

MATJHABENG – IDP

2001

SPATIAL ANALYSIS

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1. SPATIAL DEVELOPMENT – CONCEPT DEFINITION

Spatial is derived from the word “space”. The world we live in is filled with entities like trees, houses, rivers, mountains, etc., which are distributed spatially. These features are situated in relation to one another. These features can be geographically located and can be represented on a map.

The **spatial structure** of the city refers to the spatial arrangement of the physical parts e.g. roads, railway lines, shopping areas, homes, industries etc. These features do not function in isolation but are related or linked to one another.

Spatial models describe the existing physical structural and functional attributes of an area, which can be an informal settlement, a town, city or even a province. The models can take the form of a map or a miniature model or version of the area. They are used to show the changes planned for an area or changes, which are likely to occur.

Spatial planning refers to the level at which planning is practised such as a national level, regional, town planning or even at village level. Spatial planning therefore deals with the distribution and redistribution of land uses over space.

2. PURPOSE OF SPATIAL ANALYSIS

The spatial analysis will attempt to evaluate the current spatial distribution of the various land uses. The purpose of a spatial analysis is to ensure that the municipality’s spatial strategies and land use management decisions are based on a general awareness of:

- Spatial constraints, problems, opportunities, trends and patterns;
- The necessity for spatial restructuring;
- The need for land reform;
- The spatial dimension of development issues.

2. DFA-SPATIAL DEVELOPMENT PRINCIPLES

The Development Facilitation Act provides specific principles for:

- Land development and conflict resolution
- Control on land occupation
- Recognition on informal land development practices

The principles are as follows:

- a) Policy, administrative practice and laws should provide for urban and rural land development and should facilitate the development of formal and informal, existing and new settlements.

- b) Policy, administrative practices and laws should discourage the illegal occupation of land, with due recognition of informal land development processes.
- c) Policy, administrative practices and laws should promote efficient and integrated land development in that they:
- Promote the integration of the social, economic, institutional and physical aspects of land development
 - Promote integrated land development in rural and urban areas in support of each other
 - Promote the availability of residential and employment opportunities in close proximity to or integrated with each other
 - Optimise the use of existing resources including such resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation and social facilities.
 - Promote a diverse combination of land uses, also at the level of individual erven or subdivisions of land
 - Discourage the phenomenon of "urban sprawl" in urban areas and contribute to the development of more compact towns and cities
 - Contribute to the correction of the historically distorted spatial patterns of settlement in the Republic and to the optimum use of existing infrastructure in excess of current needs, and
 - Encourage environmentally sustainable land development practices and processes.
- d) Members of communities affected by land development should actively participate in the process of land development.
- e) The skills and capacities of disadvantaged persons involved in land development should be developed.
- f) Policy, administrative practices and laws should encourage and optimise the contributions of all sectors of the economy (government and non-government) to land development so as to maximise the Republic's capacity to undertake land development and to this end, and without derogating from the generality of this principle:
- National, provincial and local governments should strive clearly to define and make known the required functions and responsibilities of all sectors of the economy in relation to land development as well as the desired relationship between such sectors, and

- A competent authority in national, provincial or local government responsible for the administration of any law relating to land development shall provide particulars of the identity of legislation administered by it, the posts and names of persons responsible for the administration of such legislation and the addresses and locality of the offices of such persons to any person who requires such information.
- g) Laws, procedures and administrative practice relating to land development should:
- Be clear and generally available to those likely to be affected thereby
 - In addition to serving as regulatory measures, also provide guidance and information to those affected thereby
 - Be calculated to promote trust and acceptance on the part of those likely to be affected thereby, and
 - Give further content to the fundamental rights set out in the Constitution.
- h) Policy, administrative practices and laws should promote sustainable land development at the required scale in that they should:
- Promote land development which is within the fiscal, institutional and administrative means of the Republic
 - Promote the establishment of viable communities
 - Promote sustained protection of the environment
 - Meet the basic needs of all citizens in an affordable way, and
 - Ensure the safe utilisation of land by taking into consideration factors such as geological formations and hazardous undermined areas.
- i) Policy, administrative practices and laws should promote speedy land development.
- j) Each proposed land development area should be judged on its own merits and no particular use of land, such as residential, commercial, conservational, industrial, community facility, mining, agricultural or public use, should in advance or in general be regarded as being less important or desirable than any other use of land.
- k) Land development should result in security of tenure, provide for the widest possible range of tenure alternatives, including individual and communal tenure, and in cases where land development takes the form of upgrading an existing settlement, not deprive beneficial occupiers of homes or land or, where it is necessary for lands and homes occupied by them to be utilised for other purposes, their interests in such land or homes should be reasonably accommodated in some other manner.

- l) A competent authority at national, provincial and local government level should co-ordinate the interests of the various sectors involved in or affected by land development so as to minimise conflicting demands on scarce resources.
- m) Policy, administrative practices and laws relating to land development should stimulate the effective functioning of a land development market based on open competition between suppliers of goods and services.

4. MATJHABENG AS SPATIAL ENTITY

4.1 LOCATION

Matjhabeng falls in the Lejweleputwa district area which is situated in the north western parts of the Free State and borders the North West Province to the north, Northern Free State and Thabo Mofutsanyana to the north east and east, Motheo and Xhariep to the south and the Northern Cape to the west.

4.2 COMPOSITION AND SIZE

The composition and size of the five Municipalities comprising Lejweleputswa are as follows:

TABLE 1:

LOCAL MUNICIPALITY	NUMBER OF FARMS	AREA IN KM ²
Masilonyana	2864	6 775,97
Tokologo	1999	9 298,32
Tswelopele	2168	6 506,68
Matjhabeng	2500	5 142,40
Nala	1606	3 963,01
Total	11137	31 686,38

(Source: Free State Development Plan: Draft Framework, 2001)

4.3 MATJHABENG SPATIAL PLAN

The spatial plan of Matjhabeng including spatial dimensions of development issues identified in; 1/1 Compilation of existing information, 1/2 Community and stakeholder – level analysis, 1/4 Economic and environmental analysis is enclosed in Annexure A.

4.4 MAIN LAND USES

Matjhabeng: The main land uses in the larger Matjhabeng are depicted in the Annexure B.

5. CAUSES, PROBLEMS AND THREATS

5.1 CAUSES FOR THE EXISTING SPATIAL STRUCTURE

The causes for the existing spatial structure of Matjhabeng can be attributed to a combination of historical, political and economic factors. The discovery of gold by various mining companies explains the development of a number of new towns in close proximity to the major gold mines. The Group Areas Act again separated the white and black townships resulting in a very fragmented urban spatial structure. Economic factors also played a role and a number of towns originated as service centres for the surrounding farming community. The concentration of mines in the Welkom area and the centrality of the town resulted in a fast growing city where economics of scale started to play a role. The following provides a brief historical background of the different urban centers in Matjhabeng:

ALLANRIDGE/NYAKALONG

Allanridge was established as a township in 1947 after the discovery of gold in the area. The town was proclaimed in 1956. The town is totally dependent on mining activities.

The town is situated 25 km from Welkom and 14 km from Odendaalsrus with 3 km between Allanridge and Nyakalong.

HENNENMAN/PHOMELONG

The town developed around a railway station in 1892. It was proclaimed in 1948. The town is primarily a service centre for the surrounding farming community. A large number of residents are working in nearby towns such as Virginia and Welkom. It is to a large extent dependent on the economy of the region.

The town is situated 34 km from Welkom, 24 km from Virginia and 18 km from Ventersburg. It must be noted that Phomelong is situated 9 km from both Hennenman and Ventersburg and was intentionally placed there as a black residential area for both towns.

Three developed pockets can be found here namely Hennenman, Phomelong and Whites. The Dagbreek and Confido agricultural plots can also be found here located towards the north of the main Provincial Road (P43/3) between Welkom and Ventersburg.

ODENDAALSRUS/KUTLWANONG

This town developed as a service center for farmers and was established in 1899. It was proclaimed as a township in 1912. Today the town is primarily residence to a mining community, but also offers a well-established central business area and a industrial area with a number of light industries.

Odendaalsrus is situated 12 km from Welkom. Odendaalsrus and Kutlwanong is 7,5 km apart.

VENTERSBURG/MMAMAHABANE

The town was established as a service center for the surrounding farming community in 1873. It was proclaimed in 1903. It is primarily a rural town with local

trade stimulated by the bypassing traffic on the N1 main route. This led to a ribbon development along the N1 road.

The town is situated 52 km from Welkom, 24 km from Virginia and 18 km from Hennenman. The N1 road separated the townships of Ventersburg and Mmamahabane.

VIRGINIA/MELODING

Virginia was established by the mining houses as a township for its workers in 1954 after the discovery of gold. It was proclaimed as a municipality in 1961. A well established central business area as well as an industrial area developed over time.

Virginia is situated 24 km from Welkom, 24 km from Ventersburg and 24 km from Hennenman. Virginia is 3 km from Meloding, separated by an industrial area and a mine.

WELKOM/THABONG/BRONVILLE

Welkom originated in 1942 as the Uitsig camp which was a base for the prospecting operations in the region. The town was established in 1947 on request of Anglo American Corporation of South Africa. The town was proclaimed as a municipality in 1961.

Mining is still the primary economic activity. A well-established central business area and industrial areas developed over time. Welkom developed into the largest town in the Matjhabeng and serves as a regional service center for the surrounding towns and farming community.

5.2 PROBLEMS REGARDING THE SPATIAL STRUCTURE

The problems in relation to the spatial structure of Matjhabeng and the development of an integrated city are as follows:

- The fragmented nature of the urban structure.
- Management problems.
- Mining areas is a physical constraint for spatial development and urban integration.
- Duplication of service provision.
- Strong emphasis on the maintenance and upgrading of roads because of strong interaction between the towns.
- Government is situated too far from people.
- Implications on the cost of services for the consumer.
- Uneven distribution of economic development and job opportunities.
- Environmental constraints including polluted areas.

6.3 THREATS

The following aspects pose a threat for the existing urban structure of Matjhabeng and the development of an integrated city:

- Further urban sprawl.
- Uncoordinated development.
- Negligence to plan properly.
- Decline of the local economy.
- Underutilised economic development potential.
- Non-diversification of the local economy.
- Maintenance of infrastructure.
- Economic centralisation.
- Cost of services to the consumer.
- Pollution.
- Under-utilised infrastructure.
- Institutional capacity.
- Deterioration of main roads.

6. SITUATION ANALYSIS AND TRENDS

6.1 CURRENT DEMOGRAPHICS

TABLE 2:

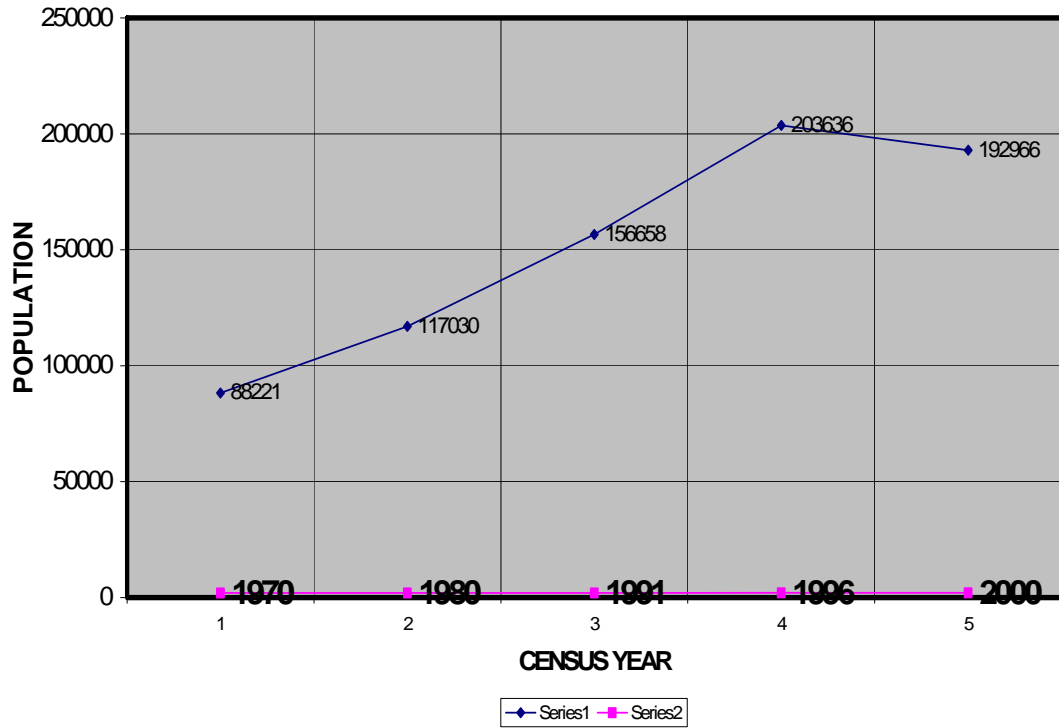
TOWN	Number of Households	Average Household Size	Total Population
Allanridge	465	3,87	1800
Nyakallong	4834	3,93	19000
Virginia	8217	3,87	31800
Meloding	18883	3,93	74211
Ventersburg	393	3,31	1300
Mmamahabane	2521	5,11	12884
Hennenman	1118	3,2	3577
Phomolong	4591	5,9	27087
Odendaalsrus	3052	3,21	9800
Kutlwanong	12735	6,0	76410
Welkom	21750	3,87	82938
Thabong	28003	3,93	110028
Rural	-	-	254313
TOTAL			705148

(Source: Matjhabeng Interim IDP: 2001)

The above table is significant in the sense that population figures impact on all aspects of service delivery and development and is therefore an important planning basis. In this regard it is also important to monitor change.

A significant change has taken place in the case of Welkom. Since 1996 Welkom experienced a population decline of approximately 10%. This is attributed to the decline in the mining sector. It is assumed that this trend is also present on the other towns. The figures will again be monitored as soon as the data from the CSM model becomes available later in the year.

WELKOM: POPULATION TREND



(Source: Interim IDP for Matjhabeng: 2001)

6.2 LAND USE STATISTICS

The current situation regarding developed land is depicted in the following:

6.1.1 RESIDENTIAL

TOWN	DEVELOPED ERVEN FORMAL HOUSING	DEVELOPED ERVEN INFORMAL HOUSING	VACANT SERVICED ERVEN		VACANT UNSERVICED ERVEN		INFORMAL SETTLEMENT NUMBER OF HOUSEHOLDS	HOUSING BACKLOG	% BACKLOG	ERVEN BACKLOG	% BACKLOG
			Council	Private	Council	Private					
Allanridge											
Nyakalong											
Virginia											
Meloding											
Ventersburg											
Mmamahabane											
Hennenman											
Phomelong											
Odendaalsrus											
Kutlwanong											
Welkom											
Thabong											
Rural											
TOTAL											

CONCLUSION: (PROBLEMS, NEEDS AND TRENDS)

6.1.2 BUSINESS

TOWN	DEVELOPED ERVEN	VACANT SERVICED ERVEN	UNSERVICED VACANT ERVEN	STANDARS	BACKLOG	% BACKLOG
Allanridge				Community:		
Nyakalong				Site of 200m for		
Virginia				Every 200 units.		
Meloding						
Ventersburg						
Mmamahabane						
Hennenman						
Phomelong						
Odendaalsrus						
Kutlwanong						
Welkom						
Thabong						
TOTAL						

CONCLUSION: (PROBLEMS, NEEDS AND TRENDS)

6.1.3 INDUSTRIAL

TOWN	DEVELOPED ERVEN	VACANT SERVICED ERVEN	UNSERVICED VACANT ERVEN	STANDARD	BACKLOG	% BACKLOG
Allanridge				In terms of		
Nyakalong				Economic		
Virginia				Demand		
Meloding						
Ventersburg						
Mmamahabane						
Hennenman						
Phomelong						
Odendaalsrus						
Kutlwanong						
Welkom						
Thabong						
TOTAL						

CONCLUSION: (PROBLEMS, NEEDS AND TRENDS)

6.1.4 EDUCATIONAL

TOWN	DEVELOPED ERVEN	VACANT SERVICED ERVEN	UNSERVICED VACANT ERVEN	STANDARD	BACKLOG	% BACKLOG
Allanridge				Primary school:		
Nyakalong				Site of 2,8 ha for every		
Virginia				550 units.		
Meloding				(250m – 400m		
Ventersburg				Areas.		
Mmamahabane				Site of 2,8ha for		
Hennenman				Every 650 – 1000		
Phomelong				Sites with larger		
Odendaalsrus				Sites.		
Kutlwanong				Secondary:		
Welkom				Site of 4,8 ha for		
Thabong				Every 1375 units.		
TOTAL						

CONCLUSION: (PROBLEMS, NEEDS AND TRENDS)

6.1.5 INSTITUTIONAL

TOWN	DEVELOPED ERVEN	VACANT SERVICED ERVEN	UNSERVICED VACANT ERVEN	STANDARD	BACKLOG	% BACKLOG
Allanridge				Nursery school:		
Nyakalong				Site of 1500 m for		
Virginia				Every 450 houses		
Meloding				Church site:		
Ventersburg				Site of 750 m for		
Mmamahabane				Every 300 houses		
Hennenman				Community center		
Phomelong				Site of 0,5ha for		
Odendaalsrus				Every 10000		
Kutlwanong				People.		
Welkom						
Thabong						
TOTAL						

CONCLUSION: (PROBLEMS, NEEDS AND TRENDS)

6.1.6 PARKS

TOWN	DEVELOPED ERVEN	VACANT SERVICED ERVEN	UNSERVICED VACANT ERVEN	STANDARD	BACKLOG	% BACKLOG
Allanridge				0,6ha per 1000		
Nyakalong				Persons within		
Virginia				500m distance.		
Meloding						
Ventersburg						
Mmamahabane						
Hennenman						
Phomelong						
Odendaalsrus						
Kutlwanong						
Welkom						
Thabong						
TOTAL						

CONCLUSION: (PROBLEMS, NEEDS AND TRENDS)

6.1.7 COUNCIL FARMS AND URBAN AGRICULTURE:

PROPERTY	AREA	LAND USE
ALLANRIDGE/NYAKALONG		
HENNENMAN/PHOMELONG		
Sub 5 of Vredefontein 418		
Sub 22 of Vredefontein 418		
Sub 39 of Vredefontein 418		
Sub 40 of Vredefontein 418		
Sub 41 of Vredefontein 418		
Sub 41 of Vredefontein 418		
Sub 42 of Vredefontein 418		
Vredefontein Small Holdings		
Rem of Ventersvlakte 741		
Rem of Sub 4 of Uitsig 723		
ODENDAALSRUS/KUTLWANONG		
VENTERSBURG/MMAMAHABANE		
Rem of Kromfontein 209		
Rem of Ventersburg Dorpsgronden 354		
Rem of Tswelangpele 756		
Hamburg 473		Commonage
Pietersrust 91		Commonage
Vaalbank 536		Commonage
VIRGINIA/MELODING		
Schoonheid 540		Future Residential
Calabria 630		Urban farming
Nieuwemoed 534		Urban farming
WELKOM/THABONG/BRONVILLE		
Subdivision 19 of 1 of Nooitgedacht 74	61,5995 ha	Urban Farming – grazing
Subdivision 3 of Nooitgedacht 74	19,4201 ha	Servitude
Subdivision 4 of Nooitgedacht 74	25,695 ha	Servitude
Sub 2 of Rem of Vooruitgang 52	251,3043 ha	Goldfields regional sports complex – Grazing on remainder
Rem of Saaiplaas 690	162,5789 ha	Urban farming – Market gardens

Rem of Lotgeval 96	524,6849 ha	Township development (6000 erven) – Short term – Urban farming – grazing
Rem of De bron 645	244,8782 ha	Hani Park residential area
Sub 1 of Homestead 668	171,3064 ha	Urban Farming – market gardens
Urania industrial area – portion of De Bron and portion of Homestead	200 ha	Industrial development – Urban Farming over short term – grazing, market gardens
Rem of Homestead 668	638,1163 ha	Urban Farming – Market gardens, broiler units, grazing
Subdivision 3 of Vlakplaats 125 (Buchler)	167,8689 ha	Urban Farming – grazing
Sub 7 of Toronto 115	10,8326 ha	Refuse area
Sub 20 of Welkom 41	124,7168 ha	Servitude/Building restriction area
Rem of Sub 11 of Welkom 41	58,4031 ha	Refuse area/Building restriction area
Sub 4 of Welkom 41	1,8120 ha	Servitude
Sub 6 of Welkom 41	70,7785 ha	Sewage works/Pan – Urban farming – grazing
Uitsig 151	68,6532 ha	Future Industrial area
Sub 4 of Witpan 62	51,7736 ha	Municipal workshops
Sub 3 of Witpan 62	10,0675 ha	Pan
Sub 2 of Witpan 63	4,5511 ha	Servitude
Sub 1 of Witpan 62	14,3602 ha	Pan
Sub 3 of Klippan 14	30,7241 ha	Pan
Sub 5 of Klippan 14	6,8850 ha	Municipal nursery
Sub 6 of Klippan 14	22,9786 ha	Pan – Urban farming – grazing – market gardens
Sub 9 of Welkom 80	73,3060 ha	Pan
Sub 4 of Rem of Welkom 80	24,8790 ha	Pan
Sub 1 of Rem of Marmageli 20	3,643 ha	Pan
Sub 3 of Stuirmanspan 92	91,0269 ha	Pan
Sub 2 of Therons Rust 69	3,8845 ha	Servitude
Sub 2 of Meribah 16	55,0992 ha	Municipal Cemetery
Sub 1 of Meribah 16	4,6933 ha	Municipal Cemetery
Rem of Sub 1 of Theronia 71	305,2988 ha	Sewage works
Rem of Theronia 71	385,2632 ha	Welkom Airport – Urban farming – grazing
Sub 1 of Commandants Pan	17,1305 ha	Refuse area
Sub 6 of Rem of Commandants Pan	25,6960 ha	Refuse area
Sub 2 of Dankbaarheid 187	770,8788 ha	Game reserve/Recreation area
Sub 4 of Dankbaarheid 187	99,3077 ha	Regional cemetery
Rem of Dankbaarheid 187	171,3064 ha	Urban farming – Cultivation and grazing

Sub 1 of Kaalvalley 61	290,00 ha	Township development (2000 erven) – Urban farming over short term – grazing
Riebeeckstad undeveloped township north	185 ha	Urban farming – grazing
Riebeeckstad undeveloped township south	170 ha	Urban farming – grazing
Naudeville Extension 2		Residential development – grazing

7. IMPACT

The existing urban structure of Matjhabeng impacts on:

- Institutional arrangements
- Socio-economic issues
- Transport
- Roads
- Education
- Service delivery
- Local economic development
- Urban integration
- Cost for the consumer

8. WEAKNESSES

The following weaknesses impacts on spatial development:

- Spread of activities over a large area.
- Physical constraints.
- Cost of service delivery.
- The local economy is very centralised in Welkom.
- Inability to attract significant development.
- Ineffective coordination and cooperation by the mining industry in relation to spatial planning.
- Lack of internal capacity.
- Lack of investor confidence.
- Poor image of the city.

8. RESOURCES AVAILABLE

The following local resources can impact on spatial development:

- Availability of land at low cost.
- Availability of a five-sector development strategy.
- Availability of infrastructure including buildings.
- Availability of services including purified sewage water.
- Availability of labor.
- Availability of community amenities.
- Developed industrial sector to support new development.
- Centrality of the region in relation to markets.
- Strong financial and service sector.