Phogalakwena Spatial Development Framework

national assets • rural settlements • resilient people



Draft 30 June 2022



Mogalakwena Local Municipality



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IDENTIFY REGIONAL SDFS

setting the scene

 ACCORDING TO PROVINCIAL **DEMARCATION**

PROVINCIAL



IDENTIFY REGIONAL SDFS

REGIONAL



- AS DESIGNATED BY NATIONAL MINISTER
- NOT ACCORDING TO JURISDICTIONAL
- CROSSING PROVINCIAL BOUNDARIES

• OR WITHIN PROVINCES IF DESIGNATED BY MUNICIPAL what are we planning

1.1 Positioning Mogalakwena against the backdrop of change and disruption

INTRODUCTION

Every human settlement and (1) everyone that lives, works, studies, plays and relaxes in it, and (2) every formal and informal institution that structures, governs and facilitates social interactions and economic transactions in it, is influenced, structured, shaped and driven by a diverse mix of (often competing) local, regional, national and international forces that rise, evolve, mature, dissipate, fizzle out, morph into something else, and/or disappear, as time passes. Typically, the longer a settlement has been in existence, (1) the greater the number, (2) the more complex and denser and more diverse these forces will be, and (3) the more 'in balance' they will be in terms of their impacts on the people, places, spaces, networks and flows, and institutions.

New settlements are typically driven and shaped by the original driver/reason for their birth, such as trade, reliaion, administration, finance, education, mining and/or manufacturing, with other forces emerging, evolving, etc. as time passes. At times though, it may be that an existing settlement is severely impacted upon by a 'new' force, resulting in 'the balance' between the forces that evolved over time being deeply disrupted. These 'disrupting' forces can have (1) direct impacts on the people, i.e. pandemics, or the place, i.e. an earthquake, or the institutions, i.e. a new government, law or policy, or (2) indirect impacts on each other, i.e. the multiple impacts of the recent COVID-19 pandemic on economies, trade flows and institutions, such as education and reliaious practices. Sometimes the disruptive impacts are short-lived in the life of the settlements they are impacting upon, and the 'pre-disruptive

balance' is in large measure restored within a relatively short span of time. In other cases, the impacts are far larger, more drastic and more enduring, with the settlement only returning to its erstwhile balance decades later, or it being placed on a very different trajectory with a very different balance emerging decades later, when 'the disruptive dust' of the force has settled, often with the force no longer in action/motion in the area.

One of the most disruptive forces in countries with (large) extractable mineral and metal endowments, is the opening of a new mine (or a series of mines) in an area where there had previously not been such extractive operations, of where the scale of such operations was far smaller. Such new operations, invariably, have vast and direct and indirect settlement-altering impacts on:

- The people, and their perspectives on life, values and beliefs, their settlement and what they value in life, their own futures, and that of their settlement, and their bonds with, and relations to each other, and the often many new entrants in the settlement;
- The place, and what happens in it and not (and no longer does), and with what intensity and with which impacts on the immediate and further-afield ecosystems that feed and sustain it:
- The institutions, in terms of 'the written and unwritten rules of behaviour in the settlement', and how the settlement is governed, by whom, with what intent, and for whose benefit; and
- The extent, volume and type of movement, municipal service and communication infrastructure networks and flows in and through the settlement.

Preparing a development plan (or spatial development framework) for such a 'disrupted settlement' is a very different exercise to (1) one that is and has been at 'a more balanced place' for an extended period of time, or (2) for the same settlement in its 'pre-disrupted stage'. Stated simply – it cannot be 'planning as usual' in such a settlement. Likewise, the contents of the plan or framework that is eventually prepared will be very different to the kind of plan that would have been prepared for the settlement prior to the disruption, or for settlements that had not experienced such a disruption.

The area of jurisdiction of the Mogalakwena Local Municipality (MLM) has over the last decade been deeply, intensely and irreversibly disrupted by the sudden arrival of a vast and very profitable Platinum Group Metals-focused set of mining activities. While this does not suggest that the disruption took place in 'an uncontested space/place at ease with itself', as those who call the municipality home have since the birth of democracy in 1994 been involved in a difficult and tension-filled process of jointly engaging and addressing the legacies of the past, which had in itself required and resulted in disruptions - many of which would not have been welcomed by all. Importantly though, this process, had (1) a history, (2) a present created, shaped and driven by it, and (3) a set of possible futures, in turn largely shaped and driven by the past and present.

Into this space stepped the PGM-mining era, injecting a sudden and enormous economic bolt of energy and investment into the area and further afield, and (1) creating many new direct and indirect jobs in the area and many

more in places linked/connected to these activities, and (2) making a vast contribution to the country's tax income, balance sheet and general wellbeing.

It is against this backdrop of (1) fundamental, disruptive change, and (2) the need to plan for a future with the conditions, opportunities and challenges it has brought and will bring, as key guide, driver and shaper, that the 2022-Spatial Development Framework (SDF) for the MLM is prepared, and within which 'manoeuvring space' it seeks to make a decisive, beneficial and lasting contribution to the future development of the area for the benefit of all who live, work, study, play and relax in it.

MOGALAKWENA AS MINING REGION OF NATIONAL & REGIONAL SIGNIFICANCE

The significance of mining as employer and industry in the local economy is important. However, it is important to note that the current (as well as planned expansion and new) mining in the northern platinum belt and Mogalakwena complex is actually of regional and national (and global) significance (see text box).

Apart from direct contributions to the national fiscus, indirect contributions to the economy should also be noted.

Unfortunately, the reality is that the costs and risks for mining in South Africa and the region is increasing, and prices are volatile globally. Mining is a sector where collaboration with government at national, regional and local level is critical to ensure value add to sustainable local and regional development. This is also critical in Mogalakwena.

Mogalakwena as space of regional and national significance - role of the Mogalakwena mine

In 2020 the Mogalakwena Mine was sited as the 2nd biggest platinum producer in the world, producing an estimated 500,8 thousand ounces of platinum in 2020 (See Table). This illustrates the significance of the mining area in Mogalakwena in national and regional context.

According to NS Energy's project overview of Mines and the Mogalakwena Platinum Mine in Limpopo, the mine produced more than 25% of Anglo American sales revenue in 2019 (see NS Energy Mogalakwena Mine overview accessed on 12 May 2022 available at https://www.nsenergybusiness.com/projects/mogalakwena-platinum-mine-limpopo-province/).

The critical importance of the mining sector for the national economy and fiscus (taxes) is possibly the most significant contribution of the mining sector at national and regional level.

Whilst the Mogolakawena specific information is not evident, the importance of the mining sector and mining of the extent that is happening in

Mogalakwena, can not be underestimated. This is highlighted by the recent publication of the South African Mineral's Council (Mining at a Glance - In Facts and Figures available at https://www.mineralscouncil.org.za/industry-news/publications/facts-and-figures) stating that in 2021:

- SA produced 91% of PGMs worldwide.
- The direct contribution to the SA GDP was

World's largest platinum mines (2020)

Mine	Production 2020 (1000 ounces)	
Impala Mine, North West, SA	514,399	
Mogalakwena Mine, Limpopo, SA	500,8	
Kola MMC Mine, Russia	438,8	
Marikana Mine, North West, SA	405,039	
Amandelbult Mine, Limpopo, SA	307	
Crocodile River Mine, North West, SA	293,172	
Kroondal Mine, North West, SA	245,571	
Mupfuti Mine, Zimbabwe	209,172	
Bimha Mine, Zimbabwe	191,484	
Booysendal North Mine, Limpopo SA	164,593	

Source: Mining Technology. 9 September 2021. World's ten largest platinum mines in 2020. On-line article available at https://www.mining-technology.com/marketdata/ten-largest-platinums-mines-2020/



- R481 billion, with mining contributing 8,7% to the economy.
- Mines employed 458 954 people, with paid employees receiving R154 billion in 2021 and mines contributing R27 billion to PAYE on behalf of employees.
- The Platinum Group Metals (PGM) industry is one of a e few in the sector that increased employment from 2019 to 2021.

1.2 Positioning the SDF as planning instrument

LEGAL FOUNDATION OF A SPATIAL DEVELOPMENT FRAMEWORK (SDF)

The Municipal Systems Act (Act 32 of 2000) requires all municipalities to prepare and review an Integrated Development Plan (IDP) in a lifecycle of five years.

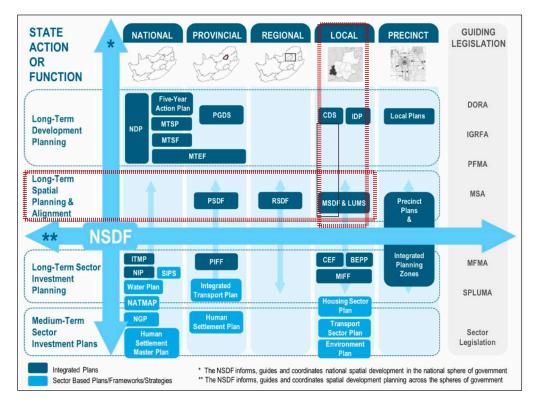
An Integrated Development Plan is the strategic planning document of a municipality, providing an overall framework for the development of the municipal area. It aims to coordinate the work of local and other spheres of government in a coherent plan to improve the quality of life of all the people living in the area. The plan should consider economic and social development for the area as a

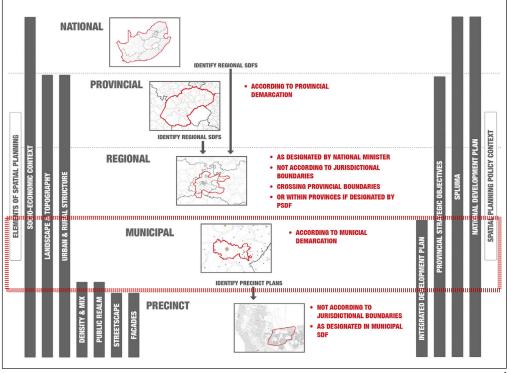
whole and should define a framework for how land in the municipality should be used, what infrastructure and services are needed, and how the environment should be protected. The Act further requires that the IDP reflects "A spatial development framework which must include the provision of basic guidelines for a land use management system for the municipality".

The Spatial Planning and Land Use Management Act (Act 16 of 2013) - also known as SPLUMA - requires that SDFs are compiled for all tiers of government, as indicated in the diagram below. SPLUMA provides detail regarding a municipal SDF, prescribing that the principles of spatial justice, spatial sustainability, efficiency, spatial resilience and good administration should guide the SDF content and preparation process. The SDF Guidelines: Guidelines for the Development of Provincial, Regional and Municipal Spatial Development Frameworks and Precinct Plans (2017) forther gives more guidance on this. The diagram below indicates the elements of spatial planning in relation to the SDFs for the different tiers of government.

In essence, an SDF defines a desired spatial structure for an area, and (through its Implementation Framework) guides all decisions to support the desired structure.

One of the tools used to steer development towards the spatial vision as agreed on in the SDF, is the Land Use Management System (LUMS) of the municipality. Integral to this is the Land Use Scheme (LUS) laying the foundation for the zoning of properties and defining application procedures and conditions for the rezoning of properties for a change in land use.





1.3 Positioning the Mogalakwena SDF

MOGALAKWENA LOCAL MUNICIPALITY (MLM) SDF

MLM has an SDF that was approved by Council in 2009. A process to review the SDF was embarked on in 2017. A draft document was compiled, but the 2017/18 SDF included in the draft document was never adopted by Council.

It is thus clear that the drafting of a new SDF in line with legislation is long overdue. The need for a new SDF is further emphasised by the changing landscape and development dynamics in the municipal area. The various role players, including the Mogalakwena Local Municipality, the Waterberg District Municipality, national and provincial departments, the mines, Tribal Authorities, and the communities at large, all play a role in shaping the spatial landscape.

Given this situation, there is limited coordination and coherence in planning and implementation, causing a waste of money and failing to take advantage of the potential multiplier effect of investments. There is clearly a discrepancy between what is, what is busy evolving, and what is currently planned for.

The purpose of this process that MLM has embarked upon, is thus to review the 2009 SDF and the 2017/18 Draft SDF in line with SPLUMA requirements.

INTENT OF THE MLM SDF

Given the unique circumstances and complexities experienced in Mogalakwena, the objectives of the SDF include the following:

- Set a spatial vision that will guide all decisions to support development towards a desired spatial structure.
- Define a spatial structure that will direct where and how growth, development, investment, and focused service delivery should ideally take place.
- Leverage investments in the municipal area to maximise the development impact to the benefit of all communities.
- Identify and address spatial misalignment and maximise access to opportunities.
- Coordinate the long-term spatial impact of all interventions.
- Develop Mokopane as a regional and provincial node.
- Manage current and future in-migration of people into MLM.
- Facilitate collaboration between all role players.

In order to achieve these objectives, the SDF should give effect to all the deliverables identified in SPLUMA. Many of these deliverables refer to implementation of spatial projects and management of the municipal space. This will be addressed in the following phase with the drafting of the Implementation Framework.

The first phase of the SDF process is, however, to undertake an analysis of the municipal area, to agree on a spatial vision that will guide spatial planning, and to draft a plan illustrating a desired spatial structure for the whole municipal area.

PURPOSE OF THIS DOCUMENT

The purpose of this document includes the following:

- To present an analysis of the natural, built, institutional, and socio-economic environment of the Mogalakwena Municipality;
- To draft a spatial vision for the Mogalakwena municipal area;
- To illustrate a conceptual spatial structure that will guide the drafting of the final Spatial Development Framework in the following phase (see an explanation of "spatial structure" on the following page); and
- To provide a document that could be used in public participation activities in order to reach agreement on the desired spatial structure to be included in the final SDF.

Only information directly relevant to spatial planning has been included in the document. Where information could be mapped, maps as opposed to text were included.

STRUCTURE OF THIS DOCUMENT

The next page forms part of this section providing background on the concept of a "spatial structure".

The sections thereafter include the following

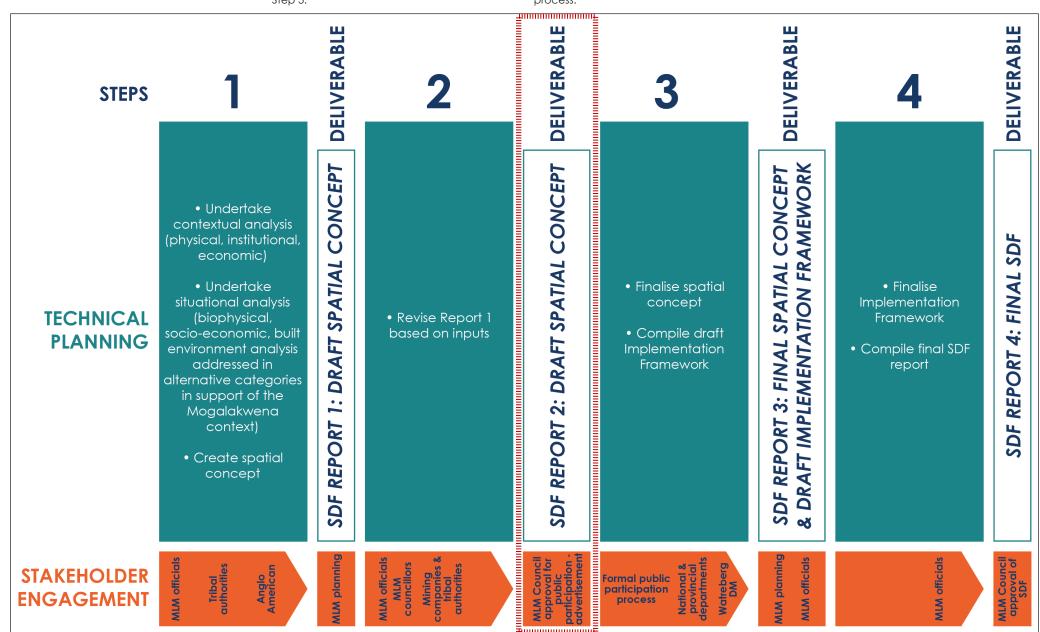
- The setting, addressing the physical and institutional context;
- The situational analysis, addressing
 Mogalakwena as a place of people, a
 place of places, a place of movement
 and networks, a place of mining, a place
 of agriculture, a place of industrious
 activities, a place of nature, a place of
 heritage and tourism, and a place of
 change.
- The spatial structure, addressing the spatial principles, spatial vision, and the spatial concept; and
- The way forward.

METHODOLOGY AND PROCESS

The diagram illustrates the methodology that is followed in the drafting of the SDF.

The process consists of four steps, with this document positioned between Step 2 and Step 3.

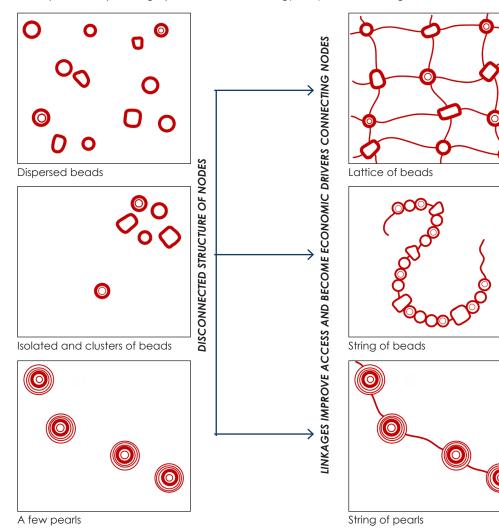
Each step includes a technical planning process, and a stakeholder engagement process.



1.4 Explaining "spatial structure" as basis for the SDF

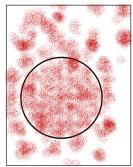
WHAT IS A SPATIAL STRUCTURE?

The spatial structure of a place (e.g. a municipality) refers to the distribution, relationships, and growth patterns of people, activities, and movement within the area. A spatial structure is defined by two main structural elements, namely nodes (points) and linkages (lines) - often overlaid by areas with distinct characteristics. Nodes are the focal points for a mix of activities, and linkages are the movement lines linking those nodes with each other. In the images below, beads (as nodes) and lines (as linkages) are used as an analogy for spatial structuring.



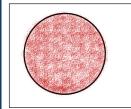
WHAT IS A "GOOD" SPATIAL STRUCTURE

A "good" spatial structure is not a goal in itself, but a means to an end. A good structure supports more sustainable living, better service delivery, improved economic viability, high resilience, and enhanced governance and urban management. The following explains the difference between some growth patterns.

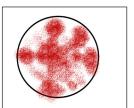


Sprawling: Low-density, haphazard, and fragmented development spreading and leapfrogging outward from the urban centre. There is no definite spatial structure. The following highlights the impact of sprawl:

- Increased travel distances and costs.
- Increased costs of infrastructure services.
- Decreased economic vitality of nodes and urban centres.
- Loss of productive farmland.
- Loss of natural land that supports tourism and wildlife related industries.
- Increased tax burden due to more expensive roads, infrastructure and public amenities.
- Increased maintenance costs and challenges.
- Loss of the rural characteristics as unique attribute of an area.



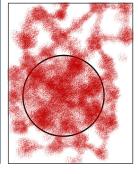
Compact: Consistently high residential density and mixed land uses throughout the area, mostly with efficient public transport and high walkability. There is no definite spatial structure.



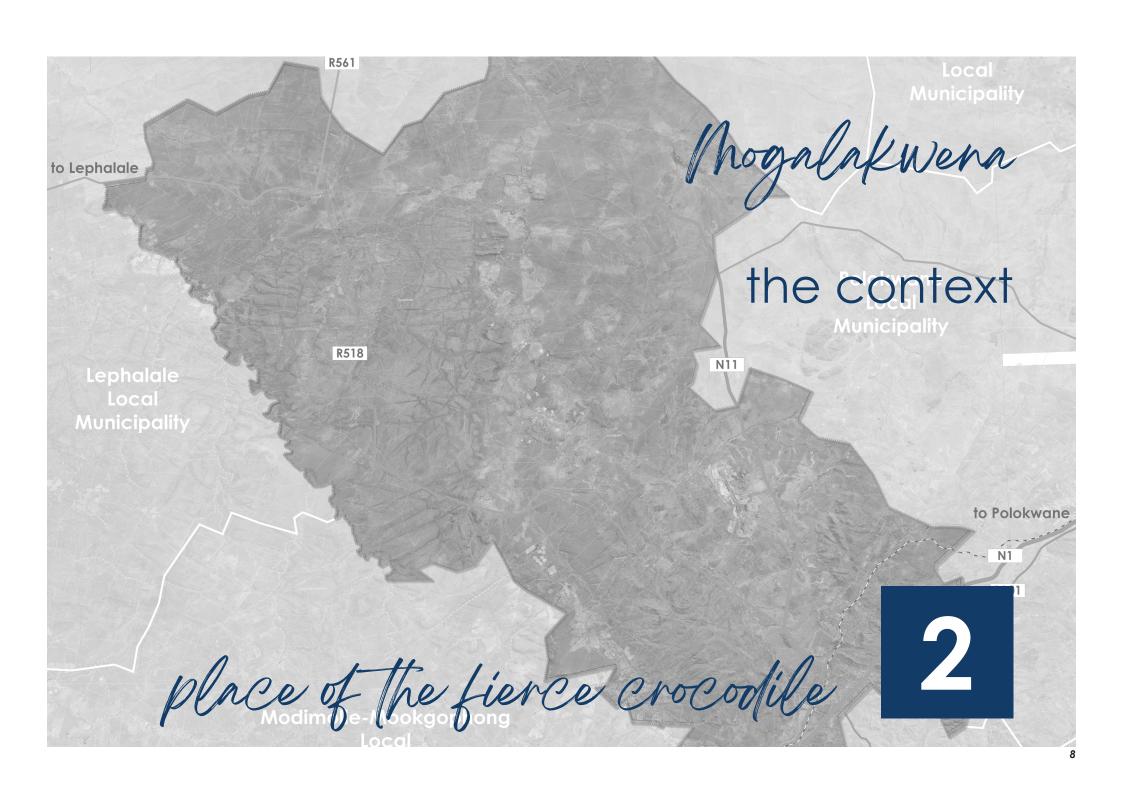
Smart growth: Compact people-oriented nodes connected by multimodal, mixed-use transit lines. There is a strong spatial structure. The following highlights the advantages of smart growth:

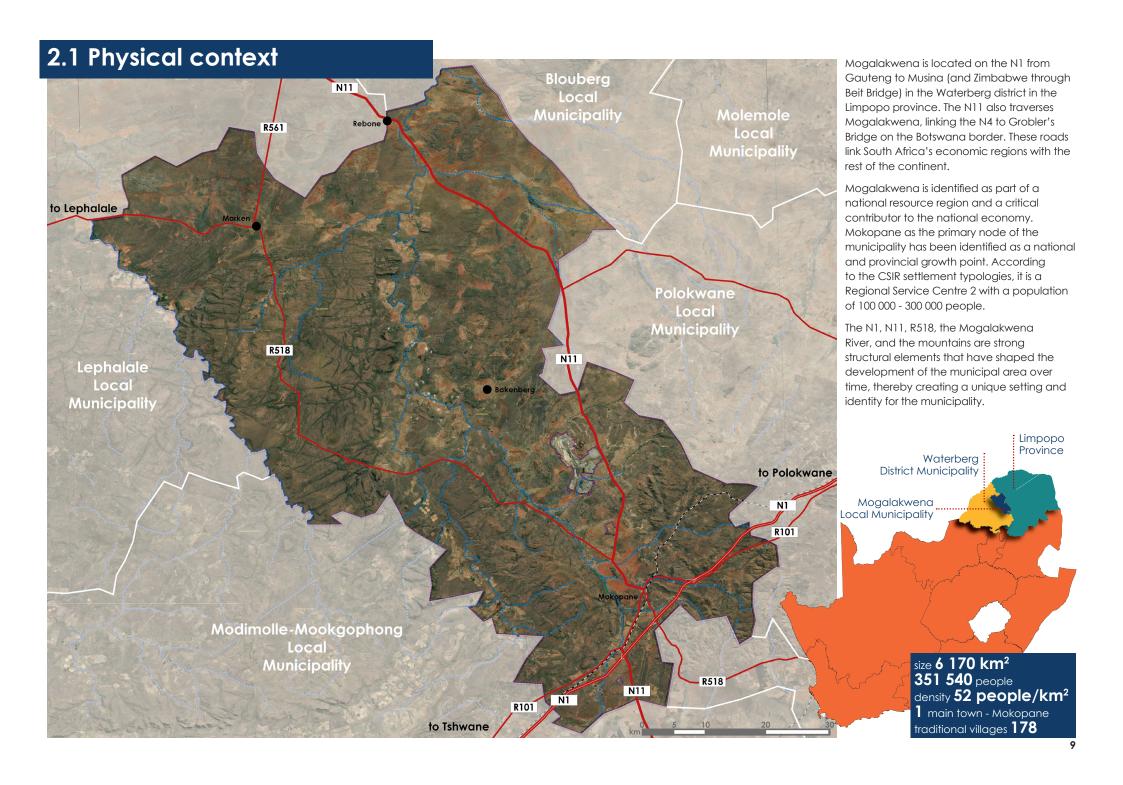


- Cost-effective provision of infrastructure services (infrastructure, roads, and public amenities).
- Coordinated and focused interventions in agreed nodes supporting a multiplier effect.
- Conservation of agricultural land and natural tourism areas contributing to economic diversification.
- Economic sustainability with reduced risks of isolated projects not working or not maintained.
- Reduced risks through the pro-active management of conflicting land uses.



A sprawling pattern could be steered towards a smart growth spatial structure.





2.2 Institutional context

Development in Mogalakwena is impacted by a multiplicity of role players and a dense and complex institutional context, not only because of the complex governance system, but also because of national and local significance of the PGM sector and mines in the area.

Mogalakwena, located in the
Waterberg District, is part of a very active
intergovernmental-system. Role players
involved in planning include the Department
of Rural Development and Land Reform,
Department of Cooperative Governance,
Human Settlements and Traditional Affairs
(CoGHSTA), Department of Planning
Monitoring and Evaluation, a variety of other
sector departments and agencies such as
SANRAL, the Housing Development Agency,
the Office of The Premier of Limpopo, Limpopo
Economic Development and Tourism (LEDET),
the Waterberg District, the recently instituted
District Development Hub, etc.

In addition to these role players and the suite of planning related legislation and policies (i.e. the National Development Plan, National Spatial Development Framework, 2022, Spatial Planning and Land Use Management Act, 2013, Municipal Systems Act, 2000) development in the area is also significantly impacted by a range of other role players including:

 Department of Minerals and Resources (DMR), not only through issuing of mining rights, exploration rights etc. but also through requirements outlined through the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) guiding investments from the mines, i.e. Social and Labour Plans

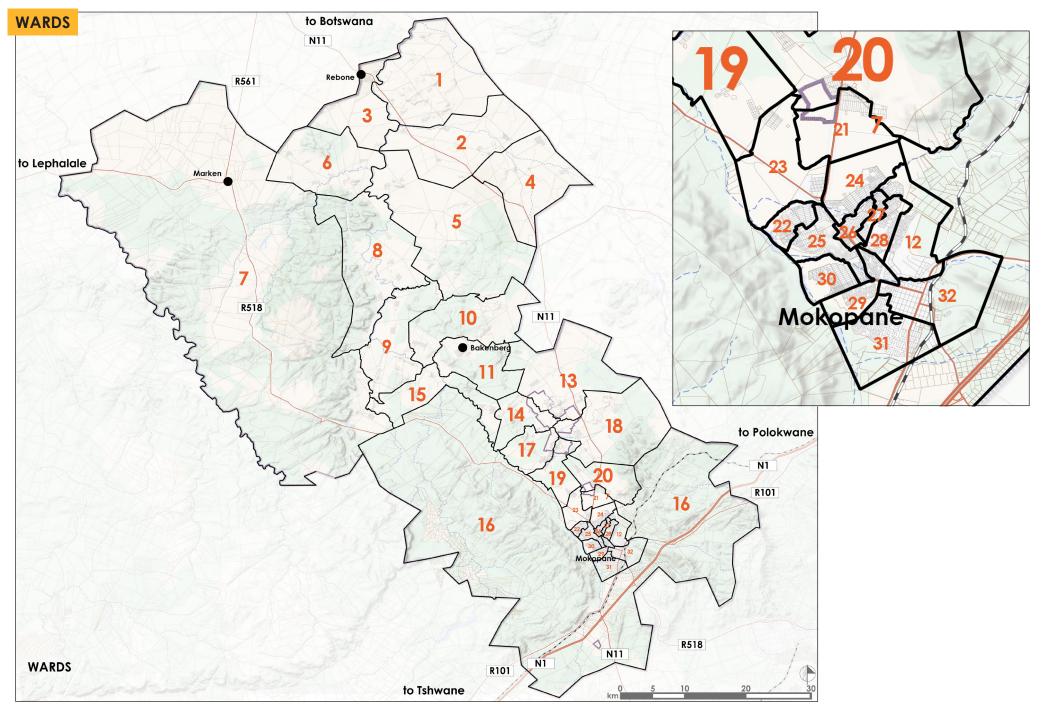
- (SLPs), and standards for housing, living conditions, resettlement etc;
- Organised mining industry and other industry initiatives i.e. South Africa Minerals Council, organised Platinum Industry who developed the National Platinum Strategy for South Africa, 2019;
- Companies mining PGMs and other minerals, with large scale investments not only in mines but in towns, settlements, and infrastructure;
- Business leaders, including organised industry represented through the Public-Private Growth Initiative (PPGI), Impact Catalyst (initiated by Anglo American, Exxaro, CSIR and World Vision to support regional development and collaboration between industry and government partners), the National Business Institute (NBI) actively supporting industry and government partners;
- Organised Labour in the mining industry; and
- Highly active range of traditional authorities, Headsmen, Civil society and Political leaders.

The complexity of the plans, agreements, and investments often manifest at local level, not only at municipal level, but also at ward level – where political, traditional, community, civil society and mine representatives have a multiplicity of negotiations, agreements, processes and plans. These do not always result in aligned and sustainable investment to the benefit of the development of the municipal area or region. Boundaries of wards in Mogalakwena are illustrated on the map on the following page.

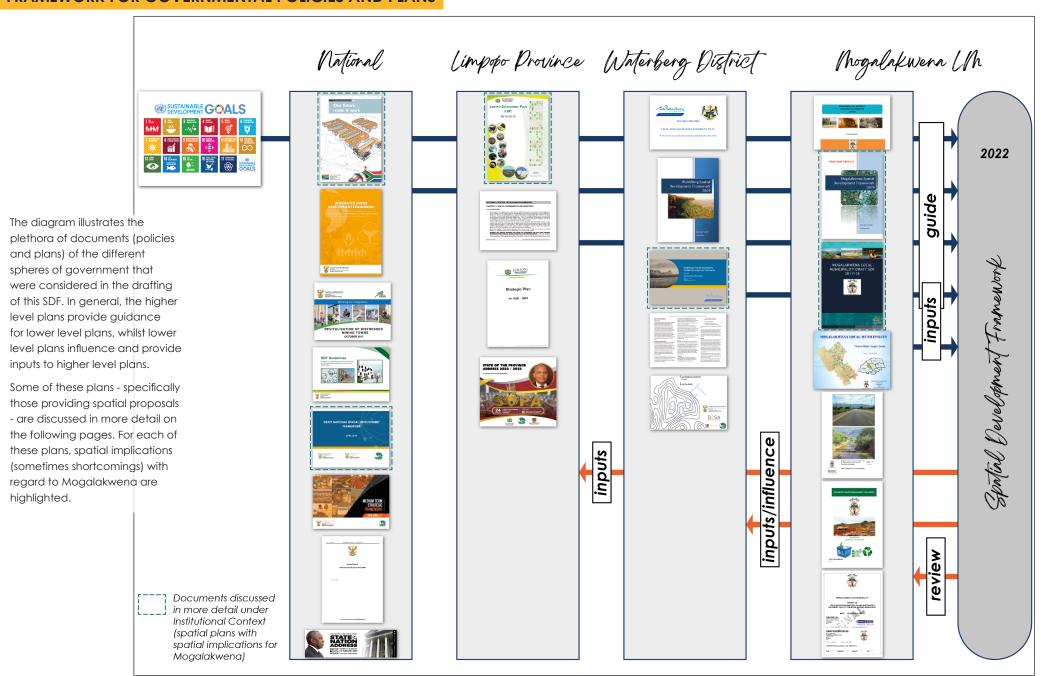
"In the area of local government, the

reservation of decision-making on new mining rights for the Minister of the DMR, and the exclusion of provincial agvernments and municipalities from this process, has had a number of negative consequences and has added to the disconnect between municipalities and mining companies, as there is no legal driver or other persugsive reason to engage, and do so (1) in a meaninaful way and (2) on a continuous base (Oranie. 2013a and see DRLDR, 2019). In cases where mining forums were established to enhance such engagements, these tended to be short-lived, for exactly the same reasons... In addition to this, municipalities have generally lacked the confidence and capacity to engage with multinational mining companies that command budgets of billions of Rands (Frankel, 2012; Oranje, 2013a; 2013b)."

Source: Oranje, M. 2019. THE WESTERN LIMB OF THE PLATINUM BELT: TRENDS, ISSUES AND REGIONAL DEVELOPMENT PROPOSALS. Prepared for the CSIR and SALGA. Unpublished Report. (pp 1-84)



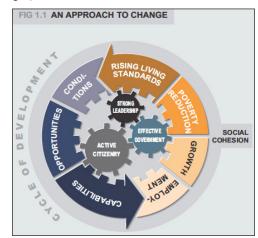
FRAMEWORK FOR GOVERNMENTAL POLICIES AND PLANS



NATIONAL GOVERNMENT

NATIONAL DEVELOPMENT PLAN 2030 (NDP) (2012)

The National Development Plan (NDP) is an integrated strategy for accelerating growth, eliminating poverty, and reducing inequality over 20 years, with an approach towards change illustrated through the following graphic.



It advocates strong measures to prevent further development of housing in marginal places, increase urban densities to support public transport, incentivise economic activities in and adjacent to townships and engage the public sector to participate in the gap housing markets. The plan addresses six focused, interlinked priorities.

Of specific relevance for the MLM are the following priorities:

"An integrated and inclusive rural economy with a specific emphasis on (1) agricultural development through a land-reform and job creation/livelihood strategy that ensures rural communities have jobs; and (2) quality access to basic services, healthcare, education and food security.

Transforming human settlement and the national space economy with a specific emphasis on (1) the unique needs and potential of different rural and urban areas in the context of emerging development corridors; and (2) active citizenship in the field of spatial development supported and incentivised through e.g. properly funded, citizen-led neighbourhood visioning and planning processes and social compacts."

IDEAL NATIONAL SPATIAL DEVELOPMENT PATTERN

NATIONAL SPATIAL DEVELOPMENT FRAMEWORK (NSDF) (2019)

The National Spatial Development Framework (NSDF) is a strategic long-term spatial plan guiding development towards 2050. It is legally mandated by the Spatial Planning and Land Use Management Act, 2013 (SPLUMA), and has to be aligned with the 2030 National Development Plan (NDP).

Existing and planned mines are regarded in the NSDF as national, regional, and local assets

and will continue to make a significant contribution to the economy.

Lepha

Bela Bela



Siyabuswa

NATIONAL SPATIAL DEVELOPMENT PRIORITIES



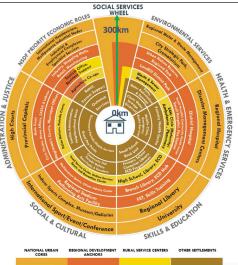
Implications for Mogalakwena

Mogalakwena is identified in the NSDF (approved by Cabinet in April 2022) as a region of national significance, with specific reference to an "Eco-resource Production Region".

Mogalakwena is furthermore strategically located at the intersection of two key national roads (N1 and N11), thus playing a key role in the national and inter-regional network of connecting development corridors.

As "Regional Development Anchor"
Mokopane should support settlement growth
in the town and surrounding areas, and
should facilitate productive rural resources
development in the municipality.

The social services wheel gives guidance regarding the types of social services to be provided in a Regional Development Anchor.



LIMPOPO PROVINCE

LIMPOPO DEVELOPMENT PLAN, 2015-2019 (LDP)

In terms of the Limpopo Development Plan Mokopane is designated as a regional development anchor, a provincial growth point and the possible location for a provincial agri-hub/park.

The N1 corridor from Gauteng to Zimbabwe running past Mokopane and Polokwane, is supported as a key national development corridor in line with the SDF.

Many of the projects identified in the plan do not have any details attached to them and would be considered as merely aspirational.

The following selected extracts from the LDP relevant to MLM and the mining sector are highlighted:

- Spatial integration is still a challenge, and the larger concentration of communities remain the furthest from urban amenities and key corridors (pg iv).
- The Limpopo Provincial Government should engage meaningfully with mining companies in forums, where relevant, and act as mediator between communities and mining companies, whilst supporting improved efficiencies and competitiveness (pg x).
- MLM has the largest population and fastest household growth in WDM.
- MLM is one of the most exposed in the district to adverse impacts of climate change, with harsher conditions for agriculture and livestock management.
- MLM is not considered a LM with high dependence on mining (This may be based on dependence for employment,

- as mining contributes a more to GDP).
- Limpopo experienced a net out-migration of 138 000 individuals. This emphasises the need to support skills development and create job opportunities.
- Sekhukhune and Waterberg districts have a high potential to outgrow the other districts due to in-migration as people may be move in search of better employment opportunities in the mines.
- The tourism sector in Limpopo created more jobs than utilities and mining combined (pg 66).
- The mining sector totalled R88 billion, contributing 27.8% to the total provincial economy (pg 82).
- The mining sector is not seen as one of the largest employers in the province (pg 83).
- Often the large demand for education can be related to several towns and settlements experiencing population growth due to inmigration (pg 119).
- The scattered and dispersed settlement pattern in Limpopo does not support the development and maintenance of costeffective infrastructure provision, mobility and accessibility (pg 142).
- The informal settlements in the province are assessed and planned in compliance with the new Informal Settlements Upgrading Partnership Grant (pg 144).
- The mining industry made an investment commitment of R25 billion for five years, relating to mining projects and mining operations (pg 222).

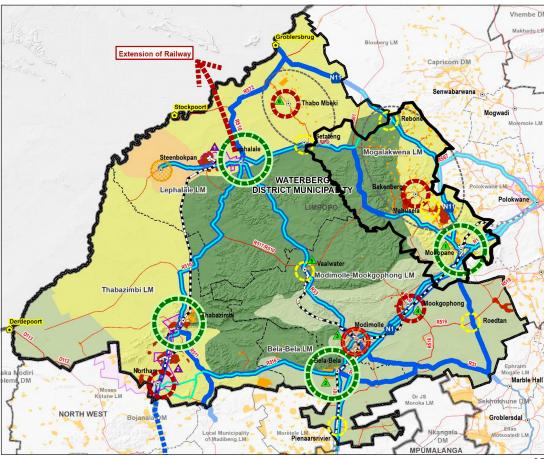
WATERBERG DISTRICT MUNICIPALITY

The 2021/2022 Waterberg IDP identifies a hierarchy of nodes within each municipality within its jurisdiction (see table). Nodes identified in provincial, district, and municipal plans are compared to each other. The Waterberg SDF identifies Mokopane as a 1st order node and a provincial growth point. On the map Bakenberg is identified as district growth point, but only as municipal growth point in the table. Rebone and GaMabusela are 2nd order nodes and Matlou and Marken are identified as 3rd order nodes and rural service centres. There seems to be a discrepancy between the table in the IDP and the SDF map.

The WDM SDF does not address the nature of future development in the rural areas (on the outside of a possible urban edge) in any detail beyond identifying the area north of Mokopane as "marginalized communities" (page 223) or as an "incremental upgrading priority area" (page 225).

Nodes	Provincial	District	Municipal	
1 st order node Growth Points (focus on growth within Local municipalities but have little influence on district and its other locals).	Mokopane/Lephalale	Modimolle -Mookgophong Thabazimbi Bela Bela	Modimolle –Mookgophong/ Tbz -Northam/ Leph –Thabo Mbeki/Witpoort Lepurupurung/ Mogalakwena - Mmotong/Bakenburg	
2 nd order nodes Population concentration points (provide services to local and surrounding communities)	Mog – rebone, Mabusela			
3 rd order nodes local service points(provide services to dispersed surrounding rural population)	Modimolle –Mookgophong - Radium Bela Bela- Radium,Settlers,Rapotokwane,Vingerkraal,Rust de Winter, Leph – Marnitz,Tom Burke, Tbz – Leeupoort, Koedoeskop, Dwaalboom Modimolle -Mookgophong – Mabaleng Mog – Matlou, Marken			



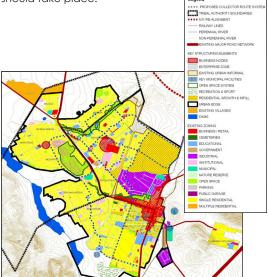


MOGALAKWENA LOCAL MUNICIPALITY

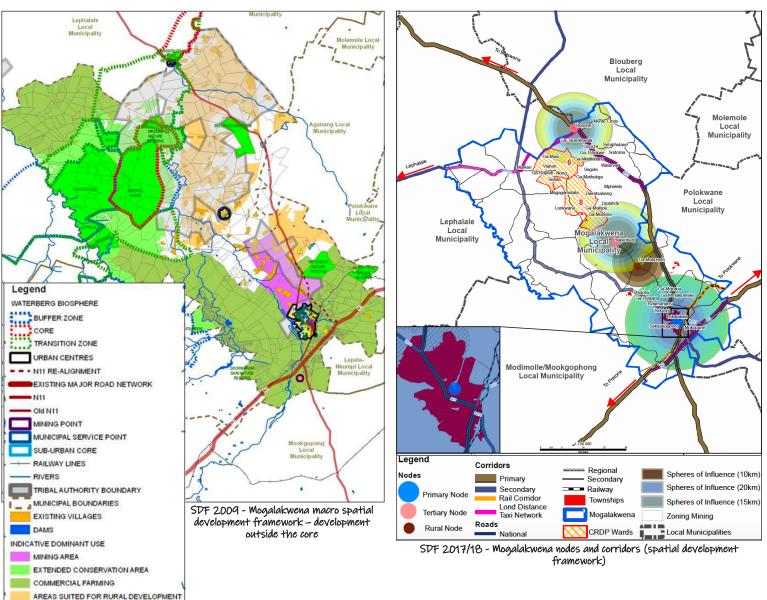
PREVIOUS SDFs

The 2009 SDF provided a "spatial framework for the urban core", and a "macro spatial development framework – development outside the core". The first is based on current zoning, with a few diagrammatic shapes as "key structuring elements" illustrated over the zoning. The plan provides something between cadastral correctness and conceptual graphics, making it difficult to extract the gist of the spatial structure. The macro framework mainly identifies the (existing) use of large areas, without providing any guidance on the desired spatial structure of Mogalakwena.

The 2017/18 SDF, on the other hand, provides a structure with nodes and corridors. Although the spatial structure can be easily identified, it is, however, somewhat simplistic. The structure seems to "ignore" the rest of Mogalakwena outside of these nodes, without providing any guidance on where and how development should take place.



SDF 2009 - Spatial framework for the urban core



2.3 Economic context

ECONOMIC PRODUCTION (GVA)

The table provides a breakdown of economic production (measured in gross value added (GVA)) for the Mogalakwena municipality for 2020 (extracted from the Quantec database), listing all economic sectors within the primary, secondary, and tertiary sectors.

According to these figures, the economy is dominated by General government services (20,01%), Wholesale and retail trade (18,71%), and Business services (16,17%). It can be argued that high GVA for government services is not as much a situation of a strong government sector as it may reflect the lack of development of other sectors.

As indicated in the table, the Primary economic sector contributes 12,36% of the municipal economy (of which 2,82% is agriculture, and 9,54% is mining).

This may raise some questions, given that Mogalakwena houses the second largest platinum mine in the world (see Section 1.1). However, due to the way in which economic production is calculated through GVA to the municipal economy, a significant proportion of the real GVA generated due to mining in the Mogalakwena municipal area, is geographically attributed to the mine's head office and other locations of mining companies. This GVA generated due to local operations is of critical importance as part of the nation's mining industry, with a significant contribution to the national fiscus (see Section 1.1).

Unfortunately due to sector specific GVA and employment calculation, the municipal specific figures do not provide an indication of the local value chains and the role of mining activity in generating "feet" for local businesses, guesthouses, conference venues, hotels and the tourism industry in general. Nor

ECONOMIC PRODUCTION (GVA) PER SECTOR IN MOGALAKWENA, 2020					
Industry (SIC Classification)	Sector	GVA at basic prices, 2020 (R millions)	% of overall GVA		
Agriculture, forestry and fishing	Primary	764,66	2,82%		
Mining and quarrying	Primary	2583,285	9,54%		
Food, beverages and tobacco	Secondary	879,133	3,25%		
Textiles, clothing and leather goods	Secondary	25,26	0,09%		
Wood and paper; publishing and printing	Secondary	70,793	0,26%		
Petroleum products, chemicals, rubber and plastic	Secondary	351,216	1,30%		
Other non-metal mineral products	Secondary	195,984	0,72%		
Metals, metal products, machinery and equipment	Secondary	284,062	1,05%		
Electrical machinery and apparatus	Secondary	6,259	0,02%		
Radio, TV, instruments, watches and clocks	Secondary	12,87	0,05%		
Transport equipment	Secondary	86,511	0,32%		
Furniture; other manufacturing	Secondary	101,314	0,37%		
Electricity, gas and water	Secondary	703,081	2,60%		
Construction	Secondary	1315,661	4,86%		
Wholesale and retail trade	Tertiary	5067,383	18,71%		
Catering and accommodation services	Tertiary	427,61	1,58%		
Transport and storage	Tertiary	1283,853	4,74%		
Communication	Tertiary	252,01	0,93%		
Finance and insurance	Tertiary	1205,685	4,45%		
Business services	Tertiary	4380,804	16,17%		
General government	Tertiary	5419,453	20,01%		
Community, social and personal services	Tertiary	1670,009	6,17%		
TOTAL		27086,896	100,00%		

do the municipal-specific figures indicate the role of mining in local procurement value chains, or informal employment.

Although the mines' social and labour plans are publicly accessible, there is limited information on the real extent of

investment in infrastructure, as well as social and economic development, housing and service delivery in the area. All of these have a significant impact on the local economy.

ECONOMIC DIVERSIFICATION (TRESS INDEX)

Should one economic sector declines or "disappears" (i.e. if the mines close down), the economy of Mogalakwena might collapse if it is mainly dependent on that sector. Whilst, if tourism, industrial, agriculture all contribute to the Mogalakwena Municipality's economy, the economy of the town has a bigger chance to survive and be sustainable. This is called "diversification" of the economy.

A TRESS index is used to measure the level of economic diversification of a place. A TRESS value of 0 represents a totally diversified economy, whilst a value close to 100 indicates a more concentrated economy.

Mogalakwena's economy is relatively concentrated, with a TRESS value of 48,15 (2018). This sets it as less diversified than South Africa as a whole, though more diversified as Rustenburg (81,83) that is highly dependent on mining.

Mogalakwena's index reflects a relatively high dependency on the three main economic sectors as indicated in the adjacent table.

There is furthermore a strong reliance on the Government sector, with high poverty levels indicating the possibility of the population being mainly dependent on government subsidised grants. Thus, although there is some economic activity in this municipality, it is not enough to 'carry' the operations of the whole municipality. Being reliant on grants further increases the vulnerability of the Mogalakwena economy.

Although the official contribution of mining to the Mogalakwena GVA is less than 10%, one would argue that the mere size and social impact of the mine make the dependence for livelihoods even more concentrated around mining activities than what current figures suggest.





POPULATION SIZE AND GROWTH

Regarding population size and growth, there seems to be discrepancies between different sources

WATERBERG SDF

The Waterberg District
Municipality SDF states that
more than a third of the
Waterberg District's population
(39,7%) is concentrated in the
Mogalakwena Municipality.
According to this document the
total 2021 population is 296 047
people. It further provides
projections that show a negative
growth (-7,024%) between
2021 and 2025. The population
estimate for 2025 is 289 023
people.

MOGALAKWENA IDP

A total of 328 905 people for 2021 is included in the latest MLM IDP.

With regard to growth, the MLM 21/22 IDP provides projections for the number of households and population for different communities in MLM at fiveyear intervals for the period 2020 to 2045. These projections indicate a steady increase in the population and number of households. The latest MLM IDP provides projections based on a fixed growth rate of 1,34% per year. According to the IDP the estimated population for 2026 is 375 733 (for 2041 the estimate is 458 767 people).

STATSSA

StatsSA recently released lona-term population arowth forecasts for the country from 2020–2030 at Local Municipality level, and from 2020-2051 at provincial level. These projections were developed using a top-down approach in which national growth forecasts are based on demographic projection models relating to macro-level demographic trends in fertility, mortality and migration patterns, and are fitted to historical and observed trends at national, provincial and district level.

The StatsSA (www.statssa. gov.za) mid-year population estimates (MYPE) calculates the 2021 Mogalakwena population at 297 901. The StatsSA estimate for Mogalakwena for 2031 is 280 990, indicating a steady decline in population over time. This follows the constant downward trend since 2002 when the Mogalakwena population was 314 679 (MYPE, StatsSA).

According to StatsSA, the 2021 population is divided between 145 824 male and 168 854 females

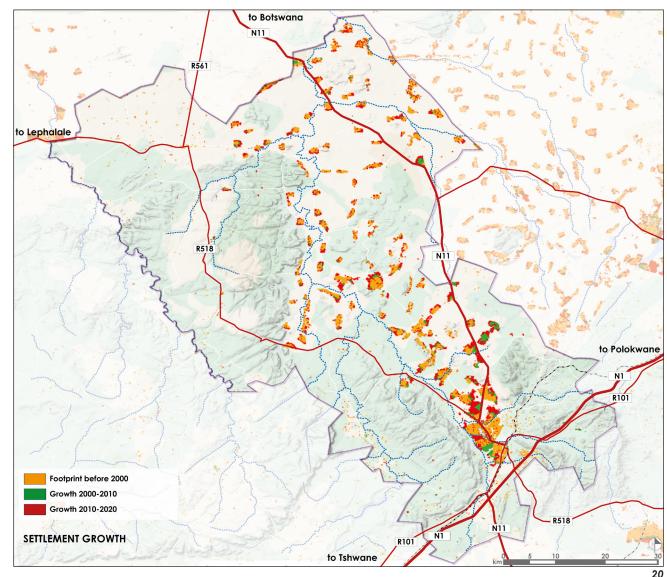
44,89% of the 2021 population is younger than 20 years. The biggest group is 10-14 years old (12,25%), followed by the 5-9 group (12,05%).

CONCLUSION

It is important that these discrepancies be resolved in order to provide correct estimates that will feed into other models (such as the requirement for houses, land for development, etc).

Of importance for now is the spatial representation of the increase in the footprints of the various settlements as indicated

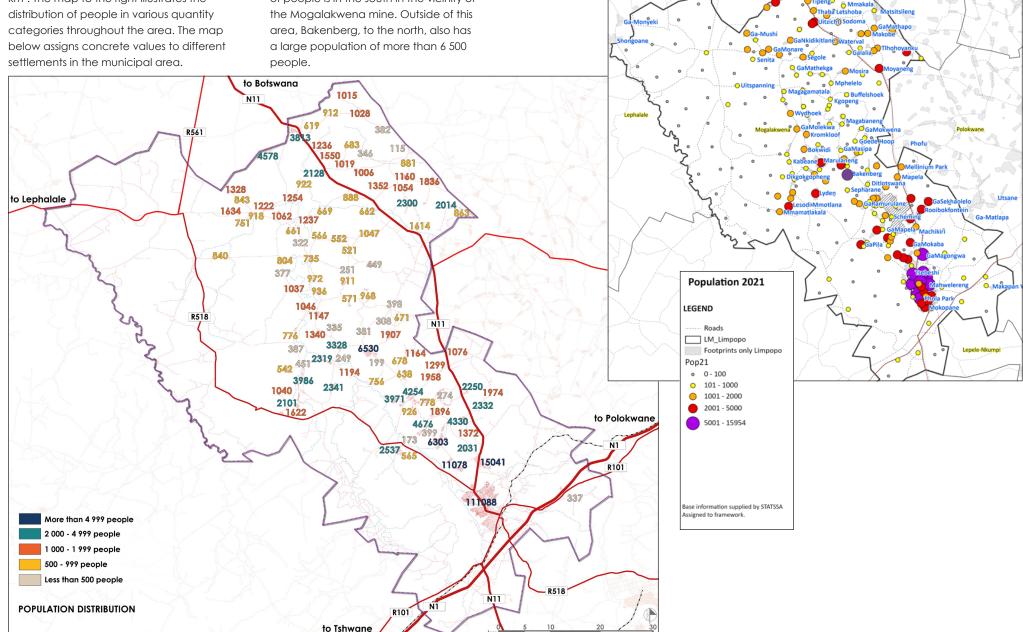
on the map. Growth in the doorstep communities around the mine is discussed in more detail in Section 3.9.



POPULATION DISTRIBUTION

The municipality has a density of 52 people/ km². The map to the right illustrates the

It is evident that the highest concentration of people is in the south in the vicinity of the Mogalakwena mine. Outside of this area, Bakenberg, to the north, also has a large population of more than 6 500



EMPLOYMENT

The unemployment estimates in the municipality vary between 45% and 70% of the economically active population.

When considering the extent of employment per sector as reflected by Quantec, the biggest number of people (23,01%) is employed in the Wholesale and retail trade sector. Mokopane is likely to be the main area hosting this sector, since it is the predominant town in the municipality.

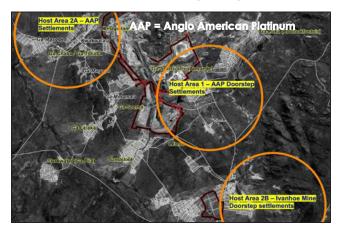
General government and community services respectively make up 16,67% and 20,12% implying that more than a third of employment in this municipally relies on these sectors. A heavy reliance on non-productive sectors means that this municipality is vulnerable and requires added funding sources to make up for the lack of employment to sustain livelihoods.

Given that the mining contribution to the Mogalakwena GVA is almost 10%, the 1% of overall employment is noteworthy, especially in light of the size of the mine and its impact on the municipality and its population migration patterns.

EMPLOYMENT PER SECTOR IN MOGALAKWENA, 2020					
Industry (Standard Industrial Classification SARS)	Sector	Employment 2020 (total number)	% of overall employment		
Agriculture, forestry and fishing	Primary	3397	6,58%		
Mining and quarrying	Primary	520	1,01%		
Food, beverages and tobacco	Secondary	1321	2,56%		
Textiles, clothing and leather goods	Secondary	140	0,27%		
Wood and paper; publishing and printing	Secondary	189	0,37%		
Petroleum products, chemicals, rubber and plastic	Secondary	369	0,71%		
Other non-metal mineral products	Secondary	762	1,48%		
Metals, metal products, machinery and equipment	Secondary	835	1,62%		
Electrical machinery and apparatus	Secondary	24	0,05%		
Radio, TV, instruments, watches and clocks	Secondary	36	0,07%		
Transport equipment	Secondary	160	0,31%		
Furniture; other manufacturing	Secondary	175	0,34%		
Electricity, gas and water	Secondary	188	0,36%		
Construction	Secondary	2681	5,19%		
Wholesale and retail trade	Tertiary	11881	23,01%		
Catering and accommodation services	Tertiary	1592	3,08%		
Transport and storage	Tertiary	1714	3,32%		
Communication	Tertiary	185	0,36%		
Finance and insurance	Tertiary	607	1,18%		
Business services	Tertiary	5857	11,35%		
General government	Tertiary	8607	16,67%		
Community, social and personal services	Tertiary	10385	20,12%		
TOTAL		51625	100,00%		

OTHER STATISTICS

Anglo American commissioned a study and surveys on site-induced migration around the Mogalakwena mine (Site-Induced Migration Assessment report (2022), based on the Digby Wells Household Survey). The study covered 45 villages in the vicinity of the mine, with a focus on the doorstep communities (10% of the population in 22 communities in Host Area 1 - southeast of the mine), 1,5% of the population of 10 villages in Host Area 2A (settlements impacted indirectly or to a lesser extent than doorstep villages - northwest of the mine), and 1% of the population of 13 villages in Host Area 2B (communities next to the Ivanplats mine). Alongside the main survey, a minisurvey and gender-separated focus group discussions with male and female community members from each target village was carried out.



The following statistics extracted from the study further describe some population characteristics:

- Almost half of the population within the study area (mainly Mogalakwena mine doorstep communities) is identified as being not economically active, indicating a high dependency ratio where non-workers are supported by workers.
- 54% of the surveyed households in the study area stated that social grants are their main source of income,
- The majority of respondents indicated that they had lived in their present village for more than 15 years, whilst those who have been living in the village for five years or less were mainly concentrated in the expanding parts of Mesopotamia, GaMokaba, Machikiri and GaMolekane.
- The most recent arrivals in the study area were predominantly from villages in the Waterberg District, with 90% of them coming from other places in Limpopo to be closer to the mine.
- The home language of 80% of the people surveyed is Sepedi.

HUMAN DEVELOPMENT & INEQUALITY

To reflect on levels of human development and on inequality, two indicators are used, namely the Human Development Index (HDI) and the Gini Coefficient.

HUMAN DEVELOPMENT INDEX

The development of a country or region is often measured using economic growth. This is, however, not always a true reflection of the level of human development. Policies and actions do not always translate into human development and growth. The HDI is "a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living" (United Nations Development Programme, 2019), assessed by the following indicators:

- The health dimension is assessed by life expectancy at birth.
- The education dimension is measured by years of schooling for adults aged 25 years and more, and expected years of schooling for children of school entering age.
- The standard of living dimension is measured by gross national income per capita.

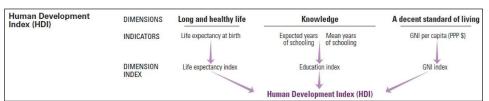
Indicators are compiled into a single number between 0 and 1, with 1 being the highest possible human development. HDI is divided into four tiers of human development, namely very high (0,8-1), high (0,7-0,79), medium (0,55-0,7), and low (below 0.55). The HDI for Mogalakwena is 0,6537, indicating a medium level of human development.

GINI COEFFICIENT

The HDI captures only part of what human development entails (i.e. not reflecting on inequalities, poverty, security, empowerment). To reflect on inequality the Gini Coefficient is used. It is a measure of statistical dispersion intended to represent the income or wealth distribution of a region's residents, and is the most commonly used measurement of inequality.

A Gini coefficient of 0 expresses perfect equality, where all values are the same (for example, where everyone has the same income). A coefficient of 1 expresses maximum inequality among values.

The Gini coefficient of Mogalakwena is 0,639261 indicating a highly unequal society (in line with the coefficient of South Africa - the highest globally).

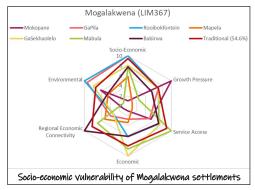


SOCIO-ECONOMIC VULNERABILITIES

The image reflects how a number of settlements in Mogalakwena are experiencing a range of socio-economic vulnerabilities based on several vulnerability indicators (CSIR, 2019; Le Roux et al., 2019). The indicators reflected include the following:

- Socio-economic vulnerability: It comprises 8 variables and 3 indicators showing the vulnerability of households with regard to household composition (household size, age dependency, female/child headed household), income composition (poverty level, unemployment status, grant dependency), and education (literacy, level of education).
- Growth pressure vulnerability: This is a composite indicator showing the relative pressure (1996-2011 growth rates) and anticipated pressure on settlements.
- Service access vulnerability: It comprises 10 variables and 4 indicators showing the level of services offered within a settlement, with regard to access to basic services (electricity, water, sanitation, refuse removal), access to social and government services (health, emergency service, schools, early childhood development), access to higher order education facilities, and access to adequate housing.
- Economic vulnerability: It comprises 5 variables and 3 indicators showing the settlement's economic vulnerability, with regards to its size (GDP/capita, GDP production rates), the active labour force (noting unemployed and discouraged work seekers), and the GDP growth rate over the past 15 years.
- Regional economic connectivity vulnerability:
 This is a composite indicator showing the settlement's regional infrastructure (measured through a remoteness/accessibility index), and role of the town in its regional economy.

Environmental vulnerability: This is a composite
indicator showing the footprint composition
of the settlement taking the ratio of built-up vs
open-spaces into account.

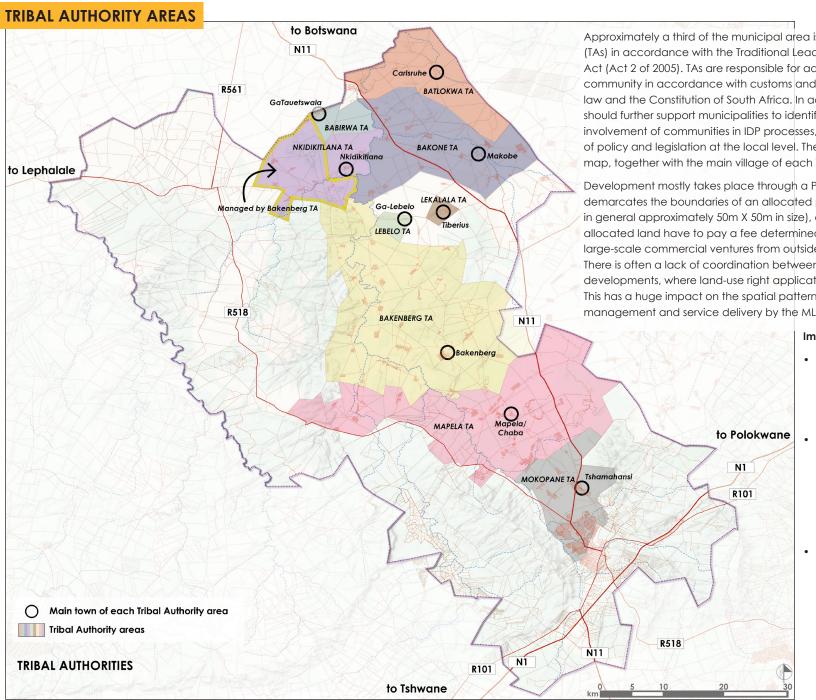


Mokopane is mostly impacted by growth pressure (evident also in a large number of informal housing structures) due to its role as main centre. This places pressure on the provision of socioeconomic infrastructure and has a significant impact on the environment through unplanned invasions.

Traditional settlement areas experience high vulnerability for all the indicators due to high levels of poverty, poor access to services and employment, poor connectivity, etc.

With regard to economic vulnerability the area in general reflects a low GDP and low GDP/ capita. It is largely rural with limited commercial farming and no significant manufacturing. The environmental vulnerability index indicates a municipality that is more vulnerable due to its physical structure (e.g. large areas of low-density settlements requiring services and roads). There is also higher pressure to use more land and for encroachment on protected areas, leading to degradation of land and putting increased stress on water catchment areas in the region. Socioeconomic vulnerability is high, with many people receiving grants to sustain livelihoods.



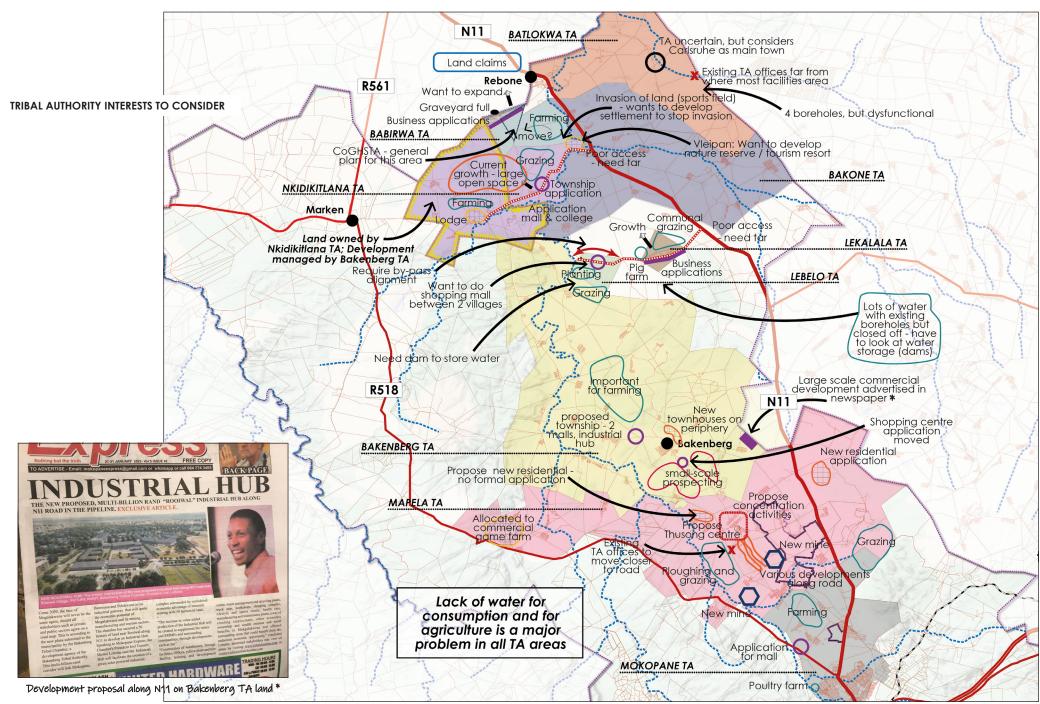


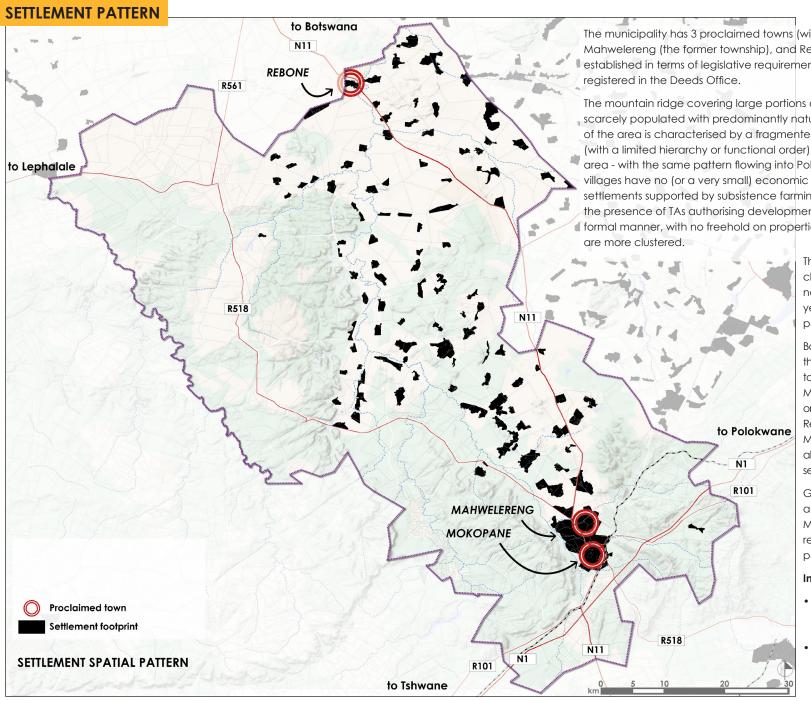
Approximately a third of the municipal area is managed by nine Traditional Authorities (TAs) in accordance with the Traditional Leadership and Governance Framework Act (Act 2 of 2005). TAs are responsible for administering the affairs of the traditional community in accordance with customs and traditions, and in line with customary law and the Constitution of South Africa. In accordance with the Act, the TAs should further support municipalities to identify community needs, to facilitate the involvement of communities in IDP processes, and to participate in the development of policy and legislation at the local level. The nine TA areas are indicated on the map, together with the main village of each TA.

Development mostly takes place through a Permission to Occupy (PTO). The TA demarcates the boundaries of an allocated property (residential properties are in general approximately 50m X 50m in size), and the individual or group that are allocated land have to pay a fee determined by the TA. Recently, applications for large-scale commercial ventures from outside developers are increasingly received. There is often a lack of coordination between the MLM and TAs in regard of PTO developments, where land-use right applications required by law, is disregarded. This has a huge impact on the spatial pattern of the municipality, as well as on urban management and service delivery by the MLM.

Implications for MLM spatial planning:

- The authority of all TAs in Mogalakwena should not only be acknowledged in governance structures, but their influence should also manifest in the spatial structure of the municipality.
- The advantages and importance of a wide range of economic activities should be conveyed, where it should be realised that not all villages (or even main villages) can sustain a shopping mall - an economic typology often to the detriment of local businesses.
- A TA has the authority to manage grassroots communities within its area of influence. Once capacitated, a TA can become the driver of change towards more sustainable development through the way they provide PTOs for development (what and where), practice environmental management, and implement climate change adaptation strategies.





The municipality has 3 proclaimed towns (with their extensions), namely Mokopane, Mahwelereng (the former township), and Rebone. These settlements are formally established in terms of legislative requirements and surveyed with freehold properties

The mountain ridge covering large portions of the west of the municipal area is scarcely populated with predominantly natural or commercial farming areas. The rest of the area is characterised by a fragmented spatial pattern, with 178 small villages (with a limited hierarchy or functional order), dispersed throughout the municipal area - with the same pattern flowing into Polokwane LM and Blouberg LM. These villages have no (or a very small) economic base and function mainly as dormitory settlements supported by subsistence farming. The reason for this settlement pattern is the presence of TAs authorising development through headmen issuing PTOs in a less formal manner, with no freehold on properties. Closer to Mokopane these settlements

> There are a few settlements that can be classified as being informal based on their nature in terms of legality and ownership, yet most of the houses are constructed as permanent structures.

Based on previous Mogalakwena SDFs, and the Waterberg SDF, the 2022-23 IDP still refers to 1st order settlements (Mokopane Town, Mahwelereng, and surrounding areas), 2nd order settlements (Bakenberg Tribal Area, Rebone and surrounding rural settlements, Mapela and surrounding settlements), and all other settlements identified as 3rd order settlements.

Growth in Mogalakwena between 2015 and 2020 mainly took place around Mokopane, and east of the N11 through the resettlement by the Mogalakwena mine of people at Rooibokfontein and Armoede.

Implications for MLM spatial planning:

- The dispersed rural settlement pattern makes the provision of services and bulk infrastructure difficult and costly.
- The simplified hierarchical settlement structure adopted in the IDP needs to be reviewed to support a more functional large rural area.

SETTLEMENT GROWTH 2000-2020

to Lephalale

Footprint before 2000 Growth 2000-2010 Growth 2010-2020

SETTLEMENT GROWTH

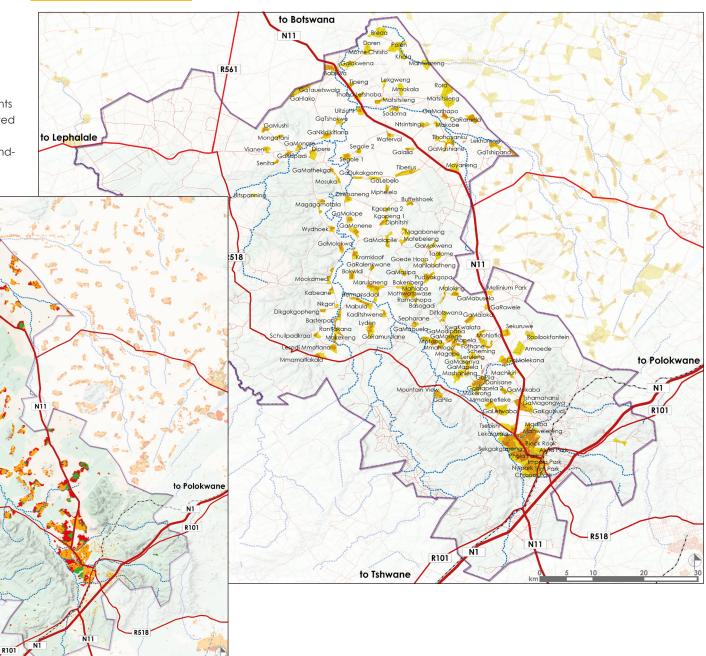
As indicated below, the biggest growth and expansion of settlements were around the Mogalakwena and the Ivanplats mines, as well as on the periphery of Mokopane. Residential densities closer to Mokopane are higher than densities in rural settlements in the northern part of Mogalakwena.

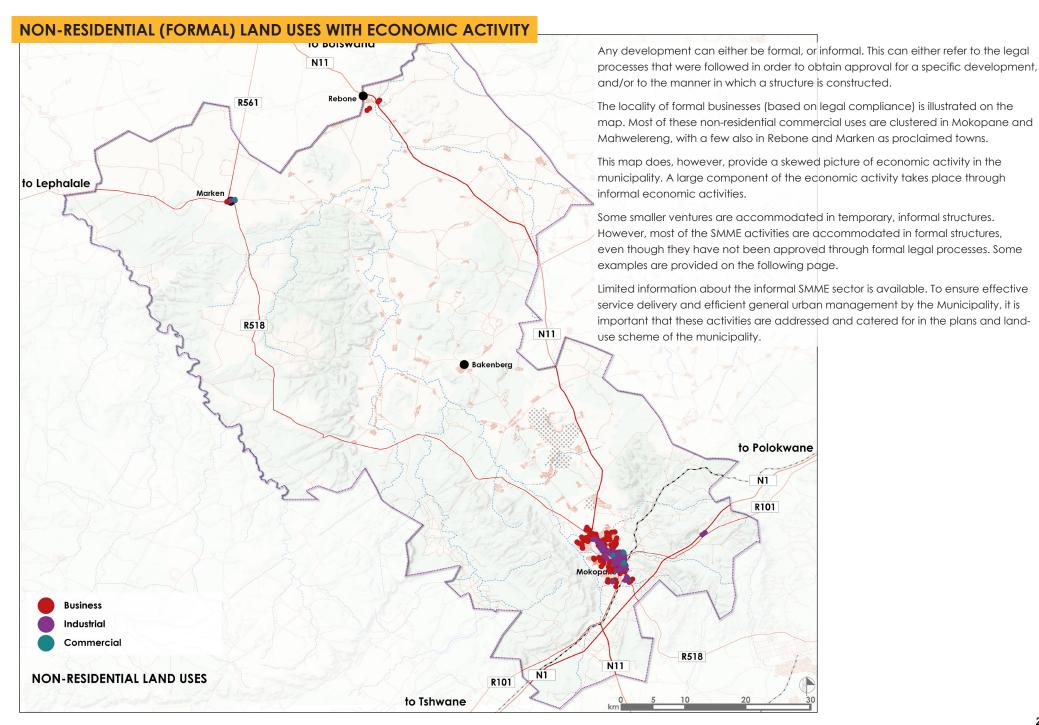
A Council resolution on density puts a limitation on developments - even where higher densities should be supported and promoted (i.e. in the centre of Mokopane). This discrepancy should be addressed in the Implementation Framework, whilst the new landuse scheme should give effect to any proposal on this.

to Botswana

to Tshwane

SETTLEMENT NAMES





NON-RESIDENTIAL (INFORMAL) SMME LAND USES (EXAMPLES)

Informal trade in informal structure



Informal trade in formal structure







Informal manufacturing in formal and informal structures







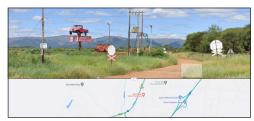




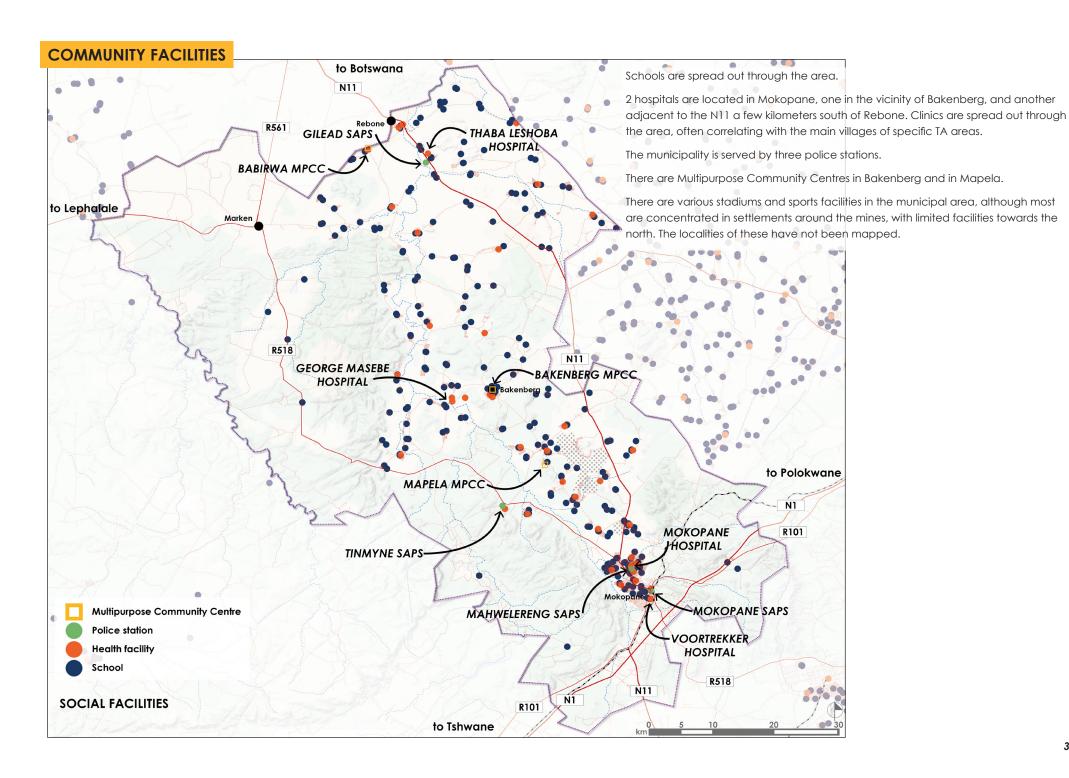
Informal vehicle related uses in formal and informal structures

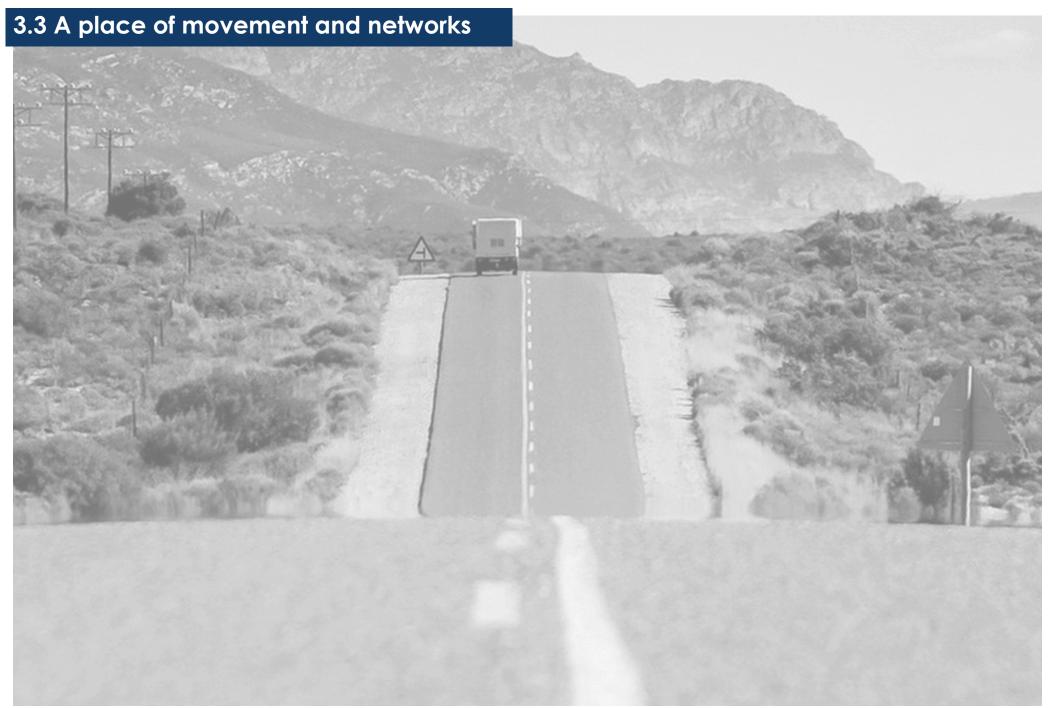


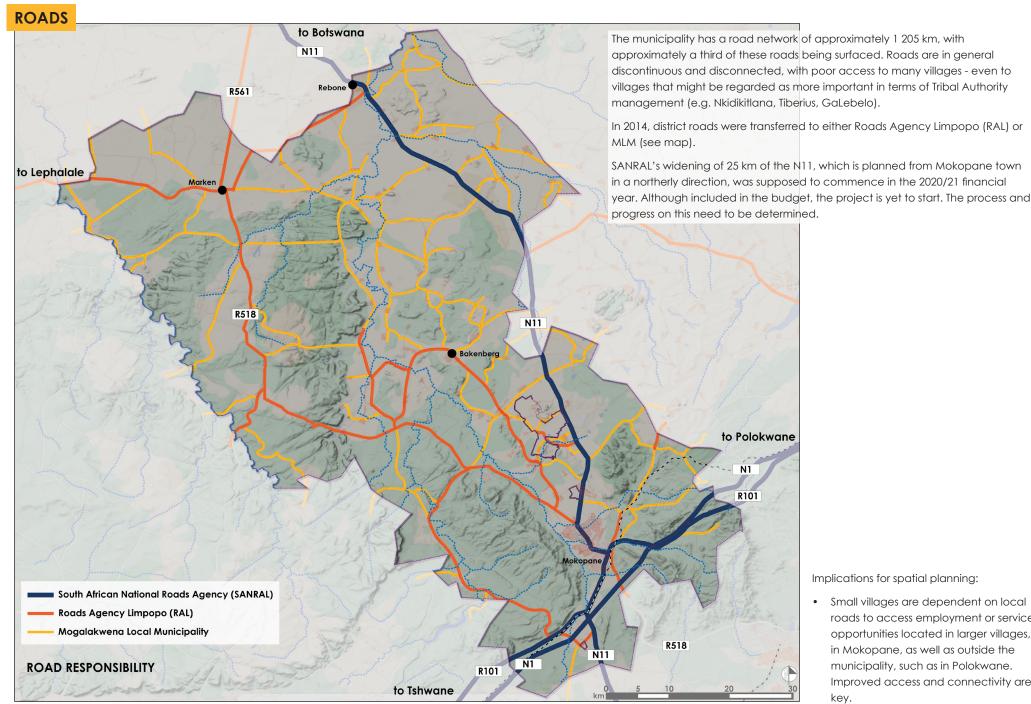












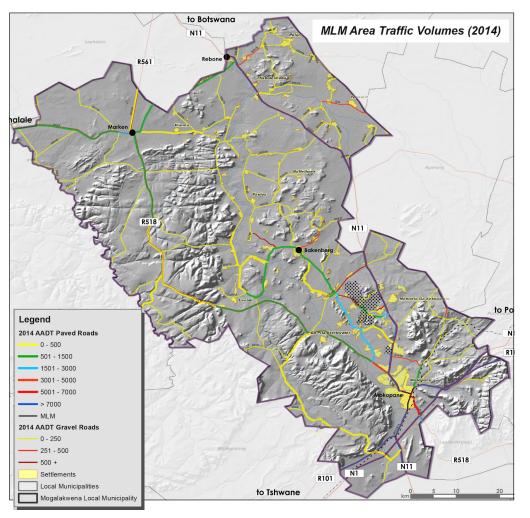
Implications for spatial planning:

• Small villages are dependent on local roads to access employment or service opportunities located in larger villages, in Mokopane, as well as outside the municipality, such as in Polokwane. Improved access and connectivity are key.

TRAFFIC

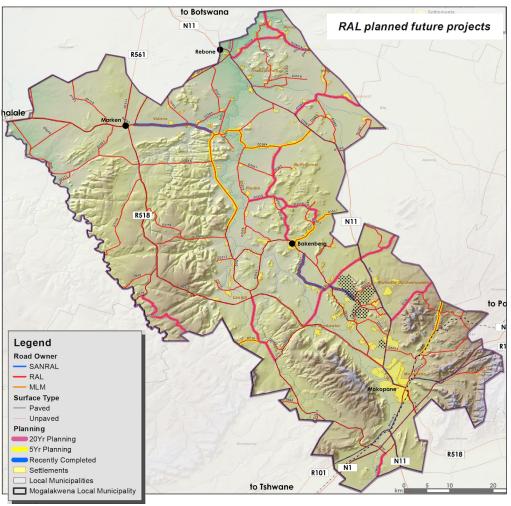
The image below indicates the Average Annual Daily Traffic (AADT - the total traffic volume in a year, including school and public holidays and weekends, divided by 365) for 2014 in Mogalakwena (MLM Roads and Stormwater Masterplan, 2014). Although the information is relatively old, it still gives an indication of the patterns in the area. The highest traffic volumes are experienced on the highways (N1 and N11) and on the R101 with more than 7 000 vehicles per day. Second most traffic is experienced on parts of the R518 and on Bakenberg Road.

Traffic congestion is the worst at the intersection of the N11 and the R518. The realignment of the N11 to bypass Mokopane town towards the N11, is expected to greatly alleviate this congestion.

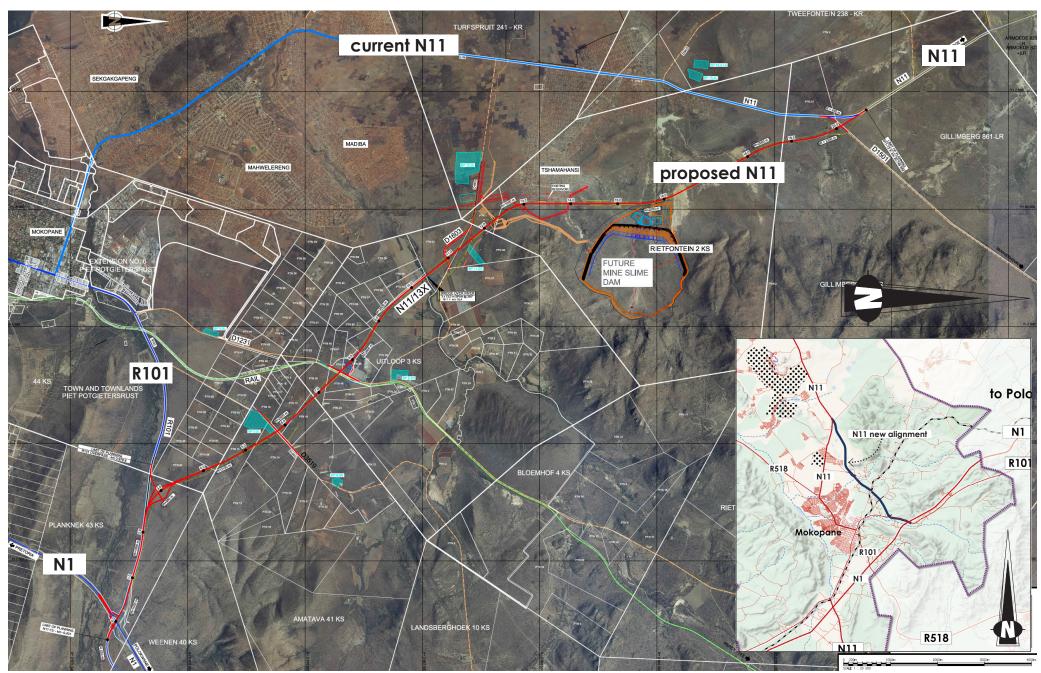


ROADS AUTHORITY LIMPOPO (RAL) PROJECTS

The image below identifies the projects proposed in 2014 to be implemented by RAL (MLM Roads and Stormwater Masterplan, 2014). The thick yellow lines indicate upgrading within a 5-year planning framework and include roads D3564, D3537, D921, and D710. The thick pink lines indicate upgrading within a 20-year planning framework. The realignment of the N11 (detail provided on the following page) is not indicated on this map as one of the projects.

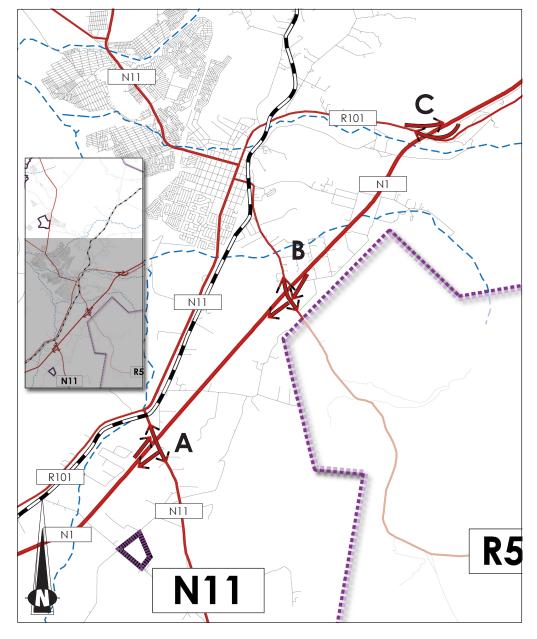


N11 ROAD REALIGNMENT



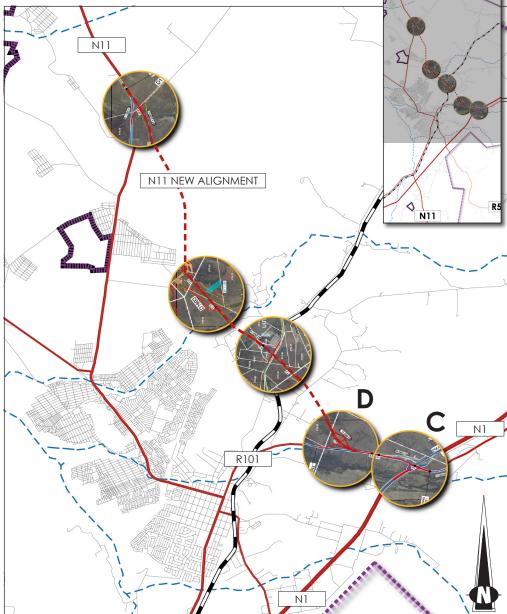
EXISTING INTERCHANGES ON THE N1

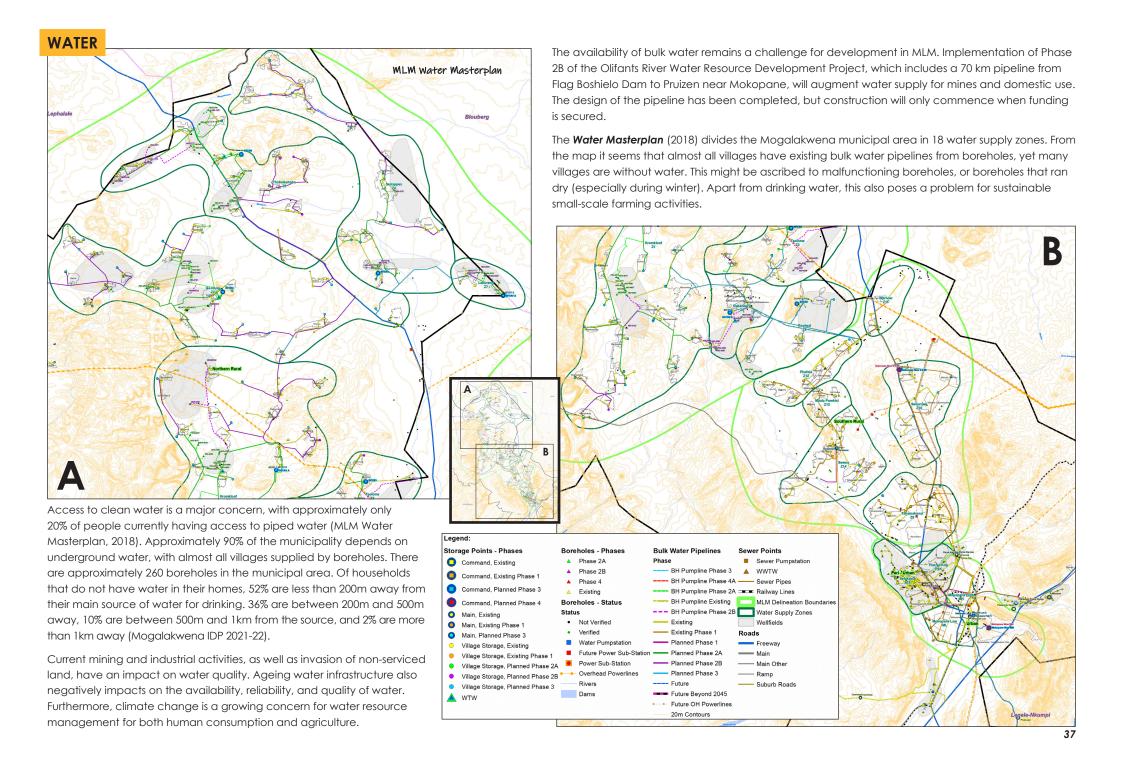
- A Offramp from south; Onramp towards south A Offramp from north; Onramp to north
- B Offramp from north; Onramp to south

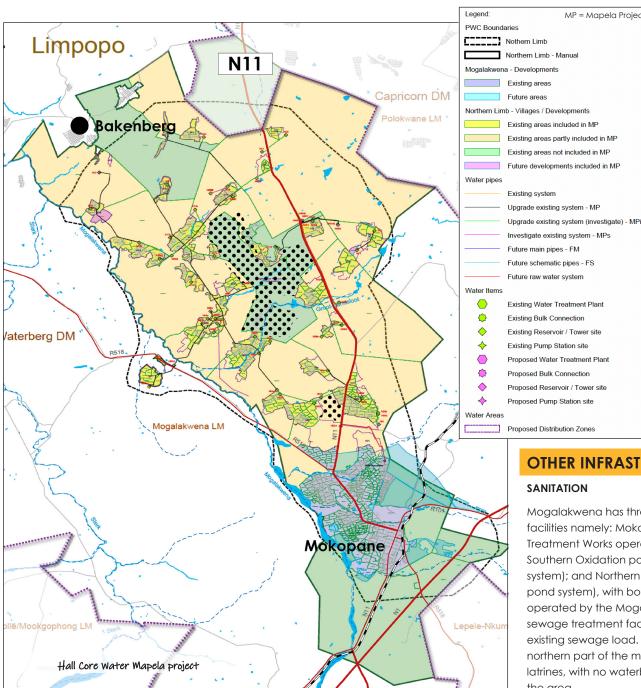


PROPOSED NEW ALIGNMENT AND INTERSECTIONS OF THE N11

There is a dire need for a bypass route like this - specifically for large vehicles. However, the current alignment is supported by some, whilst potential economic opportunities for others are hampered through this proposal. Further consultation is required.







Anglo American committed itself to a new Sustainability Strategy with the aim to reduce fresh water abstraction by 50% in water-scarce regions. Since 2018, Anglo American Platinum has been funding the Hall Core Water Mapela project to support the Mapela Traditional Authority in providing water to the area amidst ongoing water scarcity. The ultimate aim is to develop a sustainable plan for the region. Through the project, water supply capacity is increased through drilling, equipping and maintaining boreholes for a duration of 10 years. Communities hold a 30% stake through a trust and will, through a partnership with the mine, drive the implementation and maintenance of the project. Anglo American Platinum will pay for 3,5 million litres of potable water supplied to the communities. The extent of the project in Mogalakwena is indicated on the adjacent map.

Water Implications for MLM spatial planning:

- The growth in mining activities in the area, which goes hand in hand with population in-migration, is likely to place additional strain on the limited water resources. Through the involvement of other role players, the extension of the project to the northern part of Mogalakwena should be investigated. This would assist in establishing agency of communities in the conservation of water and the maintenance of water resources.
- It is critical that maintenance of infrastructure is systemically built into the longterm plans to prevent a situation where the municipality has to take responsibility for a project they have not been privy to.
- The option for prepaid water services is not currently available in non-proclaimed townships. The installation of prepaid water meters for all settlements, could be investigated.

OTHER INFRASTRUCTURE SERVICES

MP = Mapela Project

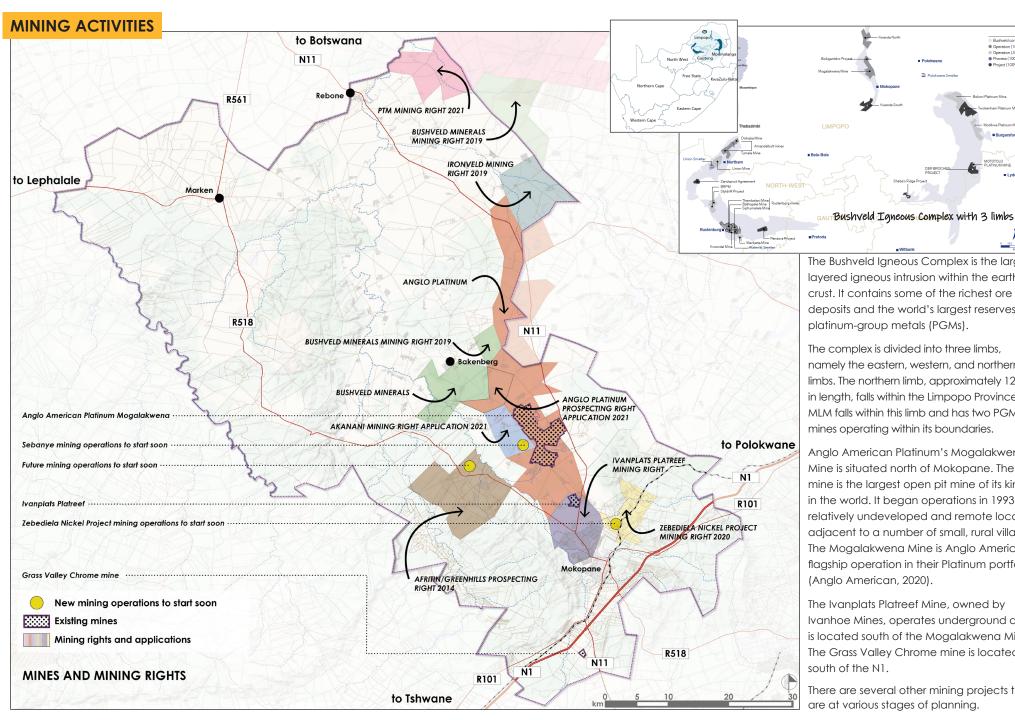
SANITATION

Mogalakwena has three waste water treatment facilities namely: Mokopane Waste Water Treatment Works operated by the municipality; Southern Oxidation pond (Sekgakgapeng pond system); and Northern Oxidation pond (Masodi pond system), with both pump transfer systems operated by the Mogalakwena mine. The existing sewage treatment facilities cannot cope with the existing sewage load. Almost all settlements in the northern part of the municipality make use of pit latrines, with no waterborne sewer systems serving the area.

WASTE MANAGEMENT

Mogalakwena has two landfill sites, namely at Mokopane and at Rebone. The remaining lifetime of the sites need to be reviewed. There is a lack of machinery to operate the Rebone site. Only 32% of households have access to refuse collection. Burning of waste is the most popular method of refuse removal. 57% of households use their own refuse dumps.





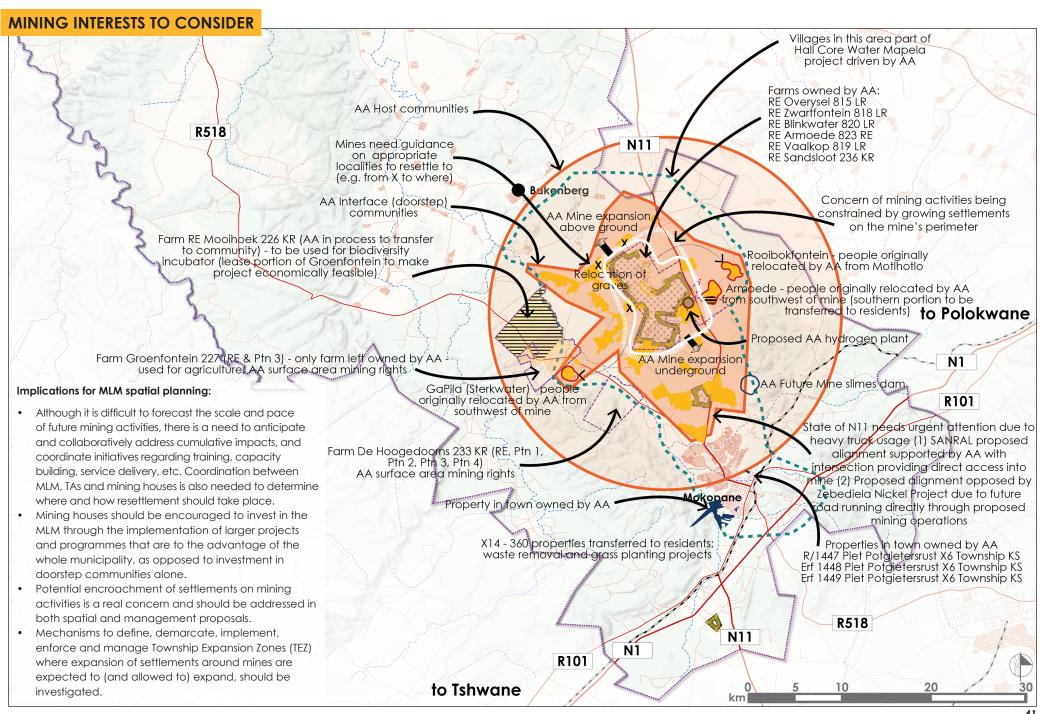
The Bushveld Igneous Complex is the largest layered igneous intrusion within the earth's crust. It contains some of the richest ore deposits and the world's largest reserves of platinum-group metals (PGMs).

The complex is divided into three limbs, namely the eastern, western, and northern, limbs. The northern limb, approximately 120km in length, falls within the Limpopo Province. MLM falls within this limb and has two PGM mines operating within its boundaries.

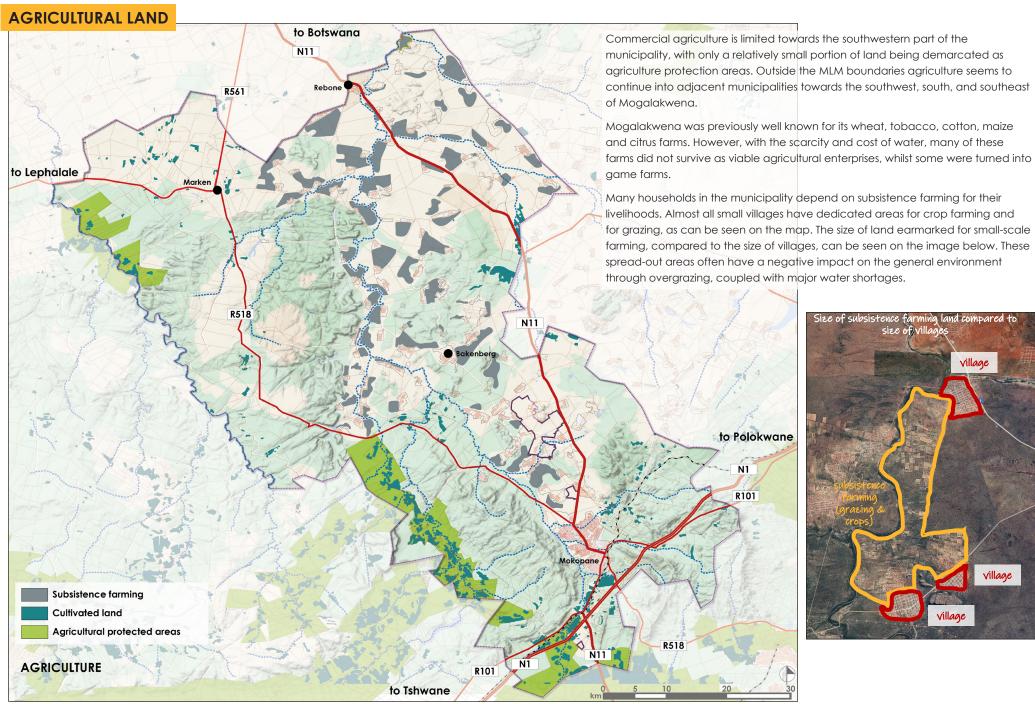
Anglo American Platinum's Mogalakwena Mine is situated north of Mokopane. The mine is the largest open pit mine of its kind in the world. It began operations in 1993 in a relatively undeveloped and remote location adjacent to a number of small, rural villages. The Mogalakwena Mine is Anglo American's flagship operation in their Platinum portfolio (Anglo American, 2020).

The Ivanplats Platreef Mine, owned by Ivanhoe Mines, operates underground and is located south of the Mogalakwena Mine. The Grass Valley Chrome mine is located south of the N1.

There are several other mining projects that are at various stages of planning.



3.5 A place of agriculture





AGRICULTURE AND CLIMATE CHANGE

There has been a steady loss of agricultural land due to mining, large residential developments, and PTOs for other uses.

Although erf sizes are insufficient for cattle farming, and often even for crop farming, TAs are concerned about the loss of communal farming land as more people want land in a specific village. Another problem that hampers development of agriculture is the lack of skills and other resources, as well as crop theft.

The shortage of land is more pronounced towards the south, with growing invasion of land around the mines, and expansion of the mines itself.

Sustainable small-scale farming is already hampered by a lack of sufficient water. The poorer northern part of the municipal area (mostly dependent on social grants and thus highly dependent on small-scale farming to supplement this income) is incidentally also the area with the lowest rainfall per year (see map from Waterberg District Environmental Management Framework). Apart from water scarcity, overgrazing, especially on communal grazing land, is another problem that causes degradation of land.

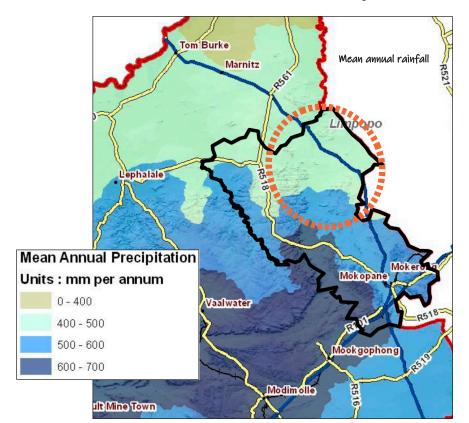
This situation is believed to worsen in light of climate change challenges. The implications of climate change could mean the following:

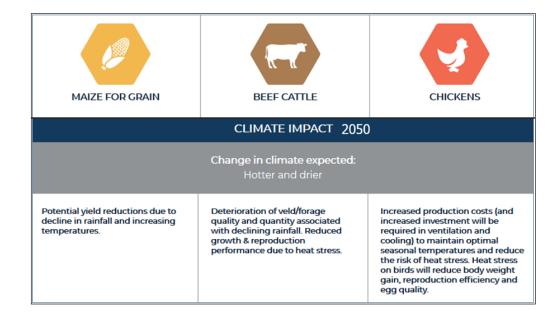
- Increase in very hot days.
- Increase in average temperatures by 2,11– 2,8 degrees.
- Extreme increase in Fire Danger days with sharp increase in associated wildfire events.
- Large percentage dependency on groundwater with a slight decrease in groundwater potential overall.

The image below indicates the potential climate change effects on the main agricultural commodities in Mogalakwena (Le Roux et al., 2019). Less water, lower rainfall and higher temperatures in places will likely impact on agriculture practices, with a potential decline in yield and possibly requiring more infrastructure such as shade netting and ventilation.

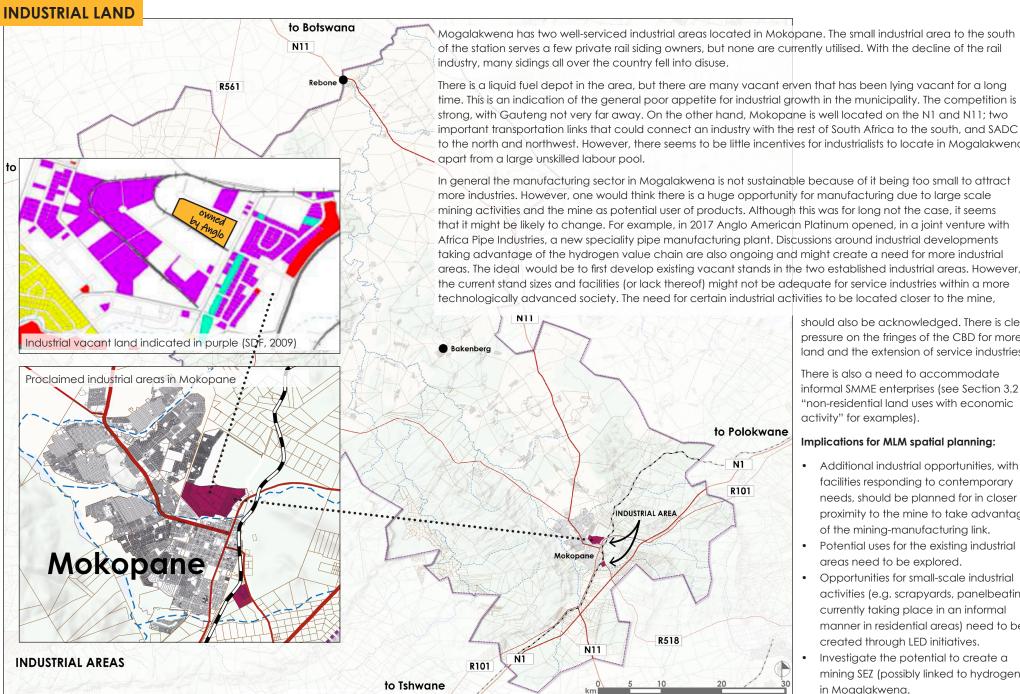
Maize is a regional staple food. Climate changes with heat stress could negatively affect production. Cattle production could be harmed by future heat stress leading to reduced growth / reproduction. Chickens are raised in large growing structures – heat stress would require better ventilation and cooling. If not controlled heat stress could negatively affect bird growth, reproductive efficiency and egg quality.

If climate change is not mitigated, the economic loss could be between 38% and 41% in this sector.









strong, with Gauteng not very far away. On the other hand, Mokopane is well located on the N1 and N11; two important transportation links that could connect an industry with the rest of South Africa to the south, and SADC to the north and northwest. However, there seems to be little incentives for industrialists to locate in Mogalakwena,

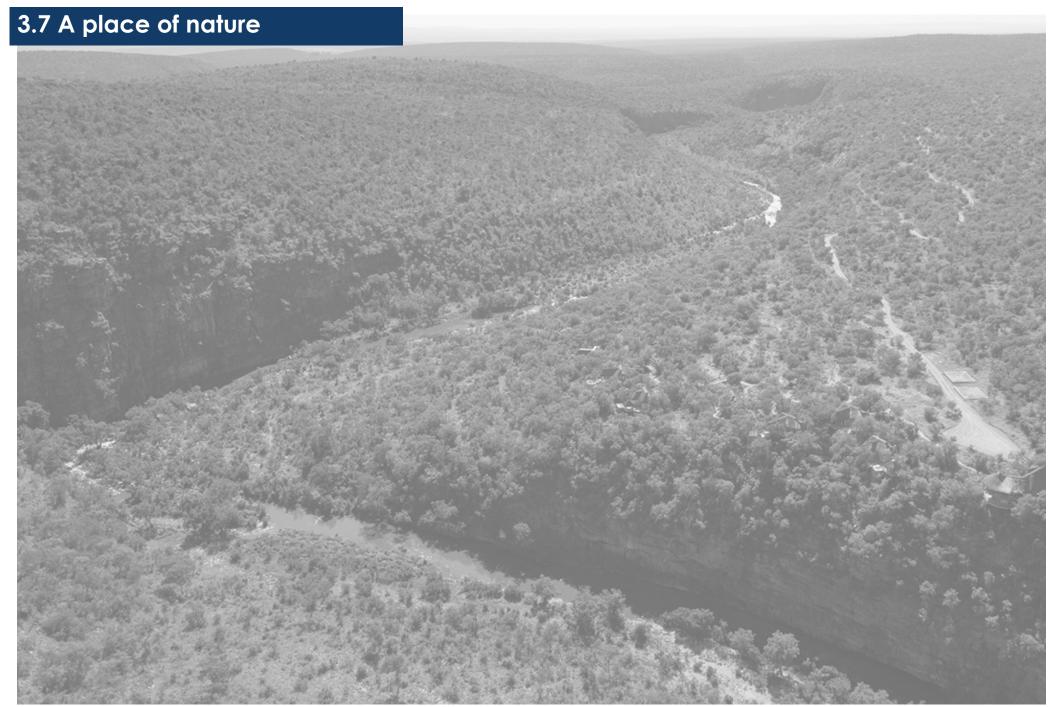
In general the manufacturing sector in Mogalakwena is not sustainable because of it being too small to attract more industries. However, one would think there is a huge opportunity for manufacturing due to large scale mining activities and the mine as potential user of products. Although this was for long not the case, it seems that it might be likely to change. For example, in 2017 Anglo American Platinum opened, in a joint venture with Africa Pipe Industries, a new speciality pipe manufacturing plant. Discussions around industrial developments taking advantage of the hydrogen value chain are also ongoing and might create a need for more industrial areas. The ideal would be to first develop existing vacant stands in the two established industrial areas. However, the current stand sizes and facilities (or lack thereof) might not be adequate for service industries within a more technologically advanced society. The need for certain industrial activities to be located closer to the mine,

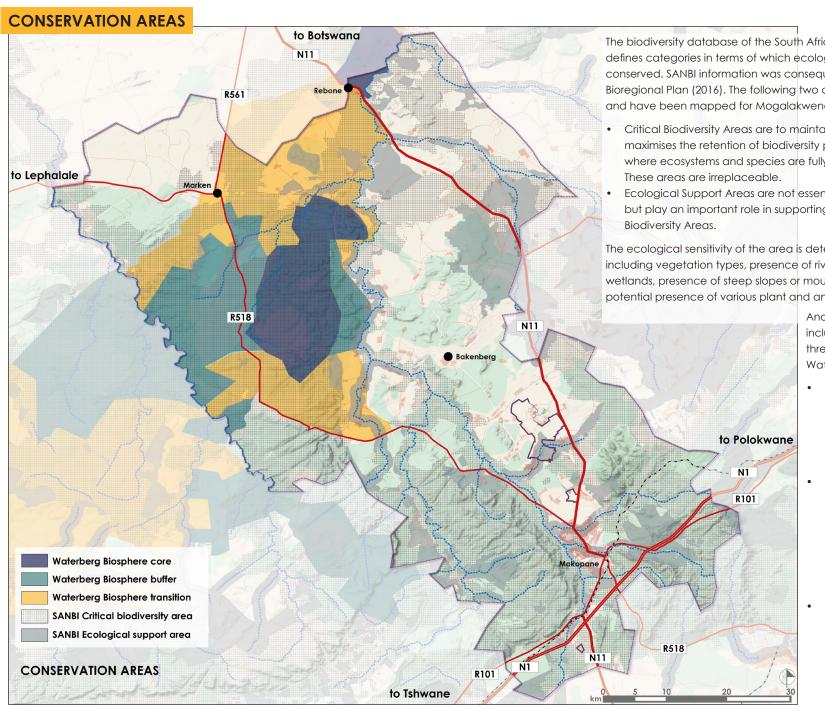
> should also be acknowledged. There is clear pressure on the fringes of the CBD for more land and the extension of service industries.

There is also a need to accommodate informal SMME enterprises (see Section 3.2 "non-residential land uses with economic activity" for examples).

Implications for MLM spatial planning:

- Additional industrial opportunities, with facilities responding to contemporary needs, should be planned for in closer proximity to the mine to take advantage of the mining-manufacturing link.
- Potential uses for the existing industrial areas need to be explored.
- Opportunities for small-scale industrial activities (e.g. scrapyards, panelbeating currently taking place in an informal manner in residential areas) need to be created through LED initiatives.
- Investigate the potential to create a mining SEZ (possibly linked to hydrogen) in Mogalakwena.





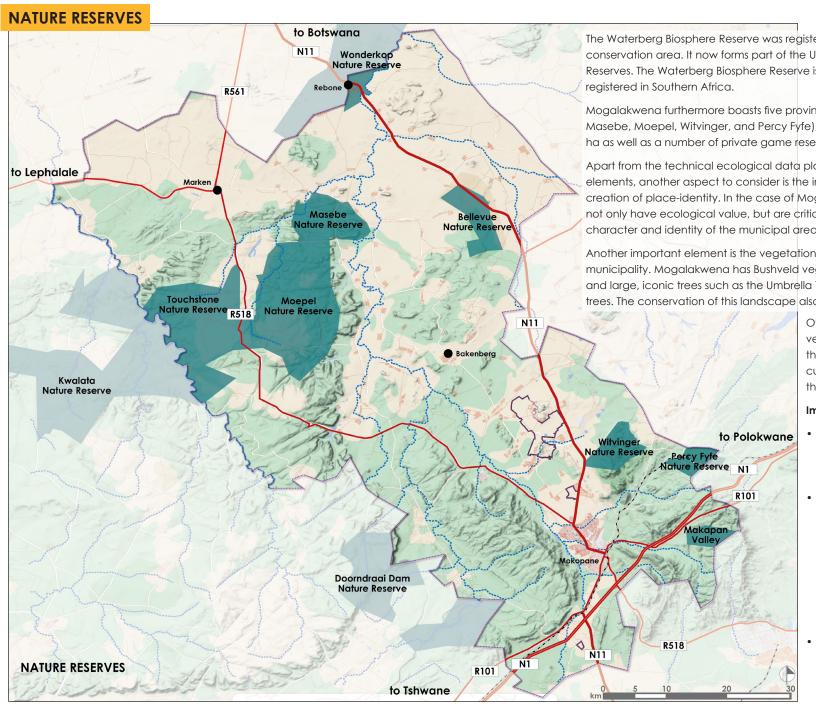
The biodiversity database of the South African National Biodiversity Institute (SANBI) defines categories in terms of which ecological significant areas need to be conserved. SANBI information was consequently included in the Waterberg District Bioregional Plan (2016). The following two categories are of specific importance and have been mapped for Mogalakwena:

- Critical Biodiversity Areas are to maintain a natural or near-natural state that maximises the retention of biodiversity patterns and ecological processes, where ecosystems and species are fully or largely intact and undisturbed.
- Ecological Support Areas are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of Critical

The ecological sensitivity of the area is determined by using a number of factors, including vegetation types, presence of rivers, streams, drainage lines and wetlands, presence of steep slopes or mountains, scenic landscape and the potential presence of various plant and animal species of conservation concern.

> Another layer has been added here, that included the mapping of the following three categories identified as part of the Waterberg Biosphere Reserve:

- Core Areas are formally protected areas and areas that need formal protection in the Waterberg Biosphere Reserve, with the aim to conserve biodiversity. Nondestructive research and low-impact uses are proposed.
- Buffer Zones surround or adjoin the Core Areas, and are predominantly natural or near-natural areas that are worthy of protection. These sites can be used for activities with sound ecological practices, including environmental education, recreation, eco-tourism, and applied and basic research.
- Transition Zones aim to retain the overall undisturbed character of the Waterberg Complex and may accommodate a variety of agricultural activities, settlements and other land uses in line with development guidelines to preserve the natural character.



The Waterberg Biosphere Reserve was registered in March 2001 as international conservation area. It now forms part of the UNESCO World Network of Biosphere Reserves. The Waterberg Biosphere Reserve is the first "savannah" biosphere reserve

Mogalakwena furthermore boasts five provincial nature reserves (Wonderkop, Masebe, Moepel, Witvinger, and Percy Fyfe), with a total size of approximately 55 500 ha as well as a number of private game reserves. All these need to be preserved.

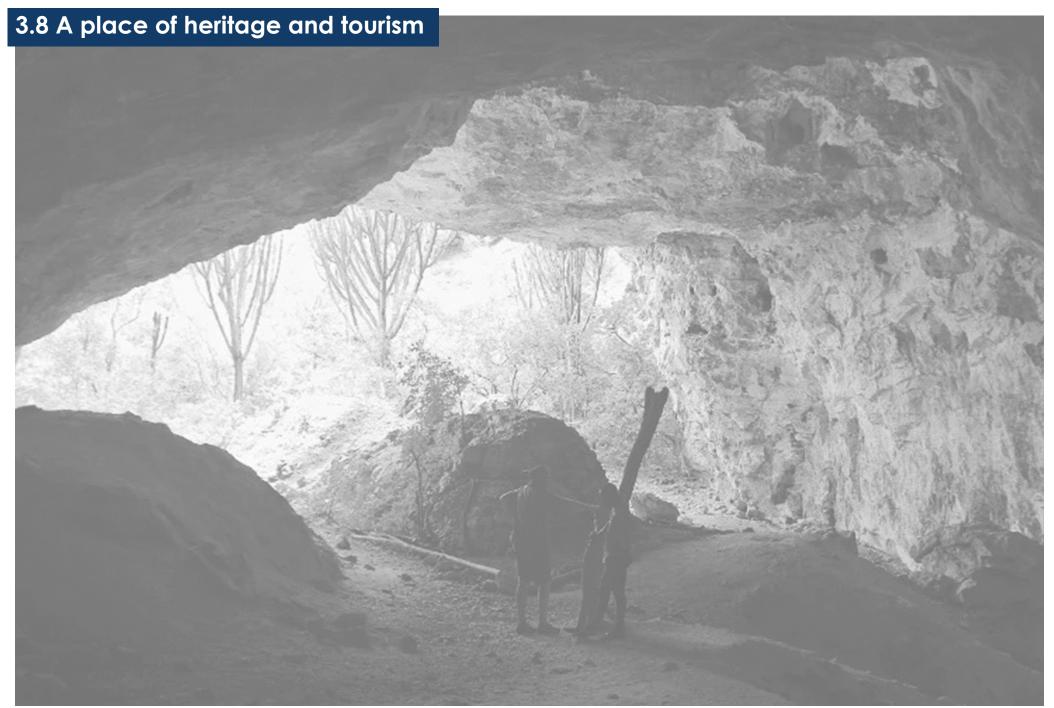
Apart from the technical ecological data playing a role in the conservation of natural elements, another aspect to consider is the importance of natural elements in the creation of place-identity. In the case of Mogalakwena, the mountains and rivers do not only have ecological value, but are critical in building and supporting the scenic character and identity of the municipal area.

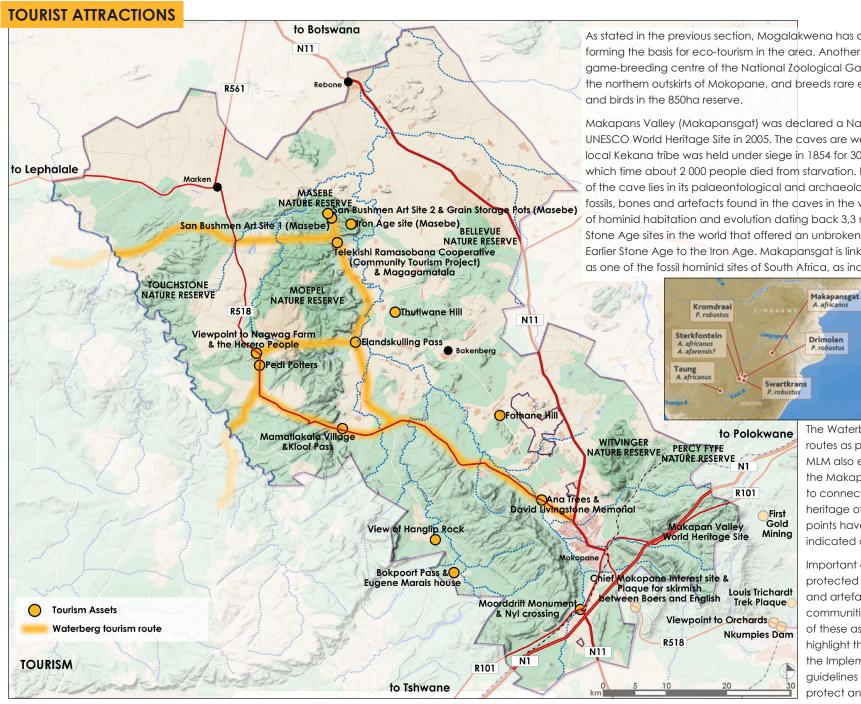
Another important element is the vegetation that supports the rural character of the municipality. Mogalakwena has Bushveld vegetation with dense shrub land, grasses, and large, iconic trees such as the Umbrella Thorn, Marula, Mopane and Baobab trees. The conservation of this landscape also needs to be prioritised.

> Over the last few years, the natural vegetation has degraded in many areas in the municipality due to urbanisation, mining, cultivation, and grazing (specifically also through overgrazing).

Implications for MLM spatial planning:

- Ensure protection of natural elements by drawing specific boundary lines between zones that need to be adhered to.
- Define a set of compatible land uses for each of the conservation zones. E.g. Witvinger is indicated as "protected area" in the Mogalakwena Land Use Scheme, but the scheme does not specify the uses (e.g. accommodation) that are allowed under this zoning. This needs to be addressed in the new scheme.
- Provide guidelines for developments and activities to ensure eco-sensitive design and management.





As stated in the previous section, Mogalakwena has a number of nature reserves forming the basis for eco-tourism in the area. Another main tourist attraction is the game-breeding centre of the National Zoological Gardens in Pretoria. It is located on the northern outskirts of Mokopane, and breeds rare exotic and indigenous animals

Makapans Valley (Makapansgat) was declared a National Heritage Site in 2002 and a UNESCO World Heritage Site in 2005. The caves are well known as the place where the local Kekana tribe was held under siege in 1854 for 30 days by the Voortrekkers, during which time about 2 000 people died from starvation. However, the real significance of the cave lies in its palaeontological and archaeological treasures. The sediments, fossils, bones and artefacts found in the caves in the valley preserve a unique record of hominid habitation and evolution dating back 3.3 million years. It is one of only two Stone Age sites in the world that offered an unbroken sequence of artefacts from the Earlier Stone Age to the Iron Age. Makapansgat is linked to the Cradle of Humankind as one of the fossil hominid sites of South Africa, as indicated on the image.

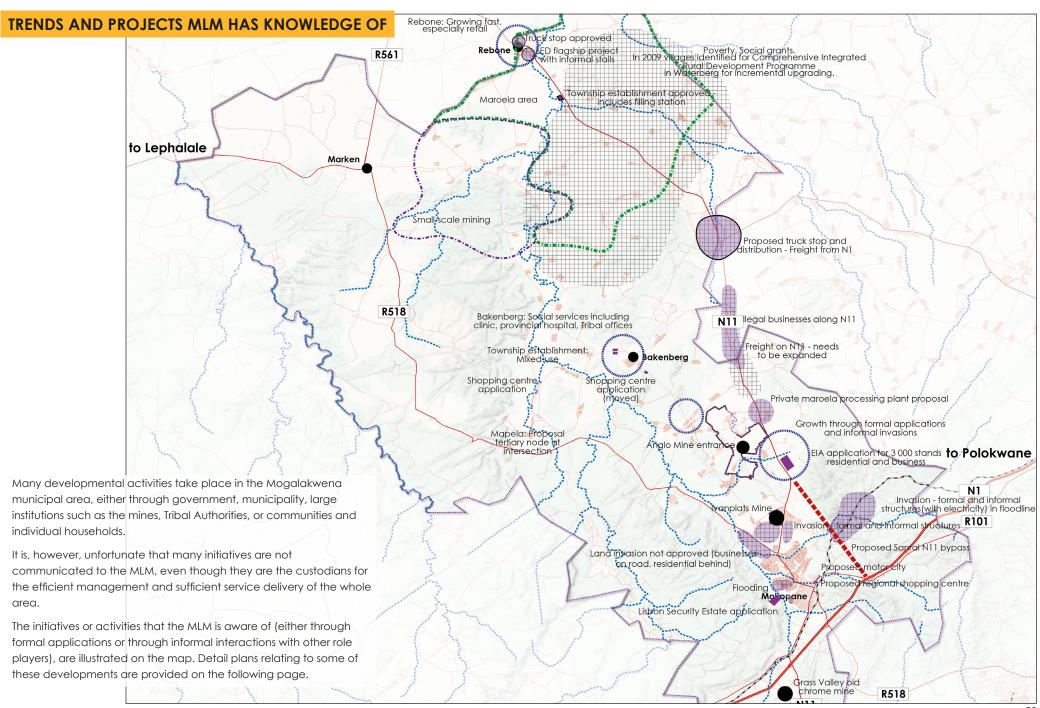
> Provincial Heritage Sites in MLM include the following:

- Ana Trees, Rietfontein
- Limeworks at Makapansgat, Mokopane
- Old Stone School, 97 Voortrekker Street, Mokopane

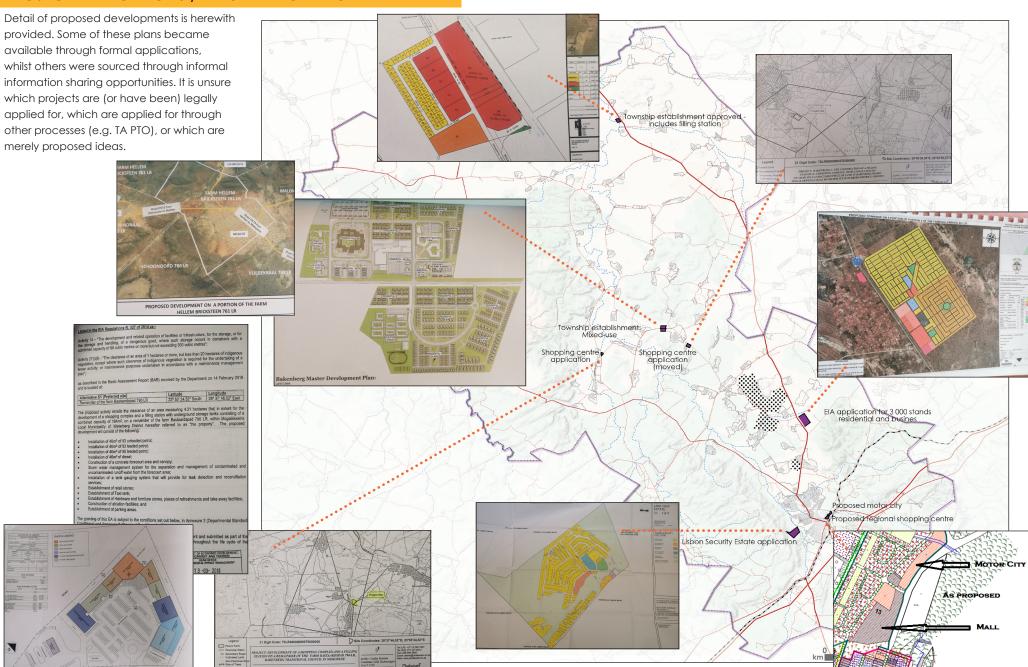
The Waterberg District SDF identifies tourism routes as part of the Waterberg Meander. MLM also embarked on a project to define the Makapan Heritage route with the aim to connect and expose the rich culture and heritage of the area. Many tourist attraction points have also been identified and are indicated on the map.

Important cultural assets that need to be protected include sacred sites, graveyards, and artefacts of various individual communities. The intent is not to map all of these as part of the SDF, but to merely highlight their importance and - as part of the Implementation Framework - to provide guidelines to communities on how to protect and conserve these sites.





PROJECT APPLICATIONS / INFORMATION RECEIVED BY MLM



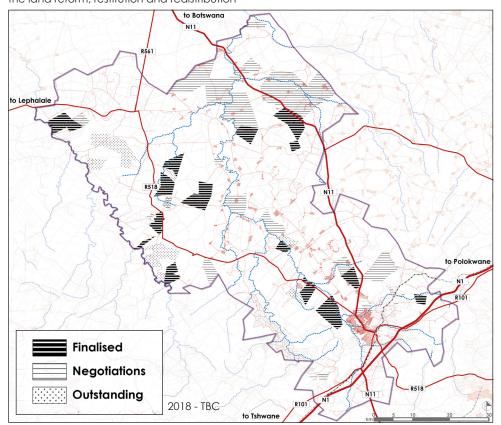
LAND CLAIMS

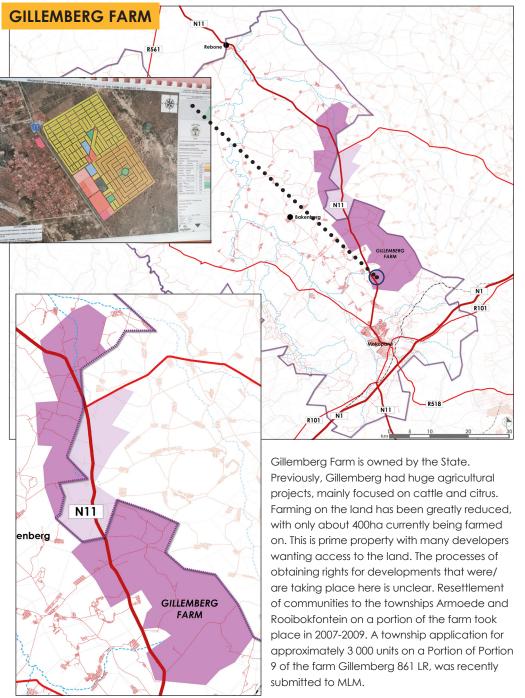
Land claims often bring uncertainty regarding the future development of land. Properties subject to land claims are indicated on the map. Since many of these are in TA areas, with land claims often not linked to an individual owner, no specific planning proposals are required. The claims within ecologically sensitive and conservation areas should, however, be carefully considered.

In some cases land is issued to Community Property Associations (CPAs). CPAs are landholding institutions established under the Communal Property Associations Act, Act 28 of 1996 (the CPA Act). Beneficiaries of the land reform, restitution and redistribution programmes who want to acquire, hold and manage land as a group can establish legal entities to do so. CPAs report directly to the Department of Agriculture, Rural Development and Land Reform (DARDLR).

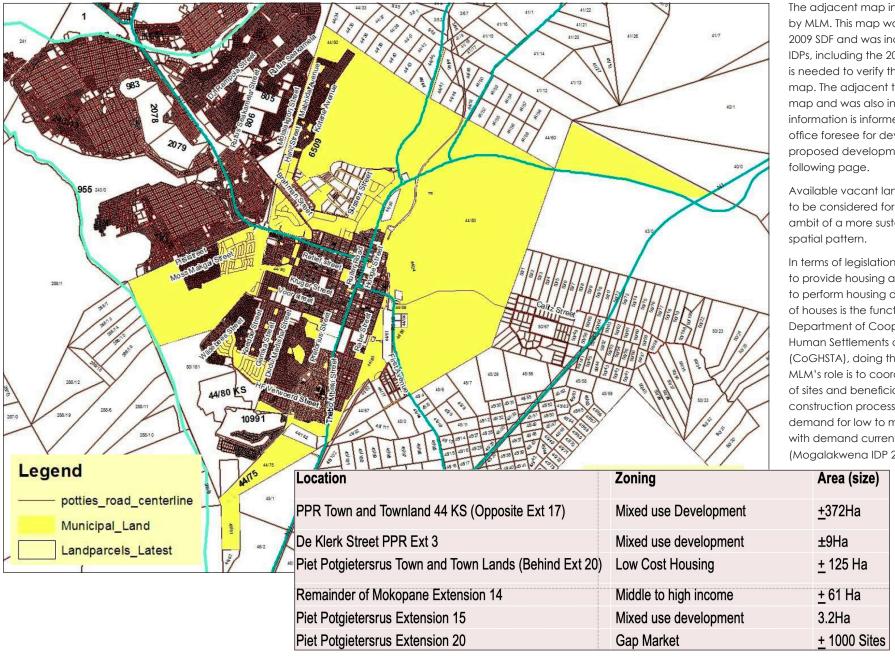
A CPA receives a title deed, with the land not being subject to the rules of a TA within which the property is located (e.g. the farm Wenen in Zebediela falls in a tribal area, but is owned by a CPA).

More detail on CPAs in the Mogalakwena municipal area, and their impact on spatial planning needs to be obtained.





MLM MUNICIPAL-OWNED LAND



The adjacent map indicates land owned by MLM. This map was first presented in the 2009 SDF and was included in all subsequent IDPs, including the 2021/22 IDP. A land audit is needed to verify the information on the map. The adjacent table goes along with the map and was also included since 2009. The information is informed by what the planning office foresee for development. An update on proposed developments is provided on the following page.

Available vacant land owned by MLM needs to be considered for development within the ambit of a more sustainable, concentrated spatial pattern.

In terms of legislation, MLM has no authority to provide housing and is not accredited to perform housing delivery. The provision of houses is the function of the provincial Department of Cooperative Governance, Human Settlements and Traditional Affairs (CoGHSTA), doing the allocation of housing. MLM's role is to coordinate the identification of sites and beneficiaries, and to monitor the construction process of houses. There is a high demand for low to middle income housing, with demand currently exceeding supply (Mogalakwena IDP 2021/22).

The table is included in the IDP as potential properties for housing development.

Updated information on these properties are provided on the following page.

PROPOSED LAND FOR HOUSING DEVELOPMENTS

The following properties are identified as potential land for residential developments within Mokopane.

A - PIET POTGIETERSRUS TOWN AND TOWNLANDS 44 KS (opposite X17)

 CoGHSTA planned to develop this site, but development activities were terminated due to the application of two companies with prospecting rights for the upgrade to full mining rights. An area to the north of this site (X21 and X22) was identified.

B - DE KLERK STREET PIET POTGIETERSRUS X3

- Size: 9 ha
- Identified as option for relocation of 350 households.
- Developability due to conservation along river is questionable.



C - PIET POTGIETERSRUS TOWN AND TOWNLANDS 44 KS (behind X20)

- Size:125 ha
- Invasion of land started in 2016. Court order was granted and people were evicted. Land was invaded again. People staying for too long to be legally evicted at this stage. Formalisation of settlement is considered.

D - REMAINDER OF MOKOPANE X14

- Size: 61 ha
- Proclaimed township.
- Roads, but no other services.
- Partly RDP houses; partly mine houses.
- Proclaimed stand sizes too large for grants for distressed mining towns - to subdivide.

E - PIET POTGIETERSRUS X15

- Size: 77 ha
- Land invasion; people evicted in 2019.
- Existing layout from 1980s proclaimed industrial township.
- Roads, but no other services.
- Earmarked for replanning (consolidation, division in line with a new layout, and rezoning) for business and housing.
- Provision of infrastructure services already budgeted for.
- Considering development with grants for distressed mining towns.

F - PIET POTGIETERSRUS X20

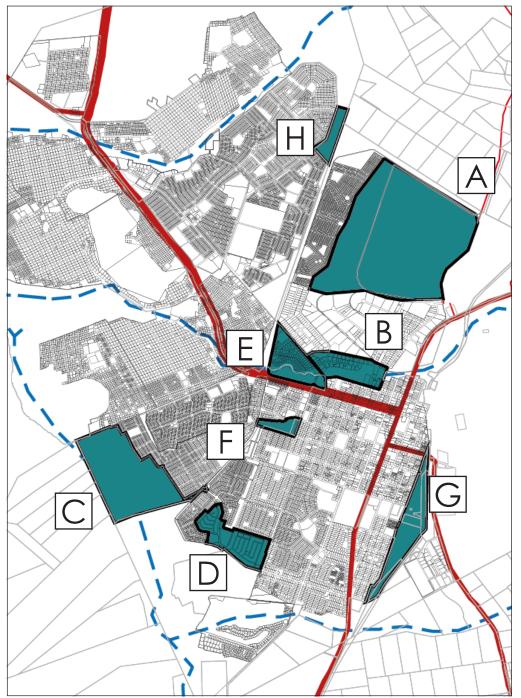
- Existing proclaimed township, but no houses being built.
- Land invaded, but people evicted.
- No roads or electricity.
- Eastern portion of land with no layout.

G - REMAINDER OF PORTION 80 (Faure Street)

- Size: 93 ha
- Developer owns school wants to develop tertiary education facility with accommodation.

H - PORTION OF REMAINDER MAKALAKASKOP

- Option for relocation of 350 households.
- CoGHSTA planned to develop, but uncertainty about ownership (state land under Mokopane TA).



IMPACT OF MINING ON SETTLEMENT GROWTH

IN-MIGRATION OF PEOPLE

One of the consequences of the mine being located in the area, is the in-migration of people for the perceived, or real, benefit of opportunities created by the mine. This is referred to as site-induced migration. The Mogalakwena Site-induced Migration Assessment (2022) study by Anglo American Platinum defines site-induced migration as "the movement of people into or out of an area in anticipation of, or in response to, real or perceived opportunities associated with a site. This includes people moving into the area (i.e. in-migrants) looking to benefit in terms of (direct and indirect) employment and/or community and socio-economic development (SED) initiatives and other site activities, such as resettlement (e.g. to obtain resettlement benefits and compensation)".

This led to the terms, "host communities" and "doorstep communities", being used. A host community is in the area of influence of the mine, but not immediately next to the mine, whilst a doorstep community is located next to, or in close proximity of, the mine. In-migration of people into these villages contributes to accelerated growth of the population around the mine.

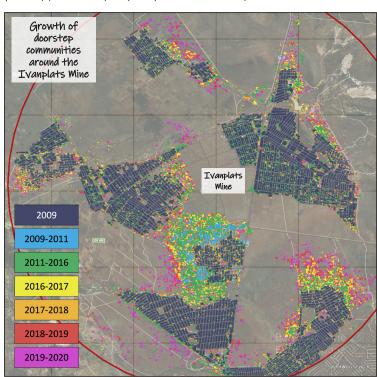
The following illustrates population growth around the Ivanplats and the Mogalakwena mines. Doorstep communities within the Area of Influence (AoI) of the Mogalakwena mine is listed in the table (Mogalakwena Site-induced Migration Assessment, 2022). In the 2016 financial year Anglo American Platinum spent company-wide R263 million on Social and Labour Plan projects. Approximately 25% of this amount was directed towards the mining affected communities in and around the Mogalakwena Mine (www. angloamericanplatinum.com).

Aol = Area of influence

Doorstep Communities (Area 1) in the Aol				
Mapela TA				
Ga-Pila (Lekiteng)	Phafola	Skimming-Leruleng		
Ga-Sekhaolelo (Armoede)	Danisane	Sekuruwe		
Mashahleng/ Ga-Lebelo	Matopa	Mesopotamia		
Ga-Chaba	Ga-Puka (Rooibokfontein)	Sterkwater		
Ga-Molekane	Hans Masenya	Ga-Matlou		
Ga-Chokoe	Ga-Seema	Ga-Lelaka		
Mokopane TA				
Machikiri	Ga-Mokaba Sandsloot Mabusela/ Polots			
Sandsloot Masenya	Leleso			

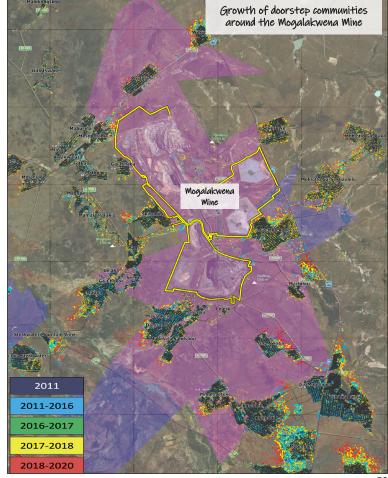
According to studies by Anglo American, the population growth rate in the villages around Mogalakwena Mine seems to be as high as 4,5% year-on-year since 2011, compared to 1,4% for the rest of the municipality over the same period. In some locations, mine-induced migration seems to experience growth rates as high as 8%/year.

The extent of village settlements and growth of doorstep communities (over approximately 10 years) around the Ivanplats Mine and the



Mogalakwena Mine are illustrated through aerial imagery of the area.

There is an estimate of approximately 95 000 people living in the doorstep settlements of Mogalakwena Mine. The fact that the mine employs less than 2 000 people, might indicate that, at household level, it is not only the perception of job opportunities that attract people, but probably even more so that direct investments of the mine (through resettlement of individuals, or through projects in communities) attract people to the area and contribute to the in-migration. The



Migration Assessment supports this by stating that "most migrants are from the wider MLM and Waterberg District". Many settlements in the vicinity of mines became "'honey pots' that are attracting local residents from surrounding villages in search of employment opportunities close to the mine, mine-related SED projects and for better service provision".

It can thus be argued that even in the face of mechanisation and reduced employment opportunities (see text box), in-migration would continue due to other benefits.

A main concern for any mine is that the mine becomes physically surrounded by unplanned and disorderly settlements characterised by poverty, poor health, low levels of human capital, an inability to access employment, or lack of business opportunities. This might impact on resilience through unrests where agitators can control access into and out of the mine in an attempt to leverage economic advantages. This might lead to employees not being able to travel to work, and the mine eventually being forced to shut down.

DISPLACEMENT AND RESETTLEMENT

Expansion of a mine and an increased footprint over time, often lead to various displacements of communities, both physical and economic. According to the Migration Assessment (2022) study, the following displacements, due to the Mogalakwena Mine, took place since 1993:

- 1993 Economic displacement of Sekuruwe due to restricted access to agricultural and grazing land to accommodate the Blinkwater 1 Tailings Storage Facility (TSF).
- 1993 Economic displacement of GaMolekane due to restricted access to agricultural and grazing land to accommodate the Mogalakwena South Concentrator (MSC) and return water dam.
- 1993 Economic displacement of GaTshaba due to restricted access to agricultural and grazing land to accommodate the North Pit.
- 2001 Physical resettlement of GaPila (706 households) to Sterkwater 229 farm to make way for the Sandsloot pit. The resettlement process involved the construction of replacement houses, along with roads, bulk infrastructure, 8 shops, 2 churches, 2 schools, a clinic and a créche, and involved the provision of replacement agricultural land on the farm.
- 2007 to 2009 Physical resettlement of Motlhotlo (GaSekhaolelo and GaPuka), consisting of 957 households to make way for the Vaalkop TSF and the Mogalakwena North Concentrator (MNC). The villages were resettled to Armoede (GaSekhaolelo) and Rooibokfontein (GaPuka).
- 2018 (with relocation of the last remaining households still ongoing in 2022) - Physical resettlement of the remaining Motlhotlo

- households (63), to make way for dumping. The households were resettled to Extension 14A on the outskirts of Mokopane.

 The process involved the provision of replacement agricultural land on the farms Tobias Zyn Loop 339 KR and Klipfontein 322 KR.
- Planning for the physical resettlement of households from Skimming and Leruleng commenced in December 2021. A number of relocation sites are investigated.

As mining activities expand, mining companies look for appropriate land for resettlement. Where these resettlements take place, has a huge impact on the spatial pattern of the municipality. Furthermore it has a wide-spread impact on the MLM, specifically in relation to urban management and service delivery.

Against the backdrop that mines are increasingly mechanised, the number of employment opportunities is decreasing. This often goes hand in hand with increased productivity. This correlation is explained in simple terms in Daily Maverick (The lost platinum sector jobs are not coming back, 24 October 2019) as quoted below.

"In addition to drastically reducing operating costs, the productivity increase is substantial. At Anglo Platinum's Amandelbult Mine, the operation employs just over 14,000 workers and averages an output of 50 ounces per person, per annum. Comparatively, at the firm's mechanised Mogalakwena operation, it employs just 1,800 workers and averages an output 600 ounces per person, per annum. The mechanised operation requires just one-eighth of the workforce, while production has gone up more than eleven-fold per worker employed. ...

There is an illusion that mining's share of employment will rebound when the next commodity boom commences. However, after spending years studying the platinum sector, both underground and above ground, one thing is clear: the pre-mechanisation employment share will never return. Sure, maybe Anglo Platinum's Twickenham Mine may return from being on care and maintenance – but it will probably require less than a thousand workers, rather than 15,000, and will be powered by machines run by a small number of engineers, rather than blasters. ...

Rather than guilt-tripping firms to subsidise social protection, the government needs to play a key role in transforming the human capital landscape. There are two tangible efforts that can be supported – improving educational outcomes for communities around the mine and strengthening the workforce that will be retrenched due to low profitability and increased mechanisation."

(Daily Maverick - The lost platinum sector jobs are not coming back, 24 October 2019)

MAJOR INITIATIVES

INDUSTRY INITIATIVES: IMPACT CATALYST

Through active partnerships between mining companies, industry and government, significant investment is taking place in support of sustainable development in Mogalakwena. One of these partnerships in support of the Premier's Employment Growth Advisory Council (PEGAC), is the Impact Catalyst initiative where Anglo American, Exarro, the CSIR, World Vision South Africa, Ivanhoe, and other companies collaborate with government on a range of initiatives to drive change and

contribute to thriving communities and new economies. See www.impactcatalyst.co.za for more information.

These initiatives are selected for impact beyond the scale of individual participants, and are additional to Social and Labour Plans (SLPs) or Socio-Economic Development (SED) projects by mining companies in communities directly adjacent to mines.

With this collaborative regional development approach, initiatives are aimed at regional

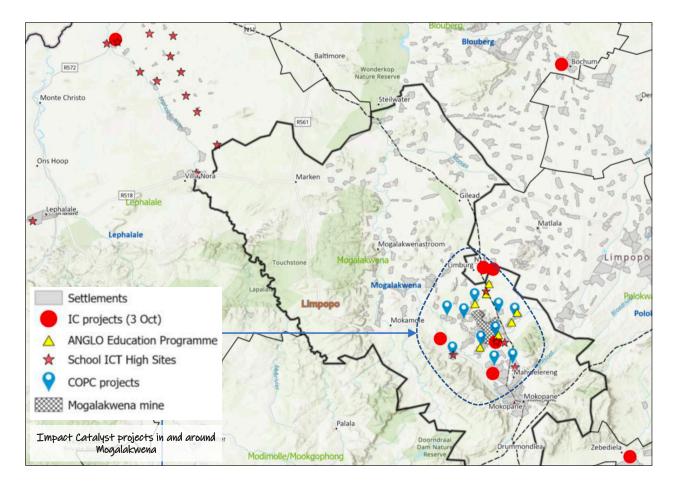
and municipal scale development and span integrated game farming, agriculture, agroprocessing and biofuels, waste recycling, as well as social project opportunities on community health, supplier development, road safety, and school ICT programmes.

In addition to regional scale projects, a number of location specific projects are clustered in the south of Mogalakwena, with a significant footprint around Mogalakwena Mine, as indicated on the map.

HYDROGEN VALLEY

In the presence of large mines, it is not uncommon that large projects with potential huge impacts on the bigger area are embarked upon. One of these projects that should be taken note of is the establishment of a hydrogen plant next to the N11 southeast of the mine. A larger initiative is, however, on the cards. The Department of Science and Innovation (DSI), in partnership with Anglo-American, Bambili Energy and ENGIE, are looking into opportunities to transform the Bushveld complex and larger region around Johannesburg, Mogalakwena and Durban into a Hydrogen Valley (South Africa Hydrogen Valley Final Report, October 2021 - https:// www.dst.gov.za).

According to the report "Mogalakwena/ Limpopo is positioned as the mining hub, with 90% of its nearly 40 kt of H2 demand driven by possible demand from mining trucks across the region's mines. The flagship Limpopo Science and Technology Park will also provide demand for fuel cells to power its building stock." The initial objective is to produce hydrogen as feedstock for fuel cells to power mining trucks.





4.1 Spatial principles

From the analysis, three main spatial challenges emerged. Each of these directs spatial thinking towards a spatial principle that should assist in guiding planning towards a desired spatial structure.

These are set out below. The SPLUMA principles of justice, sustainability, efficiency, resilience, and good administration, are not merely included as a formality in the document, but formed an integral part of the thought process of devising the spatial principles for Mogalakwena. The SPLUMA principles will thus, inter alia, be supported through the proposed structure.

Spatial challenge	Spatial principle	Spatial structuring elements
Development is, almost haphazardly, spread out through the municipal area. This hinders the functional and cost-effective provision of infrastructure services.	consolidate and concentrate	Some places are identified as nodes and focal points for activity. New developments or interventions should be guided towards these nodes. Consolidation and concentration of development could support more effective service delivery to the benefit of more people. Nodes can either have a focus on community services, or can have purely an economic focus. This has implications for growth and where new developments should be allowed to happen.
Development is fragmented with larger establishments functioning like "islands", settlements having poor access to main roads, and poor connectivity between settlements.	connect	Existing main roads are supported in linking Mogalakwena to the bigger region. These routes are identified as drivers, either for economic development, or for another value-adding function. Access from main routes to identified nodes should be improved and connectivity between smaller places and bigger nodes should be addressed.
Unique characteristics and distinct assets and resources of different areas are often disregarded, with any type of development emerging anywhere, either approved through legal processes, or permitted through semi-official processes, or merely taking place through organic processes.	diversify	Through the protection of different character/management zones, the integrity of different resources offered by different areas could be protected. The identification of zones would be based on existing activities (and challenges), and desired activities and developments that could add value in supporting the "shared assets" of a specific zone. This would create an opportunity for context-specific management and area-specific development guidelines to guide future growth preferences.

4.2 Spatial vision

We, the people of Mogalakwena, see a future where we live in a progressive African place where urban and rural areas are interdependent and equally important to the success of our region. We see ourselves living in a place where we feel safe and at home and where we have opportunities to improve our lives. We acknowledge our responsibility as custodians of assets of importance to the development of the nation and future generations.

We see a future Mogalakweng where:

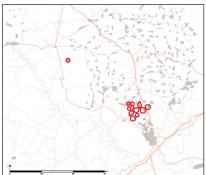
- Mokopane plays an important role in the region, where people come to from across Limpopo to experience, meet, learn, invest, and shop. Mokopane is also the main town that serves a range of mines and downstream and upstream businesses with skills, merchandise, logistics and others services.
- Large-scale and high-impact investments are concentrated in identified areas and nodes with economic potential.
- Vibrant villages have a unique rural character where people can live, work, farm and holiday. Our homely villages have adequate services and are connected with each other, with Mokopane, and with other nodes in the region.
- Areas earmarked for environmental or heritage protection or for future resource extraction are agreed on by everyone and respected as "no-go" areas.

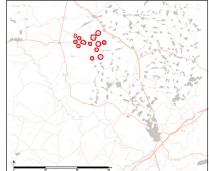
- Mogalakwena - National assets. Rural settlements. Resilient people.

4.3 Spatial concept

THE BEADS-ANALOGY IN MOGALAKWENA

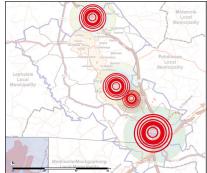
When applying the analogy of the beads (as explained in Section 1) to Mogalakwena, it is clear that the existing structure is fragmented with a sprawling pattern of isolated, clustered, and dispersed beads scattered through the Mogalakwena area. Linkages are limited, disconnected and of poor quality.





When considering both the Waterberg District Municipality SDF, and the MLM 2017/18 SDF, it is clear that the emphasis and existing focus is on a few pearls, with limited reference to linkages connecting these pearls. These plans thus propose a one-dimensional structure with no attention given to supporting beads.

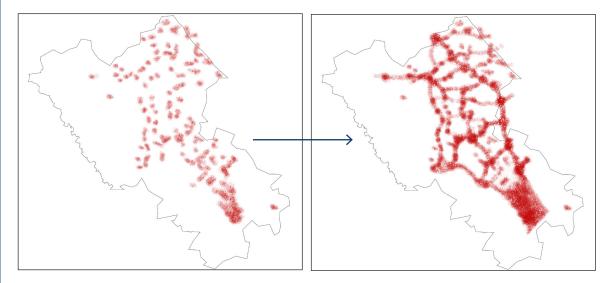




FROM FRAGMENTED AND SPRAWLING TO SMART GROWTH

Given the fragmented spatial pattern and planned spatial structure focusing on a few nodes, it is evident that restructuring of Mogalakwena is critical. It is proposed that the spatial structure is steered from a sprawling pattern to a smart growth structure. In this structure, beads should be conceptualised as mixed-use concentration nodes and strings should be conceptualised as mixed-use linkages and economic drivers.

Through this, investments and interventions of all role players could be aligned within space and time, focussing on agreed priority nodes and linkages.

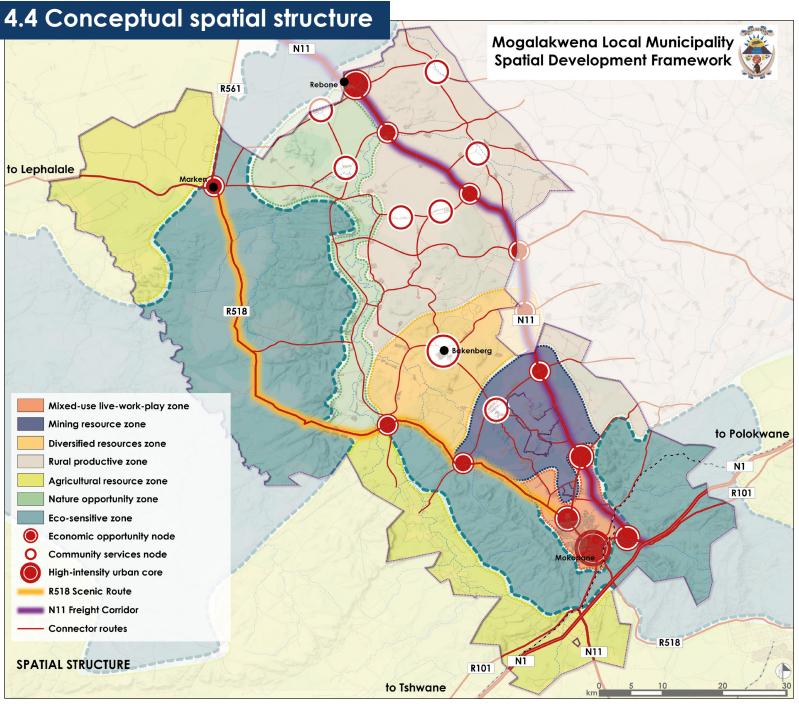


SPATIAL STRUCTURING ELEMENTS USED IN THE CONCEPTUAL SPATIAL STRUCTURE OF MOGALAKWENA

The following spatial structuring elements were used:

- Nodes (points/beads): Places where people, transportation routes, and activities come together and
 intersect. Specifically in the case of community service nodes, these should be transit-oriented and
 pedestrian-friendly, with high concentrations of people and activities, and a diversity of residential,
 employment, retail and other uses.
- Routes (lines/strings): Important transportation routes that attract activity and connect the nodes. Where
 transit routes cut through a node, street-oriented, pedestrian-friendly mixed uses should be located along
 the road
- Areas as contextual intervention zones with different developmental characteristics and different role players.

The components of the spatial structure are described on the following pages, followed by a map of the combined conceptual spatial structure.

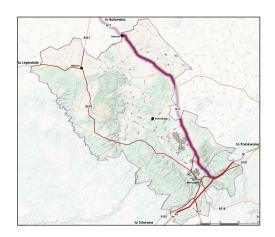


The conceptual spatial structure comprises the following spatial structuring elements:

- Nodes: Urban core, Community service nodes, Economic-opportunity nodes;
- Routes: N11 Freight corridor, R518 Scenic route, Connector routes; and
- Areas: 7 Character zones.

Each of these are described in more detail on the following pages.

As part of the SDF Implementation
Framework, the appropriate land uses (and applicable guidelines) within each node, along each route and within each zone will be identified and described. The legal application of these uses will take effect in the new land-use scheme to be drafted.



N11 FREIGHT CORRIDOR

Rationale

The N11 is a critical national transport route, a major access route for the mines, and is also seen as a potential economic lifeline for the municipality. The main function as freight route should be protected and will further be strengthened through the realignment of the N11 towards the N1.

Implications

In order to protect the function as mobility route with an emphasis on freight, it is important to carefully consider where and what type of developments need to be allowed along the route. For instance, residential areas with a boundary right on the road reserve might contribute to people entering their erven directly from the N11, thus hampering mobility on the main route. Commercial developments are proposed to be developed in nodes along the route. Compatible land uses with development guidelines need to be defined in order to protect the function of this road.



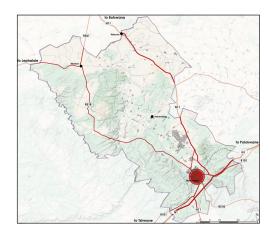
R518 SCENIC ROUTE

Rationale

The R518 has a slower speed, with less heavy traffic, and less traffic in general. The alignment of this road passing rural areas, and winding through the mountains, makes it ideal for a scenic route that is also linked to tourism assets in this vicinity.

Implications

To protect the character of this route, compatible land uses with development guidelines need to be defined in order to support development along the route that will contribute to the character.



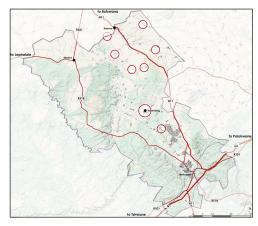
HIGH-INTENSITY URBAN CORE

Rationale

Mokopane CBD is still regarded as the main node and urban core of Mogalakwena Municipality. The node should be developed with the highest intensity of mixed uses, housing options, social services, economic opportunities, and access to employment.

Implications

Land uses such as industrial and manufacturing need to be promoted to support diversification. The establishment of other industrial developments throughout the municipality should be carefully considered in light of the many vacant properties in the industrial area of Mokopane. Yet, the potential for linkages between the mine and niche manufacturing opportunities close by should be investigated.



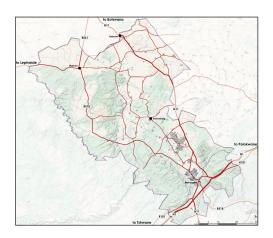
COMMUNITY SERVICES NODES

Rationale

There are nine TAs in the Mogalakwena Municipality. Each of these has a main village, often serving a few surrounding villages. In support of equal development, it is proposed that the main villages are identified as community nodes with a concentration of community facilities and economic opportunities serving the local population.

Implications

TAs should be guided and capacitated to make sustainable decisions regarding the type and locality of developments. Government entities should support this structure through the provision of social services in these villages.



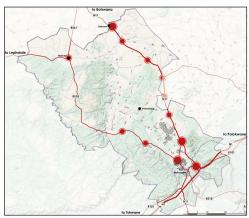
CONNECTOR ROUTES

Rationale

Connector routes are proposed to improve access to the proposed nodes by linking the N11 and other main routes with these nodes.

Implications

To support this structure, the existing projects proposed by RAL need to be aligned with this proposal. Tarred roads should also support these access routes.



ECONOMIC OPPORTUNITY NODES

Rationale

Commercial nodes are proposed at main intersections, for instance where the connector routes join the N11 or the R518.

Implications

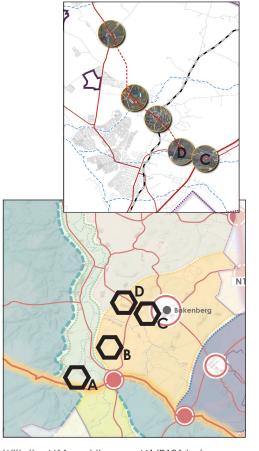
These nodes are regarded as main commercial nodes, with a limited social function. An example of such a node would be a truck stop at one of the N11 intersections, or a higher density mixed-use development that is developed as a complete, integrated project.

A potential economic opportunity node at a highway (N1 and/or N11) interchange, needs some specific attention.

Current interchanges on the N1 (A, B, C) have different configurations in terms of off- and onramps (see Section 3.3 indicating (A) with offramp from south and onramp towards south, (B) with offramp from north and onramp to south, and (C) with offramp from north and onramp to north).

Together with the realignment of the N11, interchange C is planned to be upgraded to have offramps and onramps from both north

and south. N11 is planned with an interchange on the R101 (D), with vehicles from the north having to travel eastwards on the R101 to connect with the N1 (C).



With the N11 and the new N1/R101 being built, it is expected that most trucks will use intersection C from both north and south to travel northwest towards Botswana. Because of the road running through town, vehicles using interchange A will most probably become a lot less.

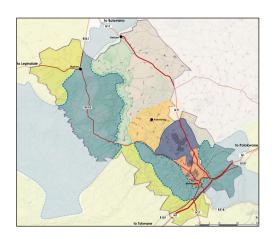
With regard to the development of a node as a transport-focused economic opportunity (e.g. truck stop) at an interchange, the following should be noted:

- There seems to be open land that could potentially accommodate a development at interchange A. With a potential decrease in truck traffic at this interchange, this development might, however, be less viable. The area between interchange A and Mokopane town furthermore forms part of the ecological zone and is not seen as possible extension area for commercial or residential developments on a corridor from town.
- The road alignment and topography at interchange C located in between mountains, make it difficult for the establishment of a commercial development at this point.
- Interchange B is not really seen as an interchange used by trucks.

It is with the above in mind that a transportfocused commercial node is proposed at the intersection of the N11 and the R101 (D). There also seems to be adequate flat land to accommodate such a development.

However, there is a caveat to this proposal. Even though the new alignment of the N11 has been planned in detail, it is uncertain when the road will be constructed. This might further be hampered by the fact that the proposed road runs right across the planned operations of Zebediela Nickel Project (currently in the process of applying for a mining licence).

Due to the abovementioned uncertainties, the establishment of a truck stop at interchange A (together with an upgrading of the interchange and other road infrastructure), might become viable in the shorter term. This is, however, not ideal - and once developed - it would also not be seen as the end of a development corridor with a direct economic link to Mokopane town, but will rather function as a standalone node at the interchange.



CHARACTER ZONES

Rationale

Different areas in the municipality experience different levels of development pressure, have different role players, and have a different sense of place (character). The development character of each of these areas should be defined in order to create a diversified municipal area where conservation care, garicultural practices, mining interests, mixed-use high-density activities, and rural living contribute to a distinctive municipality with a unique identity. If this is not supported, the economic sustainability of the municipal area will be hampered and the development character of Mogalakwena might become amorphous and monotonous, with limited structuring towards a unique identity. It is specifically important that the unique integrity of the rural area towards the north is not compromised. However, it is as important that the southern urban area is structured in such a way that it does not become one continuous area of residential monotony.

Seven different zones have been identified by taking into account existing activities (and challenges) in a zone, as well as "shared assets" within that area. This would create the opportunity to establish contextspecific management requirements and arrangements, and to define future growth preferences and development guidelines that are zone-specific.

The intention is to establish a management body where relevant role players are collectively taking decisions on activities and issues within that specific area. The MLM will form part of each of these management bodies. Where applicable, relevant national and provincial departments will either form part of the team on a permanent basis, or will be coopted depending on the specific issue being addressed.

Conceptual boundaries for the different zones are illustrated on the map. These lines are, however, not fixed and should be interrogated in more detail as part of the process to set up management systems within each zone. As specific area-based issues arise, lines might get more blurry to include role players from different zones to deal with that specific challenge. The specific boundaries of these management zones should be scrutinised through workshops involving the relevant role players in the different zones.

Even though each of these zones is illustrated with a continuous fill and a few nodes at specific localities, the idea is to also allow for a concentration of some higher intensity within smaller (infill) nodes. Due to the characteristics and population distribution through the area, fewer small nodes will be established to the north, with more small nodes established towards the denser area in the south.

The locality of a range of minor nodes should be identified as part of area-based (precinct) plans for the different zones. This will provide a more nuanced urban structure, again preventing an amorphous and monotonous urban area.

Implications

More detailed plans (i.e. a mining resource zone precinct plan) could assist in detail planning and management of a zone to address specific challenges.

Specific development guidelines, and compatible land uses for each of these character zones should be identified, with specific detail to be provided at strategic sites, such as around the mines. The specific boundary lines between two zones also have to be interrogated in more detail as part of the final SDF concept, to be included in the Implementation Framework.

A brief overview of each of the zones are provided in the following:



MIXED-USE LIVE-WORK-PLAY ZONE

This zone includes the whole town of Mokopane and Mahwelereng, including the suburbs and the former townships, as well as the CBD and industrial areas demarcated as the High-intensity Urban Core. This zone provides for the widest diversity of uses, activities and built form.

Uses: The area houses a complete mix of uses relating to living (various densities and contexts, residential typologies, income groups), working (including formal and informal, large scale and small scale, different typologies in terms of offices, retail, commercial, industrial), and playing (including formal and informal opportunities, outdoor or indoor spaces).

Role players: Apart from the MLM officials, relevant ward councillors and relevant local communities, other role players might, for example, include the local business chamber, developers in the area, and the taxi industry.



MINING RESOURCE ZONE

This zone focuses on balancing the protection of mining assets, with the creation of sustainable human settlements. Urban form is currently driven by irregular in-migration. Both mining, and other activities need to be managed to the benefit of all.

Uses: Large-scale mining activities create a huge footprint in the area. Individual residential activities also create a large footprint as a collective residential force in the area. Residential uses should be supported by commercial and social services within identified nodes in the zone.

Role players: Apart from the MLM officials, relevant ward councillors, and relevant local communities, other role players might, for example, include the mining houses and tribal authorities.



RURAL PRODUCTIVE ZONE

This zone focuses on supporting the sustainable livelihoods of people living in this area. It is important that the unique identity of this rural area and the protection of its agricultural potential are not compromised through development. To support the local population to make use of agricultural opportunities (viable subsistence farming, as well as growth into small-scale commercial farming) the provision of water for irrigation and grazing is of critical importance

Uses: Small-scale agricultural activities would support residential activities in villages. Residential uses should be supported by commercial and (specifically) social services within identified nodes in the zone.

Role players: Apart from the MLM officials, relevant ward councillors, and relevant local communities, other role players might, for example, include tribal authorities, and agricultural corporations.



DIVERSIFIED RESOURCES ZONE

This zone focuses on balancing a mix of activities including residential, mining, small-scale farming and social services. These activities need to be managed to the benefit of all. Bakenberg as the main node in the area and a major secondary node in the municipality should support the population and surrounding villages with commercial and social services.

Uses: A mix of uses, including residential villages, mining, and agriculture would be spread out through the area, with commercial and social services established within identified nodes in the zone.

Role players: Apart from the MLM officials, relevant ward councillors, and relevant local communities, other role players might, for example, include mining houses, tribal authorities, and agricultural corporations.



AGRICULTURAL RESOURCE ZONE

This zone focuses on the protection of agricultural resources, specifically related to commercial farming.

Uses: Commercial farming activities will be dominant in the zone, with limited uses relating to residential (farm houses) and hospitality (guest houses linked to game farming) allowed in the area.

Role players: Apart from the MLM officials, and relevant ward councillors, other role players might, for example, include farmers and agricultural corporations.



ECO-SENSITIVE ZONE

In order to determine the boundaries of the conservation area (Ecosensitive Zone) the following elements were taken into account: Proposed Waterberg biosphere extension (core area, buffer area, transition area); Alignment of roads and rivers; Locality of mountains; SANBI Critical Biodiversity Areas; Protected agricultural areas; and Locality of villages.

Uses: Uses will be linked to the protection of biodiversity as a resource supporting a greater cause than being of importance to the municipality alone. Uses should be linked to research, with very limited and strictly controlled opportunities for hospitality uses.

Role players: Apart from the MLM officials, and relevant ward councillors, other role players might, for example, include DFFE and the Waterberg Biosphere authority.



NATURE OPPORTUNITY ZONE

This zone technically falls within the conservation area of the Waterberg Biosphere. However, numerous settlements within TA areas are already located all along the Mogalakwena River. It will be critical to have a sound environmental management plan in place that both TAs and communities will ascribe to. Agreement should be reached on compatible land uses implemented within the ambit of the management plan.

Uses: Activities such as crop farming at specific localities, game farming, tourism establishments should be guided by the management plan.

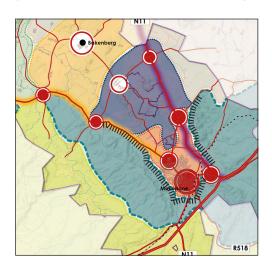
Role players: Apart from the MLM officials, relevant ward councillors, and relevant local communities,, other role players might, for example, include tribal authorities, DFFE, Tourism establishments, farming corporations, and the Waterberg Biosphere authority.

4.5 Managing growth

Municipalities often rely mostly on the urban edge as management tool to control sprawl. However, it is proposed that relevant new tool(s) to manage, control, and assess new development be formulated in the next phase (Implementation Framework) of the SDF. This will be done in conjunction with the new Land-Use Scheme that is currently being drafted.

At this point it is important that the assessment of developments is based on the following principles:

Conservation: Where eco-sensitive and protected agricultural areas are indicated - often following natural or man-made boundaries, these lines should be respected and adhered to as part of the "urban edge" (indicated with the black dashed line below).



For the rest of the municipal area, development should be guided by the principles of **consolidation and concentration**.

There are three types of growth patterns through which an area can expand. These are illustrated in the graphic and described in the following:

- Infill development (often also referred to as brownfields development) is a process through which vacant or underused land located within existing built-up urban areas and surrounded by existing buildings, is developed. The main purpose of this is to increase densities, bring more people closer to existing amenities and make more efficient use of existing infrastructure services.
- Urban sprawl (often referred to as greenfields development and/or unrestricted growth) is a process through

which development takes place on the periphery of the built-up urban area, even though vacant land for infill development is available. Sprawl is often triggered through the establishment of new housing developments followed by a shopping mall followed by more residential development, etc (or the mall is developed first, followed by housing). The city is thus growing further and further outwards, hampering the efficient provision of services.

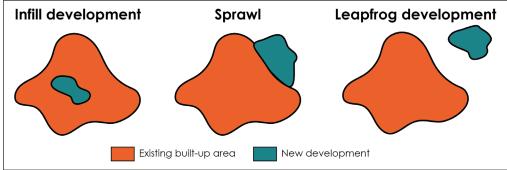
Leapfrog development (also greenfields development) is a process through which a new development is established by "skipping" over huge portions of vacant land to establish an area that is completely disconnected from the existing urban area. A typical development that supports leapfrogging is a residential estate. This is often the result of developers obtaining cheaper land further away from the

built-up area, leaving huge areas empty. This makes it extremely difficult for the municipality to provide efficient services.

New development should be assessed in terms of its support for the principles of consolidation and concentration. In practice this means that the first priority for growth should be infill development, followed by outward growth once infill has been maximised. Leapfrog development should be discouraged and not approved as a rule (except under very specific circumstances with strict conditions).

This should be applicable to development of Mokopane town, but also to the villages in tribal authority areas.

The issue of growth management will further be explored in the Implementation Framework and in the new Land-use Scheme.

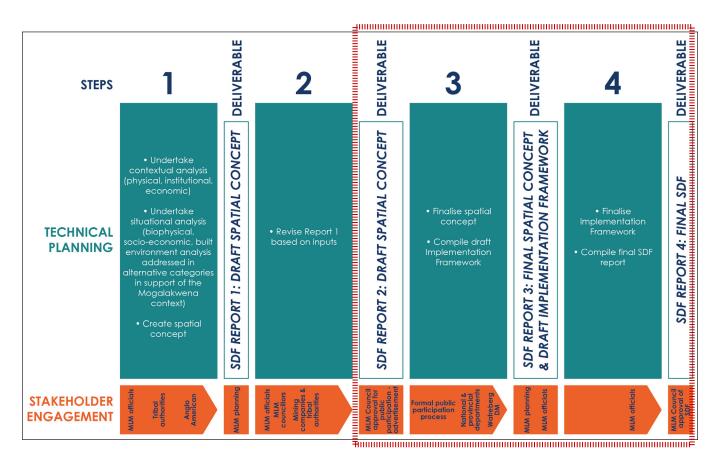




NEXT STEPS

The next steps, as illustrated with the diagram, include Steps 3 and 4. These include the following:

- Approval of the spatial concept by the MLM Council to affirm that this document could be distributed for public participation.
- Public participation through initiatives to reach the broader community, and through focused group engagements will be undertaken.
- 3. A draft Implementation Framework will be compiled in the meantime.
- 4. Comments received through the public participation process will be assessed and incorporated where applicable.
- 5. A final SDF document will be submitted, to be approved by Council.



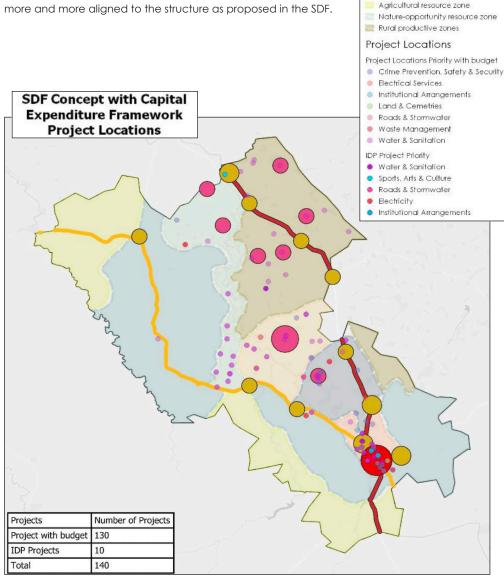
IMPLEMENTATION FRAMEWORK

The following will be included as part of the Implementation Framework:

- 1. Guiding approach to implementation management
 - Accept the facts. Some things are facts: A fact will not change in the life of the plan (geology, topography, existing mine locality).
 - Manage the given. Some things are a given: A given is something that will most probably happen during the life of the plan (historic settlement pattern, doorstep communities, settlement pressure and in-migration).
 - Influence the contingencies. Some things are contingencies: A contingency is something that is possible and could happen during the life of the plan, but cannot be predicted with certainty (less/more mining activities).
- 2. 5-year (SPATIAL) Implementation plan.
- 3. 5-year (SPATIAL) Economic plan.
- 4. (SPATIAL) Housing plan.
- 5. 5-year (SPATIAL) Infrastructure plan.
- 6. (SPATIAL) Incremental upgrading plan.
- 7. (SPATIAL) Capital expenditure plan (phasing...).
- 8. Policy implications (sector policies and institutional arrangements, LUMS, partnerships, further detail plans).

One of the functions of an SDF is to guide implementation and the identification of project priorities.

The maps below indicate the locality of projects identified within the current MLM IDP (Capital Expenditure Framework) and investments from other role players (Capital Investment Framework), in relation to the proposed conceptual structure of the SDF. The intention is that IDP projects will, in future, become more and more aligned to the structure as proposed in the SDF.



■ Municipal Boundary

N11 Freight Corridor

Community service node

Economic-opportunity node

Eco-sensitive resource zone

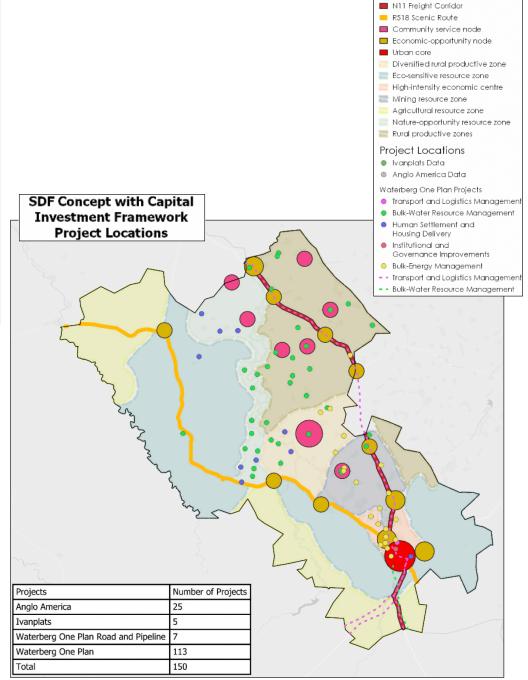
Mining resource zone

Diversified rural productive zone

High-intensity economic centre

R518 Scenic Route

Urban Core



■ Municipal Boundary