CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

REPORT TO SUB COUNCIL 2, 3, 4, 5, 6, 7.

---

1. ITEM NUMBER : *To be inserted by secretariat*

2. SUBJECT

WINTER READINESS PROGRAM FOR THE NORTHERN AREA.
(Kraaifontein- & Parow Districts)

3. PURPOSE

The purpose of the report is to inform sub councils of the winter readiness program forming part of the overall maintenance regime of the Road Asset Management department (RIM) and an incident evaluation of the recent rains for the period 4-5 June 2019.

4. FOR DECISION BY

This report is for notification of the Sub Councils in line with the request made by the Transport Portfolio Committee on 6 June 2019.

---

5. EXECUTIVE SUMMARY

The Road Infrastructure Management department in the Transport directorate is responsible for the reactive and planned maintenance of all roads and stormwater systems. This excludes the major canals and river system which are performed by the Catchment, Stormwater & River Management department under the Water & Waste directorate.
The report addresses the different maintenance activities and considerations for winter readiness programs and provides a reflection of the incidents for the period of 4-5 June 2019.

---

6. RECOMMENDATIONS

For notification

7. DISCUSSION/CONTENTS

- The Transport Portfolio Committee on 6 June 2019 requested that the Road Asset Management (RIM) department submit a report to all sub councils informing them of the winter readiness program in their respective areas.

General

- The department performs all their operational and maintenance functions through 8 districts and 20 depots spread throughout the City.
- Sub Councils 2, 3, 4, 5, 6, 7 are primarily serviced by Kraaifontein District (2) and Parow District (3) who is responsible for the maintenance activities on the minor stormwater system consisting of conduits, catchpits and minor attenuation systems.
- The Catchment, Stormwater, River Management (CSRM) department now forms part of the Water & Waste directorate and they are primarily responsible for the planning and maintenance of the mayor stormwater system consisting of rivers, large conduits, floodplains and major attenuation systems.
- The conduit system primarily caters for the minor storm durations of 1: 2-5 years and the roads, ponds and rives cater for the major storm durations up to 1:50 years.
- The table below indicates the magnitudes of the assets that currently must be maintained with current budget allocation and to optimize the available budget set maintenance regimes are followed.

Asset type	EUL (years)	Unit	Central		South		East		North		Total
			District 1	District 5	District 6	District 8	District 4	District 7	District 2	District 3	
Area		km^2	550	107	132	400	430	93	598	154	2 464
Underground conduits > 600mm	100	m	102 600	97 800	111 200	109 700	122 300	89 300	114 000	229 100	976 000
Underground conduits < 600mm	100	m	547 500	302 900	360 300	510 600	537 700	320 800	588 900	781 200	3 949 900
Culverts	100	m	4 000	19 100	20 500	15 700	26 100	25 300	17 800	47 200	175 700
Open channels & canals	75	m	13 500	40 800	49 400	125 000	111 500	1 300	106 000	33 900	481 400
Rivers & streams	100	m	270 900	108 000	5 500	307 200	527 700	3 600	653 600	33 800	1 910 300
Catch pits	75	no.	9 164	10 140	10 685	15 995	5 735	8 685	11 320	17 649	89 373
Manholes	75	no.	11 143	12 801	14 040	19 820	5 776	9 265	19 001	24 873	116 719
Headwalls	75	no.	601	635	615	2 343	25	177	1 687	580	6 663
Litter traps	10	no.	-	-	-	-	-	-	-	-	-
Dams	100	no.	0	0	0	0	2	0	9	0	11
Sea walls	100	m	296	4 698	1 736	4 034	2 633	402	0	0	13 799
Ponds <5000m2	100	no.	88	5	14	28	85	84	42	79	425
Ponds >5000m3	100	no.	61	4	19	13	68	168	84	50	467
Pumping stations <5Kw	10	no.	0	6	0	15	0	0	0	4	25
Pumping stations >5Kw	10	no.	0	7	2	1	0	0	0	0	10
Level monitoring	10	no.	1	3	5	10	5+3	1	1	0	29
Rainfall monitoring	10	no.	3	5	4	11	7+3	1	3	2	39

High risk areas

- In preparation of the winter readiness program the following high risk areas prone to flooding is considered
    - Flat areas (Areas prone to flooding)
    - Low lying areas where no overland escape routes exist (trapped lows)
    - Where houses are constructed lower than road level (non-compliant)
    - Where internal stormwater from properties are not drained to roads
    - Where systems are abused through illegal dumping
    - Inlet/Outlet structures of ponds and canals that ensure the operations of the system
    - Input from Communities, Councillors and formal complaints logged with the City.

Winter preparedness Interventions

- Based on the criteria above an affordable Winter Readiness Programme is then prepared and primarily entail the following interventions:
    - cleaning of the minor stormwater system (conduits, catchpits, canals) through term tenders and depots which entails the removal of silt, debris and waste in some areas.
    - Preparation of red gulley programme and timeous cleaning of critical points to prevent possible flooding.
    - Cleaning of inlet and outlet structures to ponds, rivers and canals to ensure unimpeded flows

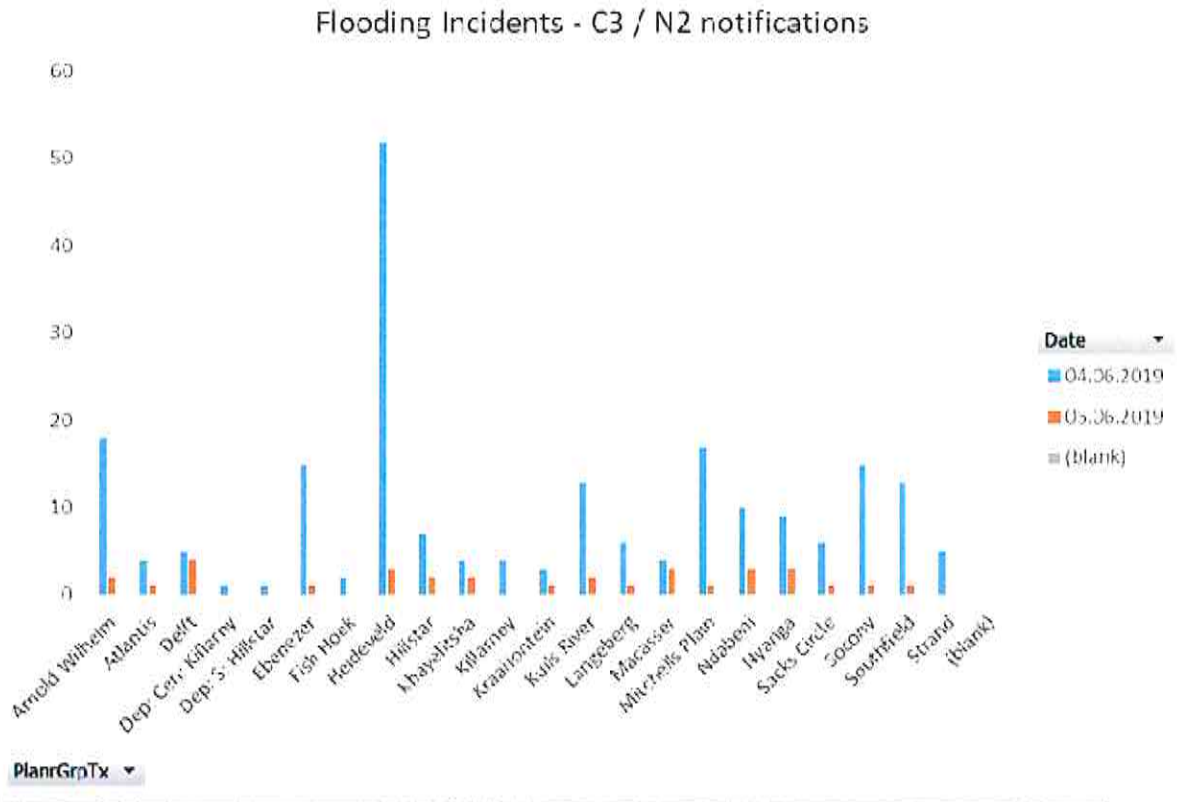
- This program is then implemented between March and May to assure the system is as operational as possible when the mayor rainfall occurs in the period between June and August.
- The system functionality is then monitored and where specific problems are highlighted through either complaints or events, interventions specific to the problem is planned and executed subject to funding availability and nature of intervention required. (Reactive and Planned Maintenance)
- Where the overall stormwater system is lacking general hydraulic capacity as a result of increased densification and expansion of the run-off area maintenance activities will not prevent flooding during high intensity rainfall periods
- To this extent if it is found that there are no maintenance solutions and the performance relies on system capacity the matter is referred to CSRM to evaluate the hydraulic capacity of the system and specific interventions to alleviate flooding of large areas. (improvement of system through new network extensions like larger pipes attenuation, etc.)
- These interventions then depend on budget provision and could take multiple years to implement.
- As part of the maintenance strategy a standby team per depot will be available to attend to incidents during and after hours.

Assessment of storm 4-5 June 2019

- Highest rainfall was recorded on the Cape Flats, eg Cape Town(33mm), Newlands(69mm), Athlone(39mm), Southern Suburbs(35mm), Mitchells Plain(52mm) etc where rainfall figures were recorded over a 24 hours
- Return Periods for these rainfall amounts are between 5 and 10 years
- In other areas lesser amounts were recorded eg Khayelitsha (23mm) HoutBay, Kuilsriver(18mmm), Atlantis(12mmm) and further to the eastern areas of the City

Incidents

- Formal Area
- Approximately 246 customer complaints (C3 & N2) have been received as at 13h00 today (5 June 2019) over the period, with approximately 235 incidents were due to catchpit /road flooding and 11 incidents caused property flooding.
- Many of the problems are mainly due to the storm return period that was between the 1:5 and 1:10 year return event, and which in many cases had the major systems (canals, culverts, rivers) having their banks overtopped. Some of the road flooding was also cause due to catchpit being blocked with leaves or sand, and especially affecting stormwater systems in low lying and trap low areas.
- **Flooding Incidents per Depot (as at 13h00 - 5th June 2019)**
-



-

- The depots are required to submit a flood report after each rainfall whereby the location and severity of each incident is recorded on every rain day.

- A severity 1 (S1) index indicates ponding in the road, a severity 2 (S2) index indicates flooding of the property, and a severity 3 (S3) index indicates flooding of dwellings and buildings
- Based on the depot reports received for the period of 4-5 June the following incidents were recorded
    - Kraaifontein District (Langeberg & Kraaifontein Depots)
      13 Incidents
      S1= 10
      S2 = 3
    - Parow District (Arnold Wilhelm/Sacony & Sacks Circle Depots)
      63 Incidents
      S1= 62
      S2 = 1
- It is evident that even with storm durations up to 1 : 10 year recurrence interval the system operated reasonably well and the floods experienced were mostly contained within the road reserves.
- Kraaifontein – The 2 specific areas where S2 flooding occurred were in Durbanville Hills and Durbanville CBD and these were directly related to root investigation of the pipes. The roots were cleared and the system should operate normal in minor rainfall events.
- Parow – The primary area where S2 flooding occurred is in Cruscal Avenue. It appears that the stormwater runoff was deviated by a raised intersection and the District is currently investigating the cause and possible solutions. It can be noted that often the unintended consequence of traffic calming measures can affect the stormwater flows which is managed in conduits and the actual roadway.
- CSRM were requested to do a comprehensive hydrological analysis of the Parow/Goodwood catchment area and input from the community and local councillors were obtained. The outcome and possible mitigation required is awaited.

7.1. Constitutional and Policy Implications

Stormwater is scheduled as Engineering service under section B of the Constitution and a Local Authority is responsible for providing basic services in a sustainable manner.

7.2. Sustainability implications

Does the activity in this report have any sustainability implications for the City?	No ☐	Yes x☐

Managing water quality of the City's inland stormwater network and systems (rivers, wetlands and estuaries) and coastal bathing beaches is important from both ecological and health perspectives. Addressing activities which result in water quality deterioration requires commitment and involvement of a range of sectors including local government and civil society.

7.3. Legal Implications

National Water Act No. 36 of 1998
The National Water Act (Act 36 of 1998) promotes the management conservation and control of water resources, taking various factors including ecosystem health, pollution, degradation and the need to manage flood events into account. Failure to address environmental degradation and pollution could result in legal action against the City in terms of the National Water Act (Act 36 of 1998).
By-Law Relating to Stormwater Management (2005)
The purpose of the By-law relating to Stormwater Management is to provide for regulation of stormwater management in the City's area of jurisdiction and to regulate activities which may have a detrimental effect on the development, operation or maintenance of the stormwater system. This by-law is currently being reviewed.

7.4. Staff Implications

Does your report impact on staff resources or result in any additional staffing resources being required?

No ☐x

Yes ☐

7.5. Other Services Consulted

Roads Infrastructure and Management
Disaster Risk Management
Human Settlements
SAN Parks
Water and Sanitation

ANNEXURES

None

FOR FURTHER DETAILS CONTACT :

NAME	*Johan Snyman*
CONTACT NUMBERS	*021 - 400 1112*
E-MAIL ADDRESS	*Johan.snyman@capetown.gov.za*
DIRECTORATE	*Transport*
FILE REF NO	

16 JUL 2019

Comment

DIRECTOR : ROAD INFRASTRUCTURE MANAGEMENT
[Mr. H Du Plessis]

NAME

DATE 2019/07/16.

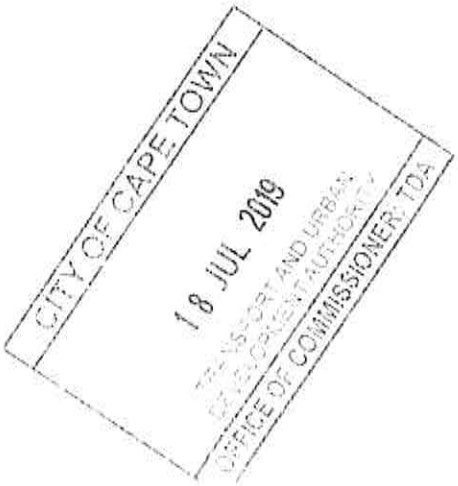
Comment

ACTING EXECUTIVE DIRECTOR: TRANSPORT
[Mr. ~~E Sass~~] K. Lishman

NAME

DATE 2019/07/18

for information


CITY OF CAPE TOWN
18 JUL 2019
TRANSPORT AND URBAN
DEVELOPMENT AUTHORITY
OFFICE OF COMMISSIONER: TDA