

# Some tech-savvy stuff that rocks!

From WiFi cables in sewer pipes to a magical machine that can tunnel under buildings, the City is a leader in developing and implementing efficient new technology for better service delivery.

## Building inspectors go wireless with a world first

Instead of large copies of plans, many types of forms and awkward loose pieces of paper, the City's 97 building and enforcement inspectors will be equipped with only a handheld tablet when in the field.

Marius Crous, programme manager for the Development Application Management System (DAMS), says this mobile solution will bring their staff one step closer to a paperless environment. The mobile solution puts a desktop in the hands of the inspectorate staff, whose duty it is to monitor and report back on the progress of approved (and illegal) building work.

The inspectorate will in future be able to access building plans and historical data on-site. They will also be able to capture the progress of building work, communicate with district offices, access legislation and instructions, and collect evidence in the case of trans-

gressions. These Lenovo tablets integrate with DAMS, and data can be transferred directly to the database via WiFi or 4G cellular data capacity. Building and enforcement inspectors can capture their daily, weekly and monthly inspections on-site using the device.

### Faster billing and better cash flow

Because the database is updated in real time, new building work can be assessed quickly by the Valuation Department, resulting in faster billing and improved cashflow.

The mobile solution for building plan and land use applications, built on a SAP platform, is a world first. Naturally, the Planning and Building Development Management Depart-

ment and the Enterprise Resource Planning (ERP) Centre from Information Systems and Technology (IS&T) are very proud of this achievement.

According to Marius, 16 'super-users' assisted the project team in the development and testing of the mobile solution.

"The super-users are stationed at the Department's eight district offices and play a valuable role in system testing and providing input from a user point of view. They will also play a key role in training the rest of the building and enforcement inspectors."

DAMS was implemented in April 2014. Since then, 56 527 building plans and 20 272 land use applications have been processed and added to the document database, says Marius.



**Wireless wonder.** The Planning and Building Development Management, and Information Systems and Technology staff behind the development of the wireless planning and building management tablet. Standing in front are Marius Crous and Nasser Hendricks. Front row, seated, from left: Faizel Amoo, Shaun Manuel, Ayanda van Wyk and Quentin Carelse. Second row: Thembakazi Gobhozi, Noer Soekler, Dirk Smit, Zisanda Manwe, Suzelle Williams, Hester Hutchinson and Jasper Compton. Third row: Zubair Shade, Marius Lourens, Terence Patrick, Fred van Wyk, Raheeq Fischer, Erik Kuun, Chirizelle Erasmus, Achmat Cosyn, Landile Ngxongwa, Shakhai Abrams and Frans Beetzge. Back row: Nishaam Boltman, Gavin Jones, Yusuf Laattoe and Shamier Croeser.

## More WiFi zones

By the end of June 2016, the number of public WiFi zones will reach 250. The public WiFi zones are in areas that had poor internet services, such as Khayelitsha, Kraaifontein, Nyanga, Philippi and Seawinds, among others.

This service operates on the City's fibre-optic network, through a partnership with commercial WiFi provider Al-ways On. Users enjoy access speeds of around 40 MB per second, and each user has 100 MB of data to use every day.

In addition, the City now has 28 library-based SmartCape WiFi zones, which all boast free internet access for Cape Town's most marginalised residents. In March this year, 5.4 TB of data was downloaded via the public WiFi zones and the SmartCape service.

Council has also approved a motion to grant Link Africa, a telecommunication network service provider, permission to install fibre-optic cables in the municipality's sewer and stormwater pipes.

This will help speed up the roll-out of telecommunications infrastructure, as the use of existing pipes reduces the effect of open trenching on roads and pavements.

## We've got your number ...



1 Static or vehicle-mounted camera captures image of vehicle and licence plate



2 Character recognition software scans and isolates licence plate number



3 Number matched against database, and action taken if necessary

**Candid camera:** How automatic number plate recognition (ANPR) technology works.

The Safety and Security Directorate is investing R14 million to equip some of its security cameras with automatic number plate recognition (ANPR) technology, and to install similar technology in traffic and enforcement vehicles.

ANPR technology uses cameras to film a vehicle, character recognition software to isolate the number plate, and various databases to determine the status of that plate. ANPR cameras are also used at roadblocks and for the average speed over distance (ASOD) systems that monitor the M2 bus and minibus-taxi (BMT) lane and the M3.

The cameras and recognition technology are used to identify:

- outstanding warrants of arrest on a pair-

- ticular number plate;
- whether a motor vehicle licence has been suspended;
- mismatched number plates (plates that do not belong to that vehicle); and
- unlicensed and stolen vehicles.

The City has partnered with more than a dozen private security camera installations across Cape Town that use licence plate recognition technology, working as the Licence Plate Recognition User Group, and is finalising a policy that will promote more cooperation and the development of a city-wide database of offenders.

The policy will also enable the private networks to place cameras on City property, such as lighting poles.



**What a bore:** Clyde Koen, Cape Flats bulk sewer project manager, and Anic Smit, Head: Design, Planning and Projects, Utility Services, in the boring machine launch shaft. They are standing on the hydraulic rams that force the pipe (pictured) and boring machine (below) forward. The illustration below shows the borer's cutting head and crusher cone on the left, in green, the blue water pipes for cleaning the cutting head, and the black and green pipe that removes the excavated waste as a slurry.



## A magic 'mole'

The City has invested in a new tunnelling machine to speed up the digging of underground tunnels to lay sewer pipes.

The German-made Herrenknecht AWN 800 XC micro-tunnelling machine, which cost just over R10,6 million, removes the need to dig trenches. This is very useful when, for instance, a new sewer must be laid under a road, or where trenches would interfere with traffic.

The tunnelling machine is used for pipe-jacking, a process where sewer pipe is fed into the hole left by the tunneller as it advances. The cutter and pipe are pushed into the tunnel by hydraulic rams.

The AWN 800 XC has a cutting head and crusher cone to bore through soil and rock. Cutting heads can be changed to suit the conditions, and the built-in crusher cone reduces boulders to smaller pieces. It works effectively in all soil types, even in unstable ground conditions such as the sandy Cape Flats soil.

Waste material is cleaned off the cutting wheels and blades with high-pressure water jets, and the slurry washed out the back of the cutter. The cutter is controlled remotely from a control cabin and has a laser navigation system that allows for very precise positioning.

The tunneller is being used during the final phase of the Cape Flats 3 bulk sewer project (CF3), expected to be completed by the end of 2017. This phase of the CF3 will largely be constructed below ground, as much of the pipeline is close to or under existing roadways. The Herrenknecht machine, which can bore underground for several hundred metres, is ideal for this application.

The C3 project forms part of the City's R250 million sanitation master plan aimed at improving the sewer reticulation system, and will serve the almost one million residents in the Bonteheuwel, Heideveld, Manenberg, Gugulethu and Nyanga areas.