st year of transfer from the Operating to the Capital budget. | Finance | EFF |
| CPX.00020 10-F1 | Water Meter (Reticulation) | R 2 551 003 | R 1 738 636 | Completed | 68% | The budget for new meter connections is private customer demand driven. | Finance | EFF |
| C12.86046-F2 | Water Meters | R 0 | -R 88 | Completed | 0% | Credit due to 2012/13 material returned to stores. | Finance | EFF |
| C14.86054-F2 | Water Meters (Reticulation) | R 5 000 000 | R 4 152 865 | Completed | 83% | Expenditure for new meter connections is private customer demand driven. | Finance | CRR |

| WBS Element | Description | Current Budget | Actual Spent 12-Aug-14 | Completion | % Spent | Comments | Branch | GAMAP |
|---|---|---|---|---|---|---|---|---|
| C14.86054-F1 | Water Meters (Reticulation) | R 10 000 000 | R 9 514 841 | Completed | 95% | | Finance | CGD |
| C14.86052-F1 | WS contingency provision – Insurance | R 500 000 | R 0 | Completed | 0% | Insurance provision to be utilised when an insurance claim is settled and the replacement asset must be procured. | Finance | REV |
| C13.86091-F2 | Water Meters (Reticulation) | R 0 | -R 892 | Completed | 0% | Credit due to 2012/13 material returned to stores. | Finance | CGD |
| C06.01457-F1 | Bellville North Water Supply system | R 3 287 963 | R 3 287 594 | Project phase completed | 100% | | Retic-ulation | EFF |
| C07.00048-F2 | Blue Route Interceptor Sewer | R 1 000 000 | R 1 000 000 | Completed | 100% | | Retic-ulation | EFF |
| C14.86038-F1 | Bulk Sewer (Housing Projects) | R 7 335 000 | R 4 585 051 | In Progress | 63% | All managed by Housing Dept : Gugulethu Infill, Mau-Mau, Pelican park, Happy Valley, Hangberg and Edward Road Housing Project. Only Dido Valley (R1M) by this Department. | Retic-ulation | CGD |
| C14.86039-F1 | Bulk Water ( Housing Projects) | R 5 500 000 | R 3 599 627 | In Progress | 65% | All managed by Housing Dept.: Gugulethu Infill, Mau-Mau, Pelican Park, Hangberg, Manenberg Infill "The Downs" and Edward Road Housing Project. | Retic-ulation | CGD |
| C10.82001-F1 | Cape Flats #1 Rehabilitation | R 2 000 000 | R 1 861 643 | Project phase completed | 93% | Savings realized | Retic-ulation | EFF |
| C10.82002-F1 | Cape Flats #2 Rehabilitation | R 2 000 000 | R 1 902 863 | Project phase completed | 95% | | Retic-ulation | EFF |
| | | | | | | | | |
| | | | | | | | | |

| WBS Element | Description | Current Budget | Actual Spent 12-Aug-14 | Completion | % Spent | Comments | Branch | GAMAP |
|---|---|---|---|---|---|---|---|---|
| C13.86053-F2 | Completion of Cape Flats III Bulk Sewer | R 400 000 | R 400 000 | Project phase completed | 100% | Detail design, Tender documents and Supervision has been awarded, with aim. to advertise for construction by September 2014. | Retic-ulation | EFF |
| C13.86053-F1 | Completion of Cape Flats III Bulk Sewer | R 500 000 | R 499 982 | Project phase completed | 100% | “” | Retic-ulation | CGD |
| C12.86084-F1 | Completion of Langa Collector Sewer | R 8 620 000 | R 8 320 921 | Project essentially completed. | 97% | R298 591 required for outstanding claim and has to be rolled over to 2014/15 financial year. | Retic-ulation | CGD |
| C12.86074-F1 | Construction of new Head Office | R 1 134 000 | R 937 045 | Project phase completed | 83% | Phase was for professional services. | Retic-ulation | EFF |
| C08.86023-F1 | De Gendel Reservoir Link | R 331 010 | R 155 000 | In Progress | 47% | Continuing in 2014/15. | Retic-ulation | EFF |
| C08.00214-F2 | De Grendel Reservoir | R 7 000 000 | R 7 000 000 | Completed | 100% | | Retic-ulation | CRR |
| C08.00214-F1 | De Grendel Reservoir | R 13 297 614 | R 12 357 402 | In Progress | 93% | An amount of R940 211has to be rolled over to 2014/15 financial year for land acquisition and complete construction. | Retic-ulation | EFF |
| C05.01333-F3 | Durbanville Collectors Sewers | R 172 642 | R 172 642 | Project phase completed | 100% | | Retic-ulation | EFF |
| C14.86074-F1 | Fisantekraal Housing Garden City - Sewer | R 8 375 193 | R 3 058 354 | In Progress | 37% | The project is managed by private company Garden Cities. Progress was slower than planned due to engineering difficulties. Additional funds will be required in 2014/15 financial year to complete. | Retic-ulation | CGD |

| WBS Element | Description | Current Budget | Actual Spent 12-Aug-14 | Completion | % Spent | Comments | Branch | GAMAP |
|---|---|---|---|---|---|---|---|---|
| C14.86073-F1 | Fisantekraal Housing Garden City – Water | R 17 364 937 | R 11 384 413 | In Progress | 66% | “” | Retic-ulation | CGD |
| C07.00047-F2 | Fish Hoek Outfall Sewer | R 515 507 | R 468 643 | Completed | 91% | Savings realised | Retic-ulation | EFF |
| C13.86040-F1 | Informal Incremental Areas Upgrade | R 0 | -R 16 111 | Completed | 0% | Credit due to 2012/13 material returned to stores. | Retic-ulation | EFF |
| C14.86015-F1 | Informal Settlements Sanitation Installation | R 28 000 000 | R 17 881 770 | In Progress | 64% | Project was delayed due to engineering difficulties experienced on some sites. | Retic-ulation | EFF |
| C14.86053-F1 | Informal settlements Water installation | R 4 000 000 | R 2 374 774 | In Progress | 59% | Project delayed due to engineering difficulties experienced on some sites. | Retic-ulation | EFF |
| C10.86066-F2 | Khayelitsha Driftsands Site C | R 2 987 271 | R 2 971 328 | Completed | 99% | Savings realised | Retic-ulation | CGD |
| C08.86038-F1 | Main Rd Upgrade Muizenberg to Clovelly Rehabilitation | R 19 500 000 | R 19 356 076 | Project phase completed | 99% | | Retic-ulation | EFF |
| C12.86083-F1 | New Rest Reticulation Rectify | R 9 553 100 | R 3 505 624 | In Progress | 37% | Delayed due to technical problems experienced with the existing New Rest Pump Station. R6 047 476 to be rolled over to 2014/15 to complete. | Retic-ulation | CGD |
| C07.00407-F1 | Northern Area Sewer, Thornton | R 65 064 702 | R 63 961 897 | Project phase completed | 98% | Delays due to additional measures needed for working close to 132kV Electricity line. | Retic-ulation | EFF |
| C14.86001-F1 | Penhill Sewer Installation | R 250 000 | R 248 575 | Project phase completed | 99% | | Retic-ulation | EFF |
| C08.86031-F1 | Provision of Sewerage to Croydon | R 535 154 | R 535 154 | Project phase completed | 100% | | Retic-ulation | EFF |
| C09.86014-F2 | Pump Station & Rising Main Du Noon | R 5 000 000 | R 4 998 000 | Project phase completed | 100% | | Retic-ulation | CGD |
| | | | | | | | | |

| WBS Element | Description | Current Budget | Actual Spent 12-Aug-14 | Completion | % Spent | Comments | Branch | GAMAP |
|---|---|---|---|---|---|---|---|---|
| C09.86014-F1 | Pump Station & Rising Main Du Noon | R 21 642 917 | R 12 498 008 | In Progress | 58% | Consulting delayed due to fronting, Civils contract delayed due to strike. Extra costs due to need for design amendment. R7 023 826 has to be rolled over to 2014/15 financial year. | Retic-ulation | EFF |
| C14.86020-F1 | Pump Stn Rehabilitation (Citywide) | R 9 070 980 | R 6 912 726 | In Progress | 76% | Project delayed due to engineering difficulties experienced | Retic-ulation | CGD |
| C10.86130-F1 | Regional resources development | R 10 000 000 | R 9 611 497 | Project phase completed | 96% | Savings realized | Retic-ulation | EFF |
| C09.86015-F1 | Rehabilitation of Outfall Sewers: Pentz Drive, Sanddrift, Montague Gardens | R 1 255 348 | R 1 255 347 | Project phase completed | 100% | | Retic-ulation | EFF |
| C14.86022-F1 | Rehabilitation of Sewer Network (Citywide) | R 5 000 000 | R 4 995 812 | Completed | 100% | | Retic-ulation | CGD |
| C14.86023-F1 | Rehabilitation of Water Network (Citywide) | R 5 000 000 | R 2 887 626 | In Progress | 58% | Project delayed due to Section 62 Appeal/ High Court Interdict but issues have been resolved. | Retic-ulation | CGD |
| C10.86132-F1 | Remove midblock water network,-Bishop Lavis | R 5 000 000 | R 4 709 693 | Project phase completed | 94% | Savings realized. | Retic-ulation | EFF |
| C13.86047-F1 | Replace & Upgrade Sewer Network (Citywide) | R 2 212 350 | R 2 091 128 | Project phase completed | 95% | Saving realised. | Retic-ulation | EFF |
| C14.86024-F1 | Replace & Upgrade Sewer Network (Citywide) | R 52 508 343 | R 46 089 457 | In Progress | 88% | On some sites, contractors are performing very poorly, resulting in overall delay and underspending. | Retic-ulation | EFF |
| C13.86046-F1 | Replace & Upgrade Sewer Pumpstations (citywide) | R 2 041 061 | R 1 966 453 | Project phase completed | 96% | Saving realised. | Retic-ulation | EFF |

| WBS Element | Description | Current Budget | Actual Spent 12-Aug-14 | Completion | % Spent | Comments | Branch | GAMAP |
|---|---|---|---|---|---|---|---|---|
| C14.86026-F1 | Replace & Upgrade Sewer Pumpstations (citywide) | R 11 300 000 | R 4 209 789 | In Progress | 37% | Delays from several causes. | Retic-ulation | EFF |
| C13.86048-F1 | Replace & Upgrade Water Network (citywide) | R 2 204 602 | R 1 443 302 | In Progress | 65% | Project was delayed due to a Section 62 Appeal/ High Court Interdict, since resolved. | Retic-ulation | EFF |
| C14.86025-F1 | Replace & Upgrade Water Network (citywide) | R 68 414 981 | R 59 652 131 | In Progress | 87% | “” | Retic-ulation | EFF |
| C09.86008-F1 | Ruyterwacht Midblock water Pipes | R 5 025 850 | R 4 052 986 | In Progress | 81% | The project is programmed to be completed by August 2014. | Retic-ulation | EFF |
| C11.86059-F1 | Sand trap Bridgetown Sewer Pump Station | R 1 374 165 | R 0 | Completed | 0% | Project completed with increased USDG Grant. Virement of funds was not approved in time. | Retic-ulation | EFF |
| C11.86059-F3 | Sandtrap Bridgetown Sewer Pump Station | R 3 642 819 | R 2 905 403 | Completed | 80% | Savings realised. | Retic-ulation | CGD |
| C12.86103-F1 | Scottsdene : Reticulation Network | R 1 645 000 | R 1 645 000 | Project phase completed | 100% | | Retic-ulation | CGD |
| C14.86071-F1 | Sewer Projects as per Master Plan | R 2 500 000 | R 1 152 143 | In Progress | 46% | Expenditure dependent on ad-hoc private developments as they occur. | Retic-ulation | EFF |
| C14.86075-F1 | Sewer Pump Station Century City (DC related) | R 3 400 000 | R 3 397 654 | Completed | 100% | | Retic-ulation | CRR |
| C14.86034-F1 | Small Plant & Equipment: Additional | R 2 500 000 | R 2 439 262 | Completed | 98% | Savings realised | Retic-ulation | EFF |
| C08.86027-F1 | Somerset West Bus. Park Main sewer | R 600 000 | R 592 807 | Project phase completed | 99% | Minor saving realised. | Retic-ulation | EFF |

| WBS Element | Description | Current Budget | Actual Spent 12-Aug-14 | Completion | % Spent | Comments | Branch | GAMAP |
|---|---|---|---|---|---|---|---|---|
| C14.86056-F1 | Spes Bona Reservoir 35 Ml | R 500 000 | R 58 000 | In Progress | 12% | Appointment of the consultant delayed the project. Continuing in 2014/15. | Retic-ulation | CGD |
| C13.86050-F1 | Technical Operations Centre (TOC) Infrastructure Development | R 7 469 873 | R 7 469 873 | Completed | 100% | | Retic-ulation | EFF |
| C14.86072-F1 | Water Projects as per Master Plan | R 2 399 249 | R 2 256 690 | Completed | 94% | Expenditure dependent on ad-hoc private developments as they occur. | Retic-ulation | EFF |
| C12.86082-F1 | Water Supply at Baden Powell Dr to Khayelitsha | R 120 000 | R 33 000 | Project phase completed | 28% | | Retic-ulation | CGD |
| C14.86059-F2 | Zevenwacht Reservoir and Network | R 250 000 | R 131 484 | In Progress | 53% | Land acquisition has now been addressed. . | Retic-ulation | CRR |
| C14.86008-F1 | Laboratory Equipment: Addition Scientific Services | R 5 183 583 | R 5 168 760 | Completed | 100% | Minor savings realised. | Scientifi c Services | EFF |
| C14.86009-F1 | Refurbishment of Labs | R 900 000 | R 886 222 | Completed | 98% | Minor savings realised. | Scientifi c Services | EFF |
| C13.86036-F1 | Furniture & Equipment (IT): Additional | R 33 090 | R 33 090 | Completed | 100% | | Support Services | EFF |
| C14.86005-F1 | Furniture & Equipment (IT): Additional | R 700 000 | R 688 720 | Completed | 98% | | Support Services | EFF |
| C13.86086-F1 | IT System & Infrastructural Equipment: Additional | R 0 | -R 3 867 | Completed | 0% | Credit due to 2012/13 material returned to stores. | Support Services | EFF |
| C13.86037-F1 | Furniture, Tools & Equipment: Additional Water Demand Unit | R 39 080 | R 39 074 | Completed | 100% | Minor savings realised. | WDM & S | EFF |
| C14.86012-F1 | Furniture, Tools & Equipment: Additional WDM | R 100 000 | R 99 955 | Completed | 100% | Minor savings realised. | WDM & S | EFF |
| C14.86069-F1 | Logger installations | R 3 000 000 | R 2 973 931 | Completed | 99% | Minor savings realised. | WDM & S | EFF |

| WBS Element | Description | Current Budget | Actual Spent 12-Aug-14 | Completion | % Spent | Comments | Branch | GAMAP |
|---|---|---|---|---|---|---|---|---|
| C14.86077-F1 | Pollution Control | R 3 000 000 | R 2 747 542 | Project phase completed | 92% | All 10 sampling stations has been installed. Electr. conns all that is needed to sampling stations in Woodstock, Auckland Street and Salt River. | WDM & S | EFF |
| C14.86062-F1 | Pressure Management | R 20 000 000 | R 19 311 443 | Completed | 97% | 150Q 2012/13 Kleinvlei, Blackheath and Blue downs PRV 97% complete. Contractor delayed due to conn. approvals. Contract 1Q 2012/13: Construction complete, only snags outstanding. | WDM & S | EFF |
| C14.86061-F1 | Treated Effluent : Re-use and Upgrades | R 25 700 000 | R 24 931 661 | Completed | 97% | Savings realized | WDM & S | EFF |
| C13.95014-F1 | Treated Effluent: Infrastructure Upgrade | R 300 000 | R 300 000 | Completed | 100% | | WDM & S | EFF |
| C14.86068-F1 | Zone Metering | R 2 000 000 | R 1 644 128 | Completed | 82% | Savings realised. | WDM & S | EFF |
| C06.30170-F3 | Bellville Wastewater Treatment Works | R 3 000 000 | R 2 997 023 | Project phase completed | 100% | Minor savings realised. | WWTW | CGD |
| C06.30170-F1 | Bellville Wastewater Treatment Works | R 11 640 000 | R 11 426 061 | Project phase completed | 98% | Minor savings realised. | WWTW | EFF |
| C12.86090-F1 | BlacMac Sewer: Upgrade sewer diversion | R 5 000 000 | R 2 500 000 | In Progress | 50% | High Risk project. Consultant appointed. Section 33 delayed project. | WWTW | CGD |
| C12.86091-F1 | Borchards Quarry WWTW | R 20 000 000 | R 19 999 212 | Project phase completed | 100% | | WWTW | CGD |
| C13.86005-F1 | Cape Flats WWTW-Refurbish various structures | R 3 819 297 | R 3 819 297 | Project phase completed | 100% | Minor savings realised. | WWTW | EFF |
| C06.01613-F2 | Expansion of WWTW | R 6 000 000 | R 5 870 008 | Completed | 98% | Minor savings realised. | WWTW | EFF |

| WBS Element | Description | Current Budget | Actual Spent 12-Aug-14 | Completion | % Spent | Comments | Branch | GAMAP |
|---|---|---|---|---|---|---|---|---|
| C14.86013-F1 | Furniture,Tools & Equipment: Additional WWTW | R 200 000 | R 181 588 | Completed | 91% | Minor savings realised. | WWTW | EFF |
| C10.86018-F1 | Gordons Bay WWTW-Improvements | R 450 000 | R 450 000 | Completed | 100% | Project completed | WWTW | EFF |
| C12.86057-F1 | Hout Bay Outfall - Refurbish equipment | R 300 000 | R 300 000 | Completed | 100% | | WWTW | EFF |
| C12.86008-F2 | Infrastructure Replace/Refurbish - WWT | R 17 000 000 | R 16 800 020 | Completed | 99% | Minor savings realised. | WWTW | CGD |
| C14.86016-F1 | Infrastructure Replace/Refurbish - WWT | R 49 500 000 | R 47 957 954 | Completed | 97% | Minor savings realised. | WWTW | EFF |
| C06.30148-F3 | Mitchells Plain WWTW | R 50 000 000 | R 41 926 202 | In Progress | 84% | Contractors on site. Orders for long lead items placed and part payment made against advanced payment guarantee. Delays were caused by appeals. | WWTW | CGD |
| C13.86010-F1 | Mitchells Plain WWTW-Improvements Phase2 | R 5 500 000 | R 5 500 000 | Project phase completed | 100% | | WWTW | EFF |
| C11.86063-F3 | Potsdam WWTW – Extension | R 855 000 | R 839 689 | Project phase completed | 98% | Minor savings realised. | WWTW | CGD |
| C14.86027-F1 | Sundry Equipment: Additional, various WWTW | R 300 000 | R 292 680 | Completed | 98% | Minor savings realised. | WWTW | EFF |

The Total spent was R823 478 310 against a Budget of R 933 025 866 (88.3%).

Summary Views are given in the following figure:

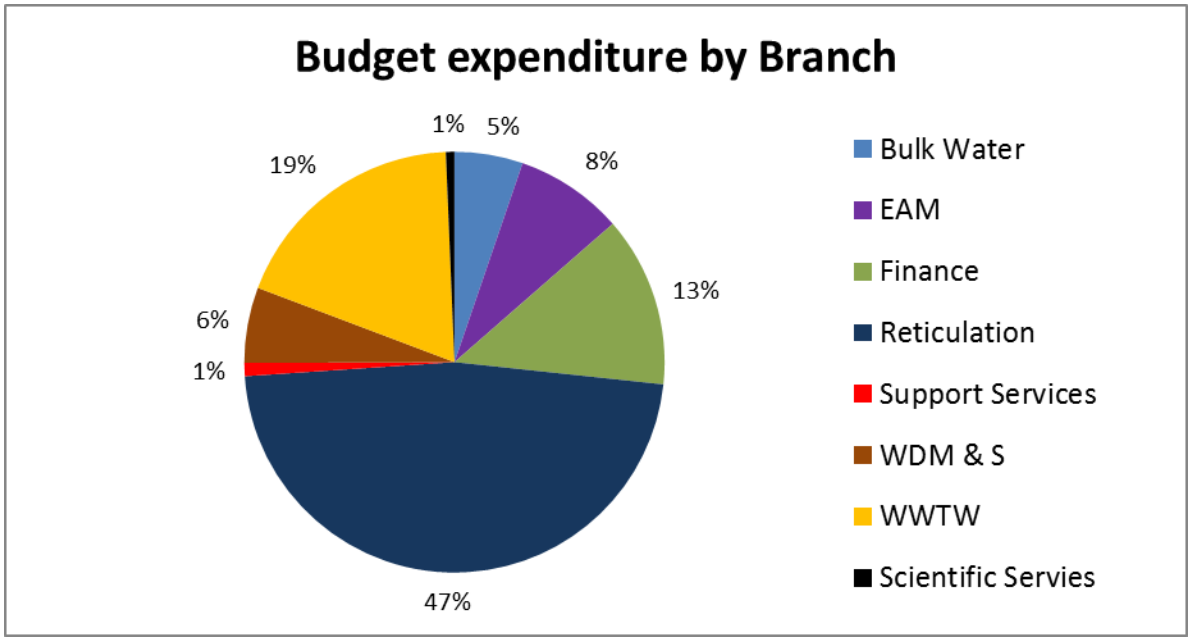


**Figure 23: Budget Expenditure by Branch**

# 15. NON-FINANCIAL PERFORMANCE

The Service Delivery and Business Implementation Plan (SDBIP) is used to measure the performance of Departments within CCT. The indicators align with the objectives of the Department as contained in the WSDP and also with that of the City's IDP.

The alignment of programmes with the IDP focus area is reflected in the Table 42 below:

**Table 42: The link between departmental programmes and IDP focus areas**

| Strategic Focus Area (SFA) | IDP Objective | IDP Programme | Water Services Business Elements | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1. Socio - Economic Profile | 2. Service Level Profile | 3. Water Resource Profile | 4. Water Conservation / Demand Management | 5. Water Services Infrastructure Profile | 6. Water balance | 7. Water Services institutional arrangements Profile | 8. Customer Service Profile | 9. Financial profile | 10. List of Projects |
| 1.THE OPPORTUNITY CITY | **Objective 1.1 - Create an enabling environment to attract investment to generate economic growth and job creation** | No Direct Programme – Linked to Objective 1.2 | x | | | | | | | | | |
| | **Objective1.2 - Provide and maintain economic and social infrastructure to ensure infrastructure-led economic growth and development** | P1.2(b) Maintenance of infrastructure | | | | | x | | | | | |
| | | P1.2(c) Investing in Infrastructure | | | | | x | | | | | |
| | | P1.2(d) Expanded Public Works Programme (EPWP) | x | x | | | | | | | | |
| | **Objective 1.3 – Promote a sustainable environment through efficient utilization of resources** | 1.3(b) Water Conservation and Water Demand Management Strategy | | | x | x | x | x | | | x | x |
| 2.THE SAFE CITY | **No Direct Link to Water Services Objectives - The Department supports this SFA** | Water Safety Plan, Incident Management plan, Business Continuity, Emergency Management Plan, Disaster Risk Management Plan | | | | | | | | | | |
| 3. THE CARING CITY | **Objective 3.4 Provide for the needs of informal settlements and backyard residences through improved services** | P3.4(b) Service delivery programme in informal settlements | | x | | | | | | | | |
| | | P3.4(c) Backyarder service programme | | x | | x | | | | | | |
| | **Objective 3.5 Provision of effective Environmental Health services.** | P 3.5(a) Environmental Health Care Programme | | | x | x | | | | | | x |

| Strategic Focus Area (SFA) | IDP Objective | IDP Programme | Water Services Business Elements | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1. Socio - Economic Profile | 2. Service Level Profile | 3. Water Resource Profile | 4. Water Conservation / Demand Management | 5. Water Services Infrastructure Profile | 6. Water balance | 7. Water Services institutional arrangements Profile | 8. Customer Service Profile | 9. Financial profile | 10. List of Projects |
| **4.THE INCLUSIVE CITY** | **Objective 4.1 Ensure responsiveness by creating an environment where citizens can communicate with and be responded to.** | P4.1(a) Managing service delivery through the service management process (C3 notification responsiveness) | | x | | x | | | | x | | |
| **5.THE WELL-RUN CITY** | **Objective 5.2 Establish an efficient and productive administration that prioritises delivery** | Some of the Programmes have no direct link to Water Services. It is supported by Water and Sanitation Department. P5.2 (a) HR, Talent Management, Skills Development programme (Integrated Talent management Approach) | | | | | | | x | | | |
| | | Some of the Programmes have no direct link to Water Services. It is supported by Water and Sanitation Department. P5.2 (c) Annual Community Satisfaction Survey | | | | | | | x | | | |
| | **5.3 Ensure financial prudence with clean audits by the Auditor-General** | Some of the Programmes have no direct link to Water Services. It is supported by Water and Sanitation Department. P5.3(a)Financial management programme | | | | | | | x | | | |
| | | Some of the Programmes have no direct link to Water Services. It is supported by Water and Sanitation Department. P5.3 (b) Internal management processes programme | | | | | | | x | | | |

The Actual column uses a colour key to indicate 3 quantitative levels of performance:

| | |
|---|---|
| Performing well | |
| Fair performance | |
| Under-performing | |

**Table 43: 2013/2014 Water and Sanitation Department SDBIP – 4th Quarter performance**

| 2013/2014 WATER AND SANITATION DEPARTMENT SDBIP | | | | | |
|---|---|---|---|---|---|
| **SDBIP Indicator** | **BASELINE ACTUAL 30-Jun-13** | **TARGET 30-Jun-14** | **ACTUAL 30-Jun-14** | **REASONS FOR VARIANCE** | **REMEDIAL ACTION** |
| Percentage spend of capital budget | 86.6% | 91% | 88.3% | The main reasons why the target was missed, are:<br>- Planned sanitation installations in informal settlements were delayed by protest actions and bad weather.<br>- Some projects could not proceed as planned due to time-consuming appeals and other legal and CCT-contractor mediation processes.<br>- Some projects were delayed because of contractors experiencing financial or engineering difficulties, while others underperformed.<br>- The Bulk Water Augmentation Scheme project was delayed by an EIA process and a land owner denying the City access. | Planning processes are being refined and meetings with project managers will be held to closely monitor progress. |
| Rand value of capital invested in engineering infrastructure (growth, refurbishment and replacement of Water & Sanitation infrastructure) | R551.235 M | Adj. Budget: R750 Million | R720.17 M | The main reasons why the target was missed, are:<br>- Appeals were lost<br>Contractors on two major projects experienced financial difficulties<br>- Underperformance by some contractors<br>- Time-consuming mediation processes between CCT and some contractors.<br>Projects delayed due to engineering difficulties experienced | Planning processes are being refined and meetings with project managers will be held to closely monitor progress. |
| Percentage spend on repairs and maintenance | 111.5% | 100% | 109.81% | Target achieved | |
| Metres of water reticulation mains replaced this year | 70.279 | 58 800 | 55 418 | The main reasons for the shortfall are:<br>- The negative impact of the national contractors strike in the first quarter. Backlogs on project schedules caused by the strike could not be cleared.<br>- Legal challenges to tender 22Q for Muizenberg Main Road relay.<br>- Muizenberg contractor liquidation and time consuming procedure of appointing a new contractor. | The challenges experienced were beyond the Branch's control.<br><br>Planned projects to be completed in the new financial year. |
| Metres of sewer reticulation mains replaced this year | 32 515 | 28 360 | 29 836 | Target achieved | |

| SDBIP Indicator | BASELINE ACTUAL 30-Jun-13 | TARGET 30-Jun-14 | ACTUAL 30-Jun-14 | REASONS FOR VARIANCE | REMEDIAL ACTION |
|---|---|---|---|---|---|
| 1.F Number of outstanding valid applications for water services expressed as a percentage of total number of billings for the service | 0.65% | <1% | 1.01% | The slight variance was caused by an increase in the number of new applications for developments of which some sites were not ready for installation. | Water and Sanitation will enhance communication with developers to ensure civil works on site are performed timeously. In addition, investigations are being undertaken into delays caused by insufficient information. |
| Number of outstanding valid applications for sewerage services expressed as a percentage of total number of billings for the service | 0.57% | <1% | 0.62% | Target achieved | |
| Number of Expanded Public Works Programme (EPWP) opportunities created | 3 870 | 4 500 | 4 934 | Target achieved | |
| Percentage of treated potable water not billed | 20.0% | 20.2% | 21.84% | This indicator narrowly missed the target for the following reasons:<br>- "Percentage treated potable water not billed" includes water provided free of charge to informal settlements at communal taps. Informal settlement consumption has grown due to the installation of additional taps. In the 2012/13 and 2013/14 financial years, the Department installed an additional 2 628 taps in informal settlements in order to improve the level of access to basic services. In addition, informal settlement water consumption has also grown because of an increase in the number of households living in informal settlements.<br><br>- A decrease in the indicator's denominator caused the actual figure to increase. To calculate the percentage non-revenue water (NRW), NRW (numerator) is divided by total water treated (denominator). Total water treated (denominator) declined significantly over the past year due to the successful implementation of water demand management strategies as well as wetter weather patterns experienced over this period. | Future non-revenue water figures (water not billed) will be closely monitored in order to determine whether the recent increases persist.<br><br>Responsible person: Peter Flower<br><br>Due date: On-going |
| Number of external trainee and bursary opportunities (excluding apprentices) | 90 | 92 | 124 | Target achieved | |
| Number of apprentices | 52 | 60 | 71 | Target achieved | |

| SDBIP Indicator | BASELINE ACTUAL 30-Jun-13 | TARGET 30-Jun-14 | ACTUAL 30-Jun-14 | REASONS FOR VARIANCE | REMEDIAL ACTION |
|---|---|---|---|---|---|
| Megalitres of water supplied to meet demand management targets | 320.922 | 337 254 | 314 774 | Target achieved | |
| Percentage potable water reused as treated effluent | New | 4.50% | 4.56% | Target achieved | |
| Percentage treated wastewater capacity used in peak months | New | 34% | 26.10% | The main reasons for variance were:<br>- The Department has increased treated effluent capacity from 4335 to 4935 Ml. The larger denominator (capacity) resulted in a lower overall percentage.<br>- The relatively wet summer negatively impacted overall consumption figures.<br>- Technical issues including mechanical failures constrained supply to some of the larger users in the Postdam and Kraaifontein areas. | The challenges experienced were largely beyond the Branch's control, but the technical difficulties have been resolved and consumption has returned to normal.<br>With the additional capacity, the user base can be expanded which will allow higher treated effluent reuse in future. |
| Percentage accounted-for water | 84.10% | 85.25% | 85.29% | Target achieved | |
| Number of water service points (taps) provided | 599 | 1 020 | Total: 2 029 | Target achieved | 2 029 =<br>Informal Settlements 1 438<br>+ Backyards 591 |
| Service rate for informal settlement water complaints | 96.0% | 87% | 98.22% | Target achieved | |
| Number of sanitation service points (toilets) provided | 5 043 | 3 100 | Total: 5 917 | Target achieved | 5 917 =<br>Informal Settlements 5 326<br>+ Backyards: 591.<br>Informal Settlements =<br>2 555 Pour Flush Toilets (PFT)<br>+ 1 115 Containers<br>+ 1 656 Full flush |
| Service rate for informal settlement sanitation complaints | 95.48% | 87% | 97.96% | Target achieved | |
| Number of WWTW with >= 95% compliance with water quality licensing conditions | New | 6 | 7 | Target achieved | |
| Percentage compliance with drinking water quality standards | 99.3% | 98% | 99.83 | Target achieved | |
| Number of water service points (taps) provided | 599 | 1 020 | Total: 2 029 | Target achieved | 2 029 =<br>Informal Settlements 1 438<br>+ Backyards 591 |

| SDBIP Indicator | BASELINE ACTUAL 30-Jun-13 | TARGET 30-Jun-14 | ACTUAL 30-Jun-14 | REASONS FOR VARIANCE | REMEDIAL ACTION |
|---|---|---|---|---|---|
| Percentage adherence to Citywide service standard based on all external notifications | 94.9% | 100% | 85.33 | The Department is in the process of clearing the backlog. This includes items opened prior to 1 July 2012 along with addressing more recent notifications. As part of this process, a bulk closure of items occurred during the 4th quarter. This has reduced the Department's ability to meet the target.<br><br>It is important to note that this indicator is not a true reflection of work being done towards service delivery excellence. The indicator measurement is biased towards actions on more recent notifications without crediting progress on more time-consuming older requests that are typically dependant on external factors. | Resources will be prioritised to deal with the targeted closure. |
| Adj. Budget: Percentage of incidence of overtime hours in excess of 43hrs | New | ≤9% | 3.51% | Target achieved | |
| Percentage adherence to EE target (composite indicator) | 112.96% | 100% | 113.85% | Target achieved | |
| Percentage adherence to Employee Utilisation target (composite Indicator) | 99.11% | 100% | 98.41% | The Directorate views a <2% variance to be within an acceptable range as the SDBIP/SSM reflects a composite actual. The reported actual falls within this acceptable proximity to the target thus to be equated to a successful achievement. | Not required. |
| Percentage adherence to employee talent target (composite indicator) | 84.59% | 100% | 107.18% | Target achieved | |
| Community satisfaction survey (score 1-5) for residents | New | 2.9 | 3.2 | Target achieved | |
| Community satisfaction survey (score 1-5) for business | New | 2.9 | 3.6 | Target achieved | |
| Percentage of Operating Budget spent | 99.60% | 95% | 93.3% | The Water and Sanitation department under-recovered on the budgeted revenue mainly due to lower than anticipated sales. The Department, accordingly, had to reduce its expenditure to prevent major financial and cash flow challenges. | Amendments have already been affected in the August 2014 adjustment budget submission to align the revenue and expenditure budgets. The monthly progresses will be monitored and if required, further updates will be performed during the mid-year adjustment budget.<br>Due date: ongoing during14/15 year |

| SDBIP Indicator | BASELINE ACTUAL 30-Jun-13 | TARGET 30-Jun-14 | ACTUAL 30-Jun-14 | REASONS FOR VARIANCE | REMEDIAL ACTION |
|---|---|---|---|---|---|
| Revenue collected as a percentage of billed amount | Water: 90.56%<br><br>Sewerage: 89.85% | Water: 92.5%<br><br>Sewerage: 92.5% | Water: 90.84%<br><br>Sewerage: 90.67% | Cognisance need to be taken of the change in formula to calculate the percentage. In addition, in line with Council Policy, debt action is not effected against indigent customers in the first instance. Such is addressed via the installation of water management devices after which debt is written-off on a monthly basis. Although the number of water management devices installed has increased, there is still a significant number of refusals that takes place. | Phased approach to align the impact of the different calculations was started in the 2014/15 Budget Process.<br><br>Additional staff has already been appointed to increase the number of debt actions per day. The number of contractors installing the water management devices increased has been increased from 3 to 8.<br><br>Refusals are also now referred to Debt Management for debt action. |
| Percentage of water meters read on a monthly basis | 83.6% | 88% | 82.52% | The main reasons for the variance pertain to issues of accessibility, faulty meters, as well as data updates (after meter replacements). The June percentage was lower than anticipated due to problems experienced with the uploading of data, lack of handheld meter reading units and staff shortage in the relevant sections. | The following actions have been implemented in order to increase percentage of meters read:<br>- Staff are working overtime to obtain access to properties where accessibility problems exist.<br>- EPWP workers were appointed to dig open covered meters.<br>- Letters are sent to customers where meters are not identified..<br>- Meters are moved to the outside of the property.<br>- Faulty meters are being replaced systematically.<br>- New meter reading handheld system being implemented. |
| Percentage of assets verified | 92.46% | 100% asset register verified by directorate/ department | 82.17% | Target not reached due to logistical impediments and challenges re feedback preventing adherence to planned schedule. | The Water and Sanitation department continued to perform asset verification after the scheduled deadline to ensure the full exercise is completed, albeit post the official deadline. Enhanced communication to resolve logistical impediments will be investigated for the 2014/15 financial year.<br>Due date: ongoing during14/15 financial year |
| Percentage Internal Audit findings resolved | 43% | 70% | No follow-up audits | Target achieved | |