



WASTE MANAGEMENT, BEST PRACTICE

Nkomazi Health Department is proud to present to you our achievement regarding Solid Waste Management.

1. Introduction

In only Five Years we grew from a small department with less than 20 workers and 2 contracts servicing around 5000 residential stands to a department rendering service to more than 35 000 residential and business sites currently and we hope expand services to all stand in Nkomazi within the next Five years.

Our employment targets were also achieved and our current staff component 59 Permanent and 28 Contract Workers.

Our capital investment over the last five years on our removal fleet was more than 5 000 000, 00 million with another 1 000 000, 00 for a Bull dozer not yet financed and 2 850 000, 00 million for the establishment of the registered and approved Landfill site at Steenbok.

2. Background

- Nkomazi Municipality started to render service as the newly established municipality in December 2000 by then it consisted out of four TLC s nl. Malelane (that included Hectorspruit and, Kamhlushwa) Marlothpark, Komatipoort (that included Khamaqhekeza) refuse removal services were only rendered in these towns.
- Then another, two TLC's Nkomazi East and Nkomazi west that concise out of 41 villages had no services rendered.
- In 2001 the department of Health started with a process to see what was necessary and what systems had to be put in place to render a comprehensive service to all its Residential and business sites.
- Another challenge is the disposal sites within Nkomazi Municipality and this had to be covered in a comprehensive plan for future development purposes.

3. Waste Management

- During 2000 to 2003 Nkomazi waste collection strategy was formulated through a number of studies that was done to determine the most effective and economical viable option for council to collect and do away with waste.
- The studies included a System Analyses, Current Status Report and a Master Plan
- Standby quarters were erected in Malelane and Marloth Park for refuse workers.

3.1 Status Que Report

- Waste Management was evaluated and the Status Que Report was drawn up, in 2000.
- Waste collection had to be extended to rural villages covering 250 000 new house holds, schools and clinics.
- A Regional Landfill site had to be permitted in Ward 8, Steenbok, the department of Health has applied for MIG funding to establish the landfill site.
- Cleaning up campaigns had to be done, due to the state of the environment (littering, visibility of plastic, paper and tins) in a lot of villages. E.g. Ward 1, 2, 3, 4, 5, 7, 8, 9,10,12, 23, 24, 29 and 30
- Recycling centers had to be build, e.g. in Kamaqhekeza, Ward 4.
- Waste Recycling entrepreneurs had to be trained, to manage the recycling centers)

3.2 System Analysis

Through the System Analysis, Nkomazi Municipality was able to obtain funds for the development of the department, in the form of vehicles.

The following estimates of the collection vehicle requirements are derived from the analysis:

Type	Short Name	Collection Vehicle	Number of collection vehicles required (in Year no.)														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	MIC	10.5m ³ REL Compactor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	MIU1	Cage Tipper Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	MIU2	Tractor & Trailer	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	LIU1	Cage Tipper Truck	13	13	13	14	14	14	14	14	15	15	15	15	15	15	16
7	MPC	LDV & Trailer	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	CC	10.5m ³ REL Compactor	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9	CU	Cage Tipper Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	KC	Kaapmuiden Contract	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 1 – Vehicle requirements for Scenario 9

The following table contains average total costs per service point for each waste type in the entire region.

Type	Name	Estimated Average Monthly Cost per Service Point in Rands (in Year no.)														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	MIC	38.8	37.7	36.7	35.8	34.8	39.6	39.5	39.4	39.2	39.1	38.3	36.9	36.1	35.3	34.5
2	MIU1	23.9	23.3	22.8	22.3	21.7	32.0	33.3	34.6	35.8	37.0	36.6	35.2	34.8	34.3	33.8
3	MIU2	138.6	135.2	131.9	128.7	125.5	98.8	98.1	97.4	96.8	96.2	93.8	91.5	89.2	87.0	84.8
4	LIU1	11.8	11.6	12.2	13.0	13.7	14.2	14.6	15.2	15.9	15.6	15.3	15.0	14.7	14.8	14.5
7	MPC	13.9	13.5	13.1	12.7	12.4	12.0	11.7	11.3	11.0	10.7	10.4	10.1	9.8	9.5	9.3
8	CC	50.0	49.0	48.0	47.1	46.2	68.2	70.5	72.7	74.8	76.9	75.9	72.6	71.6	70.6	69.6
9	CU	49.4	48.0	46.7	45.4	44.1	95.0	97.3	99.5	101.6	103.7	102.0	100.2	98.4	96.7	95.0
11	KC	23.7	24.1	24.5	25.0	25.5	25.9	26.4	26.9	27.4	27.9	28.4	29.0	29.5	30.1	30.6

Table 2 – Estimated average monthly cost per service point per year for Scenario 9

The total cost of waste service over the 15-year analysis period, in today's money value, is R 151 million.

3.3 Master Plan

The Master Plan was developed and certain scenarios were given and council approved Scenario 9.

3.3.1 Introduction to Scenario 9

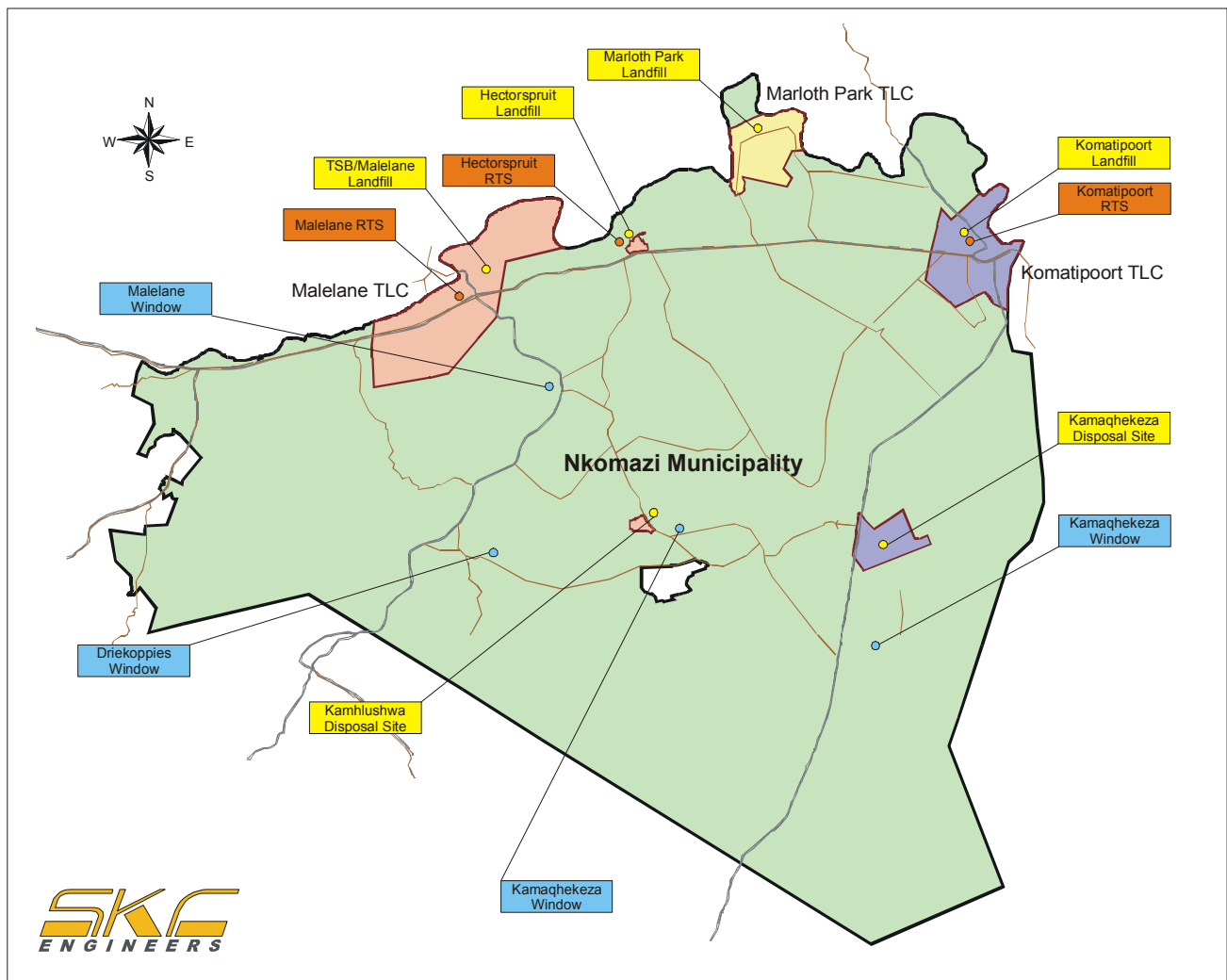
This scenario will ensure at least a 90% service level for the Nkomazi Municipality as a whole. It includes a waste collection service to highly concentrated areas only, with four possible new landfills.

The correct siting of landfills as well as the appropriate selection of service areas results in changes to collection, transportation and disposal costs. The landfill size classification impacts on the development cost of landfills, and the strategic positioning of landfill sites and waste volumes accepted at facilities impacts on the size of the site. The waste tonnages accepted at each landfill ultimately determine if the site is economically viable.

A concerted effort was made to ensure that all costing and other parameters used were as accurate as possible at the time of the study.

3.3.2 Description of Scenario 9

Waste collection service to concentrated areas only with four new windows open from year 3. Variation on position of fourth window as well as destinations. Two illegal disposal sites closing in year 2, two existing landfill sites closing in year 5 and one closing in year 10;



No	Site/Transfer Station	Availability of Site / Transfer Station (Years)									
		2	4	6	8	10	12	14	16	18	20
1.	TSB/Malelane Landfill	█	█	█	█	█	█	█	█	█	█
2.	Hectorspruit Landfill	█	█	█	█	█	█	█	█	█	█
3.	Marloth Park Landfill	█	█	█	█	█	█	█	█	█	█
4.	Komatipoort Landfill	█	█	█	█	█	█	█	█	█	█
5.	Kamaqhekeza DS	█	█	█	█	█	█	█	█	█	█
6.	Kamhlushwa DS	█	█	█	█	█	█	█	█	█	█
7.	Kamaqhekeza Window	█	█	█	█	█	█	█	█	█	█
8.	Kamhlushwa Window	█	█	█	█	█	█	█	█	█	█
9.	Driekoppies Window	█	█	█	█	█	█	█	█	█	█
10.	Malelane Window	█	█	█	█	█	█	█	█	█	█
11.	Kaapmuiden RTS	█	█	█	█	█	█	█	█	█	█
12.	Komatipoort RTS	█	█	█	█	█	█	█	█	█	█

No	Site/Transfer Station	Availability of Site / Transfer Station (Years)									
		2	4	6	8	10	12	14	16	18	20
13.	Malelane RTS	█	█	█	█	█	█	█	█	█	█
14.	Hectorspruit RTS	█	█	█	█	█	█	█	█	█	█

3.3.3 Scenario Definition

The Project Team suggests that the two illegal disposal sites at Kamhlushwa and Kamaqhekeza be closed down and rehabilitated as soon as new facilities for the disposal of waste are established.

Three new windows are opened in this scenario in year 3. The three windows are as indicated on Figure 4, Driekoppies Window, Kamhlushwa Window and Kamaqhekeza Window.

4 DPLG/MIG Funding

Nkomazi Municipality has applied for DPLG funding through SKC, to develop the Steenbok Landfill Site, since the funds were not allocated to, this project has experienced some challenges, in development.

SKC is now going to assist in the development of the Integrated Waste Management Plan.

5 Public Participation

- Recycling Projects managed by community members.
- Public Participation was held in the following villages and all members of the community were encouraged to participate.
- The response of the community members, were positive because they accepted the projects, except for two (2) villages. These villages are: Driekoppies and Mzinti.

These villages are:

1. Buffelspruit
2. Mangweni
3. Hoyi
4. Jeppes Reef
5. Kamaqhekeza
6. Phosa Ville
7. Langelooop
8. Mananga
9. Mtata
10. Hlahleya
11. Middelpaas
12. Schoemansdal
13. Schoezendal
14. Steenbok
15. Tonga
16. Masibekela
17. Ngwenyeni
18. Block A
19. Block B
20. Block C
21. Dindela Farm
22. Stentor Farm

- Twenty eight (28) new jobs were created through this project.
- Before the extension of the Waste Collection Project, communities were consulted.
- Clean-up Campaigns were done on a regular basis.

- All Councilors and the Mayor are all involved in 'Public Participation Campaign' to encourage the community that everybody needs to be involved, in this worthwhile project in keeping the Nkomazi Municipality clean and healthy.

6. Cost recovery

Finance Department currently has a billing system in place for all existing established towns, residential and business stands and all of these are billed on a monthly basis.

Since the DPLG Project started, all schools and clinics and all other government institutions are paying for services. All households in all the villages are paying a refuse collection fee of R15.00 per households per month.

The standard announced tariff for all garden/building refuse is R250.00 per load.

The communities were informed of the vision and mission to render services to their individual communities.

Council is still in the process of evaluating the different options/proposals from the Finance Department, to come up with a strategy or plan, which is political acceptable, to enhance revenue from all the households, that refuse is currently been collected from.

7. Law enforcement

Currently Council is still making use of the old Malelane/Komatipoort/Marloth Park By- law.

Policy already approved by health Sub Committee, now for other communities within the Nkomazi Municipality to approve and then to be passed by Council.

8. Fleet management

The Status Que on current vehicles are:-

- 1 x Bulldozer – Currently awaiting tender and funding
- 3 x Tractor
- 3 x Tipper Trailers
- 9 x 4T Tipper Trucks
- 3 x 8T Compactors
- 1 x 5T Compactor
- 1 x TLD
- 3 x Bakkies

9. Personnel Management

The organogram makes provision for 59 permanent staff members.

Currently, also 28 temporary staff, to be included in the three (3) year budget.

9.1 Breakdown of Staff Component, in Waste Management

- H.O.D. –Community Health Services
- Health Officer
- Waste Control Officer – x 1
- Supervisor x 2
- Drivers x 9
- Labourers/General Workers – 76, this is included of 28 temporal staff

We are still planning to employ four more labourers.

10. Budget control

Strict procurement measures are implemented. Every vehicle operates on its own budget.

Income, generating activities is closely monitored for instance new houses, business and other out of the ordinary collections is billed, e.g. schools.

11. Conclusion

The trash problem in Nkomazi has no easy answer and the conflict surrounding the siting of solid waste facilities will be with us, as for the last ten years, e.g. Marloth Park.

Just as the issues and challenges facing officials and residents, has changes over the last ten years. We should also expect new issues and new challenges to emerge in the coming years.

No recipe exists that will guarantee a successful service, officials and residents from the different communities must tailor the service strategy to their own particular needs and issues.

The following guidelines summarize the most important points to take into consideration, when developing a new service.

- Accept the public as a legitimate partner
- Listen to the concerns of the different interests and groups in the community
- Plan a process and consider alternatives
- Set goals and objectives for public involvement and risk communication activities in each step of the service delivery process.
- Create mechanisms for involving the public in early in the decision-making process
- Provide risk information that the public needs to make informed decisions.
- Be prepared to mitigate negative impacts on the community
- Evaluate and monitor the effectiveness of public involvement.

Although these eight guidelines for public involvement, risk communication, mitigation, and evaluating are not comprehensive, each plays a key role in designing an effective service process. The guideline is specific enough to lend structure to a multitude of planning activities – but they do not substitute of officials and other interested parties.

