

## *Spatial Development Framework*

# MOGALE CITY LOCAL MUNICIPALITY SPATIAL DEVELOPMENT FRAMEWORK

2019-2024



*Prepared for:*



**21 JUNE 2019**

# TABLE OF CONTENT

<b>LIST OF FIGURES</b> .....	<b>4</b>	4.1. Population Density and Distribution .....	<b>31</b>
<b>LIST OF TABLES</b> .....	<b>5</b>	4.2. Education .....	<b>33</b>
<b>LIST OF BOXES</b> .....	<b>5</b>	4.3. Employment .....	<b>37</b>
<b>ABBREVIATIONS AND ACRONYMS</b> .....	<b>6</b>	4.4. Household Income .....	<b>39</b>
<b>GLOSSARY OF TERMS</b> .....	<b>8</b>	4.5. Health Facilities .....	<b>41</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>10</b>	4.6. Social Facilities and Residential Development .....	<b>42</b>
<b>1. INTRODUCTION</b> .....	<b>13</b>	4.7. Basic Services/Bulk Infrastructure .....	<b>44</b>
1.1. Locational Context .....	13	4.7.1. Access to Water .....	44
1.2. Scope and Objectives of the SDF Review .....	14	4.7.2. Water Scheme Areas and Water Infrastructure .....	44
1.3. Methodology and Approach .....	14	4.7.3. Water Reservoirs and Towers Servicing MCLM .....	46
<b>2. GUIDING POLICIES AND FRAMEWORKS</b> .....	<b>15</b>	4.7.4. Challenges of Water Infrastructure in MCLM .....	47
2.1. Summary of Issues Arising from Relevant Policies as seen through SPLUMA Development Principles .....	19	4.7.5. Sanitation .....	47
<b>3. MCLM-SDF SPATIAL STRUCTURING ELEMENTS</b> .....	<b>20</b>	4.7.6. Proposed Lindley WWTW .....	47
3.1. Natural Structuring Elements .....	21	4.7.7. Flip Human WWTW .....	49
3.1.1. Cradle of Humankind World Heritage Site .....	21	4.7.8. Magalies WWTW .....	49
3.1.2. Magaliesberg Biosphere .....	22	4.7.9. Percy Stewart WWTW .....	49
3.1.3. Protected Areas and Conservancies .....	23	4.7.10. Electricity .....	49
3.1.4. Mountains and Ridges .....	24	4.7.11. Road and Rail Transport .....	51
3.1.5. Watercourses and Buffers .....	25	<b>5. SPATIAL CHALLENGES AND OPPORTUNITIES</b> .....	<b>54</b>
3.1.6. Geotechnical Conditions .....	26	5.1. Guiding Principles .....	55
3.1.7. Critical Biodiversity Areas and Ecological Support Areas .....	27	<b>6. MCLM SPATIAL DEVELOPMENT VISION</b> .....	<b>56</b>
3.2. Non-Natural Spatial Structuring Elements .....	28	<b>7. SPATIAL OBJECTIVES &amp; STRATEGIES</b> .....	<b>56</b>
3.2.1. Mining Activities / Mining Belt .....	28	<b>8. UNPACKING THE SPATIAL OBJECTIVES AND STRATEGIES</b> .....	<b>58</b>
3.2.2. Movement and Connectivity .....	29	8.1. Environmental Protection and Resource Management .....	58
3.2.3. Nodes and Hierarchy of Nodes .....	30	8.1.1. Protection of Natural Open Space Systems .....	58
<b>4. SOCIO-ECONOMIC ATTRIBUTES OF MCLM</b> .....	<b>31</b>	8.1.2. Strengthening of Urban Open Space Systems .....	60
		8.1.3. Balancing Environmental Protection with Sustainable Development Principles .....	60
		8.1.4. Integration of Environmental Management in Development Zones .....	60
		8.1.5. Environmental Orientated Development .....	61

8.1.6.	Response to Climate Change .....	61	8.4.9.	Rail Transport.....	88
8.1.7.	Promotion of Biodiversity Stewardship Program .....	62	8.4.10.	Airports and Airfields .....	91
8.1.8.	Protection of High Value Agricultural Land .....	63	8.5.	Growth Management .....	91
8.1.9.	Creating Linkages with the Agri-Park Concept .....	64	8.5.1.	Smart Growth .....	91
8.2.	Nodal Development.....	65	8.5.2.	Urban Boundary .....	92
8.2.1.	Nodal Hierarchy .....	66	8.5.3.	Densification around Strategic Locations .....	93
8.2.2.	Primary Node: Krugersdorp Multi-Activity Node .....	66	8.5.4.	Managed Expansion .....	93
8.2.3.	Secondary Nodes .....	67	8.5.5.	Precinct Plans .....	93
8.2.4.	Local Nodes.....	70	8.5.5.1.	Summary of Existing Precinct Plans .....	94
8.2.5.	Agricultural/Tourism Nodes .....	72	8.5.5.1.1.	Summary of 2011 Muldersdrift Precinct Plan .....	94
8.2.6.	Specialised Activity Zones .....	74	8.5.5.1.2.	Magaliesberg 2011 Precinct Plan .....	95
8.3.	Economic Opportunity and Proximity .....	77	8.5.5.1.3.	Tarlton Precinct Plan 2011 .....	96
8.3.1.	Rural Economy .....	78	8.5.5.1.4.	Hekpoort Precinct Plan .....	96
8.3.1.1.	Agricultural Sector .....	78	8.5.5.1.5.	COHWHS Precinct Plan 2014 .....	96
8.3.1.2.	Tourism / Conservation Areas .....	79	8.5.5.1.6.	Krugersdorp Precinct Plan (2017) .....	97
8.3.1.3.	Game Farms.....	79	8.5.5.2.	Proposed Precinct and Local Spatial Plans .....	98
8.3.1.4.	Rural Tourism .....	79	8.6.	Liveability and Sense of Place.....	100
8.3.2.	Manufacturing .....	82	8.6.1.	Township Regeneration .....	100
8.3.3.	Mining .....	82	8.6.2.	Housing and Human Settlements .....	100
8.3.4.	Township Economy .....	82	8.6.3.	Population Projections and Demand for Housing .....	101
8.4.	Accessibility and Connectivity .....	83	8.6.4.	Addressing Housing through Restructuring Zones .....	102
8.4.1.	N14/R28 Development Corridor .....	85	8.6.5.	Addressing Housing Backlogs through Densification.....	104
8.4.2.	R24 Krugersdorp-Rustenburg Corridor.....	85	8.6.6.	Rural Residential Developments.....	104
8.4.3.	Activity Spines in Support of Nodal Development .....	85	8.6.6.1.	Guidelines for Rural Residential Developments.....	104
8.4.4.	Strengthening of Intra-regional Connectivity.....	86	8.6.6.2.	Guidelines for Assessing Applications for Rural Residential Developments.....	105
8.4.5.	Priority Routes Identified by the Gauteng Integrated Transport Master Plan .....	86	8.6.7.	Informal Settlements .....	105
8.4.6.	Public Transport.....	86	8.6.8.	Challenges for Settlements Mining Belt .....	105
8.4.7.	Mogale Integrated Transport Plan (2019-2024).....	87	8.6.9.	Informal Settlements in the Cradle of Humankind World Heritage Site .....	106
8.4.8.	Deproclamation of Planned K-Routes .....	87	8.6.10.	Informal Settlements Located in Agricultural Nodes .....	106

8.6.11.	Rural Settlements Consolidation / Relocation / Upgrading .....	107
8.6.12.	Informal Settlements in Dolomitic Areas .....	107
8.6.13.	Addressing Informal Settlements through RDP Housing .....	107
8.6.14.	Identification and Acquisition of Strategically Located Land .....	107
8.6.15.	Consolidation of Settlements in Existing Nodes .....	108
8.6.16.	Cross-Municipal Institutional Arrangements to Address Informal Settlements ....	108
8.6.17.	Addressing the Pressure in the Eastern Part of MCLM .....	109
<b>9.</b>	<b>MCLM SDF COMPOSITE MAP 2018-2023 .....</b>	<b>111</b>
<b>10.</b>	<b>LINKING THE SDF TO THE LAND USE SCHEME .....</b>	<b>112</b>
10.1.	Building a Bridge: Connecting the MCLM-LUS to MCLM-SDF .....	112
10.2.	Key principles Embedded in MCLM-LUS .....	112
10.2.1.	Densification of Selected Areas .....	112
10.2.2.	Transit-Oriented Development .....	113
10.2.3.	Mixed Use Development Zones .....	113
10.2.4.	Mixed Use Development Zone Types .....	113
10.2.5.	Mixed Use Development Zone Key Success Factors .....	114
<b>11.</b>	<b>CAPITAL INVESTMENT FRAMEWORK .....</b>	<b>116</b>
11.1.	Summary of Priority Projects .....	116
11.2.	Precinct Plans and other Plans Needed .....	118
<b>12.</b>	<b>INSTITUTIONAL ARRANGEMENTS FOR IMPLEMENTATION .....</b>	<b>121</b>
<b>13.</b>	<b>MONITORING AND EVALUATION .....</b>	<b>121</b>



## LIST OF FIGURES

<b>Figure 1:</b> MCLM major development / use zones .....	13	<b>Figure 39:</b> Environmental protection and resource management support strategies.....	58
<b>Figure 2:</b> MCLM within the WRDM and Gauteng provincial context.....	14	<b>Figure 40:</b> Gauteng environmental management framework.....	59
<b>Figure 3:</b> Objectives of the SDF review .....	14	<b>Figure 41:</b> Land capability indicating moderate and high potential agricultural land.....	63
<b>Figure 4:</b> MCLM-SDF spatial structuring elements.....	20	<b>Figure 42:</b> Carmel Estate FPSU.....	64
<b>Figure 5:</b> Cradle of Human Kind World Heritage Site .....	21	<b>Figure 43:</b> Agri-park concept in the West Rand .....	64
<b>Figure 6:</b> Magaliesberg biosphere .....	22	<b>Figure 44:</b> MCLM Nodes and Precincts .....	65
<b>Figure 7:</b> Protected areas in MCLM.....	23	<b>Figure 45:</b> Urban-rural symbiotic relationship .....	78
<b>Figure 8:</b> Mountains and ridges .....	24	<b>Figure 46:</b> Prominent tourism corridors in MCLM .....	81
<b>Figure 9:</b> Quaternary water catchments .....	25	<b>Figure 47:</b> Gauteng strategic road network.....	84
<b>Figure 10:</b> Geology .....	26	<b>Figure 48:</b> Current and Planned Rail Network .....	88
<b>Figure 11:</b> Critical biodiversity and ecological support areas.....	27	<b>Figure 49:</b> Gautrain Network and Proposed Extensions .....	89
<b>Figure 12:</b> Mining activities / mining belt.....	28	<b>Figure 50:</b> Gauteng Metrorail .....	90
<b>Figure 13:</b> Road and rail network.....	29	<b>Figure 51:</b> Lanseria International Airport.....	91
<b>Figure 14:</b> Nodal hierarchy .....	30	<b>Figure 52:</b> Strategies for growth management.....	91
<b>Figure 15:</b> MCLM population in the context of WRDM .....	31	<b>Figure 53:</b> Smart growth principles .....	92
<b>Figure 16:</b> MCLM population growth rate (2005-2017).....	31	<b>Figure 54:</b> Rationale for an urban boundary .....	92
<b>Figure 17:</b> Population density (1km Kernel).....	32	<b>Figure 55:</b> Krugersdorp CBD precinct area key land uses.....	97
<b>Figure 18:</b> MCLM population pyramid.....	33	<b>Figure 56:</b> Old and proposed Precinct and Local Spatial Plans.....	99
<b>Figure 19:</b> Youth dependency ratio (2011-2015).....	33	<b>Figure 57:</b> Human settlements as a development imperative .....	101
<b>Figure 20:</b> Distribution of education facilities .....	35	<b>Figure 58:</b> Restructuring zones, housing projects and Gauteng mega projects in MCLM .....	104
<b>Figure 21:</b> Percentage of persons attending primary and secondary schools .....	35	<b>Figure 59:</b> Informal housing .....	105
<b>Figure 22:</b> Percentage studying at university.....	36	<b>Figure 60:</b> Composite Spatial Development Framework.....	111
<b>Figure 23:</b> Employment by sector in MCLM.....	37	<b>Figure 61:</b> Linkages between SDF and LUS.....	112
<b>Figure 24:</b> Employment and growth (2011-2015).....	37	<b>Figure 62:</b> Key success factors for TOD in MCLM.....	113
<b>Figure 25:</b> Unemployment rates 2011-2015.....	37	<b>Figure 63:</b> Key success factors for mixed-use development zones .....	114
<b>Figure 26:</b> Percentage of workforce unemployed and discouraged .....	38		
<b>Figure 27:</b> Annual household income percentage impoverished .....	40		
<b>Figure 28:</b> Health facilities .....	41		
<b>Figure 29:</b> Distribution of social facilities.....	43		
<b>Figure 30:</b> Access to water .....	44		
<b>Figure 31:</b> Engineering services-water .....	46		
<b>Figure 32:</b> Sanitation schemes .....	48		
<b>Figure 33:</b> Engineering services – electricity .....	50		
<b>Figure 34:</b> Metrorail Krugersdorp station .....	51		
<b>Figure 35:</b> Road and rail network.....	52		
<b>Figure 36:</b> Road linkages.....	53		
<b>Figure 37:</b> Guiding development principles .....	55		
<b>Figure 38:</b> Spatial objectives for MCLM-SDF .....	56		

## LIST OF TABLES

<b>Table 1:</b> Summary of key directives informing the Spatial Development Vision .....	15
<b>Table 2:</b> Summary of key issues as seen through SPLUMA Development Principles.....	19
<b>Table 3:</b> Projections of population, households and job opportunities .....	31
<b>Table 4:</b> Types and numbers of education facilities .....	33
<b>Table 5:</b> Income distribution 2015.....	39
<b>Table 6:</b> Types and numbers of health facilities.....	41
<b>Table 7:</b> Social facility requirements determination table.....	42
<b>Table 8:</b> Water Reservoirs and Areas Servicing MCLM.....	46
<b>Table 9:</b> Challenges and opportunities.....	54
<b>Table 10:</b> MCLM-SDF Development Principles .....	55
<b>Table 11:</b> Summary of spatial objectives and corresponding strategies .....	56
<b>Table 12:</b> Sector strategies for climate change.....	61
<b>Table 13:</b> Main types of conservation and sustainability stewardship schemes .....	62
<b>Table 14:</b> Krugersdorp Multi-Activity Node.....	66
<b>Table 15:</b> Muldersdrift, Pineheaven / Hendrik Pogieter and Leratong Secondary Nodes.....	67
<b>Table 16:</b> Kagiso, Azaadville and Rietvallei, and Munsieville Local Nodes .....	70
<b>Table 17:</b> Mgaliesburg, Tarlton and Hekpoort Agricultural / Tourism Nodes .....	72
<b>Table 18:</b> Lanseria, Mining Belt and Industrial Use Specialise Activity Zones.....	75
<b>Table 19:</b> Major intra-regional transport networks.....	86
<b>Table 20:</b> Public Transport Corridors .....	87
<b>Table 21:</b> Highlights of the Muldersdrift precinct plan .....	94
<b>Table 22:</b> Highlights of Magaliesburg Precinct Plan.....	95
<b>Table 23:</b> Highlights of Tarlton Precinct Plan .....	96
<b>Table 24:</b> Highlights of Hekpoort Precinct Plan.....	96
<b>Table 25:</b> Highlights of COHWHS Precinct Plan.....	96
<b>Table 26:</b> Projections of population, households and job opportunities .....	101
<b>Table 27:</b> MCLM incremental land use budget 2011-2025 .....	101
<b>Table 28:</b> Restructuring zones .....	102
<b>Table 29:</b> Social Housing Projects in MCLM.....	104
<b>Table 30:</b> Priority projects aligned to the IDP (2016-2021) .....	116
<b>Table 31:</b> Future projects for MCLM .....	118

<b>Box 3:</b> General MCLM response to climate change.....	61
<b>Box 4:</b> Guideline to Protect the Rural Economy .....	78
<b>Box 5:</b> MCLM Strategies for the Agricultural Sector.....	79
<b>Box 6:</b> Conditions for Conversion of Land into Nature Reserves .....	79
<b>Box 7:</b> Manufacturing Activities by Development Zone .....	82
<b>Box 8:</b> Strategies for N14 Corridor .....	85
<b>Box 9:</b> Strategies for R24 Corridor .....	85
<b>Box 10:</b> Strategies for Activity Spines .....	86
<b>Box 11:</b> Strategies for township regeneration .....	100
<b>Box 12:</b> Strategic densification zones to address housing backlogs.....	104
<b>Box 13:</b> Guidelines for rural residential developments .....	104
<b>Box 14:</b> Assessing applications for rural residential dwellings .....	105
<b>Box 15:</b> Interventions for informal settlements in the Mining Belt.....	106

## LIST OF BOXES

<b>Box 1:</b> Guidelines for natural open system .....	60
<b>Box 2:</b> Guidelines for urban open system.....	60

## ABBREVIATIONS AND ACRONYMS

<b>AP</b>	Agricultural Park	<b>ITP</b>	Integrated Transport Plan
<b>BEPP</b>	Built Environment Performance Plan	<b>IUDF</b>	Integrated Urban Development Framework
<b>BNG</b>	Breaking New Ground	<b>LRSDF</b>	Lanseria Regional Spatial Development Framework
<b>BRT</b>	Bus Rapid Transit	<b>LSDP</b>	Lanseria Spatial Development Policy
<b>BSP</b>	Bio-diversity Stewardship Programme	<b>LUF</b>	Land Use Framework
<b>CBA</b>	Critical Biodiversity Areas	<b>LUS</b>	Land Use Scheme
<b>CBD</b>	Central Business District	<b>MBRPP</b>	Mining Belt Regional Planning Policy
<b>CIF</b>	Capital Investment Framework	<b>MCLM</b>	Mogale City Local Municipality
<b>COHWHS</b>	Cradle of Humankind World Heritage Site	<b>MCLM-HSP</b>	Mogale City Local Municipality Human Settlements Plan
<b>COJ</b>	City of Johannesburg	<b>MCLM-IDP</b>	Mogale City Local Municipality Integrated Development Plan
<b>COJ-SDF</b>	City of Johannesburg Spatial Development Framework	<b>MCLM-LUS</b>	Mogale City Local Municipality Land Use Scheme
<b>COT</b>	City of Tshwane	<b>MCLM-SDF</b>	Mogale City Local Municipality Spatial Development Framework
<b>COT-SDF</b>	City of Tshwane Spatial Development Framework	<b>MDI</b>	Magalies Development Initiative
<b>CSIR</b>	Council for Scientific and Industrial Research	<b>MFMA</b>	Municipal Finance Management Act
<b>DRDLR</b>	Department of Rural development and Land Reform	<b>MRtC</b>	Magalies Rocks the Cradle Festival
<b>DWA</b>	Department of Water Affairs	<b>MSA</b>	Municipal Structure Act
<b>EMF</b>	Environmental Management Framework	<b>MSA</b>	Municipal Systems Act
<b>EOD</b>	Environmental Orientated Development	<b>MTEF</b>	Medium-Term Expenditure Framework
<b>ESAs</b>	Ecological Support Areas	<b>NDP</b>	National Development Plan
<b>FPSU</b>	Farmer Production Support Unit	<b>NDPG</b>	Neighbourhood Development Partnership Grant
<b>FY</b>	Financial Year	<b>NDPWs</b>	National Department of Public Works
<b>GAH</b>	Gauteng Agricultural Hub	<b>NEMA</b>	National Environmental Management Act
<b>GCM</b>	General Circulation Model	<b>NEMPAA</b>	National Environmental Management Protected Areas Act
<b>GCR</b>	Gauteng City Region	<b>NGOs</b>	Non-Governmental Organisations
<b>GCRIIMP</b>	Gauteng City Region Integrated Infrastructure Master Plan	<b>NSDF</b>	National Spatial Development Framework
<b>GDARD</b>	Gauteng Department of Agriculture and Rural Development	<b>NUSP</b>	National Upgrading Support Programme
<b>GEMF</b>	Gauteng Environmental Management Framework	<b>PE</b>	Public Enterprises
<b>GGCR</b>	Gauteng Global City Region	<b>PSC</b>	Project Steering Committee
<b>GHG</b>	Green House Gas	<b>PSDF</b>	Provincial Spatial Development Framework
<b>GITMP</b>	Gauteng Integrated Transport Master Plan	<b>RSDP</b>	Regional Spatial Development Policy
<b>GPD</b>	Gauteng Planning Department / Division	<b>RUMC</b>	Rural Urban Market Centre
<b>GPEMF</b>	Gauteng Province Environmental Management Framework	<b>RZs</b>	Restructuring Zones
<b>GPG</b>	Gauteng Provincial Government	<b>SANBI</b>	South African National Biodiversity Institute
<b>GPSDF</b>	Gauteng Province Spatial Development Framework	<b>SASSA</b>	South African Social Service Agency
<b>GSDF</b>	Gauteng Spatial Development Framework	<b>SDBIP</b>	Service Delivery and Budget Implementation Plan
<b>HDA</b>	Housing Development Agency	<b>SDF</b>	Spatial Development Framework
<b>IDP</b>	Integrated Development Plan	<b>SEA</b>	Strategic Environmental Assessment
<b>IGR</b>	Inter-Governmental Relations	<b>SMMEs</b>	Small and Medium Size Enterprises
		<b>SOCs</b>	State Owned Companies
		<b>SPLUMA</b>	Spatial Planning and Land Use Management Act
		<b>SSA</b>	Statistics South Africa

<b>SWOT</b>	Strengths, Weaknesses, Opportunities, Threats
<b>TOD</b>	Transit Oriented Development
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organisation
<b>UOSF</b>	Urban Open Space Framework
<b>WRDM</b>	West Rand District Municipality
<b>WRDM-BP</b>	West Rand District Municipality Bio-Regional Plan
<b>WRDM-RGDS</b>	West Rand District Municipality Regional Growth Development Strategy
<b>WRDM-RSDF</b>	West Rand District Municipality Regional Spatial Development Framework
<b>WRDM-SDF</b>	West Rand District Municipality Spatial Development Framework
<b>WSA</b>	Water Services Authority
<b>WTPs</b>	Water Treatment Plants
<b>WWTP</b>	Waste Water Treatment Plants
<b>WWTW</b>	Waste Water Treatment Works

# GLOSSARY OF TERMS

TERMINOLOGY	MEANING
<b>Accessibility</b>	Accessibility for people implies the ability of people to move around an area & reach places & facilities. This includes the elderly & people with mobility challenges
<b>Brownfield Development</b>	Previously developed land that is being re-developed.
<b>Built Environment</b>	All elements of the man-made environment (including buildings, streets, landscaped areas & transit systems) whose design, construction or manufacture involve some application of human effort & technology. The term most commonly refers to architectural, engineering & city elements, such as buildings, plazas, roads & services infrastructure (e.g. sewer, water lines & electrical transmission systems).
<b>Bus Rapid Transit (BRT)</b>	BRT is a broad term given to a variety of bus-based transportation systems that provide a higher quality service than that of an ordinary bus line, through improvements to infrastructure, vehicles & scheduling. They typically comprise fixed routes that have specialised infrastructure in the form of dedicated bus lanes & bus 'stations' rather than simply bus stops.
<b>Central Business District (CBD)</b>	The traditional business core of an urban area characterised by a high concentration of activity within a relatively small area. The CBD is usually the office, financial, retail & service centre of a city, providing both employment opportunities for many people & a significant share of the tax base.
<b>Conservation Area</b>	An area of special natural, ecological, architectural or historic interest, the essence of character or appearance of which it is desirable to preserve and/or enhance.
<b>Corridors</b>	Corridors are links between nodes, along which an increased intensity of development may be encouraged. Corridors provide efficient access to a higher level of economic opportunities than would generally be the case in less structured space. They typically include public transport routes.
<b>Densification</b>	The process of increasing residential densities (the building density) in a planned & meaningful way within the existing boundaries of a specific area. This yields an increased population density (as determined by the occupancy density) & subsequent increased efficiency in the utilisation of infrastructure, services & amenities.
<b>Density</b>	In residential development, a measurement of the intensity with which settlement takes place relative to the urban area allocated for such settlement. Density is the number of units (e.g. people, dwelling units, floor area) per unit of land area, e.g. dwelling units/hectare
<b>Development</b>	Development is "the carrying out of building, engineering, mining or other operation in, on, over or under land, or the making of any material change in the use of any building or other land". Most forms of development require planning permission.
<b>Ecological footprint</b>	A measure of the 'load' imposed by a given population on nature. It represents the land area of average quality needed to sustain current levels of resource consumption & waste discharge by that population. The bigger the footprint, the greater the impact.
<b>Economic development</b>	The process of intervening in the normal economic cycle to achieve a specific goal. The goal may vary but is usually aimed at stimulating private investment within a specific area to generate employment, increase the tax base or increase the commercial viability of the area.

TERMINOLOGY	MEANING
<b>Ecosystem</b>	The dynamic complex of animal, plant, & micro-organism communities & their non-living environment (soil, water, climate, & atmosphere) interacting as a functional unit. The ecosystems within the urban area comprise the natural environment & its distinguishing features. These typically include ridges & rivers, associated wetlands, important grasslands, nature areas, conservation areas & natural habitats.
<b>Efficiency</b>	Development that maximises development goals such as sustainability, integration, accessibility, affordability, & quality of living, relative to financial, environmental, & social costs, including ongoing & future costs.
<b>Environmental health</b>	Wellbeing based on the health of both the natural & built environment.
<b>Environmental Management Framework</b>	An analytical framework of the biophysical & socio-cultural systems of a geographically defined area to reveal where specific land uses may best be practiced & to offer performance standards for maintaining appropriate use of such land.
<b>Greenfield Development</b>	The development of previously undeveloped land for residential and/or industrial/commercial development, generally on the fringe of the metropolitan area.
<b>Hinterland</b>	The sparsely populated areas close to an urban conurbation in which people farm or depend on natural resources, including the villages & small towns that are dispersed through these areas.
<b>Infill</b>	New development on vacant parcels, which are served by utilities, surrounded by urban development & have been bypassed in the normal course of urbanisation. Infill sites are normally scattered throughout the city & are usually only a few lots wide or in isolated parcels within already built-up areas. The sites are vacant either because the structures formerly on them were demolished or because they remained undeveloped when the adjoining buildings were erected.
<b>Infill Development</b>	Development of vacant or underutilised land within existing settlements in order to optimise the use of infrastructure, increase urban densities & promote integration.
<b>Infrastructure</b>	The basic equipment, utilities, productive enterprises, installations, & services essential for the development, operation, & growth of a city. Infrastructure includes items like roads, utility lines, drainage structures, etc. A distinction is often made between engineering infrastructure such as roads, electricity, sewerage, water, & social infrastructure such as health & education facilities.
<b>Intensification</b>	The development or redevelopment of a property, site or area at a higher density or larger building envelope than currently exists, including the use of brownfield sites; the development of vacant and/or underutilised lots within previously developed areas; infill development; or the expansion or conversion of existing buildings.
<b>Low-density Development</b>	Small-scale development, generally limited to detached housing no higher than two storeys.
<b>Mixed Use (or Mixed-Use Development)</b>	Provision of a mix of complementary uses, such as residential, commercial, retail, office, community & leisure, on a site or within an area normally associated with nodes & or higher order corridors.
<b>Node</b>	Nodes are intense concentrations & clustering of activities & can be either mixed use or mono-functional (e.g. an office node). Nodes are where public & private investment tends to concentrate. A node is mostly located at the intersection of major movement routes, which gives the all-important access required for nodal development & growth. The level of accessibility to a node – local, secondary & major routes, & freeways – influences to a large degree the ability of the node to grow in size & complexity.

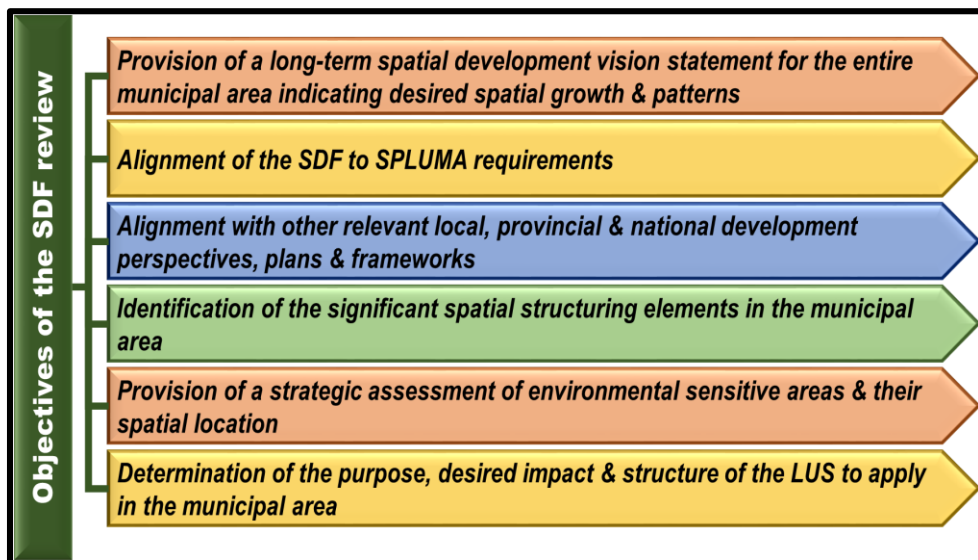


TERMINOLOGY	MEANING
<b>Place-making</b>	An approach to planning, designing & managing public spaces that places the local community at the centre & aims to create public spaces that promote people's health, happiness & wellbeing.
<b>Precinct</b>	A geographic area that forms a specific part of the urban environment, usually comprising more than two suburbs, with similar geographic characteristics and/or clustered together by specific edge conditions.
<b>Public open space</b>	All open spaces of public value, including public landscaped areas, public squares & civic spaces, plazas & entrances to shopping areas, pedestrian areas, bikeways & paths, playing fields, parks & play areas. They include not just land, but also areas of water such as rivers, canals, lakes & reservoirs, which can offer opportunities for sport & recreation or act as a visual amenity & a haven for wildlife.
<b>Regeneration</b>	The economic, social & environmental renewal, restructuring & improvement of rural & urban areas
<b>Rural Areas &amp; Rural Development</b>	Can be defined as areas outside urban settlements where population densities are less than 150 people / km <sup>2</sup> ; & - dwelling densities are less than 1du/ ha. Rural development generally includes primary economic activities; agriculture, agro-processing, mining, tourism, resource extraction, water, energy.
<b>Sector Plans</b>	Sector Plans are municipal plans for different functions such as biodiversity conservation, housing, transport, local economic development & disaster management. They may also be geographically based, for example a sub-region, settlement within a local Municipality or a component of a settlement.
<b>Sense of place</b>	The quality of a location that makes it readily recognisable as being unique & different from other locations. Any location that is different from its surroundings can be said to have a sense of place, as can unique natural formations such as the Magaliesberg mountains.
<b>Settlement / Human Settlement</b>	A settlement is a general term used for a permanent or temporary community in which people live. A settlement can range in size, from a small number of dwellings grouped together to the largest of cities with surrounding urbanised areas, & may include hamlets, villages, towns & cities.
<b>Space economy</b>	The study of the space economy looks at spatial relationships between individuals & organisations, & explores the economic reasons that underpin the formation, functioning & development of towns, cities & their hinterlands.
<b>Spatial Development Framework (SDF)</b>	An SDF is that it is a framework that seeks to guide, overall spatial distribution of current & desirable land uses within a municipality in order to give effect to the vision, goals & objectives of the municipal IDP. The aims of a Spatial Development Framework are to promote sustainable functional & integrated human settlements, maximise resource efficiency, & enhance regional identity & unique character of a place.
<b>Spatial Planning</b>	Spatial planning is a planning process that is inherently integrative & strategic, takes into account a wide range of factors & concerns & addresses how those aspects should be arranged on the land (White Paper on Spatial Planning & Land Use Management, 2001).
<b>Sprawl</b>	The uncontrolled outward growth of urban areas, expanding into previously rural areas.
<b>Stakeholders</b>	Stakeholders are agencies, organisations, groups or individuals who have a direct or indirect interest in a development intervention or its evaluation (African Development Bank, et al, undated).
<b>Strategic Environmental Assessment</b>	A Strategic Environmental Assessment (SEA) is a system of incorporating environmental considerations into policies, plans & programmes.

TERMINOLOGY	MEANING
<b>Sustainable development</b>	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development is often associated with environmental, social, economic & institutional components.
<b>Sustainable Human Settlements</b>	Sustainable Human Settlements are suitably located to integrate with the functional urban fabric. Further, these settlements are well-managed entities in which economic growth & social development are in balance with the carrying capacity of the natural systems on which they depend for their existence, & result in sustainable development, wealth creation, poverty alleviation & equity.
<b>Township</b>	Residential township established during the Apartheid era, located beyond the urban periphery, specifically created to accommodate black people. Apartheid legislation enabled the government to forcibly locate black people in townships.
<b>Transit-oriented Development (TOD)</b>	TOD promotes higher density & mixed-use development close to significant transit connections. It aims to make the best use of land, increase use of public transport & promote sustainable development. A neighbourhood that is developed along TOD principles is sometimes referred to as a transit-oriented community.
<b>Urban</b>	Pertaining to, located in or constituting a city. Urban areas are characterised by higher density residential, employment, & commercial areas than in rural areas or in small towns where people & services are geographically concentrated in a distinct & identifiable area.
<b>Urban Areas &amp; Urban Development</b>	Can be defined as places where population densities are greater than 150 people / km <sup>2</sup> - dwelling unit densities greater than 1du/ha – settlement contained within an Urban Edge – services provided on a grid reticulation system – some primary; urban agriculture, building materials, resource extraction but mainly secondary & tertiary economic activity
<b>Urban Edge</b>	A demarcated line & interrelated policy that serves to manage, direct & limit urban expansion
<b>Urbanisation</b>	The process by which an increasing percentage of a country's population moves to live in towns & cities
<b>Urban Sprawl</b>	Urban Sprawl is the expansion of urban areas across the landscape & the conversion of forested, wetland & agricultural areas to urban areas.
<b>Village</b>	A village is a clustered human settlement, larger than a hamlet & usually smaller than a town, with the population ranging from a few hundred; often located in the rural areas.

## EXECUTIVE SUMMARY

The Mogale City Local Municipality Spatial Development Framework (MCLM-SDF) 2019-2024 represents a review and update of the previous MCLM-SDF prepared in 2011. The aim of the review are as follows:



The MCLM-SDF has been prepared through a consultative process and is firmly anchored in the development principles and objectives articulated in relevant national, provincial and local policies, legislative frameworks and plans. These have then been translated and distilled into a long-term spatial vision for the Municipality which reads as follows:

**“...A Mogale City that is inclusive, cohesive, resilient and transformative, which provides high quality of services within a spatially efficient environment, and thus delivering shared prosperity, hospitality, beauty and security and a sense of place...”**

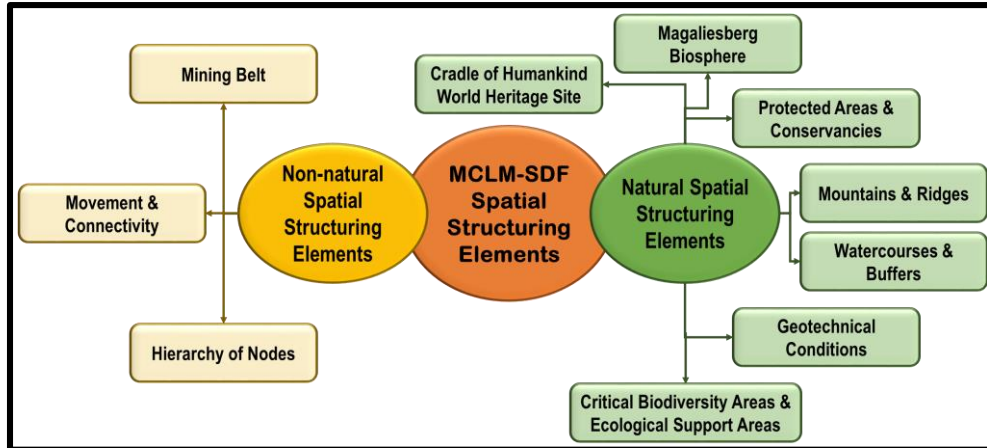
This SDF is aligned to a wide range of relevant frameworks, policies, plans and directives which are summarised in Table 1. It is important to mention a few of the documents that were foundational to the alignment process, and the key principles that have been considered from each one of them. These are summarised as follows:

- **National Development Plan (NDP):** Chapter 8 of the NDP provides a comprehensive analysis of the challenges arising out of the dysfunctions of the inherited apartheid geography.
  - A key principle derived from the NDP is: Need to create more integrated spatial forms that foster equality.
- **National Spatial Development Framework (NSDF) 2018:** The NDP provided the cue for the production of a NSDF whose final draft was completed in 2018. The NSDF amplifies the challenges identified in the NDP in the following terms “spatial inequality traps...inequitable distribution of people and economic activity...and spatial inefficiencies.”
  - Again, from the NSDF, we derive the principle of spatial integration as being critical in fostering economic efficiency and social equity.
- **Spatial Planning and Land Use Management Act (SPLUMA) Act NO.16 of 2013:** SPLUMA provides a framework for a coherent and predictable spatial planning system throughout South Africa. Key guidance that has been derived from SPLUMA in respect of this SDF includes:
  - That the MCLM-SDF must be reflective of the development principles found in Chapter 2 of SPLUMA
  - That it considers Chapter 4-part E on SDF guidelines, and;
  - It must provide a good framework for the development and operationalisation of the Land Use Scheme (LUS).
- **Gauteng Spatial Development Framework, 2030 (GSDF):** The vision of GSDF is that by 2030, Gauteng will be an integrated, connected space that provides for the needs of all who are born in, or drawn to the province. GSDF carries key themes of economic growth that is spread widely, beyond the core areas, to nodes and multi-modal activity corridors. Key principles from the GSDF include:
  - Liveability
  - Concentration
  - Connectivity
  - Conservation
  - Diversity, and
  - Viability.
- **Alignment of MCLM-SDF with those of the District Municipality, neighbouring Municipalities and Metros:** The following are the most common spatial priorities:
  - Promotion of densification in specific areas, to ensure more efficient use of resources.
  - Creation of an integrated open space system and the promotion of the functions and functioning of natural systems.
  - Integration of economically disadvantaged communities into the urban system, particularly those on the periphery.
  - The promotion of viable public transport systems and the reduction of the reliance on private motor vehicles.



- Establishment of a hierarchy of nodes, and the support of existing development Nodes as well as emerging/new nodes, and
- Creation, strengthening and enhancement of development corridors.

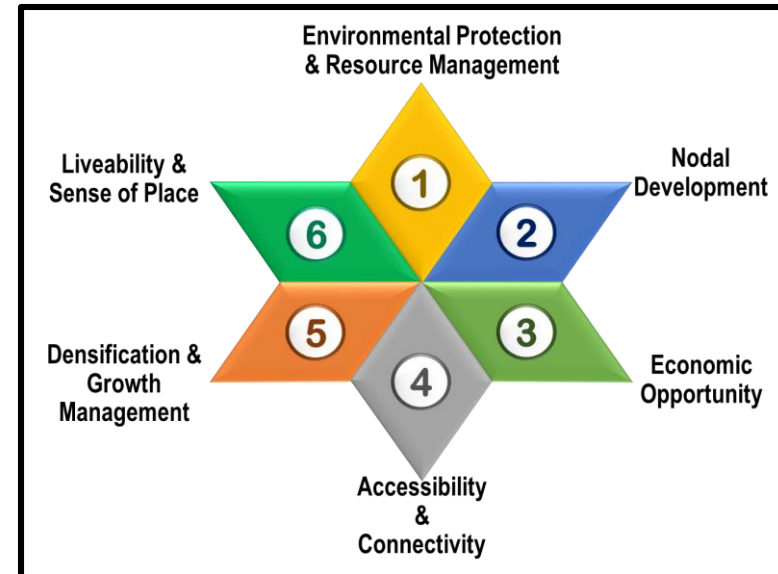
Articulating the Spatial Structure of the Mogale City Local Municipality was an important step in the development of this SDF. Spatial Structuring Elements include natural and non-natural phenomena. These can be summarised as follows:



- Natural Structuring Elements in the MCLM
  - Cradle of Humankind World Heritage Site
  - Magaliesberg Biosphere
  - Protected Areas and Conservancies
  - Mountains and Ridges
  - Water-courses and Buffers
  - Geotechnical Conditions, and
  - Critical Biodiversity and Ecological Support Areas.
- Non-Natural Spatial Structuring Elements in MCLM
  - Mining Belt: The Mining Belt runs in an east-west direction through the south-eastern part of Mogale City Municipality creating spatial discontinuity in the urban structure.
  - Movement and Connectivity: Mogale City has a good road network and a relatively functional commuter rail network linking Krugersdorp to the City of Johannesburg and Randfontein. The Krugersdorp urban area is well connected to neighbouring municipalities and regional arterials. From a sub-regional perspective MCLM benefits from several key major inter-regional road linkages.

- Nodes and Hierarchy of Nodes: An important part of developing a robust spatial structure is in ensuring there is a well-defined hierarchy of interlinked activity nodes that lead to an equitable distribution of services and facilities throughout Mogale City.

In order to give effect to the MCLM Spatial Development Vision, and to concretise the development perspectives foreseen in the SDF, the following six Spatial Development Objectives have been formulated to be the pillars of the Spatial Development Framework.



In Section 8 of this document, the above six spatial development objectives are further broken down into strategies and proposals that are meant to deliver spatial functionality, cohesion, equity, revitalisation, environmental and natural resource protection, and sustainable social and economic development for MCLM.

The SDF offers a strategic framework for determining where capital expenditure should take place. However, the nature of an SDF does not permit detailed identification of all projects and their specific geographical locations. Through the spatial vision of the SDF, the policies principles and strategies for future growth and investments are offered.

In terms of the institutional framework for implementation of the SDF, it is proposed that this SDF be incorporated into the IDP processes. Within the IDP, the MCLM-SDF should then serve as the strategic backdrop against which all development needs, projects and initiatives should be measured and assessed.

It proposes that MCLM should develop an innovative and strategic development investment platform which will provide a coherent structure to facilitate partnerships, alignment of sector departmental budgets and community-based initiatives. Such platform must contain:

- A consolidated database of all infrastructure project requirements across the MCLM.
- A sophisticated prioritisation model underpinned by strategic spatial directives, asset management requirements and the growth and development strategies of the municipality.
- A 3-year Medium Term Expenditure Framework (MTEF) linked to financial sources and budget allocations for prioritised projects over multiple years, and.
- Project implementation tracking and reporting system.

This SDF also provides some important linkages to the MCLM Land Use Scheme that was developed concurrently. Key linkages to the Land Use Scheme include:

- Introduction of mechanisms of unlocking local economic opportunity in both the urban context, future growth areas and on agricultural land through the introduction of land use definitions and land uses aimed at enabling entrepreneurial and economic opportunities.
- Mixed Use Development Zones for a variety of land uses, development approaches and typologies.
- Embedding the principle of densification of selected Land Use Scheme areas
- Promotion of economic enabling land uses at neighbourhood level through simplified/reduced application procedures to allow living and working from home.

Finally, the SDF identifies areas needing further studies. These are.

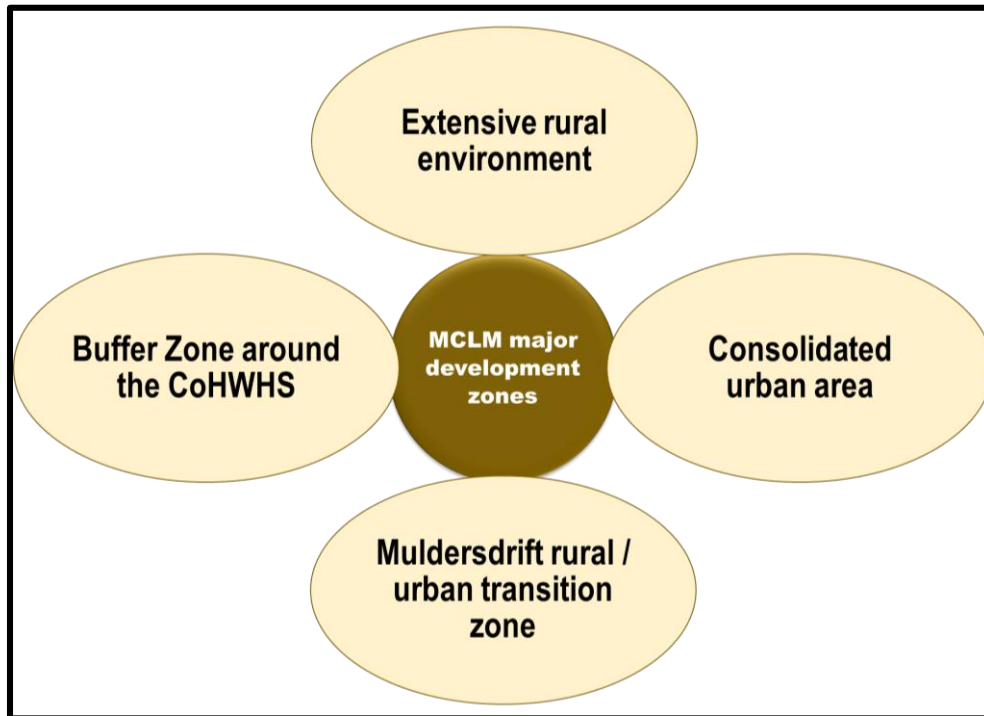
- Precinct plans
  - 2011 precinct plans for Muldersdrift, Magaliesburg, Hekpoort & Tarlton areas
  - Developing a new Precinct Plan for Zeekoehoek area
- Developing a Local Spatial Development Framework and Precinct Plan for the Mining Belt in the MCLM area
- A Study on Long-Term Demand for Informal Housing Upgrading, and
- An Urban Open Space Framework compiled for the Mogale City urban areas.

# 1. INTRODUCTION

## 1.1. Locational Context

Mogale City Local Municipality (MCLM) is located in the West Rand District of Gauteng Province and lies directly west and south of the Johannesburg and Tshwane metropolitan areas respectively. It is one of three local municipalities in the West Rand District that make up the peripheral areas of Gauteng province. The other two are Rand West City and Merafong City Local Municipalities.

The spatial structure of Mogale City Local Municipality is made up of four major development/use zones (refer to Figure 1), namely:



**Figure 1: MCLM major development / use zones**

Mogale City Local Municipality is located at the edge of Gauteng’s urban conurbation with the largest part of the Municipality being rural in nature. The rural environment is characterised by intensive as

well as extensive agricultural development, agricultural holdings, physical elements such as mountains, ridges and rivers, wilderness areas and nature conservation areas.

The largest urban concentration in the Municipality is found in the south-eastern part, around Krugersdorp and Kagiso. This area forms part of a band of development stretching from the Johannesburg Inner City westwards along the mining belt up to Krugersdorp. The Krugersdorp/Kagiso area therefore forms an integral part of the Gauteng conurbation. Krugersdorp comprises the Krugersdorp CBD which is the main business, social and administrative centre of MCLM and fulfils a regional function.

The areas to the south of Krugersdorp, namely Kagiso, Azaadville and Rietvallei are predominantly previously disadvantaged settlements with significantly limited access to Municipal services and facilities compared to Krugersdorp. These areas are also physically separated from the Krugersdorp urban areas by an extensive mining belt that runs in an east-west direction through the area.

Other settlements in MCLM are Tarlton, Magaliesburg and Hekpoort, located in the western part of the Municipality. These are generally small settlements that are in essence no more than rural service centres providing a central place service to the surrounding rural and farming communities. Magaliesburg is the most developed of the three with a distinctive tourism function.

The Muldersdrift area lies to the north of Krugersdorp, on either side of the R28. To the east, it is bounded by urban development in Johannesburg, while the Cradle of Humankind World Heritage Site lies to its west. The clash between pressure for urban expansion and the conservation requirements often results in conflicting development agendas in the area.

The Lanseria Node is an important structuring element in MCLM. The node developed around the Lanseria Airport with a focus on clean, light industrial and warehousing uses.

The Cradle of Humankind World Heritage Site (COHWHS) occupies a significant portion of Mogale City Local Municipality. The buffer zone around COHWHS covers areas to the western, southern and eastern parts of MCLM.

Figure 2 shows the location of MCLM within the WRDM and Gauteng provincial context.

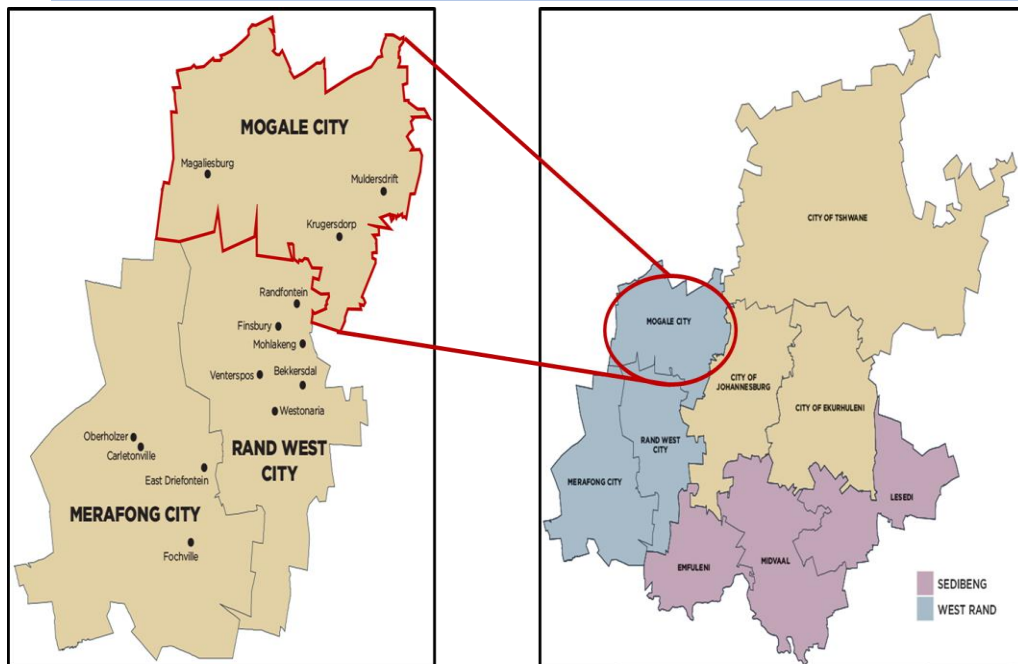


Figure 2: MCLM within the WRDM and Gauteng provincial context



Figure 3: Objectives of the SDF review

## 1.2. Scope and Objectives of the SDF Review

The main purpose of the project is to update the 2011 MCLM-SDF and to ensure that is in line with the legislative requirements found in the Municipal Systems Act (MSA), 2000, the Planning Performance Management Regulations 2001 and SPLUMA, 2013, amongst others. In particular, the revised SDF must be aligned to the five (5) development principles as contained in Chapter 2 of SPLUMA (illustrated in Figure 3 below).

The objectives of the review include the following:

## 1.3. Methodology and Approach

The review of the Mogale City SDF 2011 was carried in an integrated and consultative manner. Regular interactions were held with the Client, Sector Departments, and Steering Committee consisting of a cross-section of stakeholders including provincial representatives, as well as MCLM councillors and community members. Consultations were held with stakeholders from neighbouring municipalities to agree on key issues that require alignment. Regular internal workshops were undertaken by the consultant to assess, review and deliberate on key policy and operational issues arising from the process of generating the SDF. Lastly, as a backdrop to these deliberations, a comprehensive review of all pertinent policy and legislative frameworks, plans and other documents was undertaken, and this is discussed in summary form in Chapter 2 that follows below.



## 2. GUIDING POLICIES AND FRAMEWORKS

The MCLM SDF is developed within a framework of existing policies, plans and legislative frameworks. They provide an enabling mechanism within which the constitutional obligations of the municipality are achieved. Alignment of the MCLM SDF with existing obligations and plans enables the formulation of a clear vision, development objectives and strategies that will enable achievement of sustainable spatial development in the Municipality.

Table 1 summarises the policies, legislative frameworks and plans that have been considered in the development of this SDF.

**Table 1: Summary of key directives informing the Spatial Development Vision**

INSTRUMENT	SUMMARY OF ISSUES PERTINENT TO THE MCLM-SDF
<b>NATIONAL POLICY DIRECTIVES &amp; FRAMEWORKS</b>	
<b>National Development Plan (NDP)</b>	The NDP underscores the need for the spatial transformation of South Africa to redress inequalities of the past. It thus: <ul style="list-style-type: none"> <li>Proposes that certain types of economic activities should increasingly move closer to deprived areas.</li> <li>Proposes that development should be promoted along transport corridors to capture the value of the investment in existing infrastructure.</li> <li>Proposes that there should be investment in efficient &amp; affordable public transport systems to link people to different parts of the city.</li> </ul>
<b>National Spatial Development Framework (NSDF) 2018</b>	Points on the need to redress the spatial history that left South Africa with a deeply divided & inequitable distribution of people & economic activity which creates inequality traps & disadvantaged communities, creates inefficient cities, & robs poor, rural people of secure livelihoods.
<b>Spatial Planning &amp; Land Use Management Act (SPLUMA, 2013)</b>	<ul style="list-style-type: none"> <li>Specifies the relationship between the spatial planning system &amp; other kinds of planning.</li> <li>Ensures that the system of spatial planning promotes social &amp; economic inclusion.</li> <li>Provides for development principles &amp; norms &amp; standards.</li> </ul>
<b>Guidelines for Developing of Spatial Development Frameworks (2014)</b>	The SDF Guidelines were developed by the Department of Rural Development & Land Reform (DRDLR) to ensure that SDFs are of a high quality & are standardised across the country. The Guidelines provide clear steps & expected content at every stage of production of the SDF.
<b>Integrated Urban Development Framework (IUDF)</b>	This is a policy framework to guide the development of inclusive, resilient & liveable urban settlements. Key thrusts include compact, coordinated & connected cities, using transit-oriented & other urban planning strategies to yield desirable social, economic & environmental outcomes.
<b>Urban Network Strategy 2013</b>	Urban Networks Strategy focuses on the transformation of the spatial form through targeted, compact & integrated residential & non-residential development based on medium to higher population densities. Key areas of intervention include: water,

INSTRUMENT	SUMMARY OF ISSUES PERTINENT TO THE MCLM-SDF
	sanitation & energy infrastructure, including the promotion of renewable energy sources.
<b>PROVINCIAL POLICY DIRECTIVES &amp; FRAMEWORKS</b>	
<b>Gauteng 2055</b>	Liveable, inclusive equitable, prosperous Gauteng City Region underpinned by: <ul style="list-style-type: none"> <li>Sustainable economic growth &amp; infrastructure development.</li> <li>Equitable growth.</li> <li>Social inclusivity &amp; cohesion, and</li> <li>Good governance.</li> </ul>
<b>Gauteng Spatial Development Framework 2030</b>	Building Gauteng for all through equitable, responsible & efficient development. Key spatial strategies are: <ul style="list-style-type: none"> <li>Capitalising on proximity, by directing higher densities closer to economic nodes &amp; public transport networks.</li> <li>Managing new settlement development, to prioritise infill development &amp; densification.</li> <li>Building an economic network, through a system of high-order nodes &amp; activity corridors, and</li> <li>Creating a viable &amp; productive hinterland, by protecting valuable resources &amp; high potential agricultural land from harmful development.</li> </ul>
<b>Gauteng 10-Pillar Program for Transformation</b>	Building Gauteng into a seamless integrated socially cohesive, economically inclusive region, underpinned by smart industries & sustainable development
<b>25-Year Gauteng Integrated Transport Master Plan (GITMP)</b>	The founding principles for the GITMP are: <ul style="list-style-type: none"> <li>Integration of land use with transport, as well as integration of networks, modes &amp; services</li> <li>Being “smart” by using scarce resources more effectively &amp; application of suitable technology</li> <li>Social inclusion &amp; beneficiation, &amp;</li> <li>Promotion of a more sustainable Gauteng City Region (GCR).</li> </ul>
<b>Gauteng Province Environmental Management Framework (GPEMF)</b>	The purpose of the GPEMF is to: <ul style="list-style-type: none"> <li>Provide overall framework for environmental management in Gauteng</li> <li>Align sustainable development initiatives with the environmental resources, developmental pressures as well as growth imperatives of the province</li> <li>Determine geographical areas where certain activities can be excluded from an Environmental Impact Assessment process, and</li> <li>Identify appropriate, inappropriate &amp; conditionally compatible activities in various Environmental Management Zones.</li> </ul>
<b>Gauteng City Region Integrated Infrastructure Master Plan</b>	Realising an inclusive & competitive Greater City Region requires that infrastructure development promotes equitable access, sustainability connectivity, spatial justice & mobility. Key intervention areas include: <ul style="list-style-type: none"> <li>Developing the economic potential in individual corridors</li> <li>Ensure growth &amp; opportunities are equitably distributed across the GCR</li> <li>Deliver housing &amp; economic opportunities where most needed to realise radical spatial &amp; economic transformation</li> </ul>

INSTRUMENT	SUMMARY OF ISSUES PERTINENT TO THE MCLM-SDF
	<ul style="list-style-type: none"> <li>• Ensure infrastructure efficiency through coordinated planning, prioritisation &amp; timing of delivery, &amp;</li> <li>• Unlock human capital in a dynamic, innovative, competitive &amp; connected city region.</li> </ul>
<b>Gauteng Township Revitalisation Strategy (2014-2019)</b>	<p>The vision of this strategy is of vibrant &amp; sustainable township enterprises as part of building an inclusive, labour absorbing &amp; growing economy, job creation, social cohesion &amp; active citizenship. Key strategies include:</p> <ul style="list-style-type: none"> <li>• Ensuring that there is an appropriate legal &amp; regulatory framework</li> <li>• Promoting manufacturing &amp; productive activities</li> <li>• Economic infrastructure support &amp; clustered enterprise development</li> <li>• Promoting entrepreneurship development</li> <li>• Financing &amp; investing in the township economy</li> <li>• Promoting access to markets</li> <li>• Promoting innovation &amp; indigenous knowledge systems</li> </ul>
<b>SPATIAL DEVELOPMENT FRAMEWORKS FROM NEIGHBOURING METROS</b>	
<b>City of Johannesburg Metropolitan Municipality, SDF 2016</b>	<p>City of Johannesburg's SDF seeks to create a compact polycentric urban model &amp; use the following key elements:</p> <ul style="list-style-type: none"> <li>• Creating a strong, accessible, generative urban core through consolidating the central business district (CBD), using public space &amp; the street networks.</li> <li>• Building on a consolidated public transit backbone linked to the Corridors of Freedom Strategy, where transit and/or development corridors link key nodes in the city, supported by strong integrated public transport.</li> <li>• Addressing marginalisation through (re)urbanisation in highly populated, mostly residential areas</li> <li>• Focusing growth, consolidation &amp; reinvestment through a hierarchy of nodes: <ul style="list-style-type: none"> <li>✓ Mixed-use/key urban nodes</li> <li>✓ Industrial nodes</li> <li>✓ Transit Oriented Development nodes, &amp;</li> <li>✓ Neighbourhood nodes.</li> </ul> </li> <li>• Using the mining belt to re-shape the apartheid city structure.</li> <li>• Integrating a natural structure for ecosystem services, which will ensure the protection &amp; preservation of critical biodiversity areas in the municipality.</li> <li>• Developing key areas outside of the priority transformation areas, such as specific restructuring zones, other marginalised areas &amp; the Lanseria node.</li> </ul>
<b>City of Tshwane Metropolitan Municipality, SDF 2012</b>	<p>City of Tshwane Metropolitan Spatial Development Framework (MSDF) builds on the following components:</p> <ul style="list-style-type: none"> <li>• A hierarchy of identified nodes &amp; specialized activity areas as key structuring tools.</li> <li>• Movement &amp; connectivity through all forms of transport (motorised &amp; non-motorised).</li> <li>• Environmental structuring, through linking the city's cultural heritage, built form, landmarks &amp; natural environment</li> <li>• Compaction &amp; densification.</li> </ul>

INSTRUMENT	SUMMARY OF ISSUES PERTINENT TO THE MCLM-SDF
	<ul style="list-style-type: none"> <li>• The green economy, and</li> <li>• Sustainable human settlements.</li> </ul>
<b>POLICY DIRECTIVES FROM WEST RAND DISTRICT MUNICIPALITY</b>	
<b>West Rand District Municipality Regional Spatial Development Framework (West Rand 2020)</b>	<p>The following strategies are embedded in the West Rand District Municipality Regional Spatial Development Framework:</p> <ul style="list-style-type: none"> <li>• Managing the growth of the district: <ul style="list-style-type: none"> <li>✓ Urban edge</li> <li>✓ Infrastructure provision &amp; management</li> <li>✓ Managing suburban &amp; rural development</li> </ul> </li> <li>• Developing quality places <ul style="list-style-type: none"> <li>✓ Activity centres &amp; nodes</li> <li>✓ Sustainable neighbourhoods &amp; housing</li> </ul> </li> <li>• Promoting &amp; managing regional &amp; local accessibility <ul style="list-style-type: none"> <li>✓ Road linkages</li> <li>✓ Public transport</li> <li>✓ Pedestrians</li> </ul> </li> <li>• Providing &amp; managing environmental areas &amp; an open space network.</li> </ul>
<b>West Rand District Municipality Spatial Development Framework</b>	<p>The West Rand District Municipality SDF focuses on:</p> <ul style="list-style-type: none"> <li>• Ensuring connectivity – Good linkages between homes, work places, social services &amp; places of recreation.</li> <li>• Ensuring WRDM is attractive – with quality urban &amp; rural areas that are well-maintained, new developments which comply with high design standards, clean &amp; safe environments &amp; well-preserved heritage &amp; natural areas.</li> <li>• Ensuring WRDM is sustainable – with resources well managed &amp; planned for, viable &amp; cost-effective service provision, where the environment is valued as a vital resource &amp; meaningful open space is provided for all, and</li> <li>• Ensuring WRDM is well managed – where development decisions are predictable, fair &amp; cost-effective, partnerships are developed, planning takes place.</li> </ul>
<b>West Rand Regional Growth &amp; Development Strategy</b>	<p>Strategic priorities for the Regional Growth &amp; Development Strategy include:</p> <ul style="list-style-type: none"> <li>• Spatial integration</li> <li>• Physical infrastructure</li> <li>• Economic development</li> <li>• Environmental management</li> <li>• Social development, and</li> <li>• Good governance</li> </ul>
<b>Mogale City Local Municipality SDF 2011</b>	<ul style="list-style-type: none"> <li>• Strengthening the Krugersdorp CBD.</li> <li>• Creating a network of interlinked activity nodes that ensure an equitable distribution of services</li> <li>• Using the major movement infrastructure &amp; public transport networks to create activity spines, in particular linking the east of Mogale City to Johannesburg,</li> </ul>

INSTRUMENT	SUMMARY OF ISSUES PERTINENT TO THE MCLM-SDF
	<p>creating a development corridor along the N14/R28 &amp; other opportunities for specialised activity areas.</p> <ul style="list-style-type: none"> <li>• Recognition of the natural structuring elements such as ridges, rivers, mountains &amp; conservation areas that create spatial challenges &amp; opportunities</li> <li>• The SDF differentiates between urban &amp; rural environments, through the application of an urban development boundary</li> </ul>
<b>Mogale Citywide Township Economic Development Program (2016-2021)</b>	<p>The Township Economic Development Vision “is that Mogale City’s townships will be productive economies in which to invest, work, learn, visit &amp; live, &amp; successful places for creating wealth that is widely shared &amp; benefiting all of its people”. The Program rests on 3 pillars:</p> <ul style="list-style-type: none"> <li>• Diversifying townships sectoral base</li> <li>• Building townships inclusive economies</li> <li>• Institutional &amp; enabling conditions.</li> </ul> <p>The program focusses on the following areas:</p> <ul style="list-style-type: none"> <li>• Mogale City</li> <li>• Rietvallei</li> <li>• Kagiso</li> <li>• Munsieville</li> <li>• Rietfontein</li> <li>• Magaliesburg</li> <li>• Muldersdrift</li> </ul>
<b>Mogale City Local Municipality Integrated Development Plan (IDP, 2016-2021)</b>	<p><b>Vision:</b> The IDP is nested in the Mogale City Local Municipality Vision: “Quality service delivery for all in Mogale City”</p> <p><b>The strategic goals of the IDP include:</b></p> <ul style="list-style-type: none"> <li>• Service Delivery &amp; Infrastructure Development</li> <li>• Economic Growth &amp; Development</li> <li>• Social Development</li> <li>• Democracy &amp; Good Governance</li> </ul>
<b>SPECIALISED DEVELOPMENT FRAMEWORKS</b>	
<b>Magaliesberg Biosphere Management Plan</b>	<p>The management plan is borne out of the realisation that the rich biodiversity &amp; unique natural heritage are under severe development pressure. The <b>Vision</b> to be achieved therefore is “The Magaliesberg region is sustainably developed &amp; its uniqueness enjoyed &amp; protected by all”</p> <p>The <b>Mission is:</b></p> <ul style="list-style-type: none"> <li>• Create awareness, appreciation &amp; respect</li> <li>• Introduce &amp; maintain development &amp; land use guidelines to conserve its resources &amp; facilitate sustainable use</li> <li>• Proactively identify &amp; facilitate distribution of benefits</li> <li>• Contribute towards knowledge of the Biosphere, its environment &amp; history through research &amp; education</li> </ul>
<b>Krugersdorp CBD Urban Development</b>	<p>Goal: identify &amp; quantify anticipated economic impacts/benefits of the CBD revitalisation</p>

INSTRUMENT	SUMMARY OF ISSUES PERTINENT TO THE MCLM-SDF
<b>Framework (source: Krugersdorp CBD: Capacity</b>	<p>Objectives:</p> <ul style="list-style-type: none"> <li>• Ensure realistic &amp; market driven redevelopment proposals</li> <li>• Allow for well-informed decision-making</li> <li>• Provide a realistic vision of impact on the local economy if the precincts are developed</li> </ul>
<b>Lanseria Regional Spatial Development Policy (2015)</b>	<p>The main objective is to develop a regional plan that will focus, direct &amp; coordinate the space economy interventions in the region, to ensure equitable access to the economy &amp; improvements at scale in the lives of beneficiary communities. The goal is to create integrated, mixed use, liveable, safe, walkable communities.</p>
<b>N14 Corridor Study</b>	<p>The N14 development corridor is an important linkage with high level development potential. It links Lanseria Airport in the north &amp; the Krugersdorp CBD in the south &amp; Tarlton to the west.</p> <p>The N14/R28 development corridor between Lanseria Airport &amp; Randfontein is one of Gauteng’s future development focus areas. The N14 development corridor consists of the national road as well as a number of intersecting roads. These roads link the corridor with surrounding economic hubs &amp; their intersections create potential for the development of activity nodes in which investment can be focused.</p>
<b>PRECINCT PLANS</b>	
<b>Cradle of Humankind World Heritage Site</b>	<p>The objectives of the Precinct Plan are as follows:</p> <ul style="list-style-type: none"> <li>• Enable the incorporation of the area into the Municipal planning &amp; policy framework</li> <li>• Manage the future development of the area in a responsible manner given the sensitive nature of the area</li> <li>• Create new &amp; appropriate development opportunities</li> <li>• Create opportunities for economic development, in particular tourism &amp; recreation related activities</li> <li>• Address illegal land uses in the precinct</li> </ul> <p>Due to the international status of the COHWHS as a heritage conservation area, <b>sustainability</b> is the key principle that underpins the above objectives. The Cradle of Humankind World Heritage Site has been divided into five (5) Management Zones namely:</p> <ul style="list-style-type: none"> <li>• Primary Zone</li> <li>• Buffer Zone</li> <li>• Secondary Zone 1</li> <li>• Secondary Zone 2, &amp;</li> <li>• Tourism Routes.</li> </ul>
<b>Magaliesburg Precinct Plan</b>	<p>The following development objectives are addressed in the Magaliesburg Precinct Plan:</p> <ul style="list-style-type: none"> <li>• Strengthen eco-tourism &amp; agriculture (also beneficiation).</li> <li>• Improve the quality of housing, social facilities &amp; public infrastructure.</li> <li>• Encourage economic development at strategic areas &amp; increase their efficiency &amp; productivity</li> </ul>



INSTRUMENT	SUMMARY OF ISSUES PERTINENT TO THE MCLM-SDF
	<ul style="list-style-type: none"> <li>• Rejuvenate &amp; upgrade the urban environment &amp; protect against urban decay &amp; blight.</li> <li>• Integrate urban areas &amp; overcome apartheid-induced segregation</li> <li>• Integrate land use &amp; transport planning &amp; ensure integration between public transport modes, &amp;</li> <li>• Density settlements &amp; minimise urban sprawl &amp; the adverse effects of transport &amp; land development on the environment in all land development an</li> </ul>
<b>Hekpoort Precinct Plan</b>	<p>The broad objectives of the precinct are as follows:</p> <ul style="list-style-type: none"> <li>• Provide a strategic development vision for Hekpoort</li> <li>• Identify specific interventions to realise the development vision</li> <li>• Generate a comprehensive spatial development framework for Hekpoort</li> <li>• Address specific development issues &amp; challenges within Hekpoort</li> <li>• Include proposals in the Municipal &amp; District SDFs</li> <li>• Provide a basis for guiding the land-use management decision making process</li> <li>• Ensure environmentally sustainable development</li> <li>• Promote eco-tourism &amp; economic development within Hekpoort</li> <li>• Address the need for rural housing &amp; to cater for existing &amp; displaced rural communities</li> <li>• Guide the development of municipal infrastructure development within Hekpoort</li> <li>• Ensure viable commercial agriculture to guarantee food security within Gauteng, and</li> <li>• Address all matters that affect the development potential of Hekpoort.</li> </ul>
<b>Muldersdrift Precinct Plan</b>	<p>Objectives for the Muldersdrift Precinct Plan are as follows:</p> <ul style="list-style-type: none"> <li>• Unravel spatially the sustained resources &amp; latent potential that the Muldersdrift Development Zone has</li> </ul>

INSTRUMENT	SUMMARY OF ISSUES PERTINENT TO THE MCLM-SDF
	<ul style="list-style-type: none"> <li>• Outline a set of applicable guidelines &amp; interventions to enable the sustainable development of the Muldersdrift Development Zone as a whole</li> <li>• Expedite land development in an integrated &amp; sustainable manner</li> <li>• Generate an Infrastructure Development Framework</li> <li>• Outline the Environmental Management Framework</li> <li>• Draft guidelines &amp; design criteria (building typologies, heights, densities, public-private interfaces, design of public spaces) to manage development of the node, and</li> <li>• Define strategies for improvement of environmental quality &amp; enhanced sustainability.</li> </ul>
<b>Tarlton Precinct Plan</b>	<p>The objectives for the Tarlton Precinct Plan are as follows:</p> <ul style="list-style-type: none"> <li>• Strengthen eco-tourism &amp; agricultural development</li> <li>• Provide &amp; improve the quality of housing, social facilities &amp; public infrastructure</li> <li>• Encourage economic development linked to agriculture</li> <li>• Integrate land use &amp; movement in order to ensure integration between different spaces</li> <li>• Consolidate settlements &amp; minimize urban sprawl &amp; the adverse effects of land development on the environment</li> </ul> <p>These objectives are driven &amp; underpinned by the following strategies:</p> <ul style="list-style-type: none"> <li>• Agricultural &amp; rural development, and</li> <li>• Spatial restructuring of Tarlton.</li> </ul> <p>The Tarlton Precinct Plan is anchored upon development scenarios that emphasize the in-situ upgrading of the existing major informal settlement &amp; the relocation of the smaller informal settlements to this area.</p>

## 2.1. Summary of Issues Arising from Relevant Policies as seen through SPLUMA Development Principles

A number of common issues can be derived from the documents reviewed and the discussions arising out of various meetings and consultations. These can be summarised within the framework of SPLUMA Development Principles and customised for MCLM as indicated in Table 2 below.

**Table 2: Summary of key issues as seen through SPLUMA Development Principles**

<b>SPATIAL JUSTICE</b>	<b>SPATIAL SUSTAINABILITY</b>
<ul style="list-style-type: none"> <li>• Ensuring the SDF integrates all parts of MCLM</li> <li>• Focusing on disadvantaged areas &amp; informal economies &amp; informal settlements</li> <li>• Addressing inequality through spatial integration &amp; complimentary co-existence between disadvantaged areas &amp; areas of economic activity, and</li> <li>• Providing a predictable &amp; consistent system for Land Use Management.</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainable land development that considers protection of environment &amp; unique agricultural land</li> <li>• Development in locations that are sustainable &amp; management of urban sprawl</li> <li>• A balanced approach towards urban &amp; rural development</li> <li>• Addressing the rehabilitation of mines, and</li> <li>• Protecting the environment through application of environmental management instruments while recognizing that within protected areas certain level of development should be accommodated.</li> </ul>
<b>SPATIAL EFFICIENCY</b>	<b>SPATIAL RESILIENCE</b>
<ul style="list-style-type: none"> <li>• Optimizing the use of existing resources / infrastructure through Land development, for example:               <ul style="list-style-type: none"> <li>○ Densification</li> <li>○ Mixed Development</li> <li>○ Infill Development</li> <li>○ Nodal &amp; Nodal Hierarchy Approaches</li> <li>○ Enhancement of Development Corridors</li> </ul> </li> <li>• Enhancement of public transport system.</li> </ul>	<ul style="list-style-type: none"> <li>• Integration of Climate Change Risk Analysis in planning</li> <li>• Implementation of the SDF should lead to opportunities for sustainable livelihoods for communities most likely to suffer the impacts of economic &amp; environmental shocks.</li> <li>• Protection of the environment &amp; natural resources, and</li> <li>• Creation of an integrated open space system &amp; the promotion of the functions &amp; functioning of natural systems.</li> </ul>
<b>GOOD ADMINISTRATION</b>	
<ul style="list-style-type: none"> <li>• Inter &amp; cross-sectoral coordination to ensure an integrated approach to spatial planning &amp; land use management</li> <li>• Employment of transparent processes of public participation are used in the preparation &amp; amendment of spatial plans, policies, land use schemes &amp; procedures for development applications.</li> </ul>	

### 3. MCLM-SDF SPATIAL STRUCTURING ELEMENTS

The Spatial Development Framework for Mogale City takes cognisance of a number of key spatial structuring elements that provide pre-determined spatial form and also provide structure to development patterns through the opportunities and restrictions they impose on what can and what cannot be done. As indicated in Figure 4 below, the MCLM SDF identifies both natural and non-natural structuring elements.

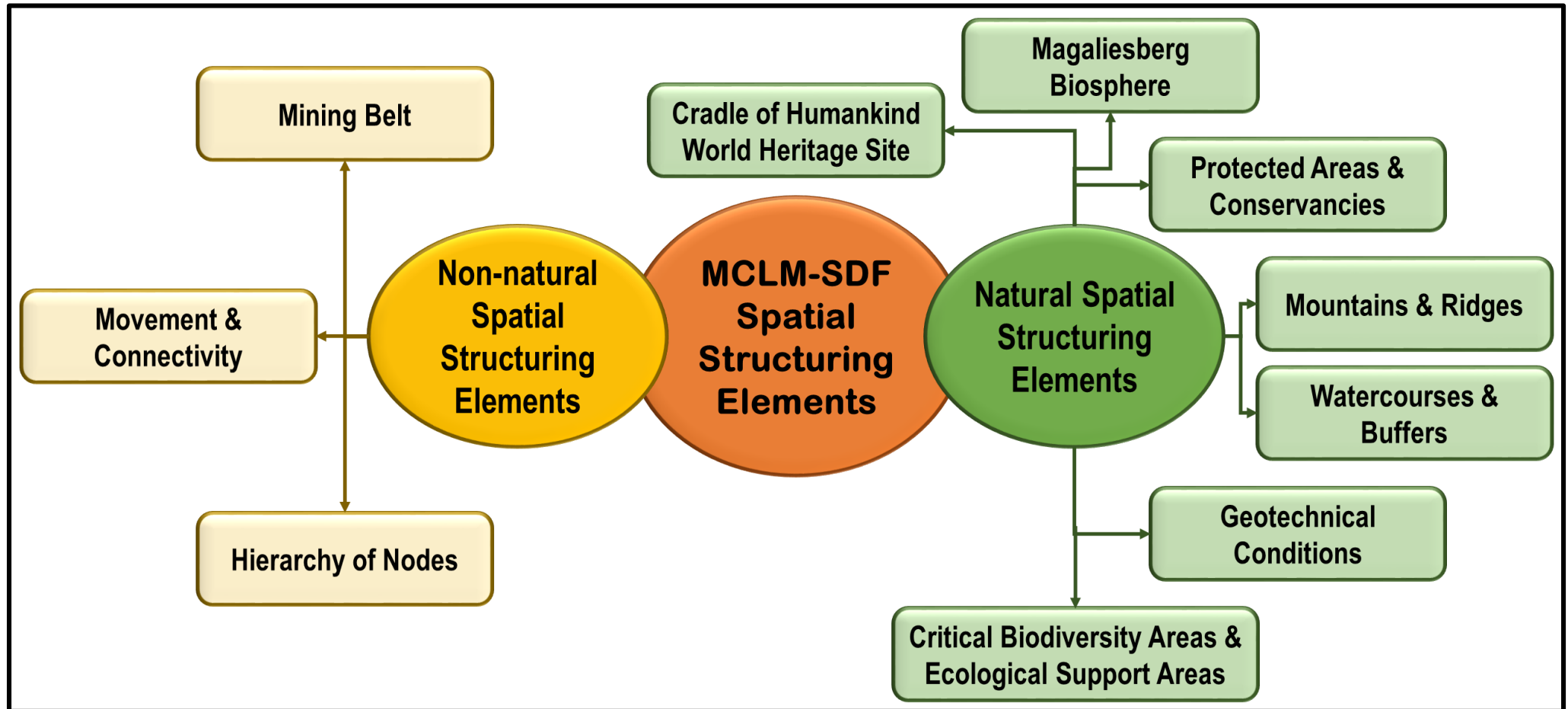


Figure 4: MCLM-SDF spatial structuring elements

These are discussed in detail in the section that follows below.

### 3.1. Natural Structuring Elements

The following constitute the key natural phenomena that have a strong influence on the development character of the Municipality.

#### 3.1.1. Cradle of Humankind World Heritage Site

The Cradle of Human Kind is located to the north eastern part of MCLM & sits on 47000ha. It was declared a UNESCO World Heritage Site in 1999. It includes archaeological sites at Sterkfontein, Kromdraai, Swartkrans cave, Coopers B, Wonder Cave, Drimolen, Gladysvale, Gondolin, Plover's Lake, Haasgat, Bolt's Farm and Minnaar's caves.

The COHWHS is a key structuring element as the area is demarcated into a primary and secondary zone, which zones are subjected to land development guidelines based on levels of acceptable change. These guidelines are directly linked to the environmental beneficiation with a strong focus on small scale, low impact tourism development. One of the challenges remains that these parameters do not recognise human settlement within the WHS, though there are indeed settlements that exist there.

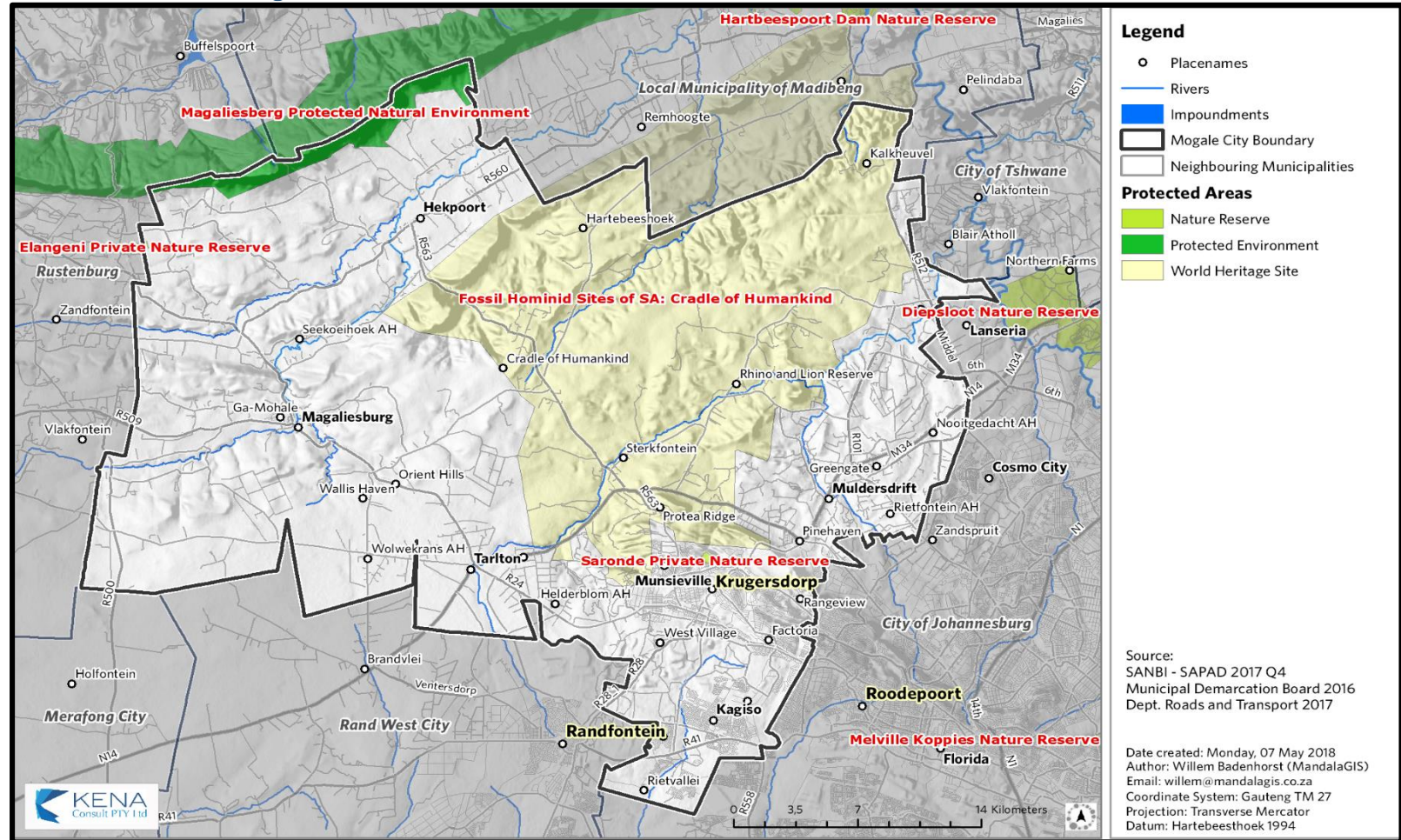


Figure 5: Cradle of Human Kind World Heritage Site



### 3.1.2. Magaliesberg Biosphere

The Biosphere covers the Magaliesberg mountain range, located largely in the North West Province, but which also spreads across the provincial boundary into the Gauteng Province, specifically, into the Mogale City Local Municipality jurisdiction.

The core, buffer and transitional zones as currently demarcated are aimed protecting these areas through the medium of specific development / land use guidelines.

The Magaliesberg biosphere enjoys legal protection that places specific restrictions on land use and development in this area. The legislative interpretation of the legal status of the biosphere read together with NEMA and its regulations imposes certain development restrictions within the biosphere.

Existing environmental instruments, GDARD C Plan 3.3 and the West Rand Bioregional Plan are deemed effective instruments to manage the buffer and transitional zones. These exclusions must be driven by MCLM at a very high level.

To the extent that development is initiated, the developmental approach within the biosphere must be linked to sustainability and economic empowerment of local communities.

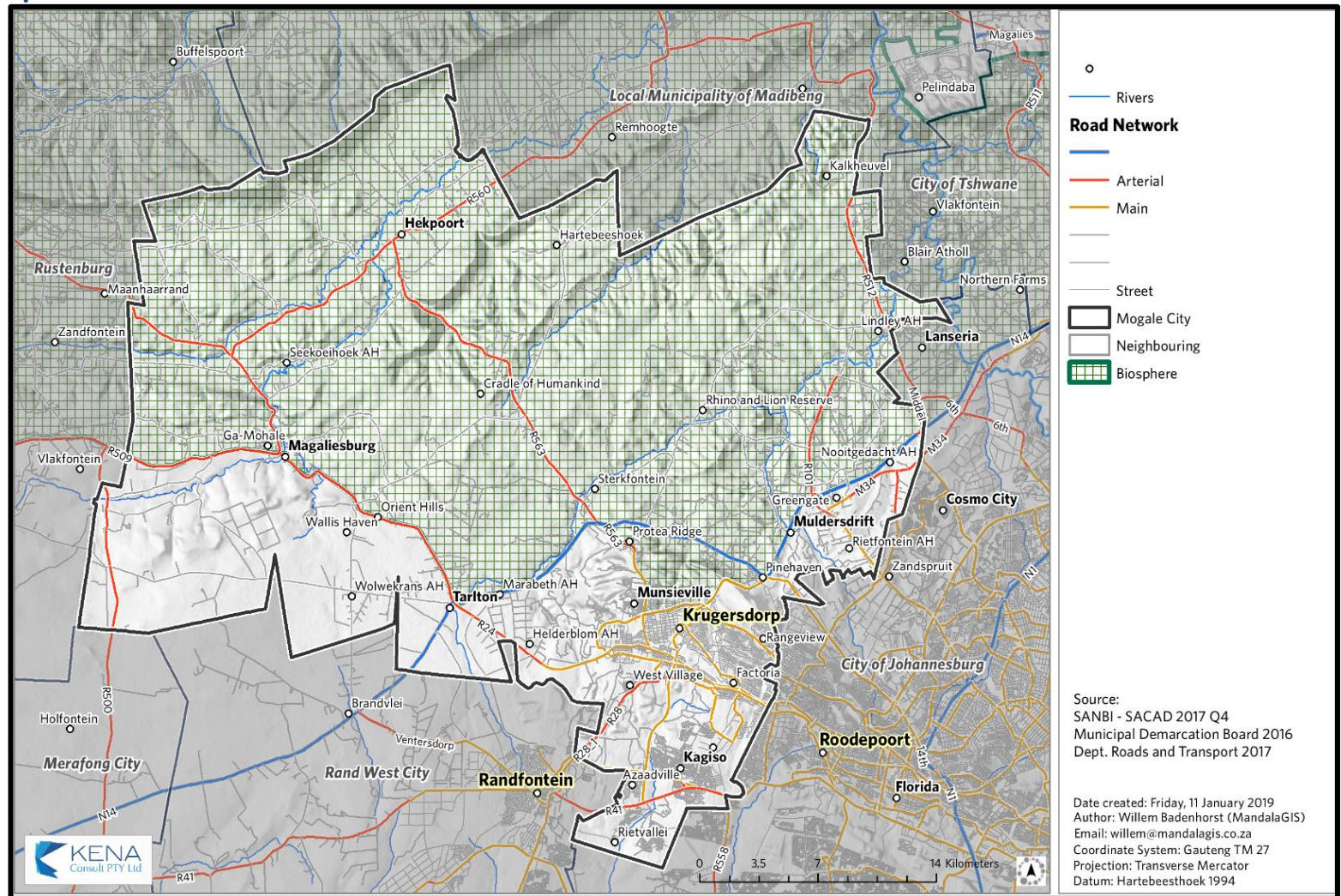


Figure 6: Magaliesberg biosphere



### 3.1.3. Protected Areas and Conservancies

MCLM is endowed with nature reserves and conservancies such as Mogale’s Gate Private Game Park, Krugersdorp Municipal Game Reserve and Hartebeestfontein Conservancy established with a view to protecting and conserving the environment.

These areas play a crucial role in the preservation of plant and animal life in the municipal area, while providing sites for tourism and recreational activities.

The Gauteng Province Environmental Management Framework (GPEMF) provides the overall framework for the alignment and management of the environment.

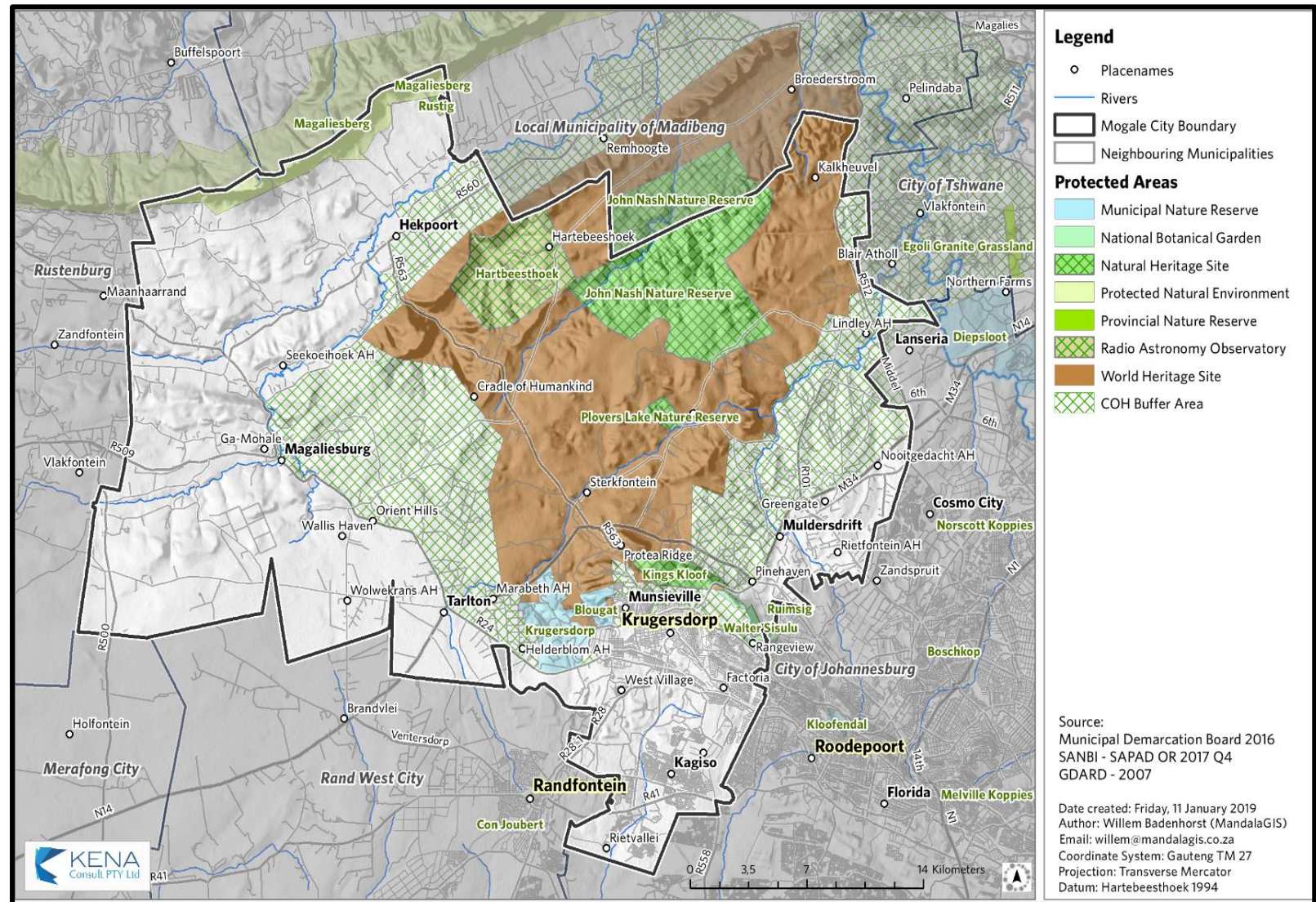


Figure 7: Protected areas in MCLM



### 3.1.4. Mountains and Ridges

MCLM is endowed with mountains and ridges, namely, Magaliesberg, Witwatersberg, and Protea Ridge, which are themselves, spatial structuring elements. They provide natural aesthetics to the municipal area and are part of the tourism and conservation resources in the area. The ridges located to the west of MCLM have a significant impact on development and other activities. They also define clear drainage basin surrounded by steep slopes. These topographical features of the western sector create a niche environment for agricultural, recreational and conservation activities.

The relative mountainous areas of the east and west are separated by the band of flat land bisecting the municipal area. While this area is underlain by dolomitic base rock, it also describes land with some of the best agricultural potential in MCLM.

The ridges of the Witwatersberg immediately to the north of the Krugersdorp urban core tend to impact development by restricting linkages between the developed south and the developing area to the north. The watershed that exist have ramifications in the provision of bulk services in the area.

It is important to note here that no development should be permitted beyond the 1730m contour line to protect these ridges.

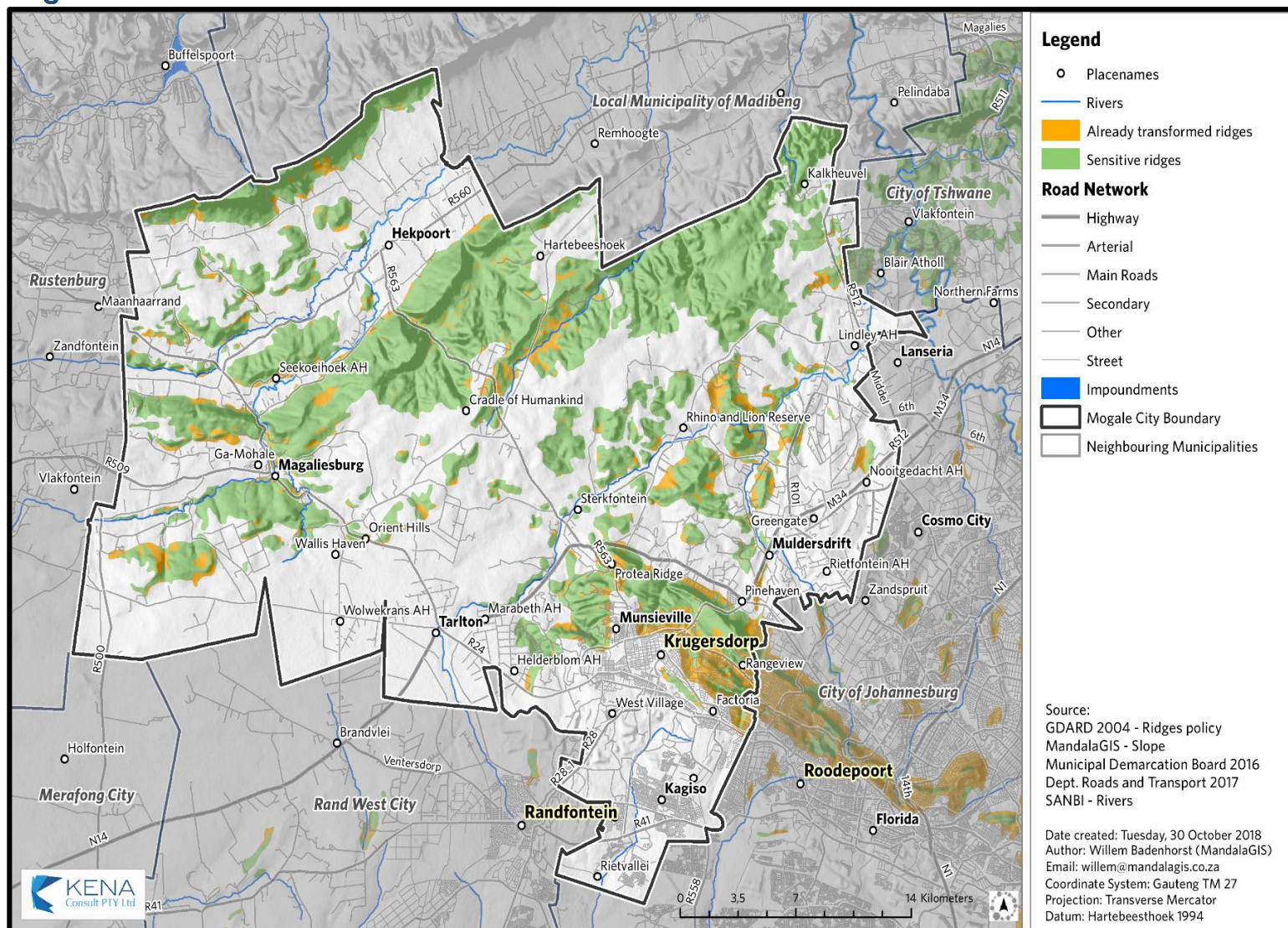


Figure 8: Mountains and ridges



### 3.1.5. Watercourses and Buffers

Water courses in MCLM include the: Crocodile River, Jukskei River, Skeerpoort, River, Magalies River, Klein River, Wilge Spruit, Honingklip Spruit, Nooitgedacht Spruit, Muldersdrift Spruit, Rietspruit, Hekpoort Spruit, Doring Spruit, Rooisloot Spruit, Swart Spruit, Hugenote Spruit, Wonderfontein Spruit, Tweelopies Spruit, and the Blaauwbank Spruit.

These rivers constitute water sources for socio-economic activities such as farming, domestic and industrial uses.

The riparian zones associated with the rivers and streams fall within the environmental protection zones of Gauteng Environmental Management Framework (GEMF).

Storm water management and flood-lines within development focus areas need to be addressed and maintained within approved rights and development approaches. Any deviation or impact is subject to NEMA and its regulations. No alteration of flood-lines and watercourses should be supported along the rivers and watercourses.

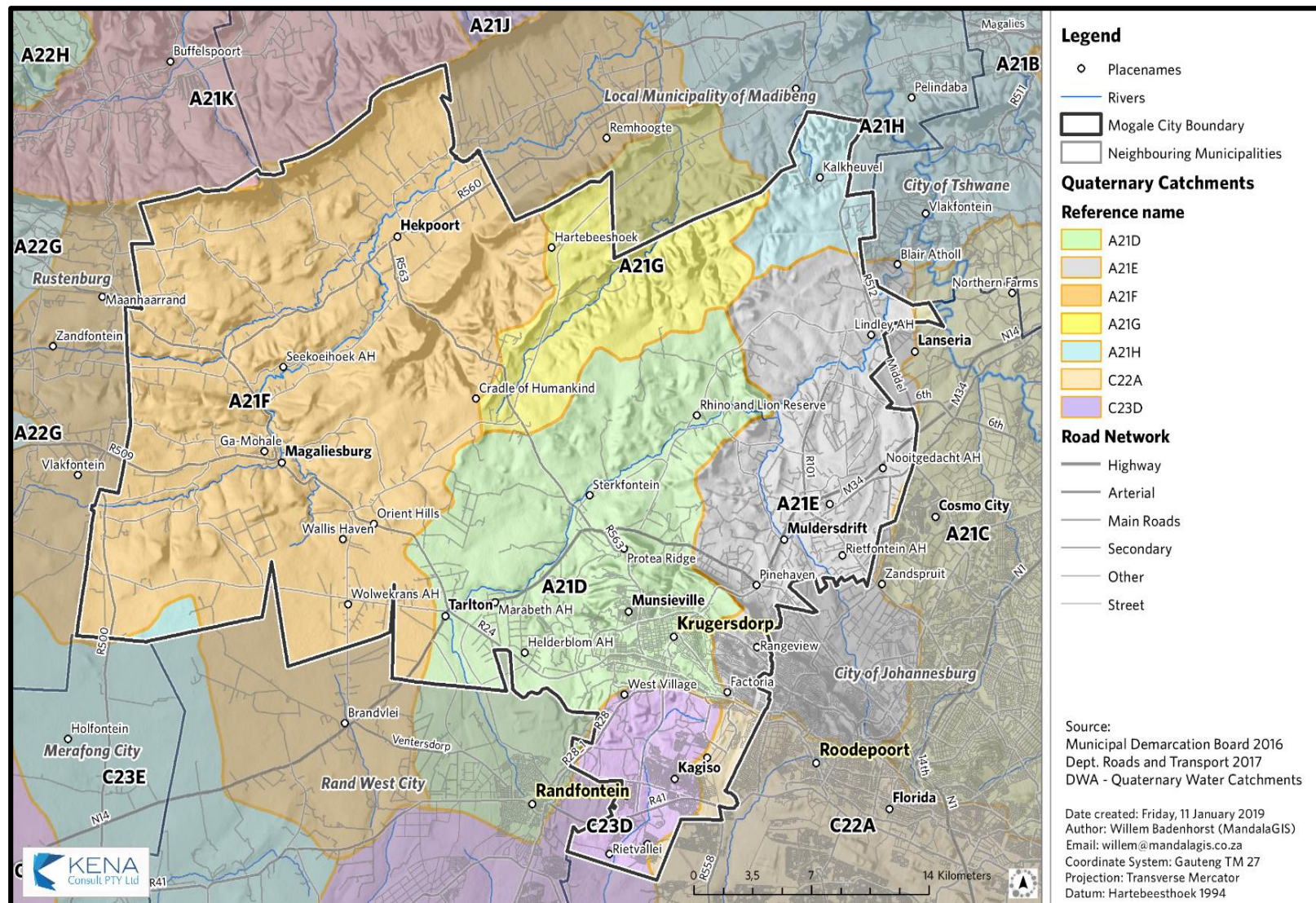


Figure 9: Quaternary water catchments



### 3.1.6. Geotechnical Conditions

The geology of the area is fundamental in sustaining development over the long term. Geology determines not only soil conditions but has an impact on development cost and safety. It also directly determines agricultural potential in terms of soil potential and vegetation types.

The key geological feature is the band of dolomite running through the area. It is however a low priority area for urban development and will not impact on development in general. Risk factor analysis will dictate any future developments. In cases where development is proposed within dolomitic areas, it will be subject to full geotechnical analysis in terms of SANS 1936.

The existing urban areas are on quartzite that is generally suitable for urban development. However, the granite in Muldersdrift is significant since it might be prone to collapsible soils which might add to the development costs. This should not necessarily be a major consideration in making proposals for future development

A significant portion of the Cradle of Humankind World Heritage Site is underlain by a dolomitic band. This area is considered very important in terms of Outstanding Universal Value as it comprises the fossil-bearing caves and Karst system that provides the area with its unique characteristics.

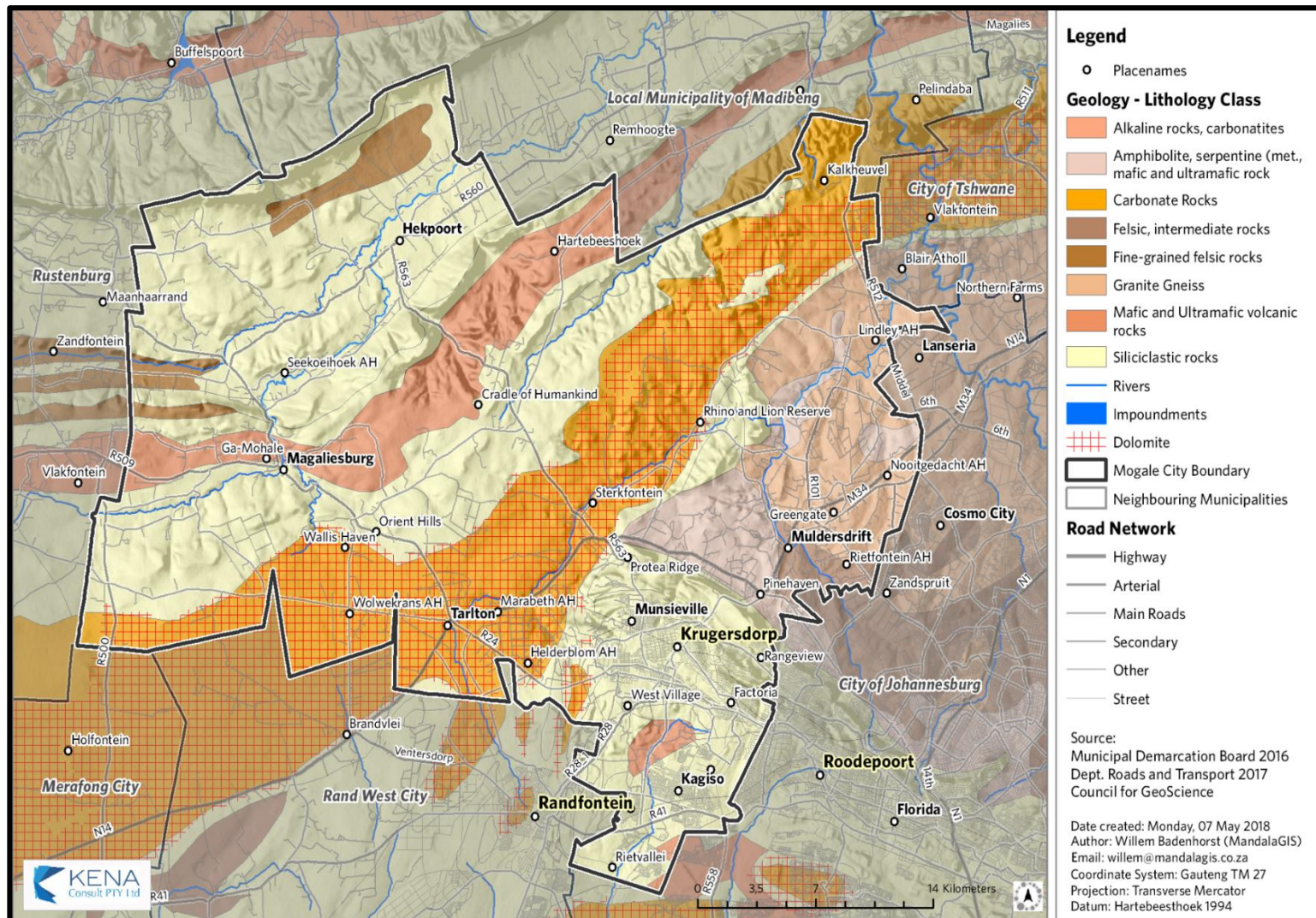


Figure 10: Geology



### 3.1.7. Critical Biodiversity Areas and Ecological Support Areas

MCLM straddles the Grassland and Savanna biomes. The mountainous parts of the Municipality are endowed with Savanna biome whilst the flatter, more undulating terrain is inhabited by the grassland species.

Critical Biodiversity areas (CBAs) and Ecological Support Areas (ESAs) highlight specific areas of protection. The maintenance of ecological connectivity remains the priority as this will ensure sustainability of habitats and prevent fragmentation.

The WRDM Bioregional Plan highlights biodiversity compatible land use guidelines in relation to CBA categories.

The Gauteng EMF delineates environmental management zones which guides development through a mitigation framework and levels of acceptable change.

The MCLM SDF acknowledges the importance of protecting the environmental assets of the municipality to promote and sustain the natural beauty of the area and to balance the ecosystem.

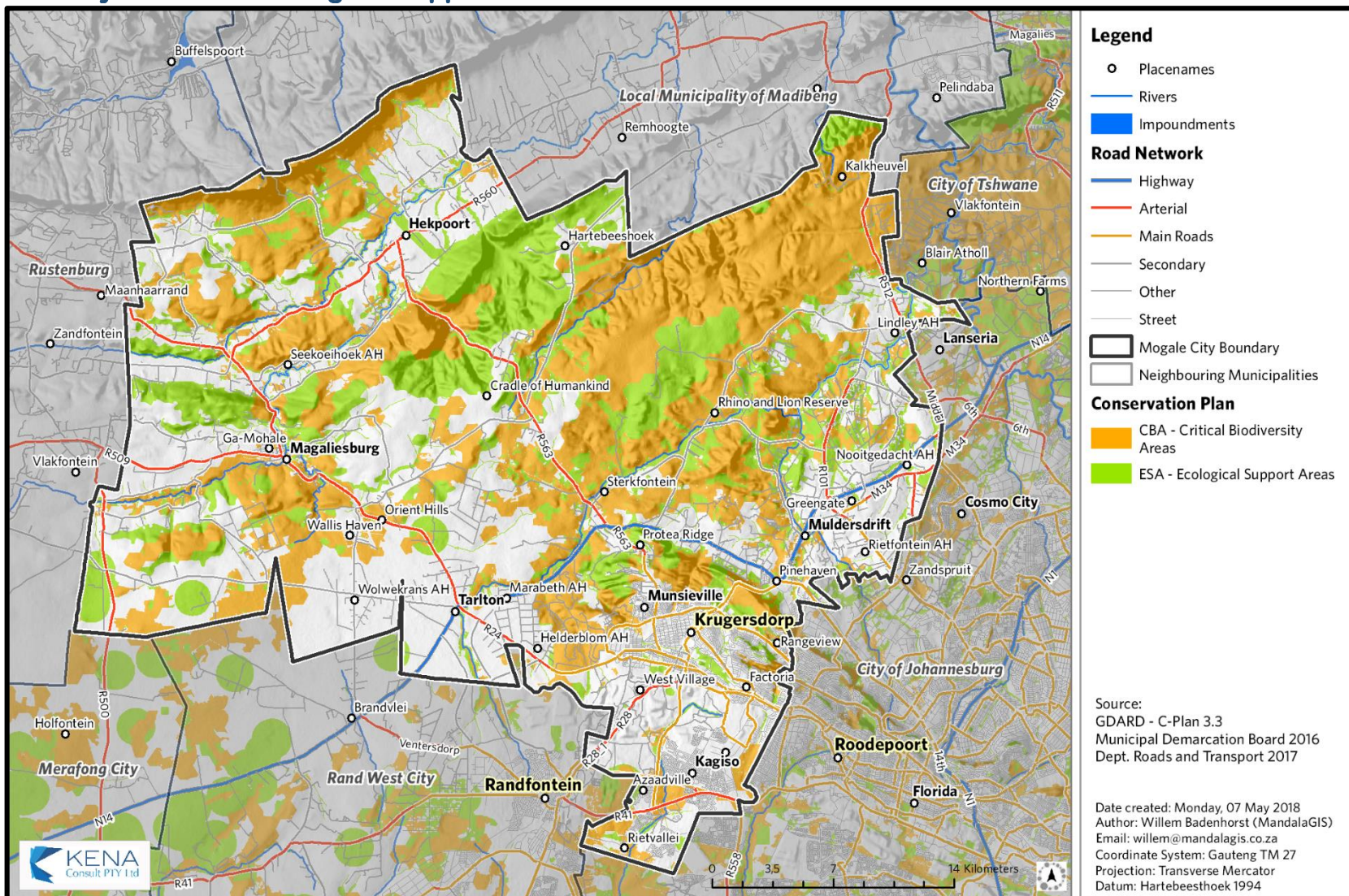


Figure 11: Critical biodiversity and ecological support areas



### 3.2. Non-Natural Spatial Structuring Elements

Non-Natural Structuring elements are those human development interventions that have given rise to a distinct spatial form that helps shape how new developments take place. In MCLM, the significant ones include the Mining Activities and specifically the existence of the Mining Belt, the Transport Infrastructure and Movement Network and the Hierarchy of Nodes existing in the municipality. These elements are discussed below.

#### 3.2.1. Mining Activities / Mining Belt

The Mining Belt runs in an east-west direction through the south-eastern part of MCLM negatively impacting the spatial structure of the urban area. It constrains the integration of the urban areas to the north and south of the municipal area.

The mining belt has caused spatial fragmentation that disconnects Kagiso, Azaadville and Rietvallei from the rest of the municipality. Furthermore, the mining belt is both an environmental and health concern. On windy days, the sandstorms from the mining belt can be a health hazard, while acid drainage has the potential of introducing toxins into the ground and underground water systems. Some portions of the mining belt are a source of radioactive activity.

A 2019 Mining Belt Regional Planning Policy by the Gauteng Planning Division of the Office of the Premier indicates that mining areas that were previously undevelopable can be exploited for infill development. However, detailed studies need to confirm development suitability of specific places.

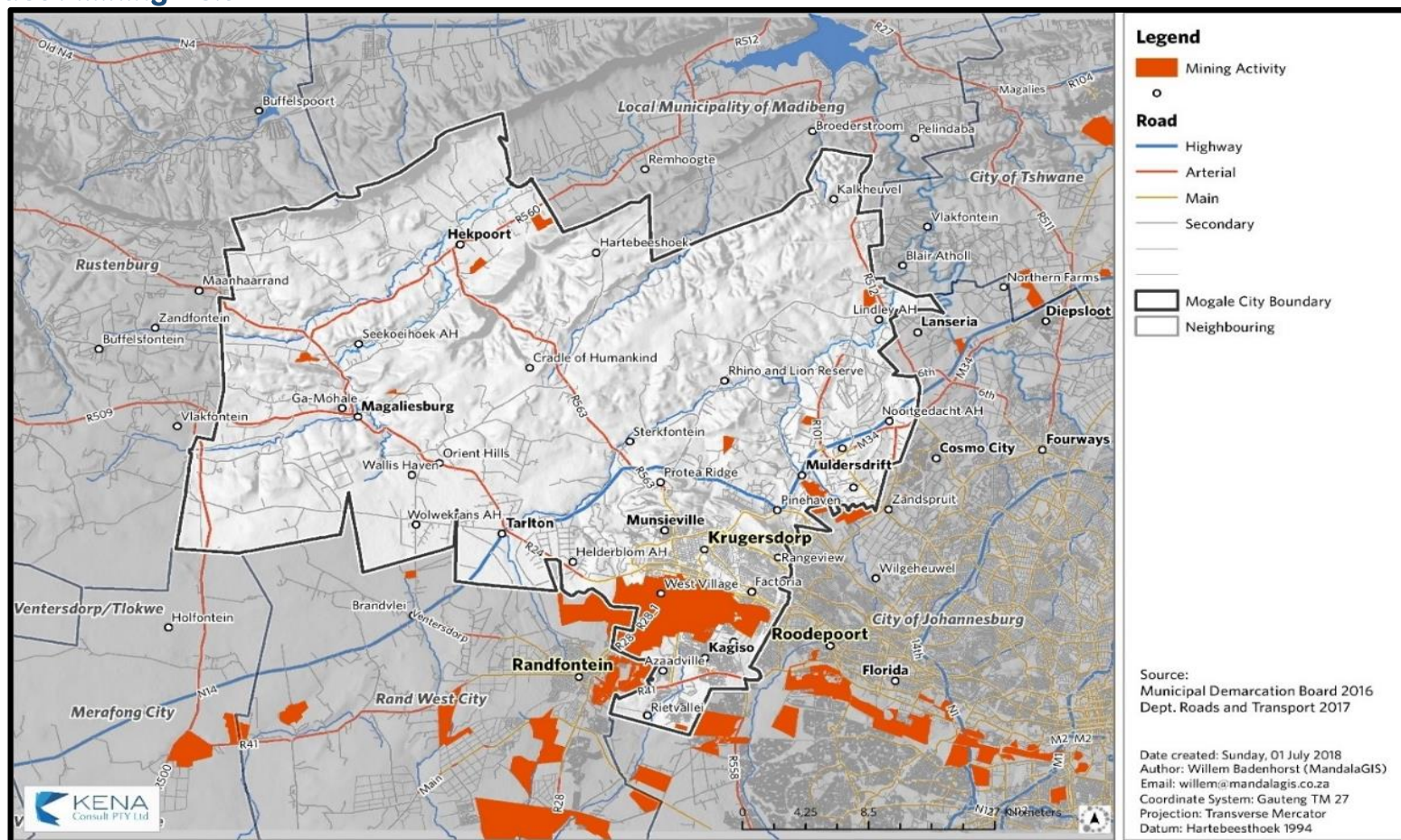


Figure 12: Mining activities / mining belt



### 3.2.2. Movement and Connectivity

Mogale City has a good road network and a relatively functional commuter rail network linking Krugersdorp to the City of Johannesburg and the rest of the District Municipality. The Krugersdorp urban area is well connected to neighbouring municipalities and regional arterials.

From a sub-regional perspective MCLM benefits from the following major inter-regional road linkages:

- N14 linking the North West
- N14/ R28 linking the Vaal Triangle complex
- R509 link to Koster, and
- R24 link to Rustenburg.

Sub-regionally, MCLM is well linked to the adjoining metropolitan areas:

- City of Tshwane (COT) through the N14 national route
- City of Johannesburg (COJ) through:
  - R512 (Malibongwe Road)
  - Beyers Naude Drive (M5)
  - Hendrik Potgieter (M47)
  - Voortrekker/Ontdekkers/ Main Reef Road (R41), and
  - Randfontein Road.
  - Rail to Johannesburg and Randfontein
- Kagiso-Rietvallei complex linked to Rand West – due to proximity of the Randfontein CBD
- Proposed realignment of certain K and PWV routes.
- Key role players in transportation infrastructure still remain Gautrans with the Major Road Network and the legislative protection enjoyed through the Gauteng Infrastructure Act.

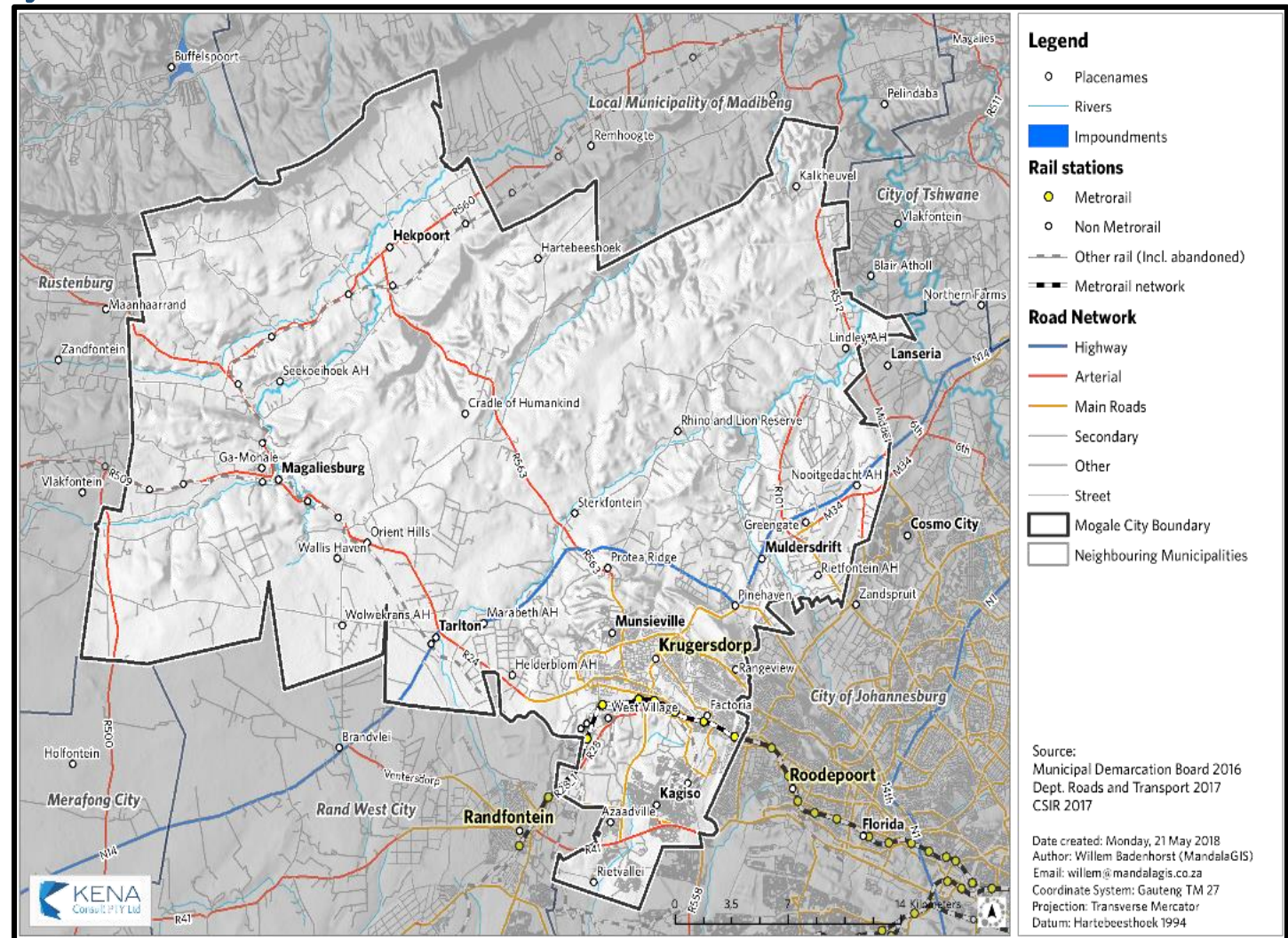


Figure 13: Road and rail network



### 3.2.3. Nodes and Hierarchy of Nodes

An important part of developing a robust and efficient spatial structure is in ensuring there is a well-defined hierarchy of interlinked activity nodes that lead to an equitable distribution of services and facilities throughout the municipality. These can use the energy created by major movement infrastructure and public transport networks to create activity spines. The spines should be especially focussed on linking up with activity areas to the east of MCLM to ensure functional integration with the City of Johannesburg activity network. The MCLM hierarchy of nodes and linkages is summarised below:

- **Primary Node:** Krugersdorp multi-economic activity node
- **Secondary Nodes:** Muldersdrift, Pinehaven and Leratong
- **Local Nodes:** Kagiso, Azaadville and Rietvallei and Munsieville.
- **Tourism and Agricultural Nodes:** Magaliesburg, Tarlton and the smaller tourism and agricultural hub of Hekpoort that are associated with corridors – R24, N14, M5 and R563. While Tarlton and Hekpoort have a ribbon development character, it is desirable to anchor the development around a central core.
- **Specialised Activity Node:** Lanseria International Airport Developments Zone – which promotes a mix of hi-tech and clean industrial activities.
- **Industrial Nodes:** The Delporton, Chamdor, Boltonia and Fatoria industrial complexes refer to pockets of industrial development within the MCLM urban structure.

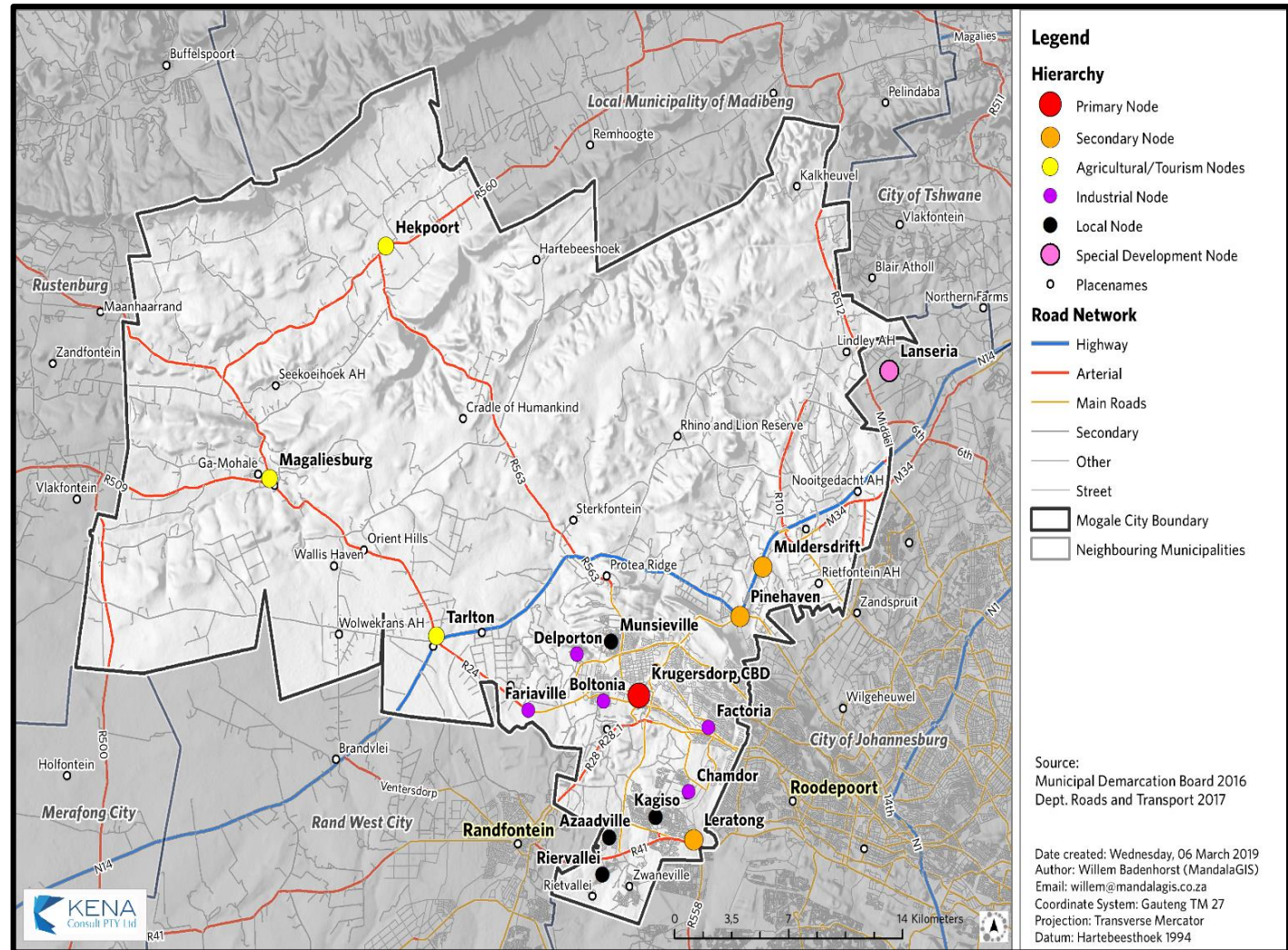


Figure 14: Nodal hierarchy

## 4. SOCIO-ECONOMIC ATTRIBUTES OF MCLM

### 4.1. Population Density and Distribution

Of the total population of the West Rand Region, about 45.5 per cent were residing in Mogale City in 2016, making it the most populated region in the district. Based on the findings of the Census 2011, the Mogale City Local Municipality had a total population of 362 422 people and a total of 117 373 households (refer to Figure 15 below). In 2016, the population was estimated at 383, 864 people. According to the West Rand District Municipality Spatial Development Framework, the population of Mogale City Local Municipality is projected to rise to 555 814 people by 2025 while the number of households will increase to 191 459 by the same year.

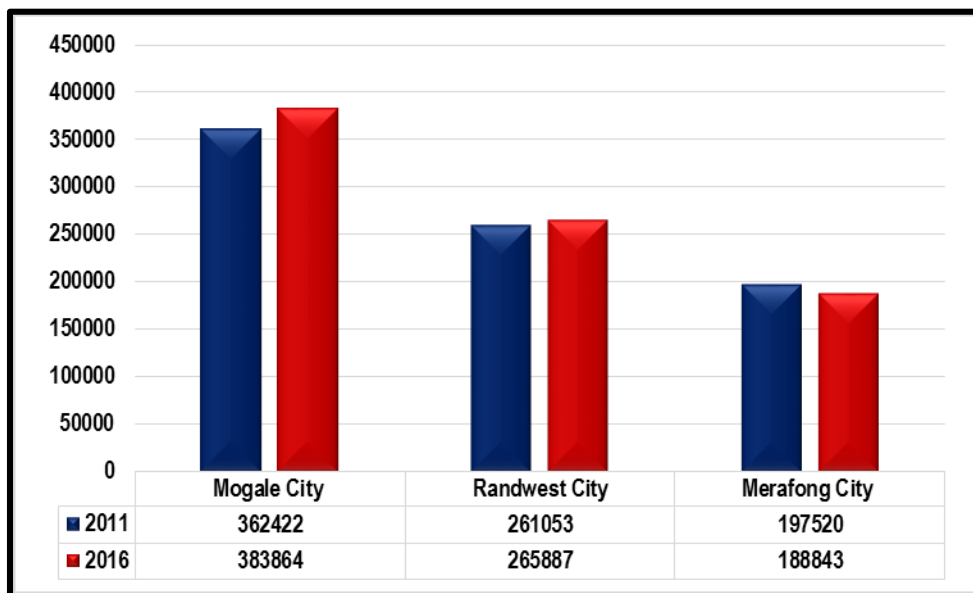


Figure 15: MCLM population in the context of WRDM

(Source: Stats SA Community Survey 2016 Statistics)

Table 3 provides projections for population, household numbers and job opportunities to 2037.

Table 1: Projections of population, households and job opportunities

POPULATION				NUMBER OF HOUSEHOLDS				JOB OPPORTUNITIES			
2001	2011	2025	2037	2001	2011	2025	2037	2001	2011	2025	2037
292 643	362 422	555 814	609 169	85 469	117 373	191 459	212 405	55 623	84 330	155 859	216 833
Percentage Growth											
2001-2011	2011-2025	2025-2037	2011-2037	2001-2011	2011-2025	2025-2037	2011-2037	2001-2011	2011-2025	2025-2037	2011-2037
2.0%	3.1%	0.8%	2.0%	3.2%	3.6%	0.9%	2.3%	4.7%	4.2%	2.8%	3.6%

An analysis of Mogale City Average population changes from 2005 to 2017 is provided in Figure 16 below. During this period, the population has been increasing at a declining rate. For instance, between 2010 and 2013, the growth rate averaged 1.85%, while between 2013 and 2017 the rate of growth is expected to be slower at 1.58%. However, long term trends show stability hovering around 2% growth rate.

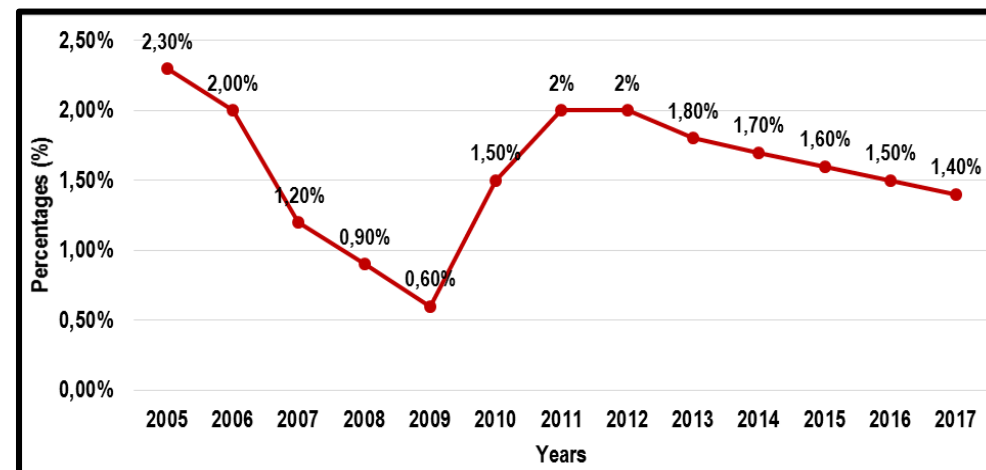


Figure 16: MCLM population growth rate (2005-2017)

Figure 17 represents the population density per 1km for MCLM



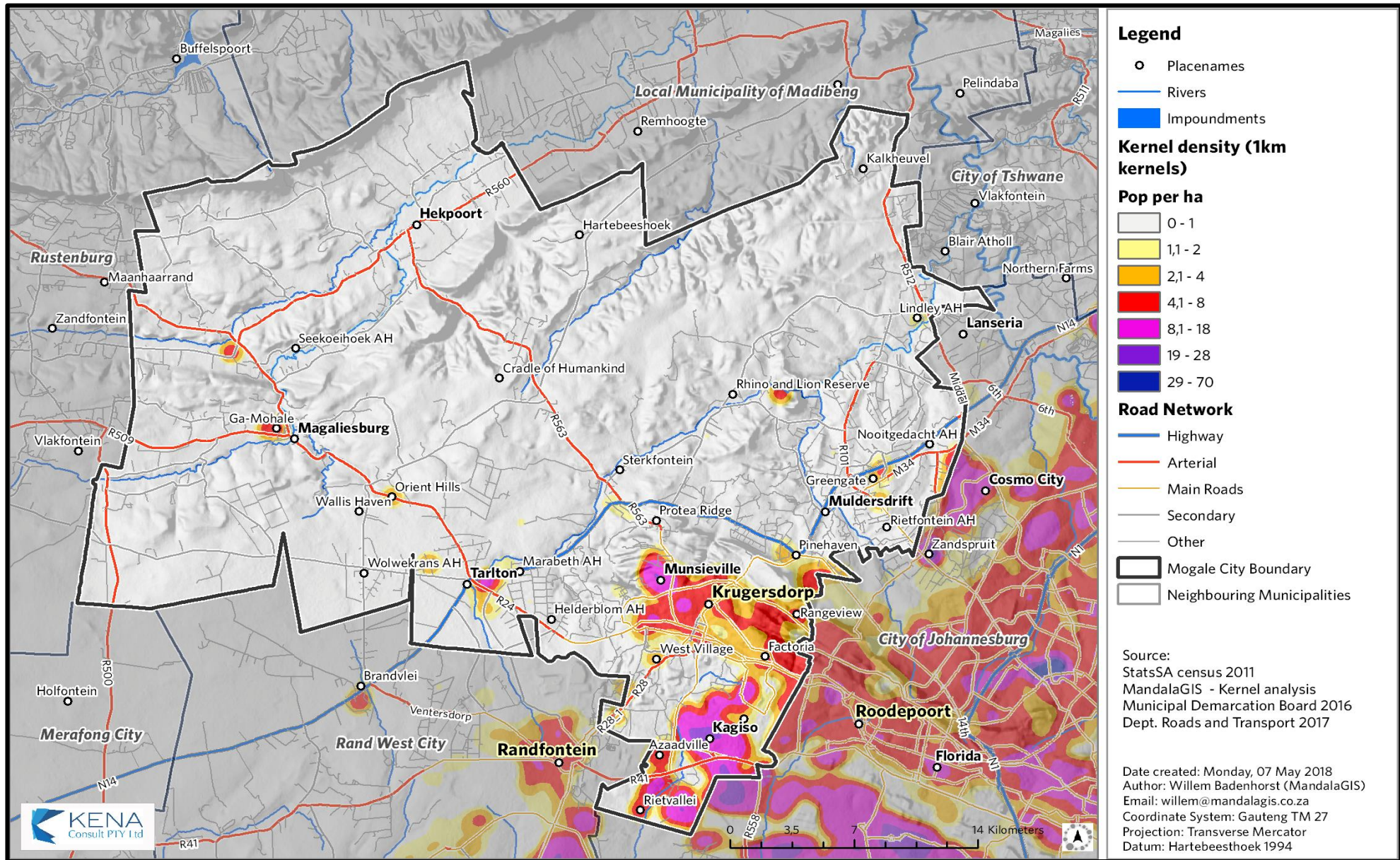


Figure 17: Population density (1km Kernel)

From a density perspective, the population of Mogale City Local Municipality is heavily concentrated to the south east in and around the Central Business District (CBD), with dispersed population agglomerations to the north and west of the municipality. Not many economic opportunities lie towards the north and east of the municipality and hence the dispersion. The CBD provides economic development opportunity and has a range of services that attract people to the core. Business, light industrial and commercial potential are dense towards the core of the city, hence the increased population concentrations.

There are also concentrations of people around Magaliesburg and Tarlton. There are increased densities around the N14-R28 crossing and in the Muldersdrift, reason being that apart from the settlements in these areas, these corridors have high volumes of business activities.

Figure 18 below shows the population structure for Mogale City between 2011 and 2016. The pyramid shows a youth bulge which is similar to trends in the Gauteng Province and the rest of the country. There is also a population decline in the ages of 30-34 when comparing 2011 and 2016. There were less people in 2016 of these age groups compared to 2011.

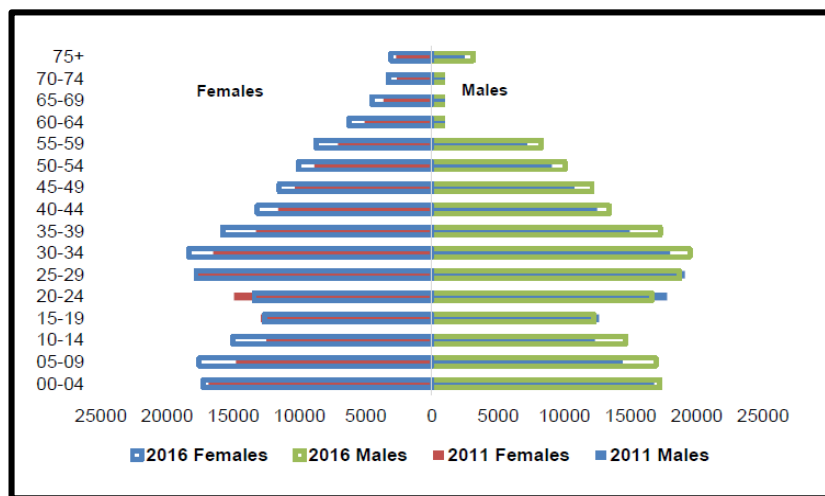


Figure 18: MCLM population pyramid

(Source: HIS Markit 2017)

Figure 18 further elaborates on the population pyramid and shows the proportion of the youth population that is dependent on the working age population. Figure 19 below shows an increasing dependency trend both in the West Rand District Municipality and the Mogale City Municipality. Since

2011-2016, child dependency ratio has increased by 2.8% from 35.3% to 38.1% per 100 people. This dependency is extended when calculated for the whole population, which includes the age group of children and old-age people above 65 years. The higher dependency ratio is associated with an increase in taxes for the working population to support the non-working age group.

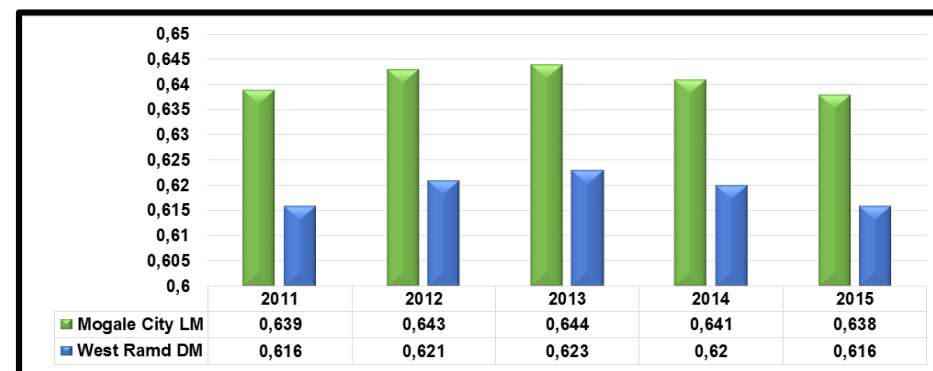


Figure 19: Youth dependency ratio (2011-2015)

## 4.2. Education

There are a total number of 70 schools in MCLM. Their breakdown in terms of type and numbers is shown in Table 4 below. The majority of the schools are concentrated in the urban context of MCLM with several facilities also found in the rural hinterland.

Table 2: Types and numbers of education facilities

TYPE OF SCHOOL	NUMBER
Special	3
Primary	43
Secondary	16
Combined	6
Intermediate	2
<b>TOTAL</b>	<b>70</b>

Figure 20 captures the distribution of education facilities



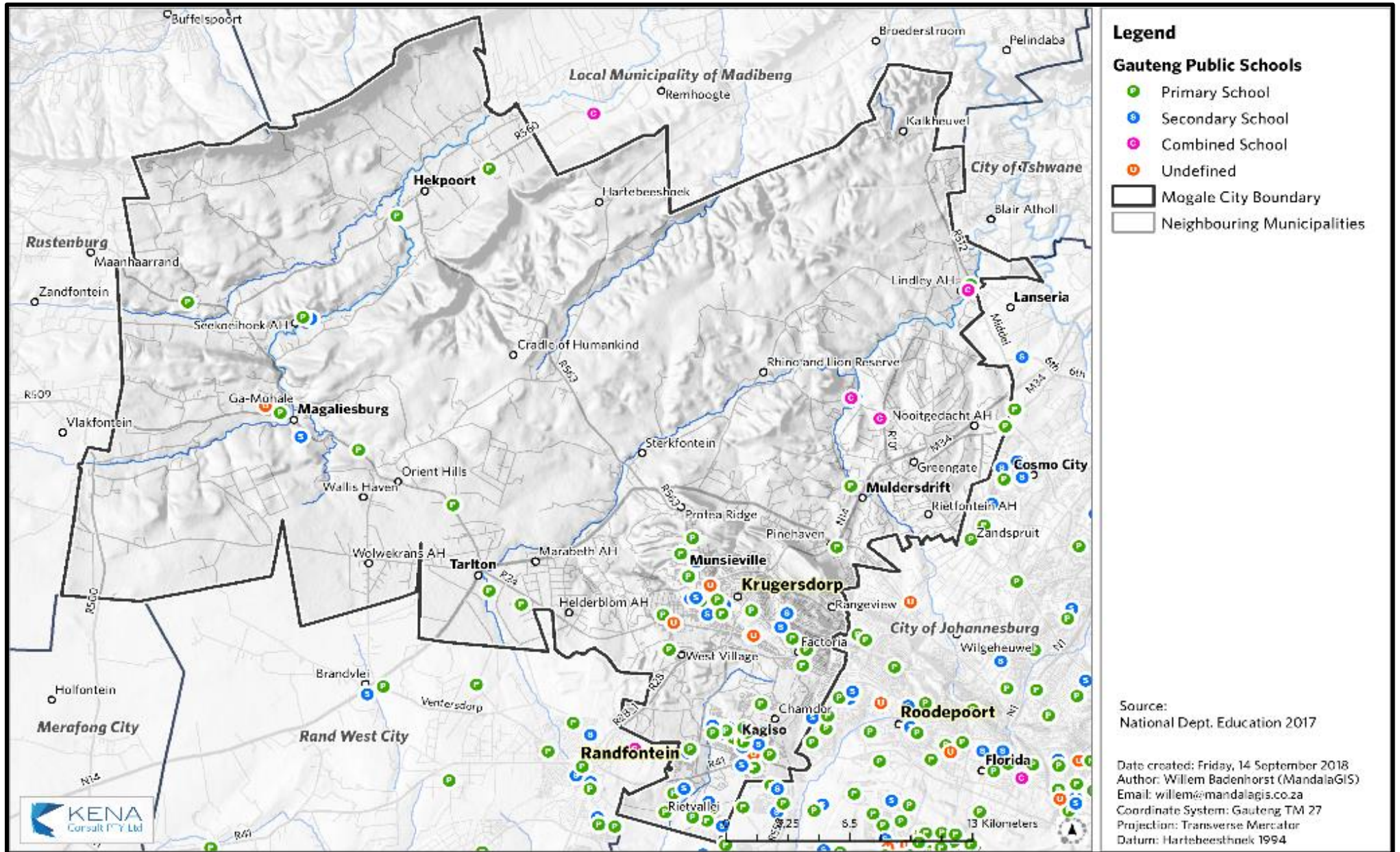




Figure 20: Distribution of education facilities

The share of people with secondary education accounted for 67.9% in 2015. 4.0 % of the people aged 20 years and above have completed primary school, 35% have some secondary education, 33% have completed matric, and 13% have some form of higher education. 3.4% of the people have no form of schooling whatsoever.

The spatial distribution of levels of education confirms the broad socio-economic patterns in the municipal area. Low schooling levels are prevalent in the Kagiso complex, the rural areas and areas associated with agricultural holdings. These are the areas linked with higher demands for manual labour and the predominantly black townships. The urban core shows a significant proportion of the population with tertiary education. This is because of the nature of employment and the strong service orientation of the CBD and adjacent areas. Figure 21 below summarises the number of persons attending primary school and Figure 22 summarises those studying at University.

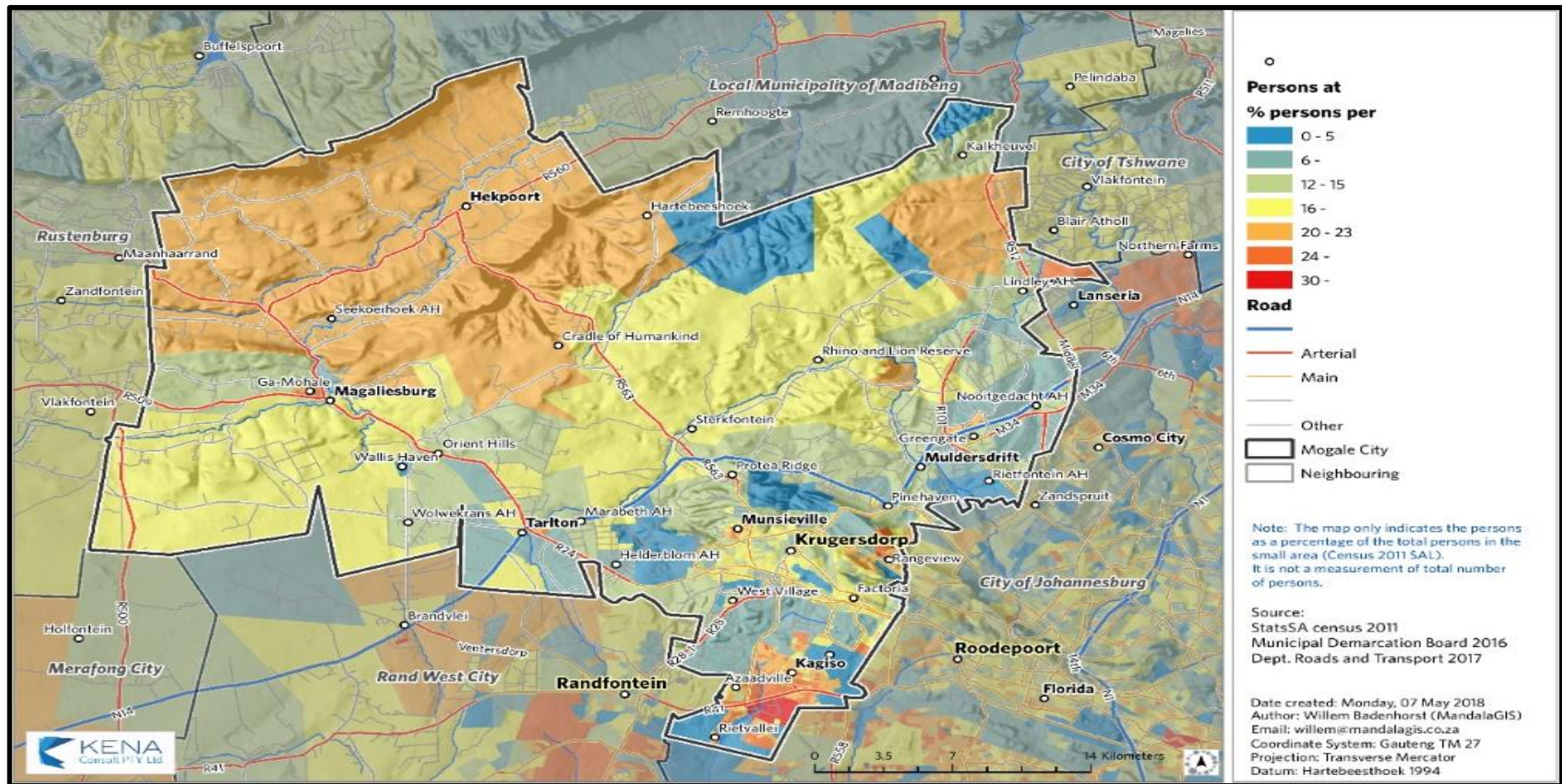


Figure 21: Percentage of persons attending primary and secondary schools



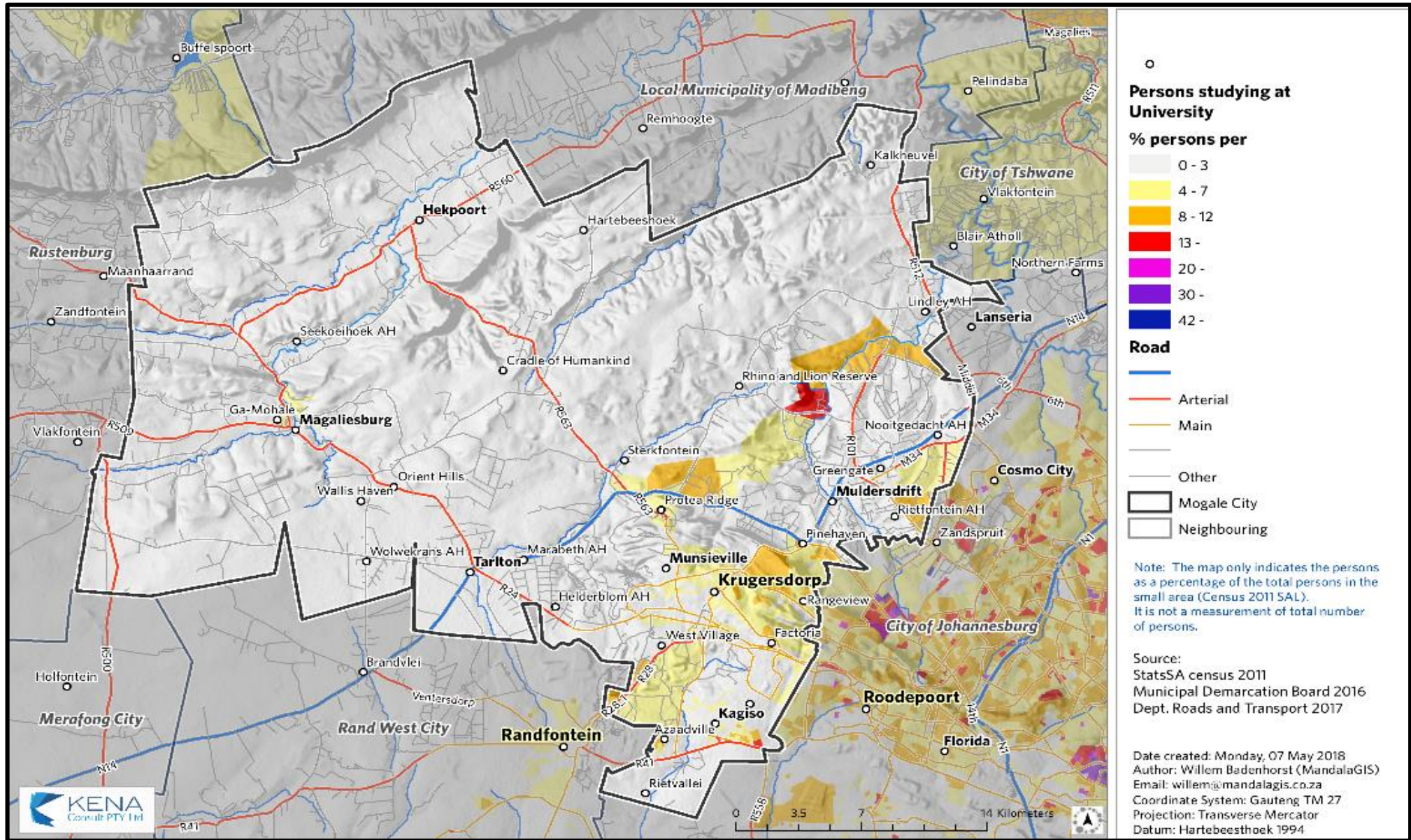


Figure 22: Percentage studying at university

### 4.3. Employment

Figure 23 shows the employment numbers by sector in Mogale. During the 2011-2015 period, wholesale, retail and finance sectors were the largest sources of employment. The trade sector employed a total of 21 117 people in 2015 and the finance sector employed 20 329 people. The manufacturing sector employed 18 841 people while farming electricity and mining sectors had the lowest levels of employment in the Municipality.

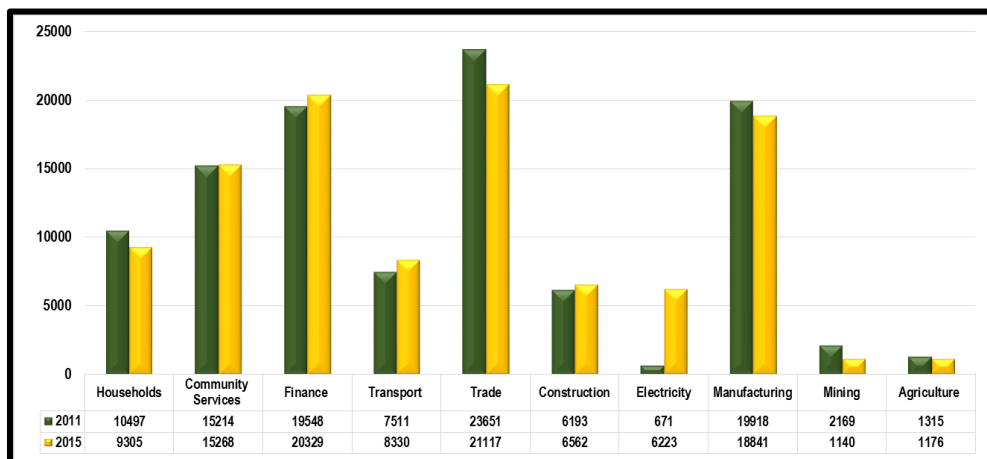


Figure 23: Employment by sector in MCLM

(Source: 2015 IHIS Markit 2017)

According to the information from IHS Markit, the unemployment rate in the region reached 39.6% in 2015. Formal employment declined from 91,210 in 2011 to 87,575 in 2015, whilst informal employment decreased from 15 477 in 2011 to 15 114 in 2015. Mogale City experienced its lowest level of employment growth in 2015, contracting by 2.3%. During the same period, GDP-R growth also contracted by 1.8%. Unemployment is clearly associated with poorer areas of Kagiso and farming areas as well. There are no large-scale seasonal workers active in the municipal area. Employment levels directly reflect on household income and thus also on the revenue base of the municipality. Higher levels of unemployment may eventually restrict the ability of the municipality to address issues of transformation and spatial integration simply due to a lack of resources.

Figure 24 shows employment and growth in the formal and informal sectors, whilst Figure 25 captures unemployment rates from 2011-2015.

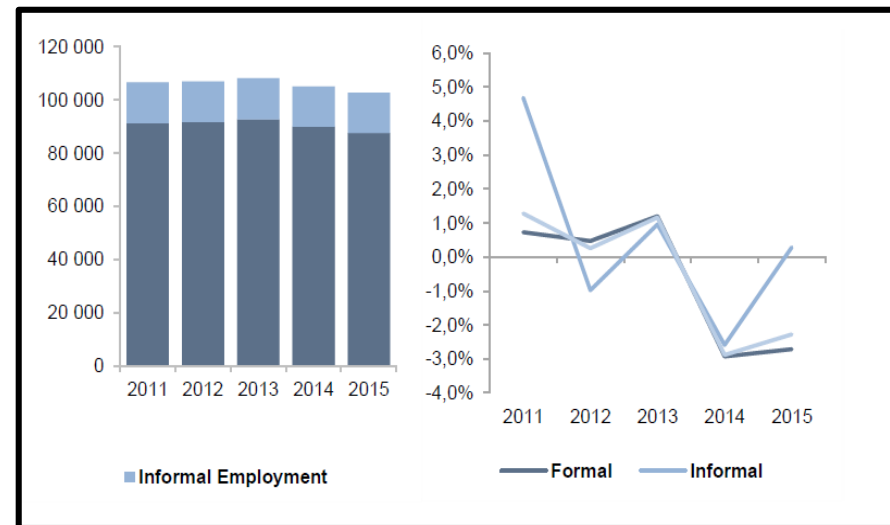


Figure 24: Employment and growth (2011-2015)

(Source: HIS Markit 2016)

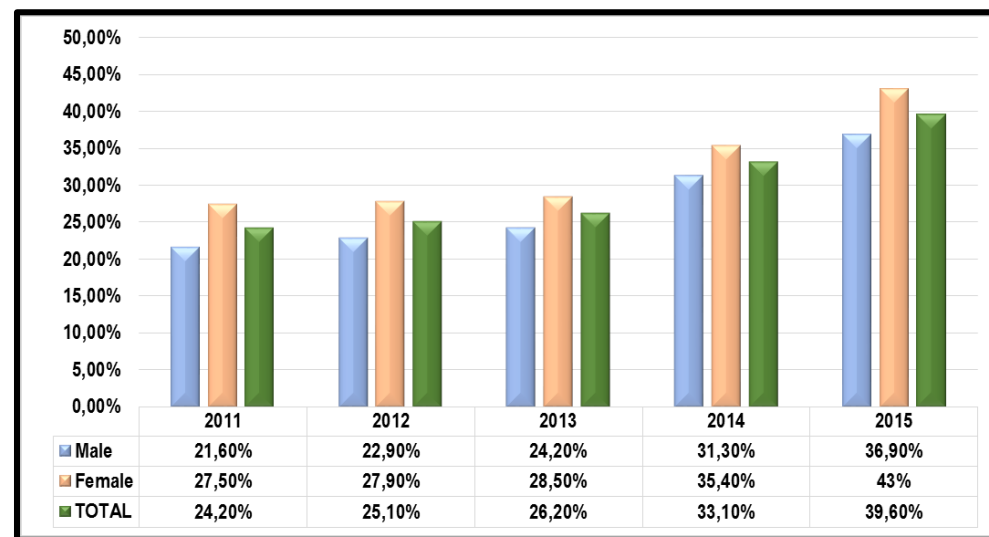


Figure 25: Unemployment rates 2011-2015



Figure 26 summarises the percentage unemployed and discouraged workforce

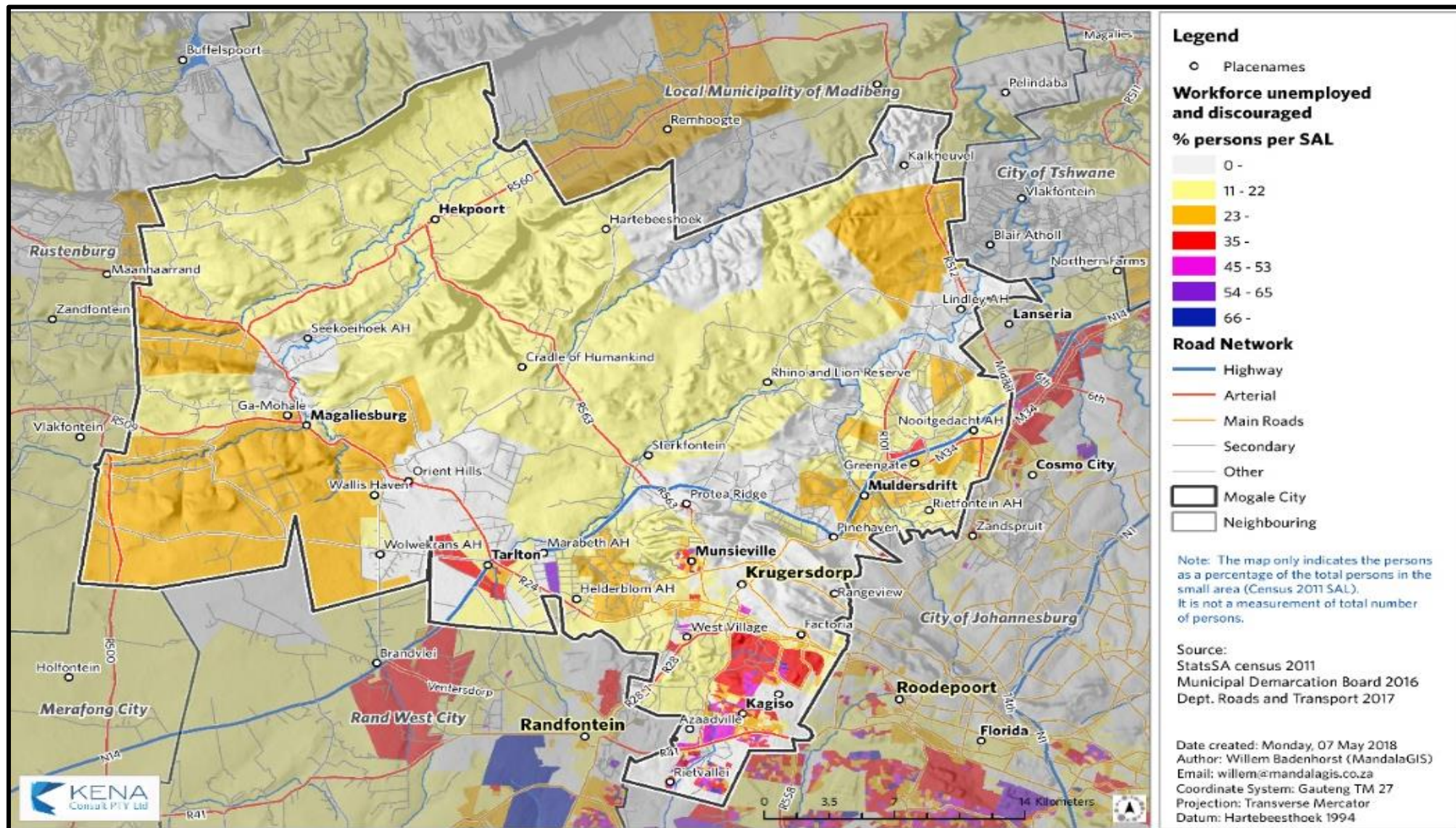


Figure 26: Percentage of workforce unemployed and discouraged

## 4.4. Household Income

Table 5 shows the income distribution of households in MCLM in the year 2015.

**Table 3: Income distribution 2015**

Annual Income/Household	Number of Households	% of Households
Less than R 12 000	4 414	3.6%
R 12 001 - R42 000	30 162	24.7%
R 42 001 - R 96 000	35 577	29.1%
R 96 001- R 360 000	33 866	27.7%
R 360 001- R 2 400 000	17 911	14.6%
More than 2 400 000	409	0.2%
<b>TOTAL</b>	<b>122 339</b>	<b>100%</b>

(Source: IHS Markit 2017)

Most households (29.1%) are in the annual income band of R 42 001 – R96 000. This was followed by the income band of R 96 001 – R 360 000 where 27.7% of the households fall.

Available data (refer to Figure 27 below) shows that in 2015, 15.7% of the population was living below the food poverty line. A significant number of households in Mogale City (16%) have no income, and this is also reflected in the townships: Rietvallei is highest at 21%, followed by Kagiso (18%) and Munsieville and Rietfontein both 16%, with Magaliesburg having the lowest number of households (11%). It can be further noted that the majority of households in the townships earn between R19 602 and R153 800 per annum, very low income, attributed to the low educational attainments and type of jobs people are employed in (low and unskilled jobs).



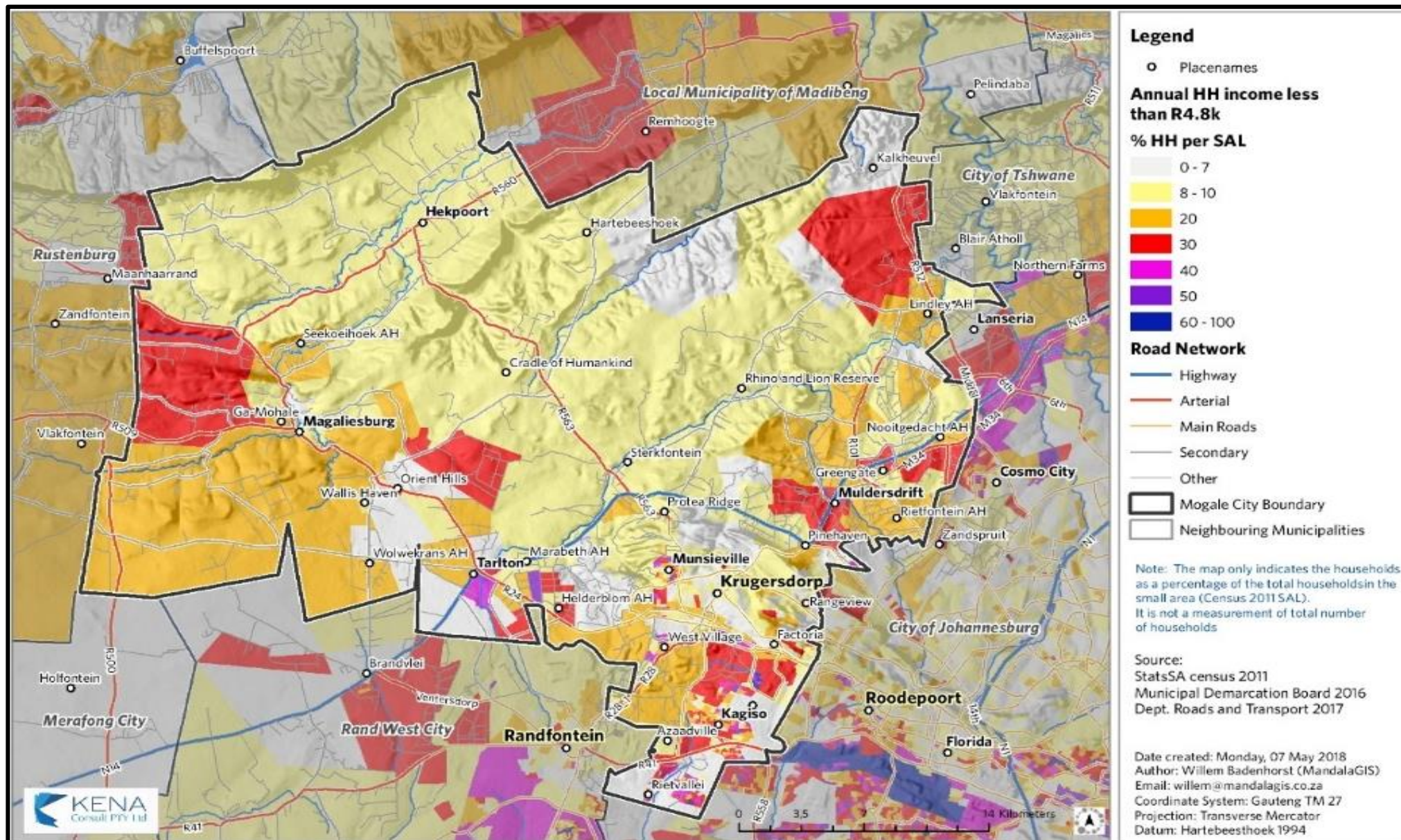


Figure 27: Annual household income percentage impoverished



### 4.5. Health Facilities

Healthcare facilities in MCLM include clinics, provincial hospitals and private hospitals. Table 6 below enumerates the various facilities found in MCLM.

Table 4: Types and numbers of health facilities

TYPE	NUMBER
Clinic	9

Provincial Hospitals	3
Private hospitals / clinics (including hospice)	5

Figure 28 indicates that Leratong Hospital is a regional hospital whereas Yusuf Dadoo Hospital serves as a district hospital. In term of the spatial distribution of medical facilities the rural context is serviced at identified service areas including Magaliesburg, Hekpoort, Tarlton and Nooitgedacht.

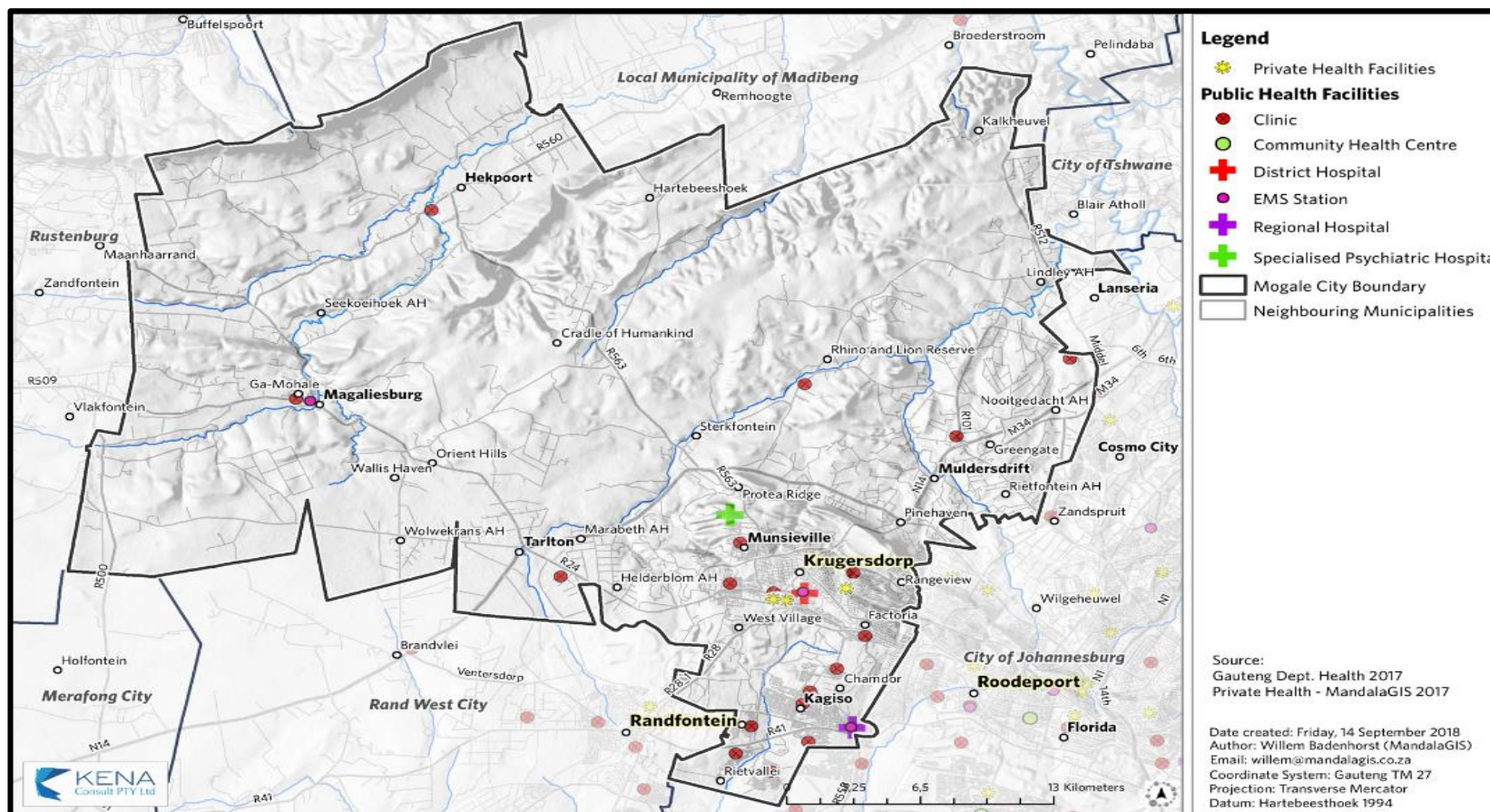


Figure 28: Health facilities



## 4.6. Social Facilities and Residential Development

Decisions regarding residential developments and particular housing typologies are influenced by a range of factors including the type, setting and location of the development, socio-economic conditions, legal or town planning requirements or restrictions, topography, ecology and geotechnical conditions. In turn, the types of housing provided have an impact on the characteristics of the development with respect to, for instance, physical appearance, aesthetics, safety, security and density.

In general, the sensible approach is to, as far as possible, provide prospective residents with enough options to allow them to choose a house type that would adequately satisfy most of their needs. This is not always practical or feasible, but if it is realistically possible, a mix of housing types should be made available to meet the varying needs and aspirations of the intended beneficiaries.

Social facilities are defined in terms of the function that they serve, which has distinct needs or specific location criteria and are planned for at national or provincial level and are therefore not always catered for at municipal level.

The provision of social facilities is not regulated by a single government department or located within a single sphere (national, provincial or local) of government. Social facilities range from the essential, such as clinics, schools and police stations to those that are discretionary, such as recycling depots and museums.

In terms of the Council for Scientific and Industrial Research (CSIR) toolkit for the provision of social services the threshold population is the indicator for the number of facilities required. Table 7 provides such a summary to cater for the medium to long term population growth.

**Table 5: Social facility requirements determination table**

Sector	Facility Type	Number of Facilities per Population		
		240 000	Projected 362 000	Projected 450 000
<b>Cemeteries</b>	Cemetery	73.7 ha	94.2 ha	117.0 ha
<b>Community Halls</b>	B-grade Hall	4.7	6.0	7.5
<b>Dept. of Labour</b>	Labour Office	1.4	1.8	2.3
<b>Dept. of Education</b>	Primary School – Medium	64.4	82.4	102.3
	Secondary School – Medium	47.2	60.4	75.0
<b>Health</b>	Standard Clinic	7.1	9.1	11.3

Social facilities are meant to facilitate social upliftment, recreation and security. The facilities target and accommodate various forms of vulnerabilities such as the ageing, the youth, substance abuse, gender violence and other forms of violence. The distribution of such facilities in MCLM are shown in Figure 29.

Sector	Facility Type	Number of Facilities per Population		
		240 000	Projected 362 000	Projected 450 000
	Community Health Centre	1.9	2.4	3.0
	General Hospital (District Hospital L1)	1.0	1.0	1.0
<b>Home Affairs</b>	Home Affairs Office	1.4	1.8	2.3
<b>Libraries</b>	Basic Public Library	11.3	14.5	18.0
<b>Libraries</b>	Branch Public Library	1.4	1.8	2.3
<b>Parks</b>	Community Park	113.3 ha	145.0 ha	180.0 ha
<b>SASSA</b>	SASSA Office	2.4	3.0	3.8
<b>Social Development</b>	Early Childhood Development Centre (Crèche)	81.0	103.6	128.6
<b>Social Development</b>	Children's Home	4.7	6.0	7.5
<b>Social Development</b>	Home for the Aged	4.7	6.0	7.5
<b>Sports</b>	Sports	158.7 ha	203.0 ha	252.0 ha
<b>Thusong Centre</b>	Large Thusong Centres	1.4	1.8	2.3

The provision of social amenities in residential developments need to be prioritised as in terms of the standards laid down by the CSIR with the incorporation of the following:

- Residential developments should be developed to incorporate a mix of land uses, income levels, and housing types. Such mixed neighbourhoods would usually result in medium densities and allow a range of housing options that potential residents can choose from.
- Locate medium to higher density residential and retail buildings along higher order corridors in line with the corridor development principle.
- Concentrate social facilities together with other public facilities, amenities and service points adjacent to public spaces which links to the principle of spatial justice, spatial sustainability and efficiency.
- New developments should address the provision of social facilities by means of a small framework plan to indicate the need and provision of social amenities which need to be related spatially
- Due to the varied responsibilities in various government sectors to provide social amenities clear compliance must be indicated in terms of legislation, policy and standards, and
- Community-public-private partnerships should be investigated with respect to implementation.

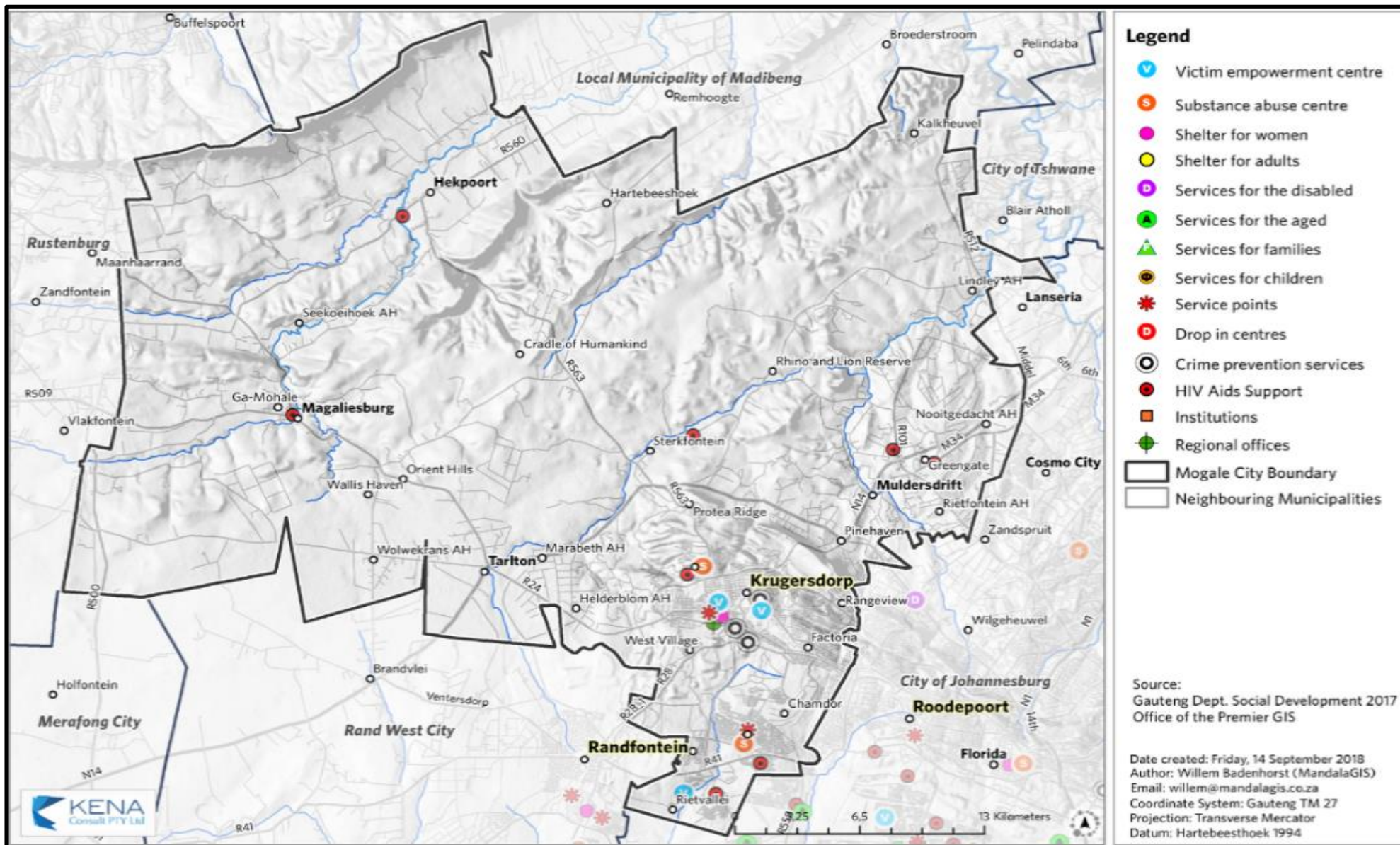


Figure 29: Distribution of social facilities



## 4.7. Basic Services/Bulk Infrastructure

Basic services delivery by MCLM includes, provision of potable water, sewerage, refuse removal, electricity and roads, which are the basic competency of local government. In addition, housing is also considered a basic service delivery issue. However, housing delivery remains a provincial competency, led by the Gauteng Provincial Department of Human Settlements.

One of the key government priorities is to deliver safe and adequate sanitation services to all communities. In 2011 households with access to flush toilets increased by 23% which is an increase of 17 185 households, from 74 572 households in 2007 to 91 757 households in 2011.

MCLM has had a program aimed at providing informal households with access to sanitation through chemical toilet facilities. The number of households with access to chemical toilet facilities has increased by 914.67% - an increase from 375 households in 2007 to 3 430 households with access to chemical toilets in 2011.

### 4.7.1. Access to Water

The greater majority of households in MCLM are on municipal supplied piped water. Households with access to piped water increased from 91 230 in 2007 to 101 414 in 2011 – an increase of upwards of 11% (10 184 households) thus covering 89% of households (refer to Figure 30 below).

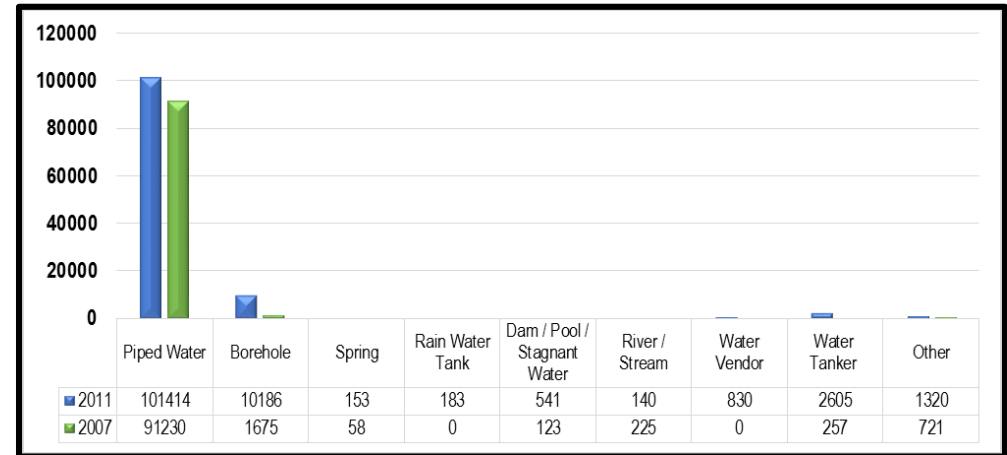


Figure 30: Access to water

### 4.7.2. Water Scheme Areas and Water Infrastructure

Water scheme areas cover parts of MCLM and are linked to areas of development concentration especially within the urban boundary. Figure 31 below indicates the various Water Scheme Areas in MCLM.

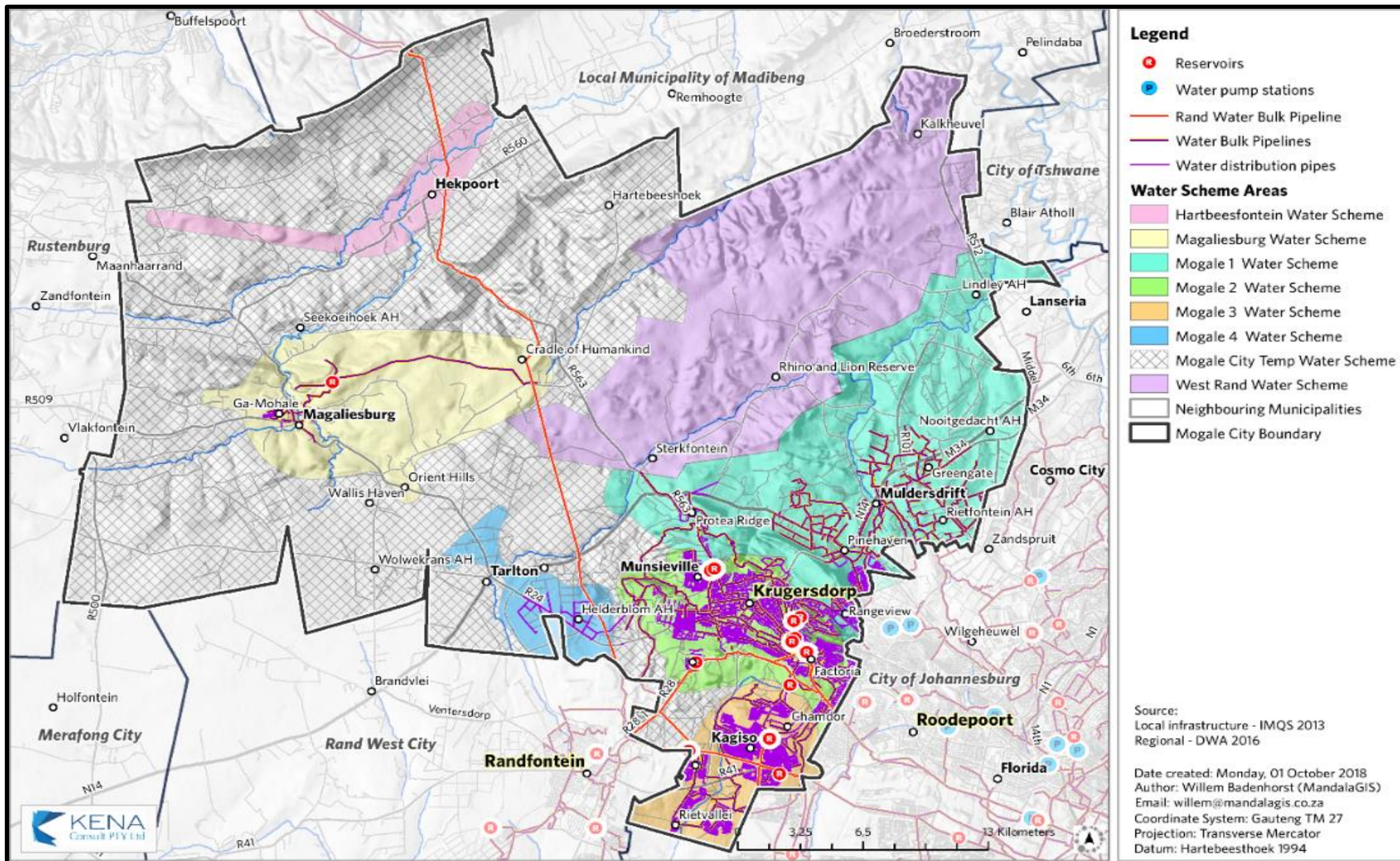




Figure 31: Engineering services-water

### 4.7.3. Water Reservoirs and Towers Servicing MCLM

Table 8 enumerates the water reservoirs and towers servicing MCLM.

Table 6: Water Reservoirs and Areas Servicing MCLM

RESERVOIR / TOWER	AREA AFFECTED / SERVICED
<b>Kenmare Dome Reservoir</b>	<ul style="list-style-type: none"> <li>• Krugersdorp central</li> <li>• Luipaardsvlei Southern side</li> <li>• Krugersdorp North (Section of)</li> <li>• Monument (Section of)</li> <li>• Wentworthpark</li> </ul>
<b>High-Level Reservoir</b>	<ul style="list-style-type: none"> <li>• Noordheuwel (all extensions)</li> <li>• Rant en Dal (Section of)</li> <li>• Rangeview</li> <li>• Muldersdrift (Section of)</li> <li>• Featherbrooke</li> <li>• Ruimsig Country Estate</li> <li>• Kenmare</li> <li>• Chancliff</li> </ul>
<b>Kenmare Sump</b>	<ul style="list-style-type: none"> <li>• Wentworthpark</li> </ul>
<b>Kenmare Old &amp; New Water Towers</b>	<ul style="list-style-type: none"> <li>• Monument</li> <li>• Kenmare</li> <li>• Silverfields (Section of)</li> <li>• Breuananda (Section of)</li> <li>• Factoria</li> <li>• Noordheuwel (Section of)</li> </ul>
<b>Noordheuwel Tower</b>	<ul style="list-style-type: none"> <li>• Noordkruin</li> <li>• Noordheuwel (Section of)</li> </ul>
<b>Dan Pienaarville Tower &amp; Reservoir</b>	<ul style="list-style-type: none"> <li>• Dan Pienaarville (Section of)</li> <li>• Rant en Dal (Section of)</li> <li>• Sterkfontein</li> <li>• Oaktree</li> <li>• Protea Ridge</li> <li>• Kromdraai</li> <li>• Pinehaven</li> <li>• Muldersdrift (Section of)</li> </ul>
<b>Munsieville Tower &amp; Reservoir</b>	<ul style="list-style-type: none"> <li>• Munsieville</li> <li>• Munsieville Ext 1 &amp; 4</li> </ul>
<b>Kagiso Reservoirs / Water Tower / Kagiso 12 Reservoir</b>	<ul style="list-style-type: none"> <li>• Kagiso Ext 2, 6 &amp; 8 (South)</li> <li>• Kagiso (North)</li> <li>• Rietvallei</li> </ul>

RESERVOIR / TOWER	AREA AFFECTED / SERVICED
	<ul style="list-style-type: none"> <li>• Kagiso Ext 12, 13,14</li> <li>• Lusaka (Section of)</li> <li>• Swaneville</li> </ul>
<b>Azaadville Reservoir &amp; Tower</b>	<ul style="list-style-type: none"> <li>• Azaadville (North)</li> <li>• Azaadville (South)</li> <li>• Lusaka 2&amp;3</li> </ul>
<b>Factoria Tower</b>	<ul style="list-style-type: none"> <li>• Silverfields (Section of)</li> <li>• Lewisham (Section of)</li> <li>• Luipaardsvlei</li> <li>• Factoria</li> </ul>
<b>Magalies Reservoir &amp; Magalies Tower</b>	<ul style="list-style-type: none"> <li>• Magalies &amp; surrounding area</li> <li>• Ga-Mohale</li> <li>• Magalies Eskom</li> <li>• School next to Eskom (Magalies State School)</li> </ul>
<b>Tudor Reservoir</b>	<ul style="list-style-type: none"> <li>• Chamdor South</li> <li>• Sinqobile</li> <li>• Kagiso Ext 10</li> </ul>
<b>West Village Tower</b>	<ul style="list-style-type: none"> <li>• West Village</li> </ul>
<b>Roodepoort Connection</b>	<ul style="list-style-type: none"> <li>• Ruimsig North</li> <li>• Muldersdrift (Section of)</li> </ul>
<b>Westonaria Connection</b>	<ul style="list-style-type: none"> <li>• Boltonia</li> <li>• West Krugersdorp</li> <li>• Burgershoop</li> <li>• Quallerie park</li> <li>• Oatlands Plots</li> </ul>
<b>Randburg Connection</b>	<ul style="list-style-type: none"> <li>• Muldersdrift (Section of)</li> <li>• Lammermoor</li> </ul>
<b>Mindalore Connection</b>	<ul style="list-style-type: none"> <li>• Chamdor (Section of)</li> <li>• Kagiso Ext 1</li> <li>• Mindalore</li> <li>• Lewisham (Section of)</li> <li>• Breuananda (Section of)</li> </ul>
<b>Game Reserve Connection</b>	<ul style="list-style-type: none"> <li>• Tarlton</li> <li>• Helderblom</li> <li>• Waterval</li> <li>• Delporton</li> <li>• Vlakplaats</li> </ul>

#### 4.7.4. Challenges of Water Infrastructure in MCLM

One of the main challenges facing water infrastructure, and by extension, a significant service delivery hindrance, is that of aging infrastructure. Ageing infrastructure is prevalent in older parts of the urban areas which include Mindalore, Silverfields, Lewisham, Luipaardsvlei and the CBD.

The second main challenge relates to the need to develop new infrastructure networks as well as upgrading existing ones with a view to ensuring that demand, especially in areas experiencing developmental pressures, such as Muldersdrift, Hekpoort and Magaliesburg, is met.

The third challenge relates to the need to develop rural water schemes designed to unlock and support development associated with housing mega projects.

The following areas require improved infrastructure in the form of new infrastructure networks as well as upgrading existing ones:

- Bullbrand
- CBD
- Leratong
- Tarlton
- Hekpoort
- Muldersdrift, and
- Magaliesburg.

#### 4.7.5. Sanitation

This section provides an overview of the MCLM public waste water treatment works (WWTW) in respect of Water Service Authority (WSA) waste water treatment works and not the privately-owned works on mines and private estates.

Mogale City Local Municipality WWTWs have a capacity of 92.1 Ml/day which is more than enough for the incoming influent of 48.2Ml/day (52%). Thus, the WWTWs have spare capacity available for development. While in general there is spare capacity, the capacity for Magalies WWTW is not sufficient and regularly gets flooded.

It is important to underline the challenge of aging infrastructure as some of the WWTW infrastructure has indeed surpassed its technical life span. While the infrastructure is currently functioning well, the likelihood of critical failures in the future is real.

It is equally important to note that while the Green Drop score (a compliance measuring metric) especially for waste water compliance for MCLM WWTWs has been consistently low over the years, MCLM is however working towards continuous improvement on all metrics that constitute the Green Drop score.

Efforts to address the current inflow of acid mine drainage which causes serious degrading of the receiving water bodies is an ongoing exercise which is beginning to receive the attention it deserves on account of the impact it has.

Figure 32 below shows available sanitation schemes in MCLM.

#### 4.7.6. Proposed Lindley WWTW

MCLM is in the process of planning the development of a new WWTW at Lindley near Lanseria which will largely cater for new developments. This WWTW will be positioned to cater for flows from MCLM that are lying lower than the existing bulk outfall sewers of the Driefontein WWTWs of the City of Johannesburg, while existing areas in MCLM that gravitate to the Driefontein WWTW will mostly continue to deliver to Driefontein WWTW. The City of Tshwane indicated their interest in using some capacity of the proposed Lindley WWTW for their Blair Athol golf residential development. The exact location still needs to be determined as areas from Johannesburg City may be interested to contribute flows to the proposed works as well.

In addition, City of Johannesburg is also planning to build a WWTW in the Lanseria area to cater for areas within its jurisdiction that cannot be serviced by its northern works. It is envisaged that the proposed two separate WWTWs will be required not only for technical reasons but mostly because the works will be designed to cater for and operated by different WSAs. However, the proposed projects could certainly benefit from joint planning, and perhaps even execution.



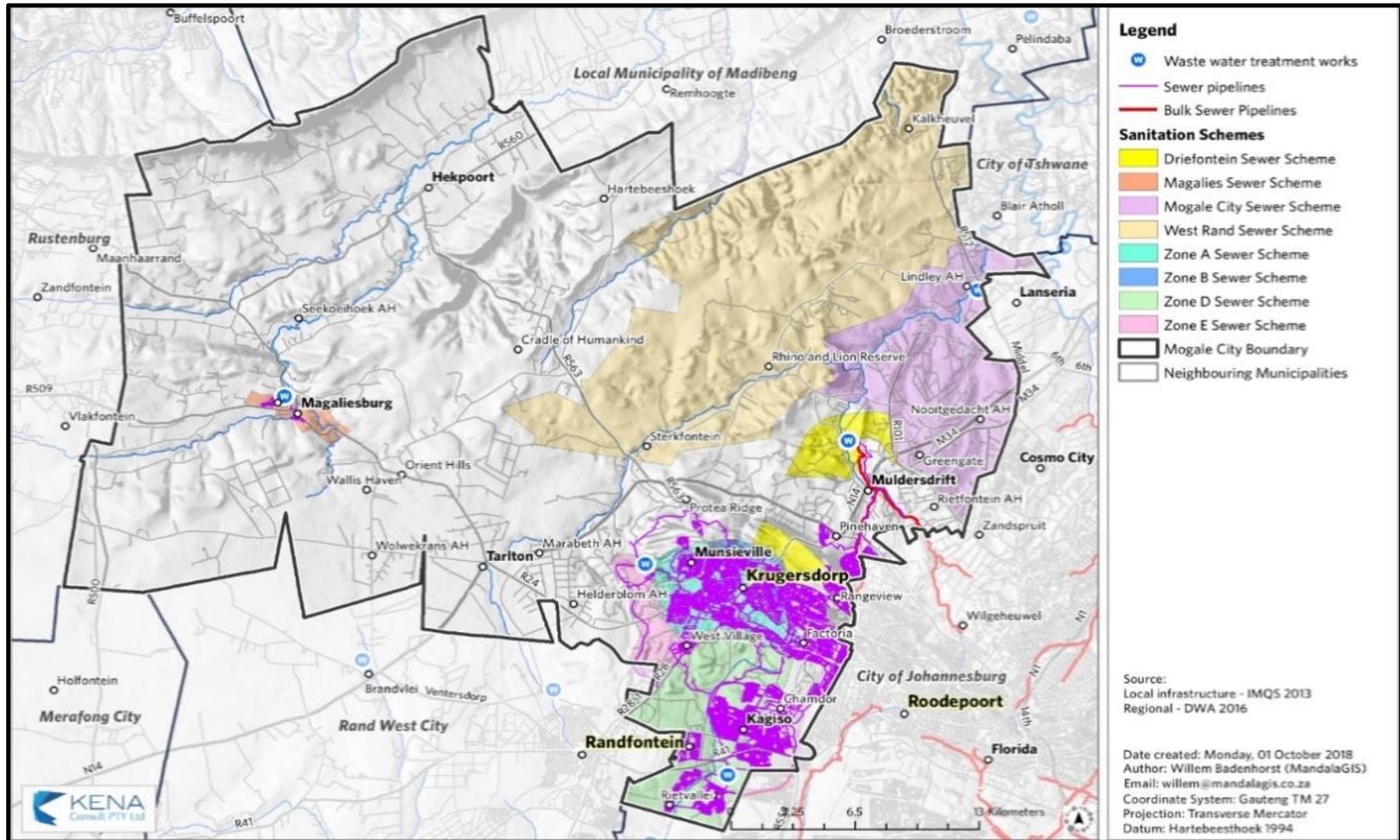


Figure 32: Sanitation schemes

#### 4.7.7. Flip Human WWTW

The Flip Human WWTW caters for effluent from the “Zone D Sewer Scheme” drainage area. MCLM is the Water Service Authority as well as the owner and operator of the WWTW.

The Average Dry Weather Capacity of the Flip Human WWTW is 64 MI/day, and the influent received is 26.1 MI/day, which means the current capacity is 41% utilized and another 37.9 MI/day is still available for development. Wet Weather Peak Flow Capacity is 76.8 MI/day, which is 120% of the normal flow. The COD loading received falls well within the capacity (design loading), only 51% is utilized.

It is observed here that the current capacity should be sufficient for the near future unless large scale development take place. MCLM categorized Flip Human WWTW condition as “destitute” which means it is not in a good condition. The level of maintenance is not what is should be and the works desperately need refurbishment work on the sludge handling facilities.

While MCLM does not have any graph available illustrating past, current and predicted flows and required capacities of the treatment works, it has good records of average flows received. The Flip Human WWTW largely requires refurbishment and maintenance.

#### 4.7.8. Magalies WWTW

The Magalies WWTW caters for effluent from the “Magalies Sewer Scheme” drainage area. MCLM is the Water Service Authority as well as the owner and operator of the WWTW.

The Average Dry Weather Capacity for the Magalies WWTW is 1.1 MI/day, and influent received is 0.5 MI/day which means the current capacity is 45% utilized and another 0.6 MI/day is still available for

development. The Magalies WWTW does not have enough capacity and gets flooded during wet weather flow conditions.

MCLM does not have any information available confirming the Wet Weather Peak Flow Capacity. This needs to be determined as part of the investigations to upgrade the WWTW. MCLM categorized the condition as “prime condition” which means it is generally in good condition. Maintenance however was categorized as “sporadic” and thus needs attention.

#### 4.7.9. Percy Stewart WWTW

The Percy Stewart WWTW caters for effluent from the “Zone E Sewer Scheme” drainage area. MCLM is the Water Service Authority as well as the owner and operator of the WWTW. The Average Dry Weather Capacity for Percy Stewart WWTW is 37 MI/day, and influent received is 21.6 MI/day. The Wet Weather Peak Flow for this WWTW is 81 MI/day which is over twice the normal flow. The Percy Stewart WWTW thus has the capacity to accommodate relatively large peak flows.

#### 4.7.10. Electricity

MCLM and Eskom provide electricity for the Municipality. The Municipality has made significant strides to connect households to the grid. The challenge though is that MCLM electricity supply is operating at near maximum capacity. There are also supply bottlenecks in rural areas on privately owned land, as well as on informally settled land such as Tudor Shaft, Orient Hills, Makhulu-Gama and Pangoville. MCLM is also looking into newer environmentally sustainable ways to generate energy so as to provide all residents with this basic service deliverable.

Figure 33 characterizes the electricity infrastructure available in MCLM



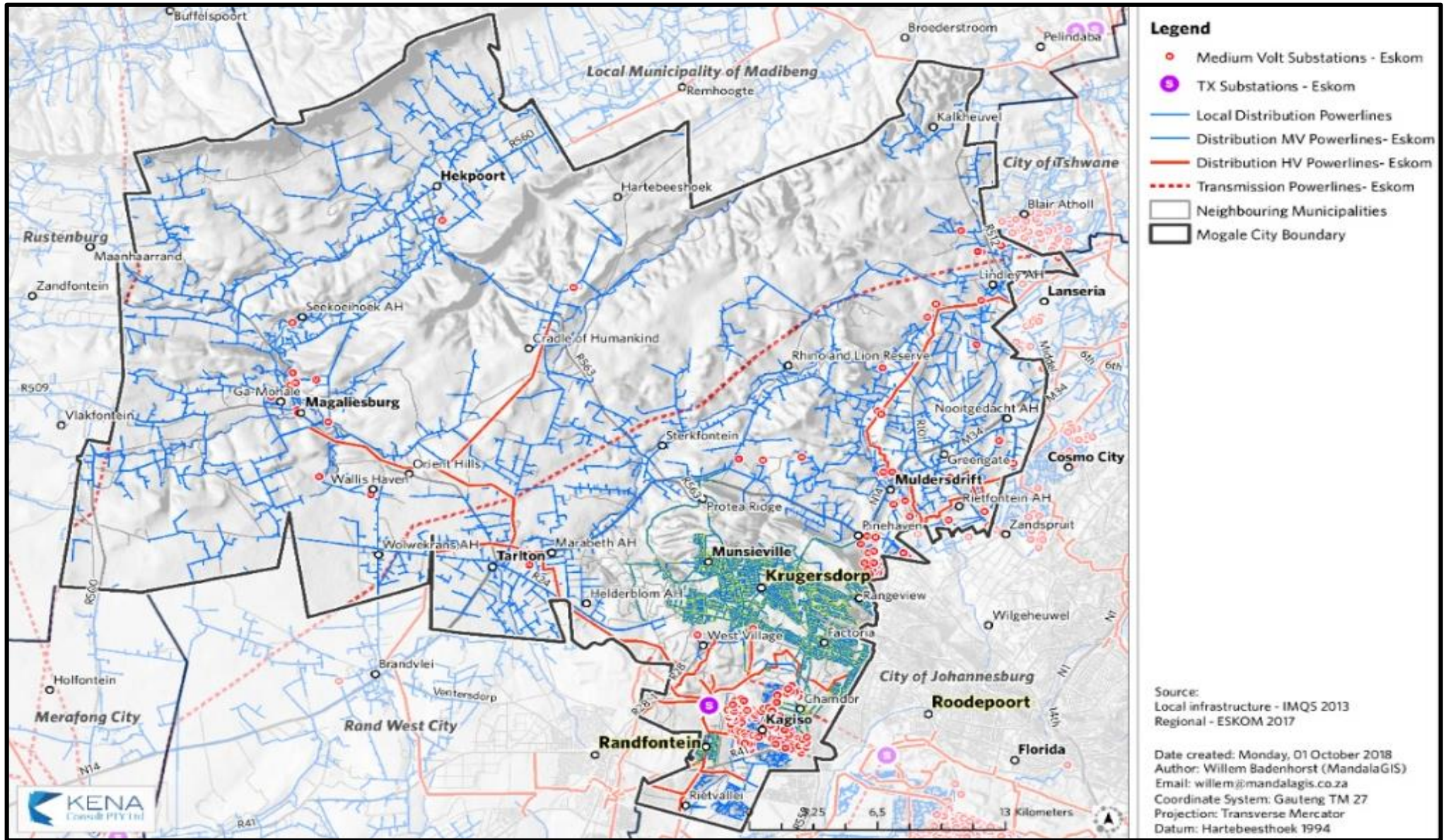


Figure 33: Engineering services – electricity



### 4.7.11. Road and Rail Transport

Mogale City Local Municipality has a good road network and a relatively functional commuter rail network linking Krugersdorp to the City of Johannesburg and the rest of the District Municipality. According to the 2016-2021 MCLM Integrated Development Plan (IDP), the total road network of Mogale City is 8,391 km and is made up of 6 694km of paved roads and 1 697km of gravel roads. Gravel roads are mostly in the rural areas though some can be found in the old townships. The road network can further be broken down into 100km of main arterial roads and 1000km of tertiary roads. Main arterial roads are the city-to-city roads, whereas tertiary roads are found within the built-up areas.

From a sub-regional perspective MCLM benefits from several major inter-regional road linkages. These are the:

- N14 linking the North West
- N14/ R28 linking the Vaal Triangle complex
- R509 link to Koster, and
- R24 link to Rustenburg.

Sub-regionally, MCLM is well linked to the adjoining metropolitan areas:

- City of Tshwane (CoT) through the N14 national route
- City of Johannesburg (CoJ) through:
  - R512 (Malibongwe Road)
  - Beyers Naude Drive (M5)
  - Hendrik Potgieter (M47)
  - Voortrekker/Ontdekkers/ Main Reef Road (R41), and
  - Randfontein Road.
  - Rail to Johannesburg and the west.
- Kagiso-Rietvallei complex linked to Rand West – due to proximity of the Randfontein CBD

Figure 34 shows readily existing rail infrastructure in Krugersdorp.



Figure 34: Metrorail Krugersdorp station

Existing rail and road network within the Mogale City Local Municipality is captured in Figure 35 and Figure 36 below.



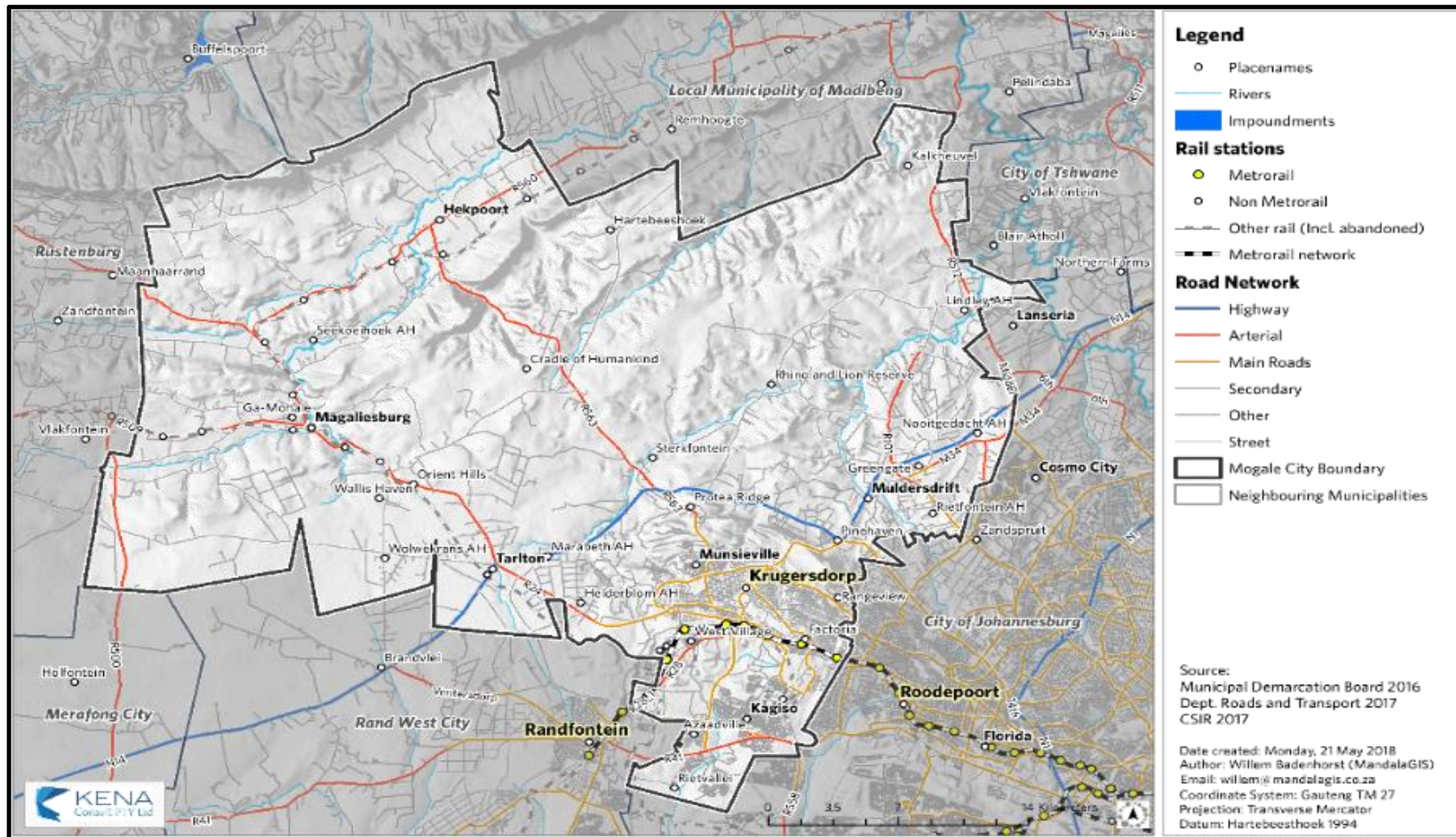


Figure 35: Road and rail network



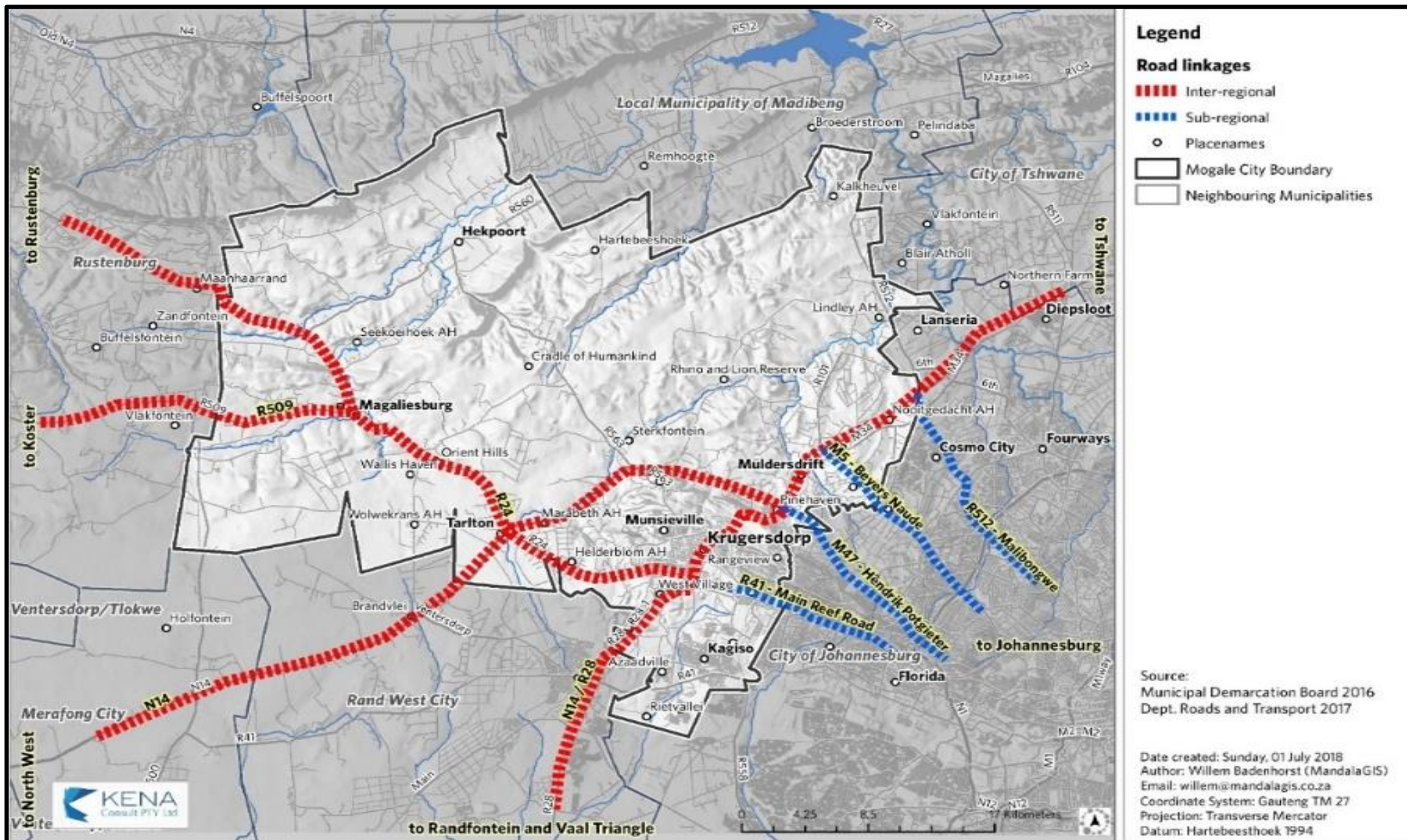


Figure 36: Road linkages



## 5. SPATIAL CHALLENGES AND OPPORTUNITIES

Based on review of the policy and legislative environment, and the analysis of the socio-economic conditions and the spatial structuring elements, a number of opportunities and constraints have been identified using the Strength, Weaknesses, Opportunities and Threats (SWOT) framework (refer to Table 9).

**Table 7: Challenges and opportunities**

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• MCLM constitutes an integral part of the Gauteng Global City Region</li> <li>• MCLM has strong functional &amp; economic linkages with the City of Johannesburg &amp; strong Regional Linkages with City of Tshwane</li> <li>• Krugersdorp is a strong &amp; vibrant primary node</li> <li>• MCLM has high value agricultural land that form part of a Gauteng Agricultural Hub</li> <li>• Pristine natural environment offers opportunities for much sought after healthy &amp; good quality living environment</li> <li>• MCLM has strong tourism products such as the Cradle of Humankind as a World Heritage Site, a beautiful natural environment &amp; diverse forms of wildlife.</li> <li>• Relatively well-developed transportation infrastructure &amp; circulation system</li> <li>• Potential for urban agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• Weak physical &amp; functional integration between the Kagiso complex &amp; Krugersdorp</li> <li>• Lack of bulk infrastructure &amp; engineering services in Muldersdrift &amp; areas around Lanseria pose a challenge to the development potential that these areas have</li> <li>• Extensive mining belt is a constraint to development &amp; poses health risks</li> <li>• Extensive areas of the Municipality are underlain by dolomite making them risky for development</li> <li>• Disadvantaged &amp; informal settlements in MCLM suffer from relatively poor quality services</li> <li>• Natural elements such as mountains, ridges, rivers &amp; conservation areas may sometimes be an impediment by breaking linkages between developments</li> <li>• Sparsely settled &amp; yet extensive rural environment renders the provision of bulk infrastructure &amp; housing prohibitively expensive</li> <li>• Inadequate housing in rural areas.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• N14/R28 Development Corridor provides linkages with areas &amp; nodes of high development potential such as Lanseria Airport to the North, Krugersdorp CBD to the south &amp; Tarlton to the West. It provides huge opportunities for a wide range of mixed used developments.</li> <li>• Availability of land in the Muldersdrift area (to the east of the N14) provides an opportunity to accommodate long term growth in the Municipality.</li> <li>• MCLM can further strengthen linkages with opportunities offered by the Gauteng economic engine – COJ, while also providing high quality accommodation &amp; lifestyle experience for people working in Johannesburg</li> <li>• Developments associated with Lanseria Aerotropolis comprising mixed land uses will have a definite impact on MCLM</li> <li>• MCLM has opportunity to further expand the tourism experience provided by its natural environment</li> <li>• MCLM has opportunities for establishing the green industry especially the generation &amp; use of renewable energy sources to complement the natural &amp; pristine environment of the area</li> <li>• Muldersdrift provides opportunities for creation of innovative developments based on sustainable human settlements &amp; transit-oriented development principles underpinned by mixed land uses</li> <li>• MCLM has potential to develop agro-and blue industries to ensure food security &amp; exports.</li> </ul>	<ul style="list-style-type: none"> <li>• Cradle of Humankind Buffer Zone covers a large section of Mogale City &amp; places a constraint on the development potential of the area</li> <li>• Decline of the Krugersdorp CBD</li> <li>• Impact of Climate Change &amp; extreme weather events</li> <li>• Undermined land &amp; potential health hazards posed by mine dumps.</li> <li>• Rural land invasion.</li> <li>• Lack of investment in infrastructure.</li> <li>• Backlogs in housing delivery.</li> <li>• Displacement of rural population due to development pressure (in particular Muldersdrift area).</li> <li>• Uncoordinated &amp; unmanaged development in the Muldersdrift area.</li> <li>• Magaliesberg Biosphere enjoys legal protection that places specific restrictions on land use &amp; development in this area</li> <li>• Unemployment especially of the youth.</li> </ul>

### 5.1. Guiding Principles

The Municipal System Act (MSA) states that a municipal SDF must include provisions for basic guidelines for a land use management system for the municipality. The MCLM SDF recognises that environmental vulnerability, social need and economic development are not evenly distributed and spatial disparities have always existed due to the spatial distribution of natural resources, historical imperatives and cultural factors. These spatial disparities have often been aggravated by past spatial planning. This has resulted in a disjuncture between where people live and where social and economic opportunities are concentrated.

The SDF seeks to achieve the municipality’s desired spatial form in a targeted and spatial coordinated manner. As enumerated in Figure 37 and summarized in Table 10, it is based on ten (10) development principles.

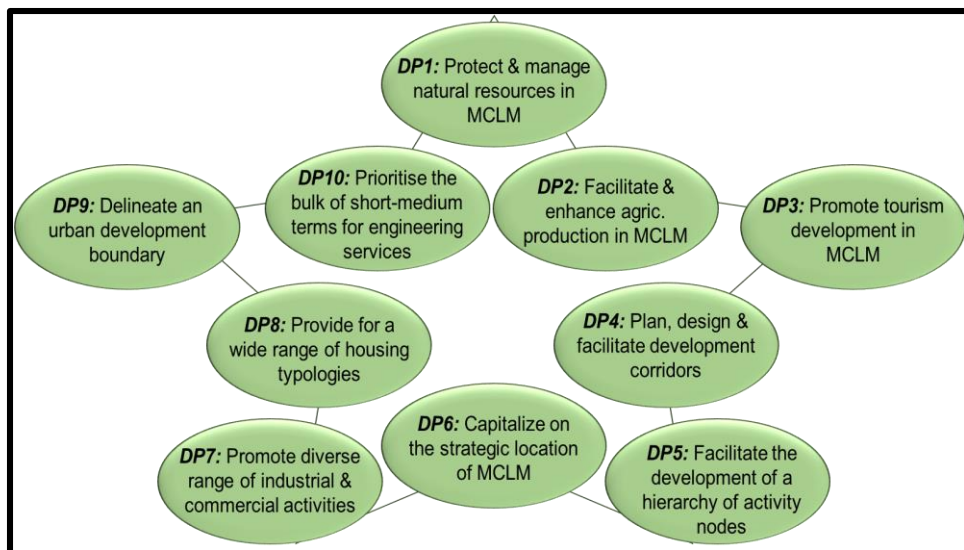


Figure 37: Guiding development principles

Table 8: MCLM-SDF Development Principles

PRINCIPLE	DESCRIPTION
<b>Development Principle 1</b>	Protect & actively manage the natural environmental resources in the MCLM municipal area in order to ensure a sustainable equilibrium between agricultural, tourism, industrial, & mining activities, as well as urbanisation pressures in the area

PRINCIPLE	DESCRIPTION
<b>Development Principle 2</b>	Facilitate & enhance agricultural production in the municipal area by actively protecting all land earmarked for agricultural purposes
<b>Development Principle 3</b>	Promote tourism development in the MCLM area by way of the active utilization of tourism resources available like the COHWHS, the Ridges, the Precincts & the Nature Reserves in the area
<b>Development Principle 4</b>	Pro-actively plan, design & facilitate the establishment of Development Corridors along activity spines, & to prioritise the bulk of short to medium term urbanisation as well as the upgrading/provision of engineering services in accordance with an Urban Edge
<b>Development Principle 5</b>	Facilitate the development of a hierarchy of activity nodes & a number of multi-purpose community centres in the MCLM area to ensure equitable access to social infrastructure, & to promote local economic development in the urban & rural parts of the municipality.
<b>Development Principle 6</b>	Capitalise on the strategic location of the municipality by way of regional & provincial linkages, & to establish an internal movement network comprising a hierarchy of roads which include a comprehensive public transport network & service
<b>Development Principle 7</b>	Promote the development of a diverse range of industrial & commercial activities in the MCLM area with specific focus along the N14 Corridor & at the designated nodal points
<b>Development Principle 8</b>	Provide for a wide range of housing typologies & tenure alternatives within the municipal area by way of clearly defined strategic development areas within the urban development boundary & to manage residential densification within & outside the urban development boundary by way of the MCLM Density Policy.
<b>Development Principle 9</b>	Delineate an Urban Development Boundary to encourage consolidated urban development.
<b>Development Principle 10</b>	Prioritise the bulk of short to medium term upgrading/provision of engineering services in accordance with the Urban Development Boundary.

The Spatial Development Framework indicates areas of existing development and proposed expansion for specific land uses within the municipal area, for example, industrial development, institutional development, and residential development.



## 6. MCLM SPATIAL DEVELOPMENT VISION

The vision statement for MCLM development is derived from the objectives and principles cascaded from among others, the policy, legislative frameworks, studies and plans that were presented in Table 1, the socio-economic status quo, as well as the spatial structuring elements discussed previously.

The Vision statement provides the anchor the Spatial Concept, and ultimately, the Mogale City Local Municipality Spatial Development Framework (MCLM-SDF). The Vision Statement is as follows.

**“...A Mogale City that is inclusive, cohesive, resilient and transformative, which provides high quality of services within a spatially efficient environment, and thus delivering shared prosperity, hospitality, beauty and security and a sense of place...”**

## 7. SPATIAL OBJECTIVES & STRATEGIES

In order to give effect to the MCLM spatial development vision, and to concretise the perspectives contained in the spatial concept, the following six spatial development objectives (refer to Figure 38) have been formulated to anchor the MCLM Spatial Development Framework.

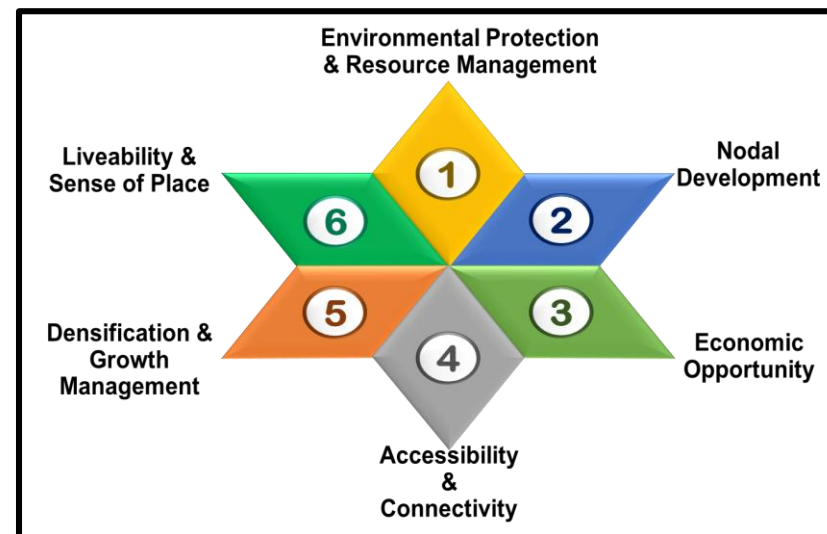


Figure 38: Spatial objectives for MCLM-SDF

These six spatial objectives effectively reinforce the Spatial Development Concept and give effect to the Spatial Vision by considering the Spatial Structuring Elements and the Guiding Principles derived from national, provincial and local policies and plans.

To further provide a framework for operationalisation of the six objectives, they are further broken down into corresponding strategies and proposals that are meant to deliver spatial functionality, cohesion, equity, revitalisation and sustainable socio-economic development for MCLM (refer to Table 11).

Table 9: Summary of spatial objectives and corresponding strategies

1	ENVIRONMENTAL PROTECTION & RESOURCE MANAGEMENT: STRATEGIES
	<ul style="list-style-type: none"> <li>• Protection of the natural open system</li> <li>• Strengthening of an urban open space system</li> <li>• Balancing environmental protection with sustainable development</li> <li>• Integration of environmental management in development zones</li> </ul>

- Response to climate change
- Promotion of biodiversity stewardship program
- Protection of high value agricultural land, and
- Creating linkages into the Agri-Park & Farmer Production Support Units concepts as a way of developing vibrant agricultural value chains in MCLM

## **2 | NODAL DEVELOPMENT: STRATEGIES**

- Establishment of a clear nodal hierarchy & functionality
- Intensify public investments in infrastructure & social services in existing nodes
- Ensure a high degree of interconnectivity between nodes through investments in public transport
- Support mixed uses in the nodes characterised by high intensity activity & higher density residential development.

## **3 | ECONOMIC OPPORTUNITY & PROXIMITY**

- Rural Economy
  - Strengthen the agriculture sector & agrarian transformation
  - Nurture & protect the rural environment in general & nature reserves in particular
  - Encourage establishment of game farms & resorts
  - Protect rural areas from mining, waste disposal sites & large-scale infrastructure
  - Encourage & facilitate rural tourism
  - Encourage & facilitate the green & blue industries
- Manufacturing
  - Agro-processing
  - Wood & Paper
  - Clothing & Textile Leather & Footwear
  - Metal products, machinery, motor vehicle accessories & plastic products
- Tourism & Hospitality Industry
- Township Economy

## **4 | ACCESSIBILITY & CONNECTIVITY: STRATEGIES**

- Facilitate development of the N14 Development Corridor
- Facilitate the development of the R24 Mogale City-Rustenburg Development Corridor
- Strengthen intra-regional connectivity in MCLM
- Road Master Planning & Planned Routes MCLM
- Facilitate the development of activity spines in support of nodal development
- Extending an integrated public transport networks & services
- Supporting passenger rail transport as the backbone of the public transport system

## **5 | DENSIFICATION & GROWTH MANAGEMENT**

- Demarcate & restrict development within the confines of the urban boundary
- Support strategies for growth management
  - Management zones along the urban boundary.
  - Promoting infill development
  - Promoting densification in & around strategic locations

- Managed expansion
- Precinct planning & implementation

## **6 | LIVEABILITY & SENSE OF PLACE**

- Implement the township regeneration approach – Kagiso complex & Munsieville Informal settlements upgrading
- Address housing through restructuring zones
- Facilitate & encourage densification
- Facilitate the development of sustainable rural residential developments



## 8. UNPACKING THE SPATIAL OBJECTIVES AND STRATEGIES

The above eight strategies are elaborated below:

### 8.1. Environmental Protection and Resource Management

This objective is supported by the following strategies (refer to Figure 39):

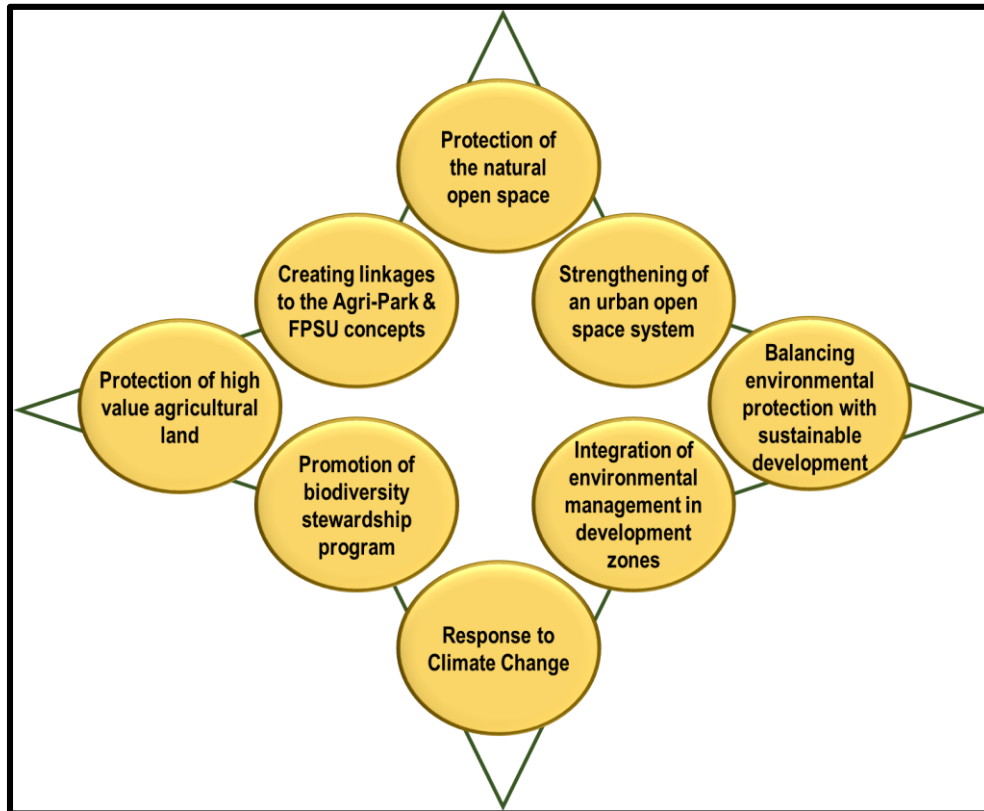


Figure 39: Environmental protection and resource management support strategies

#### 8.1.1. Protection of Natural Open Space Systems

MCLM is gifted with an extensive natural open space system. Ensuring the integrity of this natural system is important in order to prevent its fragmentation, and to support the sustainability of ecological processes and habitats that support various forms of life. The Natural open system is also important in providing natural visual character which enhances liveability, quality of life and a platform for investment opportunities in tourism and hospitality. Critical Biodiversity areas (CBAs) and Ecological Support Areas (ESAs) are specific areas that also need focus in pursuit of the objective “environmental management and natural resource protection”.

Figure 40 illustrates the proposed regional open space system as part of the West Rand Spatial Development Framework. It mainly comprises the areas of high biodiversity along Magaliesberg.

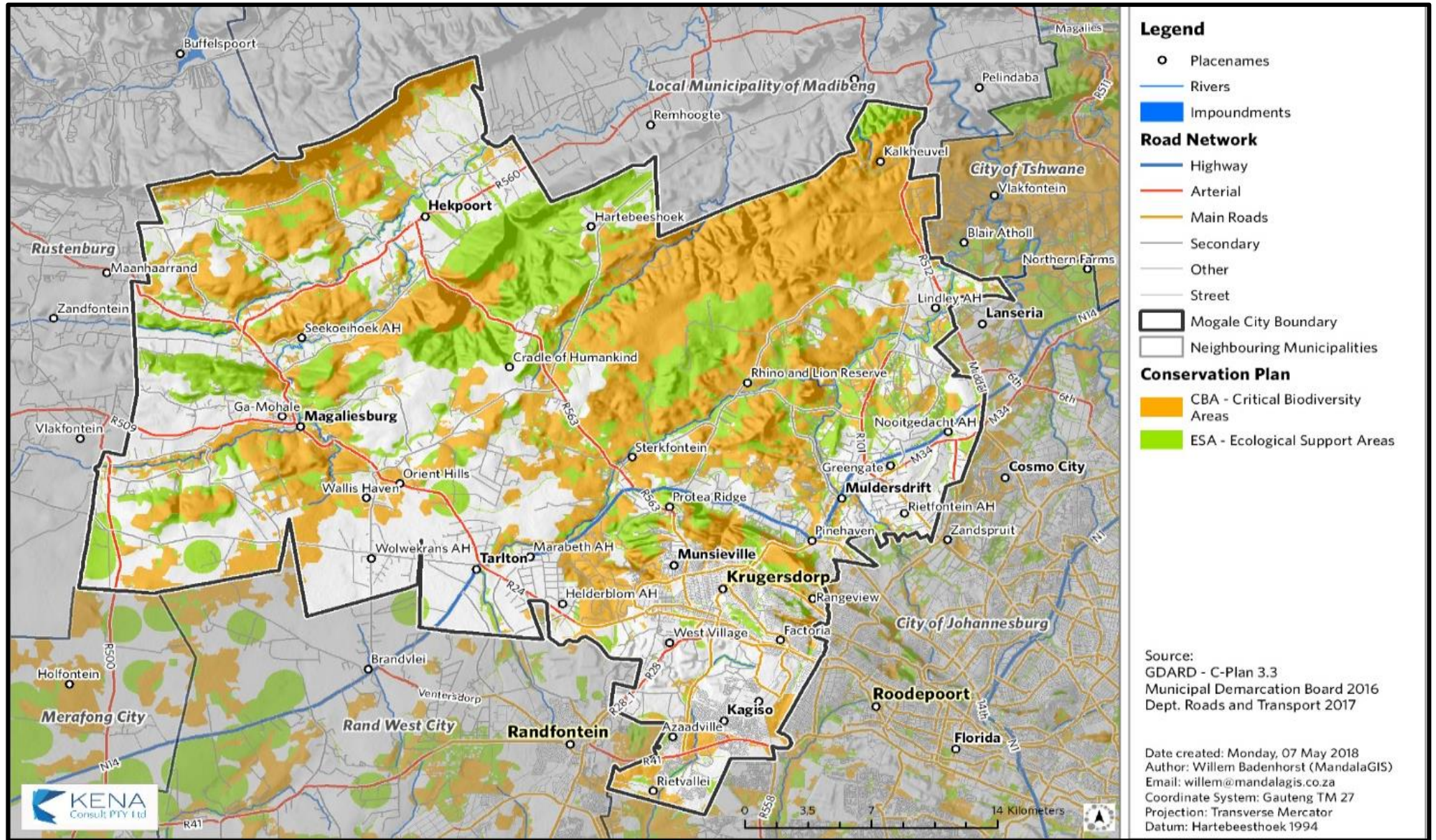


Figure 40: Gauteng environmental management framework



It is important to underscore that the open space system within the framework of MCLM needs to be maintained in line with the GPEMF guidelines and directives which identify certain management zones. The urban development zone and industrial and large-scale development zone support short-to-medium term development in MCLM in the north eastern quadrant associated with the N14 Corridor, Lanseria development node and urban development pressure from Cosmo City.

Infill of industrial and commercial development is supported in parcels of land situated in the Kagiso complex and related to vacant mining land.

### Box 1: Guidelines for natural open system

- The open space system within the framework of MCLM needs to be maintained in line with the GPEMF guidelines & directives which identify certain management zones such as urban development zone, industrial development zone & areas for infill development;
- The natural open space system should be protected from intrusive, irresponsible & *ad hoc* developments that damage the ecological integrity as well as visual quality of these areas;
- A continuous open space system must be developed in Mogale City. This means that in certain areas where natural open space is currently affected by activities, the municipality must intervene in order to ensure that ecological corridors can be created & are able to function appropriately
- Floodlines & Riparian zones as legislated must be considered in all types of development.

### 8.1.2. Strengthening of Urban Open Space Systems

In addition to the natural open system, MCLM needs to focus on the urban open space system. This is conceived as a network of both natural and man-made open spaces in the urban environment such as parks, hard open spaces such as town squares, and active open spaces, such as sports fields. The development of a planned, interlinked open space network will provide the MCLM urban environment with variety, visual relief and recreation.

Furthermore, given the undulating terrain of MCLM, urban open space systems provide for flood attenuation, storm-water management and urban agriculture opportunities. MCLM should develop the urban open space system within the ambit of an Urban Open Space Framework as suggested in the Integrated Urban Development Framework.

### Box 2: Guidelines for urban open system

- **The focus areas for Urban Open System should be:**
  - Krugersdorp CBD
  - The priority densification zones especially along identified corridors
  - In major activity nodes
- **Typical areas of investment in the urban open system include but are not limited to:**
  - Parks
  - Sports grounds
  - Natural open spaces within the urban environment (such as wetlands, watercourses & ridges);
  - Market gardens & allotments
  - Town Squares; and
  - Boulevards

### 8.1.3. Balancing Environmental Protection with Sustainable Development Principles

Although this MCLM SDF contains development proposals that respect the ecological integrity and environmental sustainability of the area, it is often necessary to re-evaluate development potential against the environmental impacts in order to achieve a truly sustainable development trajectory. Some areas of MCLM present the need to strike this balance. These areas include:

- The Cradle of Humankind World Heritage Buffer Zone on the western side of the N14, between Hendrik Potgieter Road and Malibongwe Drive. The development potential of this area and the impact it would have on the economy of MCLM needs to be acknowledged within the framework of clear sustainable development principles.
- The Muldersdrift area to the east of the N14 has been proposed as an urban development opportunity area, notwithstanding the presence of pockets of environmentally sensitive land in this area. These pockets of land do not contribute to a larger ecological system (except for watercourses that run through the area). Measured against the inherent development potential of this area, these pockets of land should be re-evaluated and reconsidered in terms of the triage principle of allocating resources to those areas where a difference can be made.

### 8.1.4. Integration of Environmental Management in Development Zones

In order to achieve functional integration of environmentally significant areas located within proposed development zones the following elements should apply:

### 8.1.5. Environmental Orientated Development

Agriculture related and tourism related activities should be dominant in areas that are in close proximity to environmentally sensitive areas, such as high control zones, river ways and dolomitic underlain areas. These activities should be designed in an environmentally friendly way, and with regard to tourism activities, the design should also create a positive tourism experience. Activities that are excluded would consist of manufacturing, industrial or repair and engineering type works (unless they are related to a craft or art industry in support of tourism). In the context of environmental oriented development (EOD), such elements would include:

- **Green ways:** Green ways are not always natural elements within the developmental context but may follow non-natural elements to act as link between the various other green areas. It includes mostly streetscapes and landscaping of roads and sidewalks and walkways that contribute to environmentally friendly development approach linked to low density residential, tourism and relatively small-scale agricultural activities.
- **Ridges and river ways:** The ridge and river system shall be contained within the proclaimed nature reserve or buffer areas, preventing encroachment of development onto the ridges and river ways. No development shall be allowed on slopes steeper than five degrees.

### 8.1.6. Response to Climate Change

This SDF recognises that climate change and variability will have impacts on the ability of the municipality to perform its tasks of providing services in a sustainable and equitable manner, facilitating socio-economic development and the promotion of a safe and healthy environment for all. In 2014, the Municipality produced a document called “Mogale City Local Municipality Climate Change Framework and Operational Climate Change Plan Strategy”. The purpose of the document is to put measures in place to minimize climate change impacts, reduce greenhouse gas emissions and improve the resilience of the municipality.

Historical data and the results of the downscaled General Circulation Model (GCM) in the MCLM indicate an increase in daily and mean temperatures, with the minimum (daily and mean) temperatures showing a slightly higher increase than the maximum temperatures. The rainfall predictions are more uncertain, but the data suggests that total annual rainfall will either stay within current values or increase slightly. The number of dry days is expected to decrease. The intensity of rainfall and the number of extreme events is expected to rise which could lead to an increase in flooding events. Evaporation is also expected to increase which could reduce water availability slightly if there is no increase in rainfall.

There are important benefits and opportunities for Mogale City to use various planning instruments – such as the SDF – to respond to climate change challenges, for example:

### Box 2: General MCLM response to climate change

- Promote the principle of energy efficiency as developments
- Support generation of “green industries” as an emerging area for MCLM
- Promote public transport for inter-nodal & inter-regional connection, & non-motorised transport within nodes
- Improve building quality, particularly in low-income housing to improve quality of life
- Replenishing the natural resource base through rebuilding wetlands, planting trees & clearing alien plants creates jobs & enhances important environmental services, and
- Promote Urban Greening as a mechanism for carbon sequestration.

Table 12 provides a summary of the adaptation and mitigation measures that are required across various sectors in Mogale City so as to improve the municipality’s resilience to future climate change.

Table 10: Sector strategies for climate change

SECTOR	CLIMATE CHANGE ADAPTATION & MITIGATION STRATEGIES
<b>Water</b>	<ul style="list-style-type: none"> <li>• Improve water conservation</li> <li>• Conserve &amp; restore aquatic ecosystems</li> <li>• Increase water storage capacity</li> <li>• Improve flood/storm surge control</li> <li>• Improve water demand management</li> <li>• Support the use of grey water &amp; rain water</li> </ul>
<b>Agriculture</b>	<ul style="list-style-type: none"> <li>• Improve early warning systems</li> <li>• Preserve agricultural land</li> <li>• Promote the use of food gardens in residential areas;</li> <li>• Improve crop management &amp; yields by using appropriate crops &amp; species;</li> <li>• Improve &amp; promote sustainable farming</li> <li>• Improve livestock farm management</li> <li>• Plant indigenous trees to reduce runoff &amp; provide shade for livestock &amp; labourers</li> <li>• Make use of sustainable farming methods</li> <li>• Encourage efficiency in fertilizer use</li> <li>• Encourage &amp; promote the generation of biogas from agricultural residue &amp; livestock manure</li> </ul>
<b>Human Health</b>	<ul style="list-style-type: none"> <li>• Improve monitoring of health impacts</li> <li>• Reduce air pollution through the use of passive energy measures &amp; non-polluting renewable energy sources</li> <li>• Maintain &amp; upgrade health care facilities &amp; services</li> <li>• Increase access to basic services in rural areas</li> </ul>
<b>Biodiversity &amp; Terrestrial Ecosystems</b>	<ul style="list-style-type: none"> <li>• Conserve parks &amp; open areas &amp; identify further areas for protection</li> <li>• Maintain corridors to facilitate dispersal &amp; migration</li> <li>• Protect &amp; restore wetlands</li> <li>• Promote the planting of indigenous trees to reduce runoff &amp; increase carbon storage</li> <li>• Rehabilitate degraded areas</li> </ul>



SECTOR	CLIMATE CHANGE ADAPTATION & MITIGATION STRATEGIES
<b>Human Settlements &amp; Infrastructure</b>	<ul style="list-style-type: none"> <li>• Maintain &amp; upgrade storm water infrastructure</li> <li>• Improve natural barriers for storm water surges</li> <li>• Reduce the heat island effect by using 'green' infrastructure (use 'cool' building materials, roof top gardens, open areas)</li> <li>• Make use of sustainable land-use planning &amp; spatial development</li> <li>• Increase access to basic services in rural areas</li> </ul>
<b>Disaster Risk Management</b>	<ul style="list-style-type: none"> <li>• Improve climate monitoring &amp; early warning detection systems</li> <li>• Strengthen the communication system in order to get the early warnings out to the community</li> </ul>
<b>Waste</b>	<ul style="list-style-type: none"> <li>• Reduce &amp; recycle waste</li> <li>• Improve the use of urban plant &amp; tree waste</li> <li>• Maintain &amp; improve infrastructure for waste collection</li> <li>• Monitor landfill sites</li> <li>• Promote the adoption of waste-to-energy technologies</li> <li>• Promote biogas technology at Waste Water Treatment Plants (WWTPs)</li> <li>• Improve energy efficiency in WWTPs</li> </ul>
<b>Energy</b>	<ul style="list-style-type: none"> <li>• Improve renewable energy supply</li> <li>• Improve energy efficiency</li> <li>• Improve water heating efficiency</li> <li>• Make use of combined heat &amp; power generation where possible</li> <li>• Make use of energy efficient lighting &amp; appliances</li> </ul>
<b>Transport</b>	<ul style="list-style-type: none"> <li>• Improve &amp; encourage the use of public transport</li> </ul>
<b>Industry, Commerce &amp; Mining</b>	<ul style="list-style-type: none"> <li>• Implement reporting of GHG emissions by companies in the industrial sector</li> <li>• Provide incentives for cleaner production technologies</li> <li>• Improve energy efficiency in these sectors</li> </ul>
<b>Residential Infrastructure</b>	<ul style="list-style-type: none"> <li>• Promote the use of improved &amp; safer domestic stoves which have higher thermal &amp; energy efficiencies</li> <li>• Promote densification &amp; multifunctional landscapes</li> <li>• Building designs must incorporate energy &amp; water efficient technologies</li> <li>• Building designs &amp; town planning must also incorporate 'green' infrastructure</li> </ul>
<b>Cross-Cutting Issues</b>	<ul style="list-style-type: none"> <li>• Install smart controls in various sectors to improve energy efficiency &amp; to improve transport flows to reduce emissions</li> </ul>

### 8.1.7. Promotion of Biodiversity Stewardship Program

The conservation of biodiversity using so-called 'stewardship agreements' was conceived at national level by the South African National Biodiversity Institute (SANBI) but is implemented sub-nationally by provincial conservation agencies and NGOs. This program should be instituted in MCLM given the vast areas of environmental significance.

The underlying objective of the Biodiversity Stewardship Programs (BSPs) is to improve the protection of critical biodiversity and threatened ecosystems occurring on private and communal land as determined by national conservation plans and spatial assessments.

This protection is to be achieved by encouraging formal conservation agreements between the conservation agency and landowners through financial (e.g. tax relief) and in-kind services (extension, habitat and land management advise) incentives. The program recognises various levels of participation, namely biodiversity agreements, protected environments and contract nature reserves (as defined in the Protected Areas Act 57) that differ in degree of legal protection status, land use restriction (on title deeds) and minimum duration of management tenure:

- years for biodiversity agreements
- 30 years for protected environments, and
- 99 years for contract nature reserves.

Definitions of main types of conservation and sustainability stewardship schemes identified in South Africa that can be implemented in MCLM are enumerated in Table 13.

**Table 11: Main types of conservation and sustainability stewardship schemes**

TYPE OF SCHEME	DEFINITION
<b>Conservancies</b>	Registered voluntary associations, established between like-minded landowners, residents, communities & other users, in a specified area with the shared aim of co-operative management of its natural resources in an environmentally sustainable manner, without necessarily changing the land use on the properties.
<b>Biodiversity Stewardship Programs</b>	Mechanism to incentivise formal conservation on private lands with high biodiversity conservation value. Different participation levels are available but the ultimate aim is to proclaim such areas as formally protected by national laws.
<b>Land Initiatives</b>	Initiatives that focus at land level, often determined by unique or specific biophysical or other characteristics or features (e.g. geological or heritage), to promote resilience of protected areas through inclusion of buffer areas, or enhanced connectivity between formally protected areas through multiple mechanisms.
<b>Market-linked Schemes</b>	Initiatives that focus on the production, management, or value chain of specific commodities or services & aim to promote sustainability by incentivising consumers to support such schemes, thus harnessing market forces to reward such producers.
<b>Ecosystem Services</b>	Initiatives that broadly address issues around maintenance or restoration of ecological infrastructure or ecosystem services through practical or policy interventions.
<b>Education &amp; Awareness Initiatives</b>	Initiatives aimed at education or raising awareness in specific or multiple sectors of society (e.g. the youth, or consumers & retailers) about particular or broader issues relating to sustainability or conservation, thus encouraging the voluntary adoption of behaviours & attitudes that contribute to such causes.



### 8.1.8. Protection of High Value Agricultural Land

Priority should be given to areas with high agricultural potential to ensure that these areas are protected for agricultural use and future food security. This can be related to Land Capability indicated in Figure 41 which shows the moderate and high land capability in the MCLM.

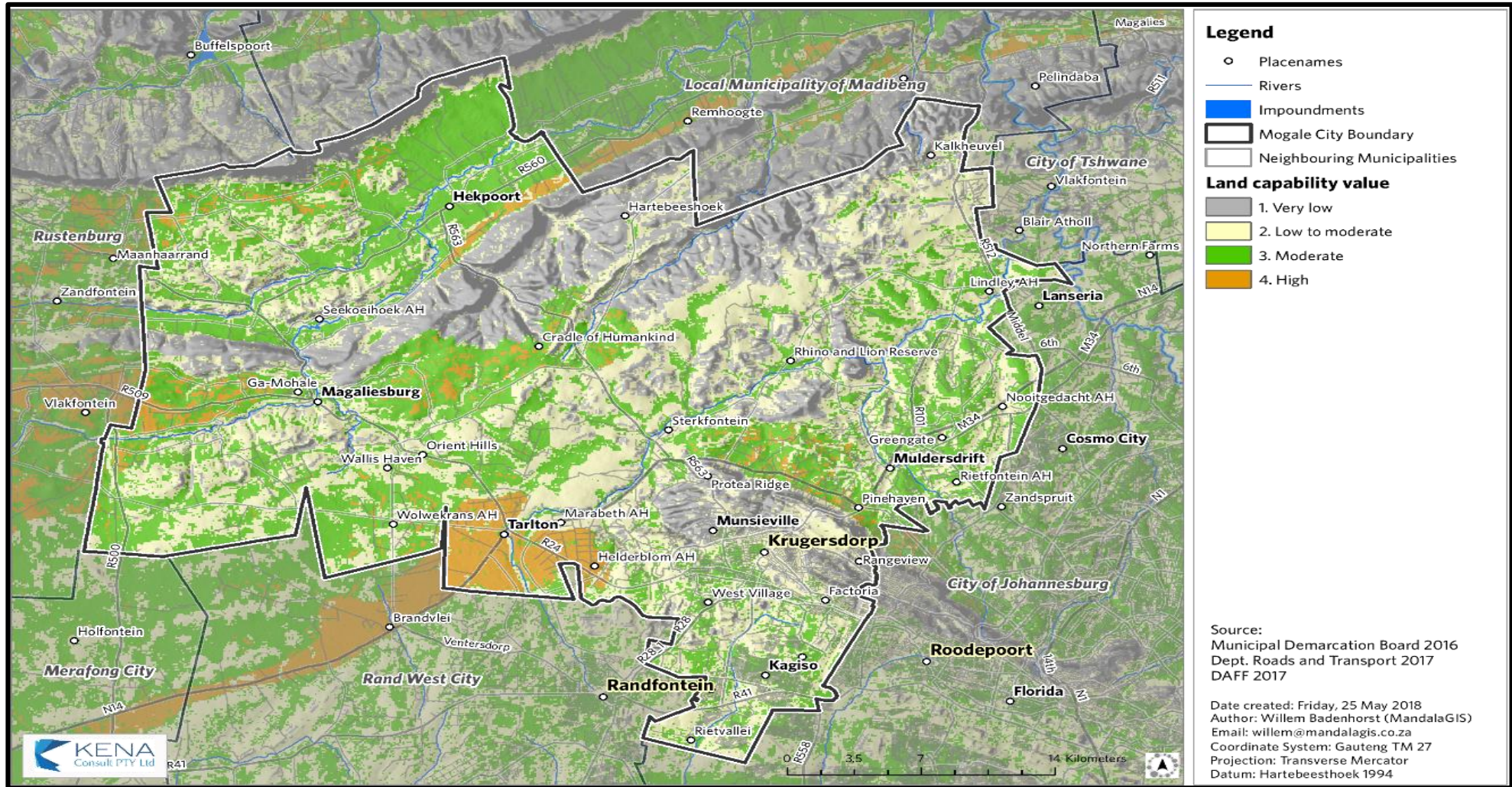


Figure 41: Land capability indicating moderate and high potential agricultural land



### 8.1.9. Creating Linkages with the Agri-Park Concept

The Agri-Park initiative is relatively new in the South African context. The concept is conceived as an integrated approach to both collective farming efforts and farmer development programs that contributes to regional economic growth, land conservation, and preservation.

The West-Rand Agri-Park has three interconnected components aimed at creating marketing and agro-processing opportunities for smallholder farmers throughout the district. The three components are (1) Farmer Production Support Units (FPSU), (2) Agri-Hub, and (3) the Rural-Urban Market Centre (RUMC).

An Agri-Hub linked to FPSUs constitutes the fulcrum of the Agri-Park concept. It is always important to establish more than one FPSU supporting an agri-hub not only to ensure thresholds are achieved through increase production of smallholder farmers, but also to strengthen the communication link between the agri-hub and farmers. All these components of the agri-park are interlinked, providing a streamlined and integrated approach to agricultural and rural development. It is of vital importance to understand the linkages and the flow of products and information between the three components as well as how the farmers fit into the agri-parks system.

The Carmel Estate FPSU is located in the western part of MCLM. The proposed FPSU site is central to agricultural activity and is located approximately 5km west of Magaliesburg (refer to Figures 42 and 43).



Figure 42: Carmel Estate FPSU

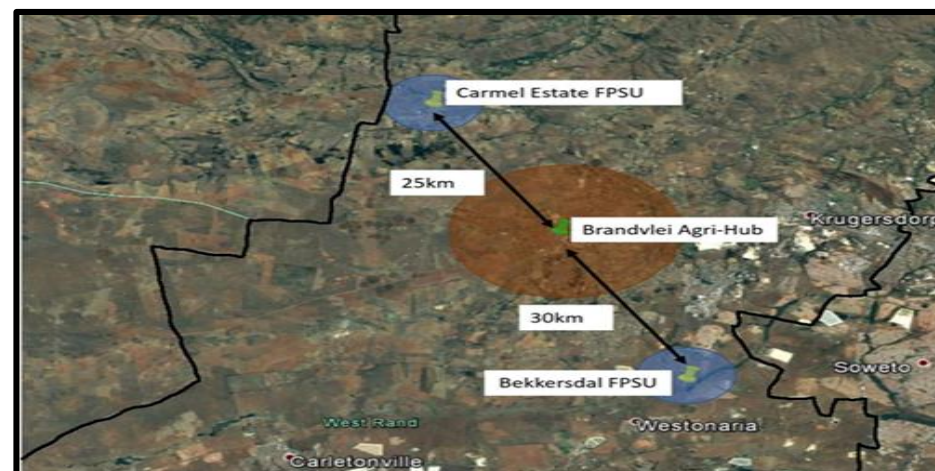


Figure 43: Agri-park concept in the West Rand

Currently, no activities are taking place at the proposed Carmel Estate FPSU site, although there are various abandoned buildings that could potentially be refurbished for FPSU activities. Furthermore, it is important to analyse the production levels of the smallholder farmers in the Carmel Estate FPSU area, to successfully plan the capacity of the Brandvlei Agri-Hub<sup>1</sup>. Strategies for agricultural development in MCLM should focus on:

- **Access to moderate and high potential agricultural land:** It is proposed that the medium to high potential land be prioritised in this respect, supported by high levels of accessibility.

- **Water availability:** In terms of establishing more productive agriculture in the area, water will have to be given the same level of priority as land provision.
- **Technology development:** The same applies to technology development or obtaining improved technology input as part of sustainable agricultural production. In the case of technology development, specific support programs offered by the state should also be accessed

<sup>1</sup> West Rand Agri Hub Development Concept, 2017



## 8.2. Nodal Development

Strategies in support of Nodal Development are as follows:

- Establishment of a clear nodal hierarchy and functionality
- Intensification of public investments in infrastructure and social services in existing nodes

- Ensuring a high degree of interconnectivity between nodes through investments in public transport, and
- Support mixed uses in the nodes characterised by high intensity activity and higher density residential development.

Figure 44 below captures the various nodes and precincts in MCLM.

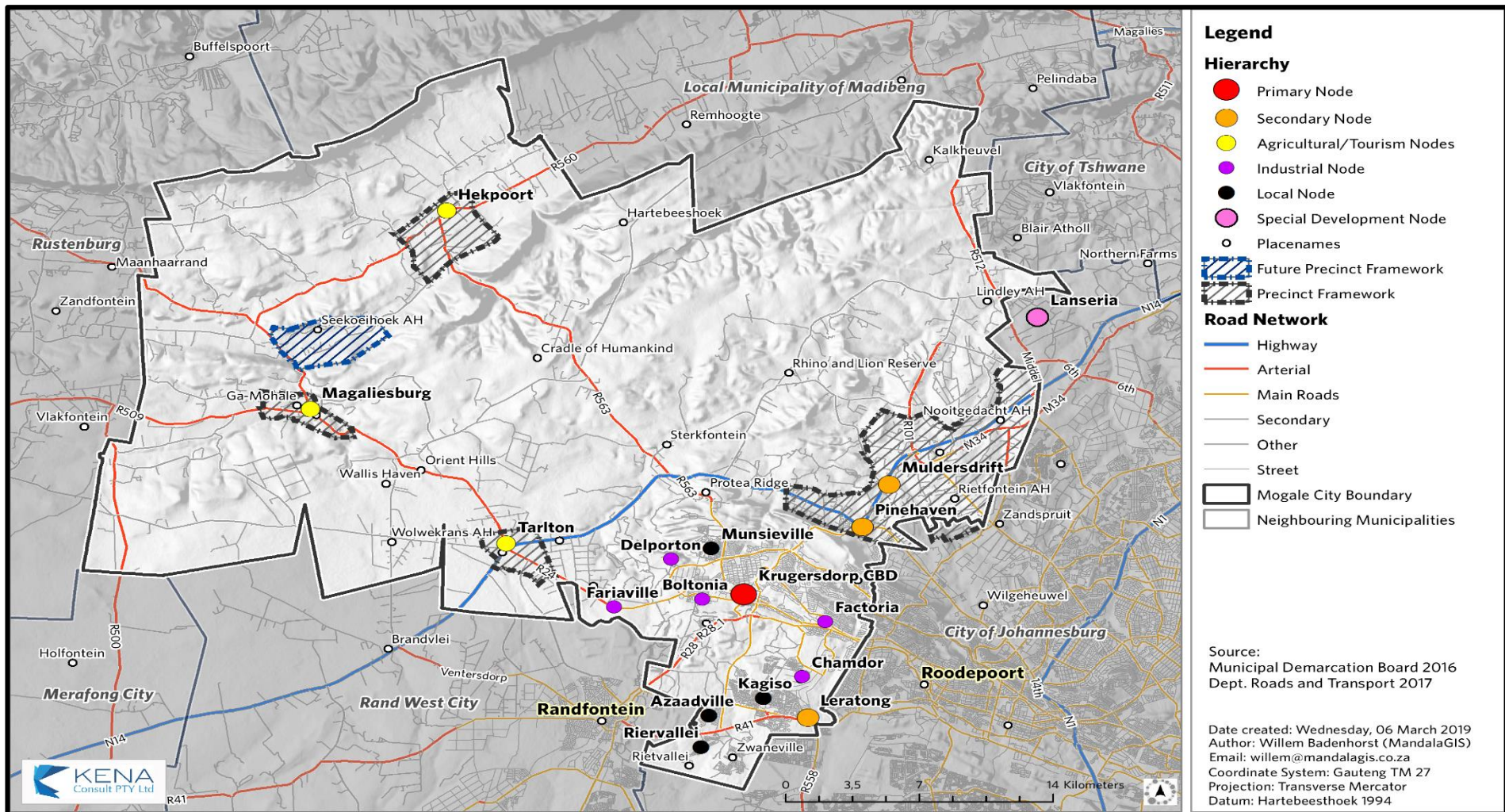


Figure 44: MCLM Nodes and Precincts



### 8.2.1. Nodal Hierarchy

The nodal hierarchy for MCLM is as follows:

- **Primary Node:** Krugersdorp multi-economic activity node
- **Secondary Nodes:** Muldersdrift.Pinehaven/ **Hendrik Potgieter** and Leratong
- **Local Nodes:** Kagiso, Azaadville and Rietvallei, and Munsieville.
- **Tourism/Agricultural Nodes:** Magaliesburg, Tarlon and the smaller tourism and agricultural hub of Hekpoort that are associated with corridors – R24, N14, M5 and R563. While Tarton

and Hekpoort have a ribbon development character, it is desirable to anchor the development around a central core.

- **Specialised Activity Node:** Lanseria International Airport Developments Zone – which promotes a mix of hi-tech and clean industrial activities.
- **Industrial Nodes:** The Delporton, Chamdor, Boltonia and Factoria industrial complexes refer to pockets of industrial development within the MCLM urban structure

Tables 14-18 below summarise the various identified nodes with strategies for the treatment of each of them.

### 8.2.2. Primary Node: Krugersdorp Multi-Activity Node

Table 12: Krugersdorp Multi-Activity Node

#### KRUGERSDORP

##### Description of the Krugersdorp Node

Krugersdorp CBD is the major administrative, service and economic centre in Mogale City. This important role is cemented by the role the CBD plays as a rail, taxi and bus commuter node. The other major centres of economic activity in the municipality include the emerging Cradlestone/Silverstar node and the Key West node to the north. The CBD is a service centre for residents of Munsieville, Boltonia and the suburbs south of the mining belt such as Azaadville and Kagiso.

Krugersdorp is currently experiencing urban decay compounded by rising crime, grime and ageing infrastructure. The CBD has seen a gradual decline in the character, attractiveness & demand for business space over the last few decades. Stagnant rental rates and high vacancies in existing buildings are prevalent in the inner-city core. Much of the higher-end retailing and office activity has moved to shopping malls in the area such as President’s Square, Key West and Cradlestone. However, the MCLM CBD still remains the administrative centre of the Municipality & as such still has an important function to play.



##### Development Strategies for Krugersdorp Node

The Krugersdorp Precinct Plan 2017 should be the primary framework to guide the development of this Node. The overarching strategy is to retain and reinforce those elements that are currently functioning whilst introducing improvements for current residents and users.

**The 2017 Precinct Plan promotes the following strategic thrusts:**

- Enhance the performance of several nodal/landmark opportunities, namely, the Civic Centre, taxi rank, the train station and the sports precinct.
- Promote the mixed-use core of the precinct consisting of the emerging education district in the south east as well as the well traversed north part of the CBD with its diverse public services
- Strategic infilling & densification of the CBD
- Retaining and enhancing the walkability of the core around the precinct. Actions here include the formalisation of the pedestrian routes & upgrading the streetscape along Market Street
- Traffic calming along existing Vehicular Routes
- Creating new Connected Open Space System.







### 8.2.3. Secondary Nodes

The secondary nodes in MCLM consist of Muldersdrift Pinehaven/Hendrik Potgieter and Leratong. The general characteristics of secondary nodes are as follows:

- The secondary nodes serve specific sub-municipal regions
- Secondary nodes ideally comprise mixed land uses, including higher density residential land uses, and
- The nodes should be structured around major public transport facilities

**Table 15: Muldersdrift, Pineheaven / Hendrik Potgieter and Leratong Secondary Nodes**

<b>MULDERSDRIFT</b>			
<b>Description of Muldersdrift Node</b>			
<p>Muldersdrift is located south-east to the intersection of N14 &amp; M5. It is the gateway to the West Rand District &amp; forms part of Cradle of Humankind Heritage Site. Muldersdrift is known for its fine accommodation, restaurants, spas &amp; health resorts. It is often referred to as the wedding capital of Gauteng. Home to numerous small farms, smallholdings &amp; nurseries, the area has acquired a reputation for being an arts &amp; cultural hub with a number of home craft industries potters, artists, brewers, &amp; astronomers based in the area. Muldersdrift is also home to Gilroy's Brewery, the Silverstar Casino &amp; the Craddestone Mall.</p>			
			



**Key Development Strategies for Muldersdrift Mixed Use Node**

- Muldersdrift’s Greenfield character provides opportunities for developing a model for an integrated & sustainable human settlement approach that clusters activities in order to achieve economies of scale.

**Key strategic interventions:**

- **Bulk Infrastructure:** There is need for investments in engineering services & road infrastructure to support the development of the Muldersdrift area.
  - ✓ Mixed density housing
  - ✓ Upgrading & formalisation of informal settlements in line with NUSP programme
  - ✓ Light industry, office complexes, hospitality, event venues, & conferencing
  - ✓ Functional relationship with N14 corridors & Beyers Naude & Malibongwe Drive provide an opportunity to exploit Transit Oriented Development approaches & therefore optimise on land uses.
- **Agribusinesses:** To the Western side of the N14, there is potential for agricultural processing targeting the vacant land that exists there. This should include strengthening the agricultural corridor to Tarlton & establishing agri-businesses.
- **Rural Residential:** Rural residential should also be promoted on the western side of the N14
- **Aerotropolis:** Muldersdrift is located in close proximity to Lanseria Airport. Although the airport is outside the Muldersdrift Development Zone, this area is well positioned to take advantage of the economic investment opportunities that are bound to arise. These, for example, include time-sensitive manufacturing & distribution, retailing, hotel, entertainment, conferencing, conventions & trade exhibitions.



**PINEHAVEN / HENDRIK POTGIETER**

**Description of Pinehaven/Hendrik Potgieter Secondary Node**

These are 2 growing & adjacent nodes around the intersections of Hendrik Potgieter Road, R28 & the N14. They are anchored by the Cradlestone Mall, the Silverstar Casino & the Pinehaven residential developments



**Development Strategies for Pinehaven/Hendrik Potgieter Secondary Node**

- The section between Beyers Naudé Drive & Hendrik Potgieter Road has a lot of development potential in such fields as high-tech industries, office, motor showrooms & other high order business activities;
- The intersection of Hendrik Potgieter Road & the N14 anchored by Silverstar Casino, the Netcare Hospital & Cradlestone Mall play a regional recreational/entertainment function, and
- The proposed alignment of the N14 & fly over development in conjunction with the proposed PWV 8 will spatially refocus the development node.



## LERATONG

### Description of Leratong Node

The Leratong Node extends over a considerable area of vacant land divided into north-east & south-west quadrants. Positioned across the road from the regional Leratong Hospital & at the intersection of major roads linking Mogale City, Soweto, Randfontein, Merafong, Roodepoort, Florida & Johannesburg, Leratong has good access to these business nodes. The nodal precinct plan & Neighbourhood Development Partnership Grant (NDPG) direct the development of the node as mixed use with high density residential developments flanking high intensity economic land uses.



### Key Development Strategies for Leratong Node

The Node has been selected as an area for Neighbourhood Development Partnership Grant (NDPG) investment. It forms an integral part of a larger regional node set in the context of a previously disadvantaged township area, which has the potential to transform into a high intensity regional node. The development strategy for Leratong Node consists of the following:

- A high-density residential development for mixed income occupation
- Commercial establishments with good transport & communication infrastructure
- Good quality social infrastructure (education, health, social & recreation, and
- The NDPG should also be leveraged to revive the Chamdor Industrial Area by making it more accessible & attractive to potential investors.



### 8.2.4. Local Nodes

These consist of Kagiso, Azaadville and Rietvallei, and Munsieville. They have the following generic characteristics:

- They serve one or more neighbourhoods
- Land uses are focused on local business development and the provision of local community and social services

- Each node should be structured around a public open space such as a square or park.
- They should be surrounded by higher density residential developments
- A focus should be on the creation of small business opportunities for local entrepreneurs.
- Local nodes should be integrated with major public transport facilities and should, as far as possible, be located within walkable distance from a large section of the local population.
- Main routes linking the nodes with the internal neighbourhood should have a strong pedestrian focus

In terms of general planning principles that should be applied to local nodes, the following are important considerations:

**Table 16: Kagiso, Azaadville and Rietvallei, and Munsieville Local Nodes**

### KAGISO, AZAADVILLE & RIETVALLEI

#### Description of Kagiso, Azaadville & Rietvallei Local Nodes

The nodes are to the South of the mining belt & are termed the Kagiso Complex. The complex is situated to the south of the Krugersdorp CBD & on the east-west urban development corridor. They are enveloped & spatially isolated by the extensive mining belt. They consist of self-sustaining precincts with an internal hierarchy of nodes. The Kagiso complex consist of previously disadvantaged settlements with limited access to services & facilities. The Kagiso cluster of wards is by far the most populated cluster in the MCLM with 32% of the MCLM population living there. This precinct is more oriented towards the City of Johannesburg rather than towards MCLM.



**Development Strategies for Kagiso Complex**

The spatial development strategies for Kagiso Complex are anchored around the following:

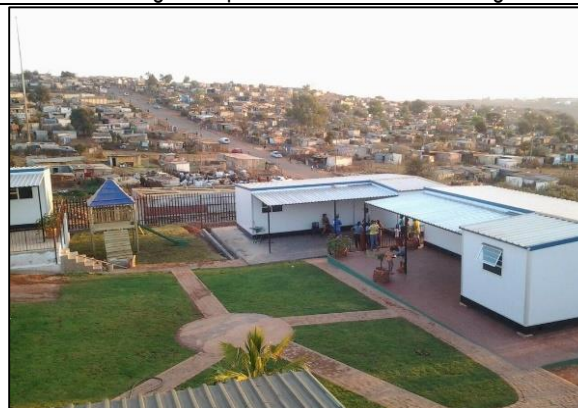
- Creating high-quality urban activity nodes & activity streets that are able to accommodate a range of services & facilities
- Greening the environment
- Facilitating the integration of the area towards the rest of the MCLM
- Enhancing the township economy of Kagiso by focusing on specific opportunities to develop a range of enterprises within the sub-nodes/precincts of the area
- Investing in public transport facilities & services
- Leveraging the existing transport networks (the R 41 / Randfontein & R558 routes, as well as the M13 & Tudor Road - into Kagiso Avenue as activity spines with nodal development & urban development consolidation.
- Implement the Mogale Citywide Township Economic Development Programme (2016-2021)
- Improving the quality of life through increased number & quality of social housing, medium density accommodation, social amenities, recreation, environmental management & security, and
- Invest in detailed sub-precinct plans.



## MUNSIEVILLE

### Description of Munsieville Local Node

Munsieville is a disadvantaged settlement which lies to the west of Krugersdorp, bordered by N14, R24 & Tarlton. It grew out of informal settlements inhabited by mine labourers on the outskirts of the original mining town of Krugersdorp. Similar to the Kagiso Complex, this settlement also lacks the full range of urban services. The difference between Munsieville & Kagiso Complex is that Munsieville presents greater opportunities for integration with the Krugersdorp urban area, as it is not physically separated from Krugersdorp as is the case with the Kagiso Complex.



### Development Strategies for Munsieville Local Node



- Consolidation of the sprawl in activities & facilities to form an urban core for the area around Thusong Center where the existing urban energy is concentrated.
- Elimination of backyard shacks/settlement upgrading
- Improvement of public transport
- Southward expansions of Munsieville across Robert Broom drive to include social housing
- Large scale further outward growth of Munsieville is hampered by natural environment constraints as well as the urban boundary. The focus should therefore be on infill development where vacant land parcels are still available & densification around the proposed Munsieville Node
- The node has the potential for mixed development including, industrial parks, light manufacturing, automotive small & Small, Micro & Medium Enterprises (SMMEs), social housing & market gardening.



### 8.2.5. Agricultural/Tourism Nodes

This is a generic term for the hubs that anchor the tourism and farming activities in the rural part of the municipality. They consist of Magaliesburg, Turlon and the smaller rural hub of Hekpoort. They are associated with corridors – R24/R509, N14, M5, and R563. While Turlon and Hekpoort are characterized by ribbon development, it will be important to anchor development around a central core.

MCLM rural nodes have the following general characteristics:

- The main purpose of these nodes is to act as central places in the rural environment where basic day-to-day services are delivered to the rural communities.
- Typical services found in these centres include municipal satellite offices, social support services, and small convenience retail, and

- Tourism facilities and services as well as transportation services.

There are some generic development principles that should be applied to the rural nodes:

- Developments should be restricted and the rural character should be maintained
- Developments should not require extensive service infrastructure
- Developments should not have any negative environmental impact
- Development should not lead to the need for other developments to be established in the area, and
- Land uses should be mainly resource-based

**Table 17: Mgaliesburg, Turlon and Hekpoort Agricultural / Tourism Nodes**

#### MAGALIESBURG

##### Description of Magaliesburg Rural Node

Magaliesburg is a major tourism & agricultural node that is situated in a valley of the Magaliesberg mountain range, approximately 30 km from Krugersdorp. Magaliesburg is accessible from the R24 that leads to Turlon, Krugersdorp & Randfontein to the South & Rustenburg to the North. Its economy is anchored around tourism, leisure activities & farming. It has many landmarks & places of interest in the form of conservation areas, rugged mountains, ridges, rivers & wildlife, heritage sites, open space & sensitive areas. The larger areas of Magaliesburg are surrounded by agriculture such as vegetable farming & horticulture. Magaliesburg is generally located away from urban pressures.



**Development Strategies for Magaliesburg**

The spatial development strategies for Magaliesburg node should be geared towards the following:

- Develop it as the main tourism & agricultural node & should comprise all the basic social services such as clinics, libraries, police stations & primary schools.
- Investment in social infrastructure in the rural environment should initially focus on Magaliesburg
- Should be subjected to a delineated developmental boundary to eliminate sprawl
- Conservation of environmental resources with reference to specific conservation areas, heritage sites, open spaces & sensitive areas
- Optimise & protect high potential agricultural land
- Enhance & maintain the rural character of the area
- Regeneration of Magaliesburg town core business area to avoid urban decay, & promote tourism related uses, & give it a distinguishable identity
- Maintenance & upgrading of economic infrastructure (Roads, telecommunication, energy), and
- Housing development should be contained within the core of the Magaliesburg precinct that relates to the amenity of the tourism town, supportive engineering infrastructure & enabling economic development.



**TARLTON & HEKPOORT**

**Description of Tarlton**

Although Tarlton presents very little development energy, some of the inherent characteristics that could be exploited are:

- Relative proximity to Krugersdorp
- Location at intersection of two main regional roads
- Railway line
- Being part of the West Rand Agricultural Hub’s Farmer Production Support Unit.

**Description of Hekpoort**

Hekpoort comprises very little activity, & also does not have a major function environment other than providing some day-to-day convenience services to the rural population.





**Development Strategies for Tarlton**

- Invest in social services around the intersection of the N14 & R24 in order to establish a consolidated node.
- Develop the node as an agricultural support centre, comprising agricultural industries, transportation services, warehouses, etc.
- Consolidate Tarlton centre to provide a focal point where the illegal industrial & commercial activities on farm portions can be regularised
- Support for small scale, high intensity vegetable farming & associated value chain processing
- Housing development & formalisation of informal settlements should be accommodated within the precinct focus area. The proposed Brick Vale residential development will assist in alleviating residential demand in Tarlton.
- The impact of dolomitic conditions, acid mine drainage, environmental sensitivities will determine the extent & scope of development.
- Land uses that can be supported is high tech clean industrial development, commercial development associated with warehousing & packaging where the footprints are limited & supported by geotechnical studies.
- Geometric access designs supported by all authorities should be introduced to allow for mobility & accessibility.



**Development Strategies for Hekpoort**

- Develop a tourism mixed use corridor along the R560, with the Hekpoort town as potential tourism node
- The corridor should include the access point to Askari Game reserve to Vogelzang housing development.

**8.2.6. Specialised Activity Zones**

Specialised Activity zones are those areas that cater for a specific land use types that may not be suitable for generalised mixed uses that are typically found in the other nodes and activity spines. Examples of specialised activity areas include industrial areas, educational campuses, larger institutional complexes, large sport and recreational complexes and any other economic or social

activities that require large specialised areas. In the case of Mogale City Local Municipality, the following are identified as Specialised Activity Zones

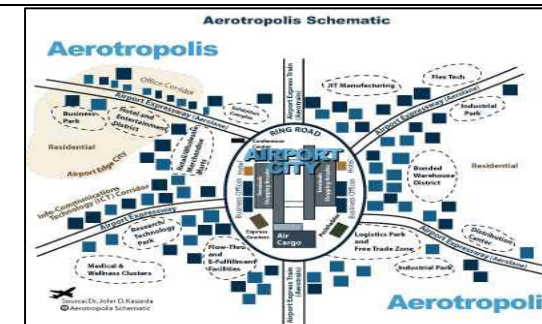
- Lanseria Aerotropolis Developments
- Current Industrial Nodes (Delporton, Chamdor, Boltonia, Factoria), and
- Mining belt

**Table 18: Lanseria, Mining Belt and Industrial Use Specialise Activity Zones**

## LANSERIA

### Lanseria Aerotropolis Description / Developments

These developments are looking at upgrading of the airport’s capacity for long range air traffic as well as developing the considerable land available into an airport city. Although Lanseria Airport lies outside Mogale City, the Mogale City SDF (2011) & the Lanseria Regional Spatial Development Policy (2015) highlighted the importance of this node to Mogale City Municipality. With all the new institutions to be developed, job opportunities will present themselves for locals. Also, more skilled labour will be generated in Mogale City & as a result, more in-house training will be provided by companies to ensure maximum productivity. This serves to benefit locals that are getting employed as they will become skilled in a wide variety of fields.



### Development Strategies for Lanseria Aerotropolis

The western half of the airport’s influence sphere lies in Mogale City, & hence it will have a definite impact on development in this area. The Spatial Development Policy (2015) proposes carefully controlled & specialised mixed land uses for the area. These may consist of:

- Tourism, leisure & accommodation especially around sections of the N14 & R563 that run through the cradle
- Developments that are ancillary to existing character & functions of the area, such as agriculture & rural residential developments
- Low environmental footprint developments such cold-storage, warehousing retail, commercial, offices, freight forwarding, aviation related businesses, & high tech, clean-industrial development can take place along the proposed N14 Development Corridor, and
- A suitable mix of housing types, including social & inclusionary housing.

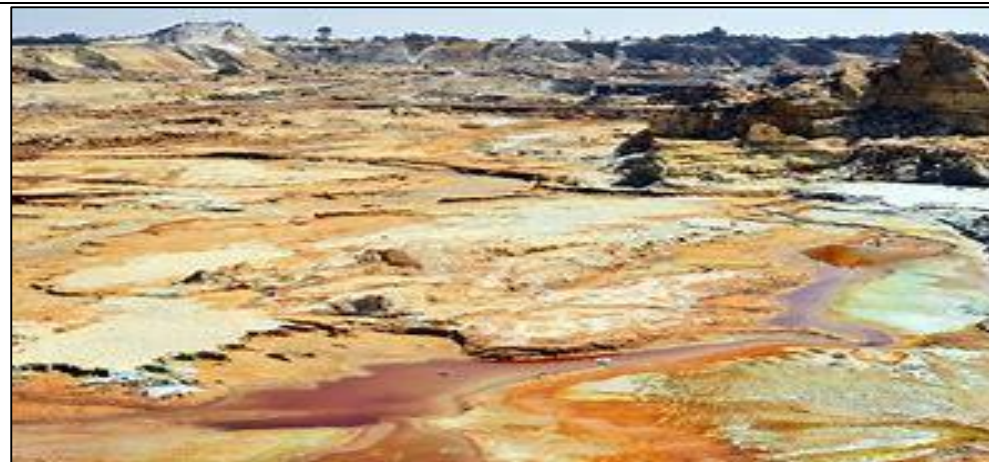
Given that the western part of the airport footprint overlaps with the buffer zone around the Cradle, the 2011 MCLM SDF emphasised that the buffer zones should be considered when developing future proposals for the area. Furthermore, the Cradle precinct plan (2014) recognises that the Lanseria developments will bring massive pressure to the doorstep of the Cradle. The boundary of the Cradle will in effect become the urban boundary, & therefore, suitable transition uses must be allocated between future urban expansion & the core of the Cradle. More detailed work may be required to identify specific land use for particular types of development proposals. This should be a joint initiative between Gauteng Provincial Government, the City of Johannesburg, & Mogale City.

## MINING BELT

### Description of the Mining Belt

Although the principal mining activities have ceased (except for Mintials Mine & the reworking of a number of some mine dumps) the legacy of mining remains a prominent spatial feature in the form of the east-west mining belt. The mining belt has potentially been sterilised from development through the radioactive properties of the mine dumps & silt dams. The Gauteng SDF (2030) proposed a regional spatial policy for the Mining Belt to firstly capitalise on the opportunities available within the area, & secondly to provide structured development will enable a uniform spatial vision for impacted municipalities in Gauteng Province. As part of the process of developing a regional spatial policy for the Mining Belt, a Mining Belt Delineation Study was undertaken in January 2019. The study divided the Gauteng Mining Belt into six sub-regions, two of which are Rand West City & Mogale Mining Belt Sub-region.





### Development Strategies for the Mining Belt

A mining belt spatial policy is required to focus on the following 4 broad elements & sub-elements:

- Create a cross-boarder spatial approach for the mining belt
  - ✓ Create a common spatial vision to improve functional urban form & remove fragmentation
  - ✓ Identify strategic land opportunities across the mining belt
- Improved connectivity
  - ✓ Identify strategic regional linkages to unlock the mining belt
  - ✓ Identify opportunities to rationalise public transport
  - ✓ Prioritise Gauteng Strategic Road Network Routes in support of the mining belt.
- Economic Integration & Development
  - ✓ Strengthening of physical & functional linkages between township areas & economic concentrations in the urban core
  - ✓ Integration of human settlements with places of economic opportunities & social amenities
- Resource efficient infrastructure development
  - ✓ Identification of strategic infrastructure required at regional scale to unlock development

- ✓ Identification of mining rehabilitation priorities to unlock strategic areas in the mining belt
- ✓ Identification of opportunities to locate human settlements close to bulk infrastructure & public transport
- Based on the findings of the proposed study, a local spatial development framework must be drafted for the area showing the local application of the principles as stated above.
  - ✓ There is a proposed investigation into the long-term rehabilitation & development potential of the mining land between Krugersdorp & Kagiso. Based on the findings of this study, a local spatial development framework could be drafted for the area.
- Should this area or parts thereof prove to be developable, the following principles should apply:
  - ✓ The land should be utilised to achieve spatial & socio-economic integration between the different urban areas.
  - ✓ An urban network must be established comprising activity spine linkages between the Krugersdorp CBD & Kagiso.
- Land which is not suitable for human habitation or economic activities must be converted into an open space system which can contribute to spatial integration between the various settlements

### INDUSTRIAL USE ZONE

#### Description of the Industrial Use Zone

**Industrial Nodes:** Delporton, Chamdor, Boltonia, Factoria are existing industrial nodes combined within the urban fabric.

Future industrial & commercial development is focussed towards the north-eastern quadrant of MCLM. The approach is to focus industrial & commercial development mainly along the N14 Corridor & in conjunction with varied densities of residential development. Fariaville is an un-proclaimed industrial township which provides for a longer term the development perspective that can be linked to the mining belt development approach & the R24 corridor development between Tarlton & the CBD.



### Development Strategies for Industrial Nodes

The following strategies should be applied to the industrial nodes:

- The existing industrial areas should be intensified before new expansion is permitted.
- In order to attract new development & encourage the renewal of existing development, the municipality should focus on urban renewal programs in the existing industrial areas
- The focus should be on industrial land uses, warehouses & commercial uses such as transport depots.
- Supporting facilities, such as convenience shops, restaurants / canteens, support businesses (such as printers, stationers, day-care & banks), can be provided within the industrial area, provided that the scale of such a development is restricted to that of an ancillary use that does not & will not attract the general public
- Offices shall be restricted to administrative offices belonging to or directly linked to the activities established in the area, and
- Create tourism products linked to the brewing industry.

### 8.3. Economic Opportunity and Proximity

This section deals with enhancement of the space economy and the supporting linkages as a key objective of the MCLM SDF. Needless to say, economic sectors are important drivers of spatial patterns of development. This is especially so where spatial interventions are deliberately designed to improve proximity and linkages. Capitalising on proximity implies maximising the potential of a spatial territory by aligning and enabling synergies between various economic sectors, services livelihood opportunities and accessibility.

The MCLM SDF enables an overlap between areas of opportunity and areas intended for spatial development actions such as infrastructure development, infill and densification, nodal development, development corridors, economic intensification and diversification.

The principle of integration that has been embedded in this SDF aims to achieve stronger and well inter-linked economic zones in the key sectors of the economy in MCLM.

In this SDF, objectives for Economic Opportunity and Proximity are driven by the following strategies:

- **Rural Economy** which consists of:
  - Agriculture sector
  - Tourism and conservation areas
  - Game farms
  - Rural tourism
- **Manufacturing**
- **Services**
- **Township Economy**



### 8.3.1. Rural Economy

MCLM rural economy rests on three core areas namely, agricultural land capability, the rural natural environment, tourism products, and the potential to exploit the green and blue industries.

Most of MCLM is rural in nature, and thus a specific focus of this spatial development framework is dedicated to enhancing and supporting rural economic development in the area. The SDF looks at ways of strengthening the nodes that anchor the agricultural and tourism hinterland without promoting unsustainable development, the protection of valuable agricultural land, protection of the pristine and valuable natural environments and the promotion of rural tourism which is one of Mogale City’s main competitive advantages.

#### Box 4: Guideline to Protect the Rural Economy

Guidelines for Managing Development Outside the Urban Boundary

- Land uses should be rural in nature, or should require a rural setting in order to be functional or viable
- Development should not require extensive service infrastructure
- Development should not have any negative environmental impact
- Development should not create possibilities for other developments to establish in the area
- Land uses should primarily service the local market, and
- Uses should be based on the local resource base.

#### 8.3.1.1. Agricultural Sector

Rural MCLM is characterised by intensive as well as extensive agricultural developments and agricultural holdings, carrying out a variety of activities ranging from commercial crop farming of cereals and corn, livestock and poultry keeping to specialised horticulture and commercial vegetable farming. The biggest concentration of agriculture is towards areas of higher land capabilities which are more evident south of the R509 and in Tarlton area which is the breadbasket of the municipality.

In order to achieve sustainable food security and to support the rural economy, agrarian reform (including reform of access to and use of land) and rural transformation are key to the well-being of the people of MCLM. A cornerstone of the desired rural transformation resides in the development of urban-rural anchors and small service centres. This intervention seeks to radically transform rural livelihoods and to enable easy access to high-quality social services. It further builds on the imminent symbiotic relationship between the urban and the rural context (refer to Figure 45).

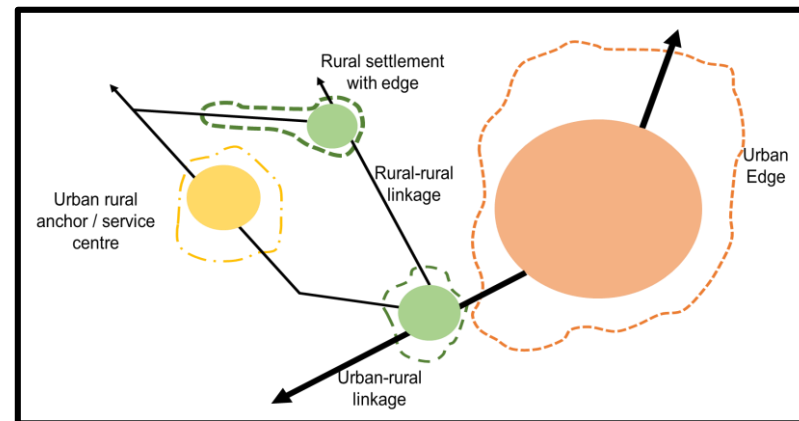


Figure 45: Urban-rural symbiotic relationship

In order to manage and preserve the agricultural sector, high and moderate land capability areas must be protected from any high-impact development activities. Strategies to achieve this are enumerated in Box 5.

#### Box 5: MCLM Strategies for the Agricultural Sector

- Strengthen agricultural value chains linked to the Carmel Estate FPSU and Brandvlei Agri-Hub
- High potential agriculture land that is not currently in use should be preserved in order to ensure future food security, and to protect one of the core economic sectors of the municipality.
- Primary agricultural activity, as well as related secondary activities such as agro-processing should be considered as one of the key agricultural drivers in the municipality.
- Build awareness and knowledge about the value of agricultural land and the need to preserve it
- Promote investments into sustainable agricultural practices
- Focus on strategically located ‘small-scale agriculture and agri-villages’ as rural settlements where inhabitants have access to enough land to be able to undertake small-scale agriculture
- Promotion of value chain approach. This needs to an integrated approach which allows the structuring of agribusiness into various inter-linked enterprise segments where various stakeholder can find a niche. Breaking down the component steps of a value chain enables better understanding of how and where value adding takes place, and where the processes can be improved to increase efficiencies

Subdivisions of farm portions for exclusive rural residential use or so-called rural/country estates should only be permitted around and contiguous to existing urban areas. Country estates which are not situated adjacent to urban areas should be considered with great caution, as it results in permanent residential development in areas that are not integrated with main activity areas. These estates are leap-frog developments that require the extension of services to areas where services should not be a priority and further result in greater commuting distances for the residents of these areas to places of work, education, social facilities and business opportunities. These estates could therefore in fact contribute to an inefficient spatial form and could be considered to be against the principle of integrated and sustainable development. Strict requirements must be laid down for the provision of engineering services to and within these estates to ensure that it does not lead to environmental problems. The ability to provide services according to the standards set by the municipality is a pre-requisite.

#### 8.3.1.2. Tourism / Conservation Areas

Of importance to this SDF is the need for careful management of the process of applications for land use change to allow for nature reserves and resort type developments. The concern is centred around empirical evidence that applications for such land uses are often initiated with the view to obtaining more land use rights in future, typically to allow for low-density residential development in the future. Thus, land use change to nature reserves and resorts should only be considered under conditions enumerated in Box 6.

#### Box 3: Conditions for Conversion of Land into Nature Reserves

- Resorts must not be permitted on high potential agricultural land or agricultural land that is irrigated agricultural
- Only a fixed number of accommodation units may be allowed, and accommodation units should be clustered.
- Developers should indicate how potential impacts on adjacent agricultural land will be mitigated
- No water reserved for agricultural purposes may be used to serve the resort development
- The potential to re-establish the natural habitat where a nature reserve is being proposed must be demonstrated.

#### 8.3.1.3. Game Farms

A switch from livestock to game farming does not require permission for land use change, except where tourist accommodation is provided, and does not require consent, except where veterinary permits are needed for the importation and keeping of certain animal species. With regard to accommodation for tourists or hunters, the criteria for resort developments should be made applicable.

Secondary activities on game farms, such as farm stalls and function venues, can have potential impacts on surrounding agricultural activities, which should be considered. These could include noise and other types of pollution, additional non-farm related traffic volumes, and a general impact on the long-term desirability of agriculture in the area.

This is a significant sector with 67% of the West Rand’s tourism sector being based in MCLM. Tourism facilities and activities in the municipality are mainly concentrated in the northern parts in the areas around Magaliesburg and Hekpoort. These areas have numerous country guest houses, hotels, lodges, horse and mountain bike trails, camping and recreational sites.

Key attractions in the municipality include the Cradle of Humankind, Sterkfontein Caves, the Walter Sisulu Botanical Gardens and the Lion and Rhino Park in the Cradle of Humankind and a significant number of private game reserves are some of the main attractions.

#### 8.3.1.4. Rural Tourism

This is specifically related to the presence of the Cradle of Humankind World Heritage Site, as well as the high-quality natural environments in the western and north-western part of Mogale City around the Magaliesberg and Witwatersberg, one of Mogale City’s niche development areas is rural or nature-based tourism.

Two very important principles, which the tourism development areas must adhere to, are quality and accessibility. Quality refers to aspects such as:

- Environmental management



- Availability of essential engineering services infrastructure
- Land use management, and
- Development control and architectural standards.

From an accessibility, service delivery and identity-building point of view, it is more preferable to cluster tourism facilities along and around certain routes and nodes. For this purpose, a rural tourism route has been identified which should be the focus area for the development of tourism related infrastructure. The tourism route will run along the following roads:

- N14
- R563
- R24 (north of Tarlton up to the R560) with Magaliesburg as tourism node, and
- R560, with the Hekpoort town as potential tourism node.

These routes and intersections are considered to be the main gateways into the rural tourism area, and as such should be afforded specific attention insofar as directional signage, environmental quality and the quality of any potential developments are concerned. In addition, the limitations imposed by the K status of some of these roads should be addressed in terms of de proclamation in order to allow MCLM to exercise control over development standards.

In evaluating applications and building plans for tourism related developments in the rural environment, care should be taken to ensure that the nature, scale and appearance of the development is appropriate for and sensitive to the rural character of the area.

Prominent tourism corridors in MCLM are captured in Figure 46.

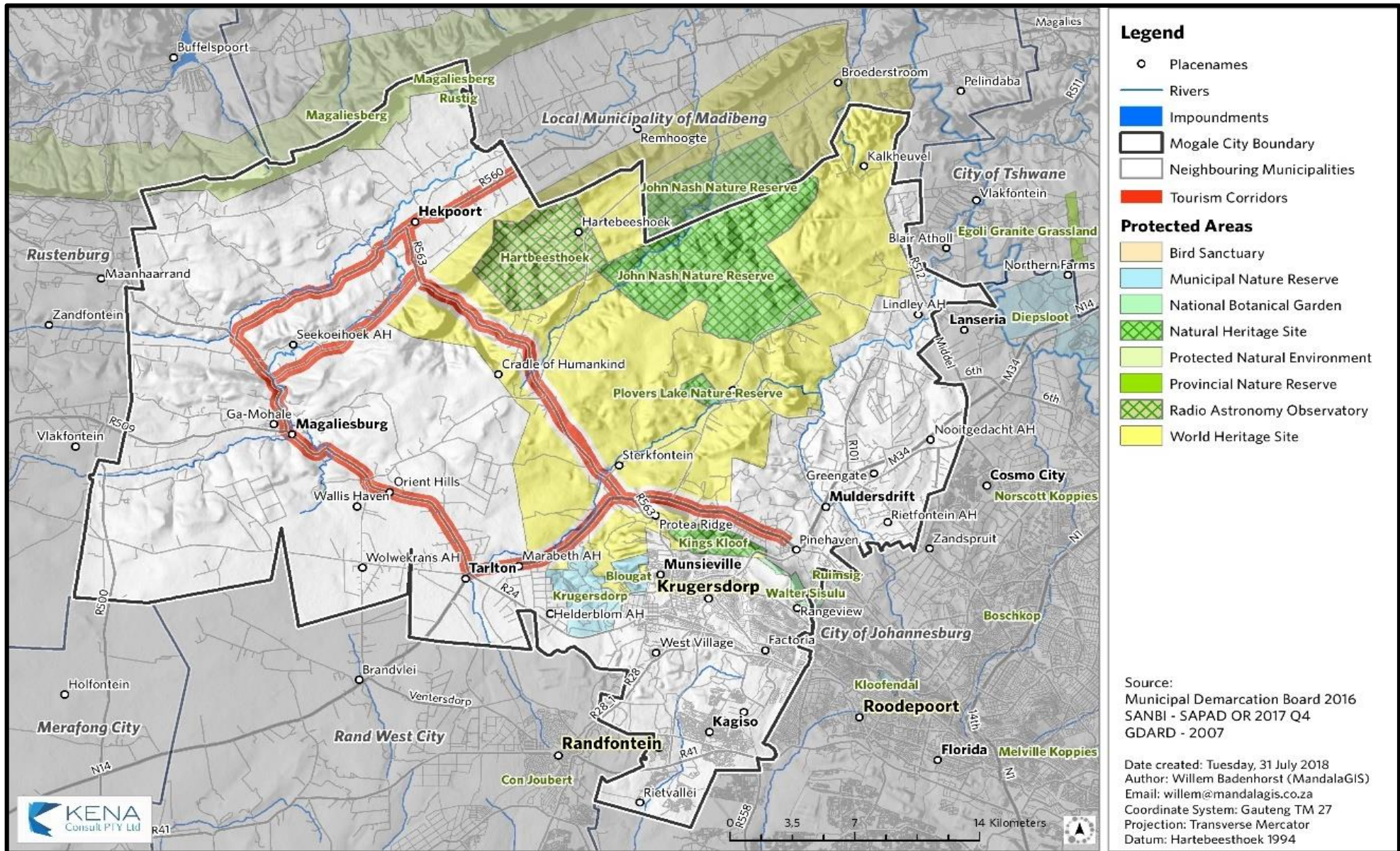


Figure 46: Prominent tourism corridors in MCLM



### 8.3.2. Manufacturing

With regards to manufacturing, the leading manufacturing activities in MCLM include the manufacture of food products, non-metallic mineral products, metal products, machinery, motor vehicle accessories and plastic products.

This SDF proposes more diversification of this sector by implementing mixed development uses in identified nodes and corridors, especially focussing on light manufacturing activities that are compatible to the environmental sensitivities identified in the Municipality.

The proposed spatial distribution of manufacturing activities would focus on:

#### Box 4: Manufacturing Activities by Development Zone

- **Established industrial nodes of Chamdor, Boltonia, Factoria and Delporton:** Revitalise and regeneration of these old industrial nodes with a focus on industrial land uses, warehouses and commercial uses such as transport depots.
- **Muldersdrift:** Light clean industry time-sensitive manufacturing
- **N14 Development Corridor:** Capitalise on the N14 corridor development and the proposed Lanseria aerotropolis for high-tech manufacturing
- **Beyers Naudé Drive and Hendrik Potgieter Road:** Has the potential in such fields as high-tech industries, office complexes, motor showrooms and other high order business activities
- **Kagiso Complex:** A range of light manufacturing enterprises within the sub-nodes/precincts of the area. These include automotive industry, light assembly and artisanal services
- **Magaliesburg:** Value-added high-tech manufacturing limited to areas within the urban core.
- **Tarton:** Agricultural hub with agro-processing and packaging activities.

### 8.3.3. Mining

The sector includes the extraction and beneficiation of minerals occurring naturally, including solids, quarrying of stone, the extraction of clay and sandpits, and service activities incidental to the mining of minerals.

Although the principal mining activities have since ceased (except for Mintials Mine and the reworking of several mine dumps) the legacy of mining remains a prominent spatial feature in the form of the east-west mining belt. The rehabilitation of mines is often not attended to after they have closed down since they no longer provide any source of revenue. It is important to ensure that mining areas are rehabilitated since mines are required to do so by law.

The Muldersdrift area has quarrying activities which have a significant impact on the utilisation of land due to safety zones associated with the quarrying activities. In this area, the SDF proposes that long-term mining permits should not be issued in the area where urban development is proposed, as mining activities sterilise pockets of land, which in turn, hampers gradual contiguous urban development and instead results in leap frog developments.

WRDM's spatial policy intention is that the northern mining belt between the CBDs of Mogale City and Randfontein should be the focus for rehabilitation of old mining land for future residential/commercial development, for example:

- Re-working of existing mine dumps
- Ash processing for refilling of mines
- Manufacturing of construction aggregate, and
- A variety of other associated activities.

The focus is on infilling the mining belt between Kagiso and Chamdor in a northerly direction towards Mogale City and Roodepoort area, and between Kagiso and a westerly direction towards Randfontein. The spatial policy position is that the PWV 5 as well as the westward extension of N17 from the City of Johannesburg to Mogale City and old Randfontein, will not only provide a direct link to major export harbours, but also unlock the development potential of the western parts of the Witwatersrand mining belt, enhancing infill development, and supporting the development of the Leratong node.

When development of mining land needs to incorporate all legislative mining buffers and safety zones.

This SDF proposes two important conditions for the mining sector:

- Ensure that waste management and pollution in mining areas conform to all national and provincial legislation as well as local norms and standards, and
- Ensure that all mining areas have Environmental Management Programs and Rehabilitation Plans in place.

### 8.3.4. Township Economy

As part of the developmental state agenda, and specifically in order to align with “Gauteng Township Economy Revitalisation Strategy”, MCLM is implementing the “Mogale Citywide Township Economic Development Programme (2016-2021). The objective of the program is to:

- Elevate the economic importance of the townships in enabling social and economic inclusion;
- Drive the revitalisation of the economy of the townships of the City through supporting various forms of township enterprises such as cooperatives and SMMEs.

The Program rests on 3 pillars:

- Diversifying townships' sectoral base
- Building townships inclusive economies, and
- Providing institutional & enabling conditions.

The program focusses on the following areas:

- Kagiso
- Munsieville
- Rietvallei
- Ga-Mogale
- EThembalethu, and
- Rietfontein.

Details of specific interventions for each of the above areas are contained in the Mogale Citywide Township Economic Development Programme (2016-2021).

## 8.4. Accessibility and Connectivity

The objective of improving accessibility and connectivity in MCLM is aligned with the objectives of the Gauteng Integrated Transport Master Plan (GITMP25) which among others aims at supporting the

integration of land uses with transport, as well as integration of networks, modes and services. The Objective is supported by the following strategies:

- Further enhancement of the performance of the N14 Development Corridor
- Strengthening of the R24 Mogale City Rustenburg Corridor
- Support to Activity Spines
- Strengthening of intra-regional connectivity
- Promotion of integrated public transport including rail transport, and
- Road Master Plan and Planned Routes.

Figure 47 below maps the Gauteng strategic road network.





### 8.4.1. N14/R28 Development Corridor

The N14 /R28 Development Corridor is an important linkage with high level development potential. It links Lanseria Airport in the north and the Krugersdorp CBD in the south. To the west, it links to Tarlton. The development corridor can be defined as a major transport route that connects large activity nodes and provides a high level of regional mobility and accessibility to adjacent areas, together with the abutting linear strip of land that accommodates a high concentration of population and a high intensity of mixed land uses.

The development corridor consists of the national road as well as a number of intersecting roads. These roads link the corridor with surrounding economic hubs and their intersections create potential for the development of activity nodes in which investment can be focused. The N14/R28 development corridor currently contains the following elements that already begin to define the physical make-up of the corridor:

- The N14/R28 movement route, acting as the spine of the corridor
  - Rustenburg Road / R24
  - Lanseria Airport, Krugersdorp CBD and Randfontein as major destinations on the corridor, acting as forces of attraction
  - The Hendrik Potgieter Road (M47), Beyers Naudé Drive, R512 (Malibongwe Drive)
  - Randfontein Road and Ontdekkers Road/Voortrekker Road intersections on the N14/R28 which provide opportunities for the development of strong nodes (or beads) along the corridor, and
  - The R114 road between Beyers Naudé Drive and R512 (Malibongwe Drive) which provides local access to land uses along the corridor in the short term.

Residential uses along the corridor include high income estates, informal settlements and small holdings. Non-residential uses include retail, light industries, tourist facilities and agricultural production. Prominent land uses within the Precinct are the Silverstar Casino, Cradle Stone shopping centre and the Sterkfontein Caves, as well as Lanseria Airport immediately adjacent to the corridor within the municipal area of Johannesburg. This should be harnessed into a properly planned mixed-use development zone.

#### Box 8: Strategies for N14 Corridor

- Provide local access routes to land uses along the corridor. At the moment, direct access to land uses is not possible from the N14 or the section of the R28 which runs through Krugersdorp onto Randfontein
- The section directly south of Lanseria Airport to have a more commercial, high-tech industrial nature linked to the airport, and also focusing strongly on job creation for the nearby Cosmo City and its future expansions.
- The section between Beyers Naudé Drive and Hendrik Potgieter Road should also focus on high-tech industries, but can also begin to include office, motor showrooms and other high order business activities

- The intersection of Hendrik Potgieter Road and the N14 could begin to play a regional recreational/entertainment function, building further on the existing Silverstar Casino
- The section through Krugersdorp (i.e. to the south of Robert Broom Drive) should show the typical urban/sub-urban land-uses of retail, offices, residential and social facilities
- The section through the mining belt onto Randfontein will focus strongly on commercial and industrial type uses and, if the rehabilitation of the mining land permits it, residential.

### 8.4.2. R24 Krugersdorp-Rustenburg Corridor

A key corridor is the R24, Krugersdorp to Rustenburg Corridor. According to the Gauteng Integrated Transport Master Plan (GITMP25), this corridor is one of the several in the province earmarked as Mixed Traffic Road Based Public Transport Routes. This corridor links key rural nodes of Tarlton and Magaliesburg. Evidently, this corridor can support local development through permitted accessibility.

#### Box 9: Strategies for R24 Corridor

- Anchor nodes with clustered activities (e.g. Krugersdorp and Rustenburg)
- Promote inter modal transport options
- The linking of two or more major points and conveying passengers and goods between these points
- Focused activities forming smaller clusters or nodes occur along the corridor
- Dispersed “investments” beyond the normal sphere of influence of the Development Corridor may be linked through feeder routes (a feedstock factory and a number of other investments occur along the proposed Development Corridor.)
- The anchor and smaller nodes have inherent economic potential of and ease of movement between them, which can lead to development along the corridor, and
- Identify sections of the Corridor within Nodes to be deproclaimed as K routes to contribute to development

### 8.4.3. Activity Spines in Support of Nodal Development

The proposed network of nodes needs to be reinforced by a system of activity spines which connect these nodes. Activity spines can be defined as concentrated urban development along movement routes which are typically also major public transport routes. Development can either take the form of continuous linear development or a series of nodes along the activity spine. The key activity spines in the municipality are:

- Ontdekkers Road/Voortrekker Road
- Main Reef/R24/Coronation Road
- Beyers Naudé Drive (M5)



- Robert Broom Drive
- R24 Krugersdorp / Rustenburg – Tourism activity spine, and
- R563 to Hekpoort – Tourism activity spine

### Box 10: Strategies for Activity Spines

- High intensity, mixed land uses that are oriented towards the street space.
- High density residential development, either directly adjacent to the street or within a distance of 500m from the activity spines
- The activity spines can be developed as continuous linear development areas or in the “beads-on-a-string” form. The nature of public transport and the length of the route should determine the development pattern. The longer the street and the less frequent stops are made by public transport, the more the development pattern should focus on the beads-on-a-string form. Shorter distances or where frequent stops are made by public transport are more conducive to continuous linear development
- Activity spines should show a large degree of public investment in infrastructure and the public domain.
- Large parking lots adjacent to streets should not be permitted. Buildings should be placed as close to street boundaries as possible to facilitate pedestrian movement and to define and shape the public space. Land uses on the ground floor of buildings must have an extroverted public facade (e.g. shops, restaurants etc.).
- Activity spines must achieve a balance between promoting access, creating pedestrian friendly environments, and accommodating mobility, and
- Site layouts and building designs of individual developments must take cognisance of and support public transport and pedestrian movement.

Additional to the strategies, policy reference is made to and acknowledged as spatial development instruments in specific areas with MCLM where these policies direct land use management. These policies may be amended from time to time as the spatial contexts develop. These policies include:

- Voortrekker / Carol Road Policy
- Voortrekker Road and Silverfields Policy
- Monument Policy
- Key West Policy
- Oatlands Policy
- Policy on Day Care Centres / Creches
- Mini Storage Facilities

### 8.4.4. Strengthening of Intra-regional Connectivity

The Municipal area is relatively well covered by roads. The Mogale City LM has a total road network of 8,391 km, excluding national and provincial roads. Of this, 6 694 km are paved while 1 697 km are gravel a very large portion (87%) of paved roads in the local municipality are classified as Class 4 and 5 when classified in accordance to the South African Road Classification System. While as 92% of gravel roads are classified as Class 5. The network typology is largely shaped by geographical factors with the development footprint contributing to increased network densities in the eastern sector with decreased densities towards the west. The major routes, such as those described in Table 19 do not have a marked impact on spatial development patterns. Historical patterns and the impact of development pressure from the Johannesburg Metropolitan core are much more pronounced.

Table 1913: Major intra-regional transport networks

To Tshwane	To Madibeng	To Johannesburg	To Randfontein	To Rustenburg	To the West
<ul style="list-style-type: none"> <li>• R 28</li> <li>• N14</li> </ul>	<ul style="list-style-type: none"> <li>• R512</li> <li>• R560</li> </ul>	<ul style="list-style-type: none"> <li>• R512 (Malibongwe Drive)</li> <li>• Beyers Naude Drive (M5)</li> <li>• Hendrik Potgieter (M47/N14)</li> <li>• Voortrekker/Ontdekkers Road</li> <li>• Randfontein Road (R41)</li> </ul>	<ul style="list-style-type: none"> <li>• R28</li> <li>• Randfontein Road (R41)</li> </ul>	<ul style="list-style-type: none"> <li>• R24</li> </ul>	<ul style="list-style-type: none"> <li>• R509 (Koster/Swartruggens / N4)</li> <li>• N14</li> </ul>

### 8.4.5. Priority Routes Identified by the Gauteng Integrated Transport Master Plan

The Gauteng Integrated Transport Master Plan (GITMP25) has identified priority routes that require upgrading over the next 25 years. The following are notable with regards to the Mogale City Local Municipality:

- Upgrading of N14 and part of N12)
- R24, Mogale City to Rustenburg Corridor
- Upgrading of route K13/K11 through central parts of MCLM
- Hendrik Potgieter Drive (K72), and
- Route K15 from Chamdor/Kagiso southwards towards Ennerdale.

### 8.4.6. Public Transport

There is need to strengthen a multi-modal transport system as a catalyst for social, economic and spatial integration – which is a key objective of the MCLM SDF. At the moment, public transport in

MCLM is dominated by the minibus taxi system. This is indeed the case in the whole of West Rand District Municipality where taxis account for 86% of all commuter work trips daily and 28% of all work trips daily. Bus transport in the district is very limited with no subsidised commuter services, apart from contracted learner transport services that are provided in the predominantly rural area.

An important priority is to provide more seamless public intra and interregional transport to overcome the current fragmentation in services. This SDF encourages the following approaches in support of integrated public transport:

The West Rand Integrated Transport Plan for 2010-2015 developed public transport plans for the following routes that are relevant for Mogale City.

- Making public transport routes priority areas for densification and infill development
- Investment in public transport facilities and services
- Creating public transport linkages between nodes and transport corridors, and
- Promoting principles of non-motorised transport by focusing on the construction of pedestrian and cycling lanes along priority pedestrian movement desire lines

**Table 14: Public Transport Corridors**

CORRIDOR	DESCRIPTION
<b>Corridor A</b>	Magaliesburg – R24 – Krugersdorp-R28 – Pinehaven – Hendrik Potgieter Road – Ruimsig (Johannesburg)
<b>Corridor C</b>	R-28-Randfontein – Mogale City
<b>Corridor D</b>	Krugersdorp (CBD) – Ontdekkers – Roodepoort
<b>Corridor E</b>	Randfontein (CBD) - K198 – Leratong – Main Reef Road – Roodepoort
<b>Corridor F</b>	Krugersdorp – R28 – Pinehaven - N14 – R512 – Lanseria International Airport. (Part of this corridor overlaps with Corridor A above).
<b>Corridor Y</b>	Kagiso – Luipaardsvlei Station – Krugersdorp (Pretoria Street).

### 8.4.7. Mogale Integrated Transport Plan (2019-2024)

The Mogale Integrated Transport Plan 2019-2014 proposes the following objectives;

- Increase the number of people using Public transport and improve the mode share of public transport
- Reduce household expenditure on public transport by either reduction of trip length and travel time providing safe reliable and affordable public transport.

- Improve existing public transport infrastructure and implement Transit Oriented Developments that will attract more public transport users.
- Increase the utilization of commuter rail as a public transport mode.

The Mogale City Integrated Transport Plan (2019-2024) contains a detailed list of *Transport Improvement Proposals and Priorities* (Table 4–2: pp 29-31) and the *Project Budget and Implementation Plan* for Transport (Table 5–2, pp 33-38).

### 8.4.8. Deproclamation of Planned K-Routes

There is an ongoing process by the Gauteng Department of Roads and Transport (GPDRT) to realign some of the planned K & PWV Routes within the Gauteng Province. Planned Routes – K Routes in MCLM provide a well-integrated road network linking the rural environment with the urban core of Gauteng. In Mogale City Local Municipality, the following routes are under consideration for realignment

- PWV8 (D3)
- K17 (E1 – E4)
- K211 (R500)
- K96 (Ventersdorp Road)

K Routes fall under the determinations of the Gauteng Infrastructure Act, 2003. In terms of the Act, alignments and road reserves are determined and subject to certain access and geometric standards. These standards have, in many instances, a limiting impact on small scale developments that obtain access form K routes. Such routes include:

- K5 (part of the N14 west from R 563)
- K76 (R24 Krugersdorp-Rustenburg link)
- K17 (R563 to Hekpoort)
- K24 (R 560 Hekpoort to Hartbeespoort)
- K228 (R509 to Koster)
- K26 (D40 between R563 and R24), and
- R28 / N14.

To improve accessibility and unlock the development potential of rural MCLM, and to support nodal development, it is proposed that the sections of the K Routes that fall within the delineated nodes/precinct be de-proclaimed and revert to the control of MCLM. The nodes/precincts include Muldersdrift, Magaliesburg, Tarlton and Hekpoort.



### 8.4.9. Rail Transport

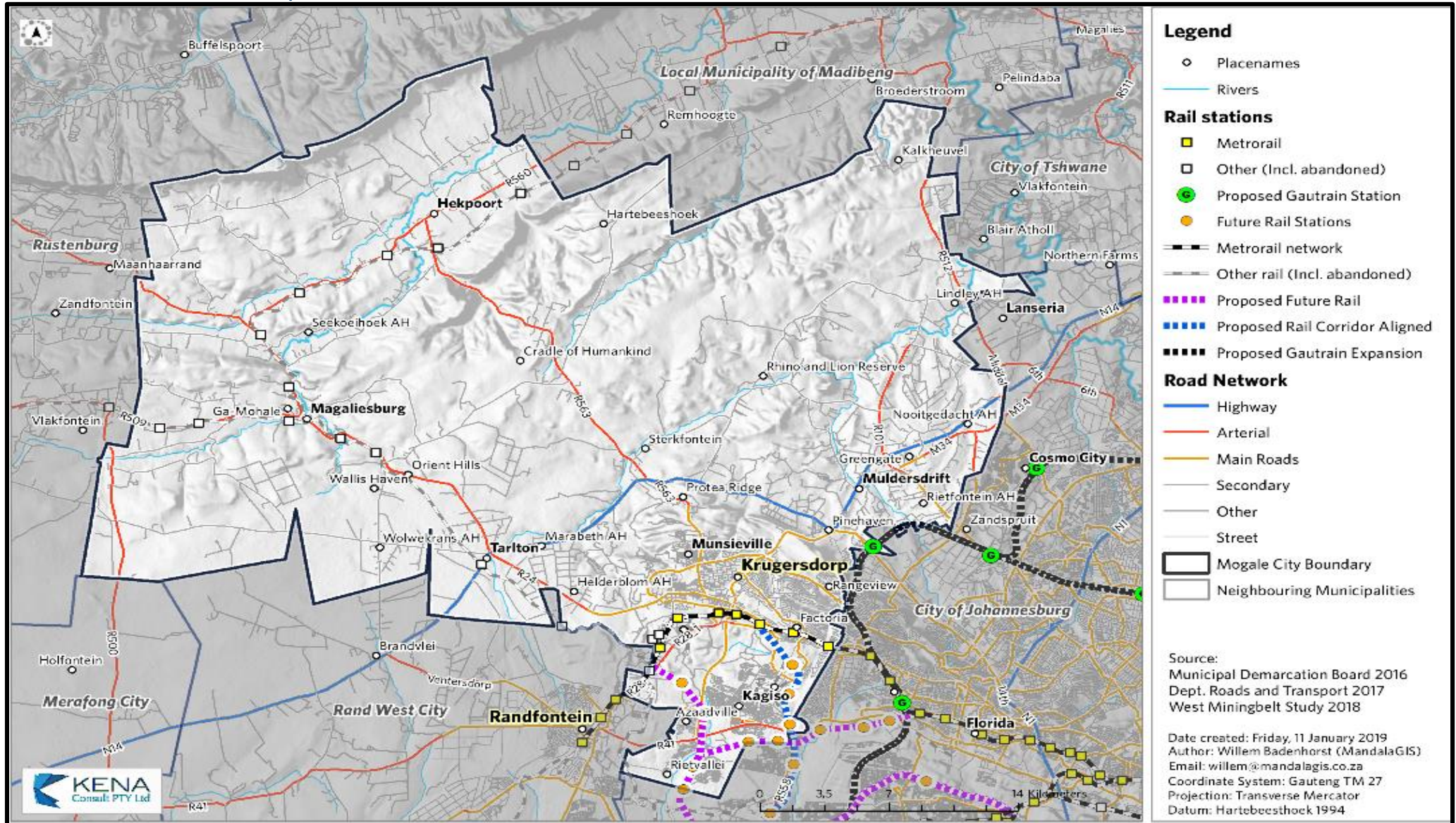


Figure 48: Current and Planned Rail Network

Rail provides one of the east-west to west movement connectivity in MCLM. Rail transport is an important focus in promotion of a sustainable public transport system within the framework of Transit Oriented Development and densification. Currently, Metrorail a division of the Passenger Rail Agency of South Africa (PRASA) operates a service that runs between Johannesburg and Randfontein with 14 services every day. The train operates through the following stations in Mogale City Local Municipality

- Millsite
- Wes Rand
- Krugersdorp
- Lanwen
- Luipardsvlei
- Witpoortjie

With the Metro Rail, 5 new stations are proposed along a new line, concentrated around the Kagiso, Azaadville and Rietvallei. In addition, the proposed Gautrain extension has a station in Ruimsig along the Naledi-Mamelodi line.

Figure 49 sketches plans Phase 2 of the expansion of the Gautrain and Figure 50 sketches the complete network for Metrorail in Gauteng province.

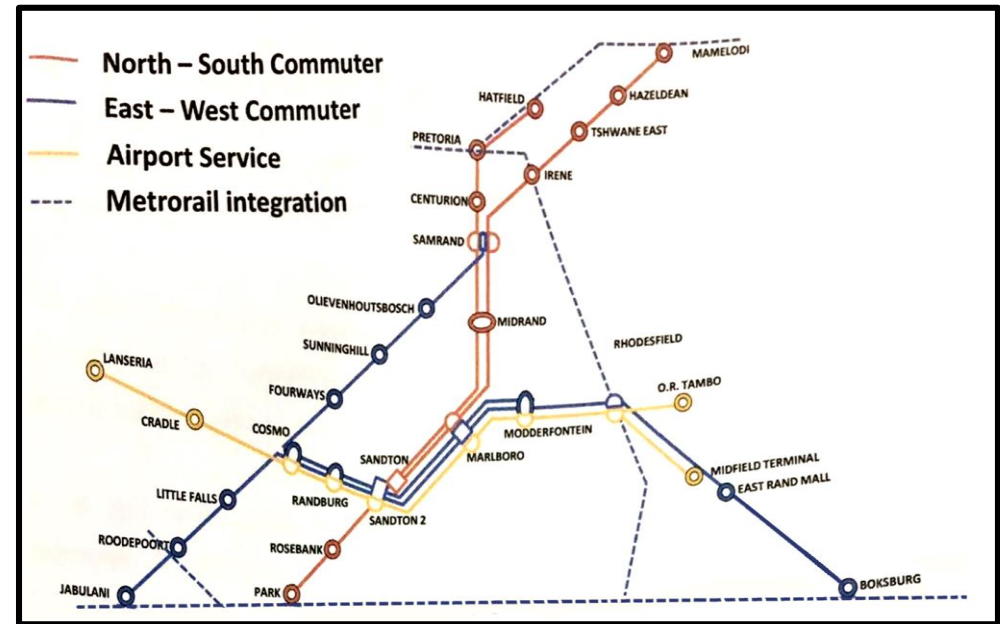


Figure 48: Gautrain Network and Proposed Extensions





### 8.4.10. Airports and Airfields

Apart from several private airfields owned by farmers and mining companies, there are 2 municipal-owned airstrips, namely the Krugersdorp (Jack Taylor) Airfield and Orient Airfield Magaliesburg. Lanseria International Airport is a key transport node for Gauteng Province, and although Lanseria Airport falls just outside the MCLM, its impact (both positive and negative) on the Municipality is an important consideration. Currently, Lanseria airport provides flights to Cape Town and Durban operated through commercial airlines like South African Airways and Kulula. Other smaller commercial companies also utilise the airport for national and international flights.

The Lanseria airport node is an important development for the Cradle of Humankind. The airport will continue to have an influence development along route K29 (Malibongwe Drive) including the development of new residential areas secondary to Cosmo City. K29/Malibongwe Drive serves as a regional corridor between Johannesburg and Rustenburg and it also connects with the Platinum toll road.



Figure 50: Lanseria International Airport

## 8.5. Growth Management

A key consideration of the SDF is to ensure that a sustainable long-term spatial structure is achieved for MCLM. Growth management is therefore one of the key strategies for this SDF. One of the strategies typically employed in the South African context to deal with growth management is the demarcation of an urban growth boundary (or urban edge). There, however, exists a number of other supporting strategies that collectively form a package of interventions for growth management. This SDF presents a number of strategies in this regard. These are summarised in Figure 54 below

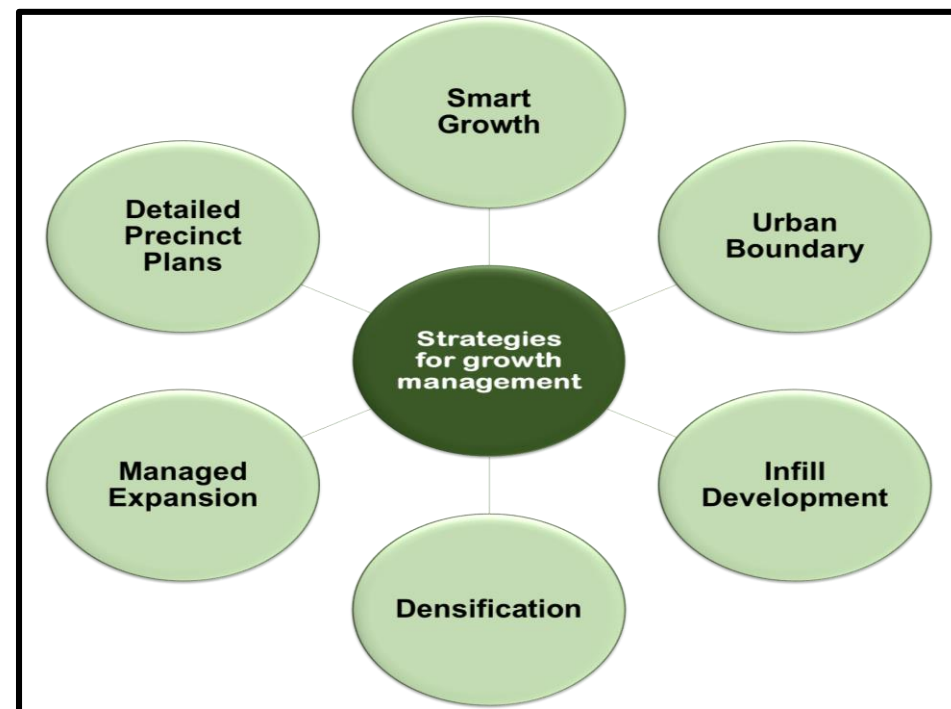


Figure 51: Strategies for growth management

### 8.5.1. Smart Growth

Internationally, a sustainable approach to growth management aptly called “smart growth” is seen as the most efficient way of developing urban areas. Smart Growth is a collection of urban development strategies aimed at reducing sprawl and promoting growth that is balanced and fiscally, environmentally and socially responsible. Smart Growth seeks to promote development in areas with optimal opportunity. The principles of smart growth are summarised in Figure 53.





Figure 52: Smart growth principles

### 8.5.2. Urban Boundary

The urban boundary (or urban edge) can be defined as an institutional boundary within the municipality with the sole purpose of containing physical development and sprawl and re-directing growth towards a more integrated, compact and efficient urban form. The urban boundary clearly demarcates the boundary between urban and rural development.

Places such as Mogale City are, due to their location on the edge of the larger urban complex, the recipients of continuous outward development pressures and are typically seen as the perpetrators of uncontrolled development. The delineation of an urban boundary for Mogale City is vital for achieving an efficient and sustainable municipality, as represented in Figure 54.

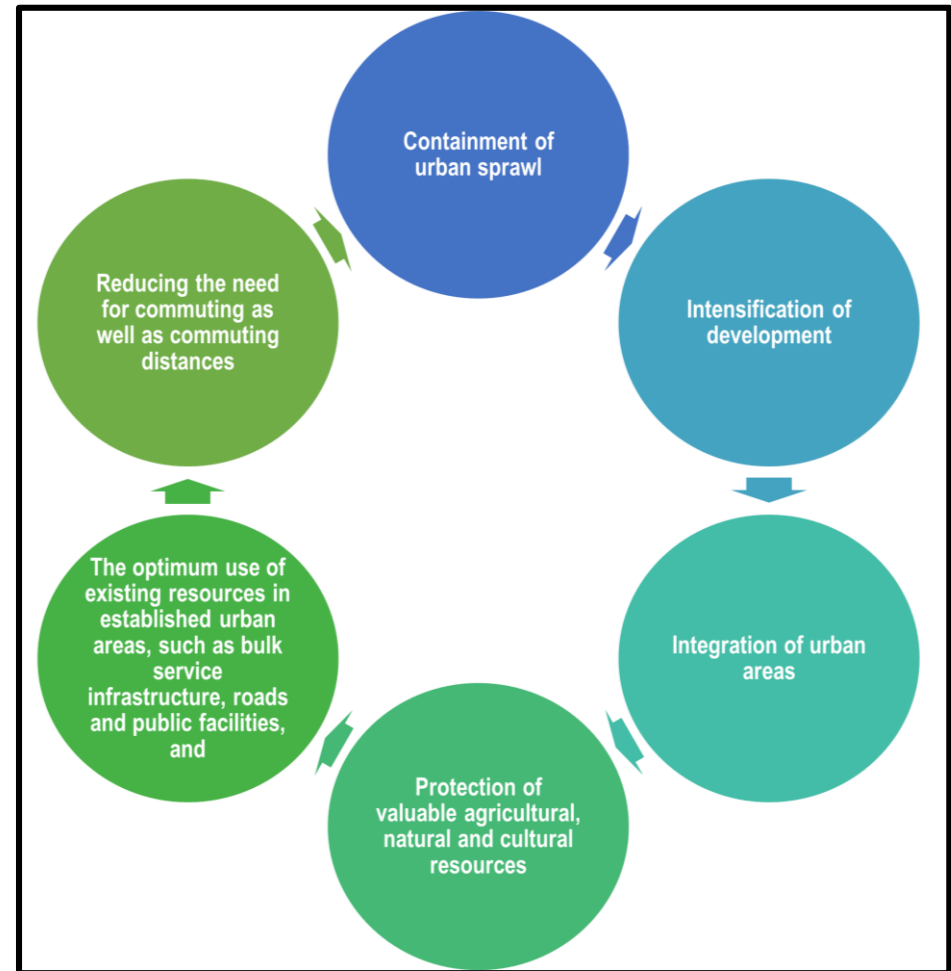


Figure 53: Rationale for an urban boundary

The delineation of the urban edge for the MCLM-SDF takes into account the suggestions of the Gauteng PSDF (2016), including potential future pressure areas, provincial growth directions and strategic value of certain locations.

### 8.5.3. Densification around Strategic Locations

Densification helps in restricting urban sprawl as it looks at providing high numbers of developments in strategic, highly accessible locations. Increasing the average density, redevelopment, and Greenfield projects within the urban boundary is a crucial part of growth management in MCLM. Densification serves, among other objectives, the following:

- Reduced pressure for outward expansion, thus protecting agricultural land and the open space
- Creating an optimal customer base for an integrated public transport system
- More efficient investments in infrastructure and engineering services
- More diverse communities with more opportunities for affordable housing, particularly in areas that have high land values and scarce development sites, and
- Support for localised businesses and services due to increased population densities and accessibility.

MCLM should ensure that higher density developments go into mixed-use areas at nodes and along corridors that will allow use of public transport as well as walking and cycling to shops and services which reduces driving and can minimize parking requirements. The identified nodes are:

- The Pine Haven Node at the intersection of R28, N14 & Hendrik Potgieter Road
- The Drift Node along the R28 in the central part of the Muldersdrift
- Around the Krugersdorp CBD
- Within the urban boundary of designated nodes
- Adjacent to the Beyers Naudé Drive Activity Spine
- Pockets of land located within the mining belt that are safe for development and are well located to achieve functional spatial integration.

These areas should be focus areas for public investment in infrastructure, social services, streetscape and urban design, open spaces and general high quality, positive performing urban environments.

### 8.5.4. Managed Expansion

Refers to the gradual and incremental outward growth of a settlement (i.e. the so-called ripple effect), but within demarcated urban development boundaries (or urban edge), as opposed to leap frog developments that are not physically and functionally integrated with the main urban area.

This approach is of importance for future urban development in the Muldersdrift area. Because of the size of the area, it will take several years for development to fill this zone. It is important not to have scattered development throughout the area which have no linkages with each other or the main urban activity nodes.

### 8.5.5. Precinct Plans

Precinct planning focuses on more detailed planning for smaller geographical areas with specific characteristics that require attention to detail, but within the framework of the larger spatial framework of a municipality. The Precinct Plans aim to consider all of the issues affecting the area, including its buildings and spaces, land uses, activities and transport. Precinct Planning is an important tool in guiding various aspects of growth management, promotion of spatial economies of scale and giving spatial structure to a municipality.

Mogale City has a number of Precinct Plans that have been developed and whose vision, objectives, strategies and guidelines are relevant to the MSDF. Currently, there are five existing precinct plans for specific areas within Mogale Local Municipality. These are:

- Krugersdorp Precinct Plan (2017)
- Muldersdrift Precinct Plan (2011)
- Magaliesburg Precinct Plan (2011)
- Hekpoort Precinct Plan (2011)
- Tarlton Precinct Plan (2011)

There is also the Cradle of Human Kind Precinct Plan (2014) which currently has no official status.

Below is a summary of the current Precinct Plans. It is important to underline the fact that apart from the Krugersdorp Precinct Plan (2017), the others require updating and alignment with the SDF as well as the levels of developmental pressures experienced in each of the precincts



### 8.5.5.1. Summary of Existing Precinct Plans

#### 8.5.5.1.1. Summary of 2011 Muldersdrift Precinct Plan

The Muldersdrift's Greenfield character provides opportunities for developing a model for an integrated and sustainable human settlement approach that clusters activities in order to achieve economies of scale. The Plan 2011 plan identifies the following objectives and strategies

**Table 15: Highlights of the Muldersdrift precinct plan**

PRECINCT PLAN / OBJECTIVE	STRATEGIES OF THE PRECINCT PLAN
<b>Development of Urban Form</b>	<p>The Precinct Plan proposes that, in order to achieve an appropriate urban form &amp; land use, Muldersdrift should be divided into 5 districts. The urban form advocated for the development of Muldersdrift is that of a compact city with pedestrian movement being at the heart of the mobility system. The identified zones are:</p> <ul style="list-style-type: none"> <li>• <b>Mixed Land Use District:</b> This strategy aims to cluster activities that will achieve economies of scale in the district. This allocation of mix land uses takes advantage of Transit Oriented Development (TOD) Principles. Two nodes are identified as anchoring this approach. These are the Pine Haven Node at the intersection of R28, N14 &amp; Hendrik Potgieter Road &amp; the Drift Node along the R28 in the central part of the Muldersdrift area</li> <li>• <b>High Density Residential District:</b> With high levels of accessibility to public transport &amp; with opportunities for retail on the ground floor.</li> <li>• <b>Medium Density Residential District:</b> To be located slightly way from the public transport routes. Like the high-density residential districts, these will allow limited retail facilities at strategic road intersections at a neighbourhood level.</li> <li>• <b>Commercial District:</b> The commercial district is mainly reliant on the visibility &amp; high mobility because of its international, national &amp; regional significance as such the location of this district is along the N14 is strategic. It is proposed that the district extends on both sides of the N14.</li> <li>• <b>Offices District:</b> Like the commercial District, the Offices District is also reliant on visibility and high mobility. The offices district abuts class 3 and class 2 roads.</li> </ul>
<b>The Transition Zone (Eco-Tourism &amp; Agri-Business District)</b>	<p>This district could form the transition area between the COHWHS &amp; the proposed urban core of the Muldersdrift Mixed Development Zone. The transition areas in their nature have different &amp; diverse forms. Depending on the intensity of land uses on 'both' sides of the transition areas. These areas could be characterized by large tracts of natural vegetation to highly modified man-made (cultural) landscapes, where the most intensive land-uses such as urban settlement &amp; its associated human activities occur on one side &amp; the most rural areas on the other side. A primary role of the transition area is that it represents the urban-rural interface, which largely affects the sustainability of both the rural &amp; the urban environments. These zones could accommodate a wide range of land-uses, such</p>

PRECINCT PLAN / OBJECTIVE	STRATEGIES OF THE PRECINCT PLAN
	<p>as agriculture, tourism related land uses, forestry, art galleries, conference facilities etc. It is proposed that the transition zones in the Muldersdrift area &amp; the Cradle of Humankind World Heritage Site includes the 'cultural areas' that will complement the COHWHS. In this area local communities, management agencies, scientists, NGOs, cultural groups, economic interest groups &amp; other stakeholders would work together to manage &amp; develop the area's resources in a sustainable manner. <i>Development guidelines for this zone are provided in the 2011 Precinct Plan.</i></p>
<b>Transport &amp; Movement</b>	<p><i>The proposed roads master plan should be developed within the framework as provided by the precinct plan. The roads master plan will be used for the development of a traffic impact assessment as well as for the development of a travel plan. The master plan should highlight the following:</i></p> <ul style="list-style-type: none"> <li>• Areas where upgrades are required &amp; where restrictions should be imposed.</li> <li>• Take cognisance of the proposed BRT system in the City of Johannesburg.</li> <li>• Address the estimated carrying capacity of all modes of transport, pedestrian walking contours, &amp; access management strategies</li> <li>• The urban form advocated for the development of Muldersdrift is that of a compact city. On the basis of this approach enhanced pedestrian linkages are proposed between &amp; within the different districts. The detail development of these routes should be analysed based on the shortest &amp; most convenient routes in the design of the detailed townships in these districts</li> </ul>
<b>Protection of Environmentally Sensitive areas</b>	<p>Muldersdrift is traversed by environmental areas of rivers &amp; ridges. The environmental sensitive areas provide an opportunity to focus on pedestrians &amp; form interlinked green belts. Pedestrian &amp; cycling routes should be provided all along the river systems to allow an alternative pedestrian route linking the districts area. The spaces should have a strong natural character &amp; if developed to accommodate a recreational function. The green belt should provide a linear recreational space for all non-motorised transport &amp; should thus include cycle ways.</p>
<b>Development of Infrastructure &amp; Services in Support of the in the Area</b>	<p>According to the Precinct Plan, Muldersdrift has serious deficiencies in the availability of civil infrastructure both reticulation &amp; bulk. In total, Muldersdrift covers an area of approximately 180 km<sup>2</sup>. The proposed development consists of high density residential, medium density residential, nodal development with mixed land uses, commercial, office development &amp; supporting social facilities. All these land uses will require</p> <ul style="list-style-type: none"> <li>• <b>Water</b> <ul style="list-style-type: none"> <li>✓ <b>Supply:</b> It is expected that Muldersdrift will require approximately 60 MI/day to supply the proposed developments of the area. At the time of writing the Precinct Plan, water supply was 25 MI/day. There is a shortfall of</li> </ul> </li> </ul>

PRECINCT PLAN / OBJECTIVE	STRATEGIES OF THE PRECINCT PLAN
	<p>approximately 35 Ml/day. Therefore, the Rand Water supply points will have to be procured as a primary water supply in Muldersdrift. This intervention will also alleviate the demand on the 'Western Gauteng' &amp; also the Driefontein waste water treatment works.</p> <ul style="list-style-type: none"> <li>✓ <b>Storage:</b> There is a lack of dedicated bulk &amp; intermediate storage reservoirs in Muldersdrift. In order to address this challenge, Mogale City LM will have to construct water reservoirs at location other than the proposed Rand Water pipeline.</li> <li>✓ <b>Distribution:</b> Water distribution is the most expensive part of water supply. The design of the water distribution systems will determine the ultimate access to water services by the consumers. The design of the distribution network varies &amp; it's determined by the type of land use &amp; the demand per day. It is proposed that the design guidelines from the 'Red Book' be used. The distribution network covers south of the study area, in the Featherbrooke area. It is proposed that the services be extended to the Nooitgedacht area east of the N14/R28. The design guidelines should be in accordance to the Township's services for the any proposed development should be based on the design principles in the 'Guidelines for the Provision of Engineering Services in Residential Townships'.</li> <li>• <b>Sanitation:</b> There are various sanitation systems available in South Africa. However, for the sustainable development of Muldersdrift, the full waterborne sanitation is proposed. The fact that there is no sewer treatment works operated by MCLM in Muldersdrift poses a developmental challenge. Currently, the Driefontein waste water treatment works is the only available treatment works in the Muldersdrift area &amp; it's owned by the City of Johannesburg. There is an existing memorandum of agreement between the City of Johannesburg &amp; MCLM, which allows MCLM to use the Driefontein sewer treatment works. A study undertaken by the COJ's, Johannesburg Water revealed that should Muldersdrift develop beyond the current Gauteng Urban Boundary, upgrading of the Driefontein sewer treatment works will be required. With the proposed development &amp; residential densities, it is important that proper assessment of the capacity needs to carry the proposed development vision, be made. The current upgrading will require Mogale City &amp; the City of Johannesburg to review the current user agreement. The proposed development will require an extension of the outfall sewer to the north-east of Muldersdrift towards the Nooitgedacht area east of the N14/R28</li> <li>• <b>Electricity:</b> There is a moratorium for the supply of commercial &amp; industrial areas with electricity in Muldersdrift. From the existing bulk it would seem that there is a good supply of electricity. However, each development would need to</li> </ul>

PRECINCT PLAN / OBJECTIVE	STRATEGIES OF THE PRECINCT PLAN
	<p>assess the capacity of such services. This could be verified with ESKOM the supplier in the area. Public lighting is still the responsibility of MCLM, therefore, it is important that the public lighting is supplied to the satisfactory of the municipality.</p> <ul style="list-style-type: none"> <li>• <b>Roads &amp; Storm Water:</b> The Precinct plan proposed a number of roads &amp; road hierarchy up to class 4 roads. The class 5 roads will have to 'fit' in with the higher order roads to facilitate the movement discussed herein. These class 5 roads will have to accommodate the design principle for workability in Muldersdrift. The design of the roads &amp; intersection should include the design for pedestrians &amp; they should form part of the building form. Muldersdrift is traversed by natural watercourses. These watercourses need to be protected as far as possible. The proposed development will be indeed change the storm water management in this area. With the current climate changes throughout the world, planning should not only consider the typical draining methodologies but also plan for severe storms. This implies that all roads should be tarred &amp; must have storm water management facilities.</li> </ul>

#### 8.5.5.1.2. Magaliesberg 2011 Precinct Plan

The overall vision of the Precinct Plan (2011) is to establish Magaliesberg as an eco-venture destination which is sustainable in both environmental terms and is integrated with the community and social fabric of the region. Table 22 below provides an overview of the vision.

**Table 16: Highlights of Magaliesburg Precinct Plan**

PRECINCT PLAN / OBJECTIVE	STRATEGIES OF MAGALIESBURG PRECINCT PLAN
<b>Tourism Development</b>	<p>Support eco focussed tourism – key strategies are:</p> <ul style="list-style-type: none"> <li>• An enabling policy, organisational &amp; legal framework to grow the industry</li> <li>• Inclusive participation in Tourism Enterprises</li> <li>• Comprehensive tourism implementation plan</li> <li>• Capacity Building &amp; awareness creation, and</li> <li>• Research &amp; a data base system on tourism in the area.</li> </ul>
<b>Agriculture/Protection of Agricultural Land</b>	<ul style="list-style-type: none"> <li>• Optimise &amp; protect high potential agricultural land</li> <li>• Enhance &amp; maintain the rural character of the area</li> <li>• Grow agri-businesses by identifying &amp; investing on value chains that have distinct advantage, and</li> <li>• Diversifying ownership of agribusiness enterprises.</li> </ul>



PRECINCT PLAN / OBJECTIVE	STRATEGIES OF MAGALIESBURG PRECINCT PLAN
<b>Growth Management &amp; Spatial Restructuring</b>	<p>This contains the following elements:</p> <ul style="list-style-type: none"> <li>• The spatial restructuring &amp; regeneration of the town of Magaliesberg.</li> <li>• Delineating a growth &amp; development area (urban boundary) in order to ensure orderly, sustainable growth;</li> <li>• Defining proposed developments at a growth area &amp; local precinct level.</li> <li>• Maintenance &amp; upgrading of economic infrastructure (Roads, telecommunication, energy &amp; basic services at an appropriate level)</li> </ul>
<b>Appropriate Institutional Framework for Delivery</b>	<p>An appropriate institutional framework based on partnerships &amp; supported by continuous engagement, capacity &amp; skills building. The partnership would include:</p> <ul style="list-style-type: none"> <li>• The Municipality</li> <li>• The community</li> <li>• Business community</li> <li>• Investment vehicles</li> </ul>

### 8.5.5.1.3. Tarlton Precinct Plan 2011

Table 17: Highlights of Tarlton Precinct Plan

PRECINCT PLAN / OBJECTIVE	STRATEGIES OF THE PRECINCT PLAN
<ul style="list-style-type: none"> <li>• Strengthen ecotourism &amp; agricultural development.</li> <li>• Encourage economic development linked to agriculture.</li> <li>• Integrate land use &amp; movement.</li> <li>• Consolidate settlements &amp; minimize urban sprawl &amp; the adverse effects of land development on the environment</li> <li>• Provide &amp; improve the quality of housing, social facilities &amp; public infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Agricultural &amp; rural development</li> <li>• Spatial restructuring of Tarlton</li> <li>• Environmental Management &amp; Conservation</li> <li>• Infrastructure &amp; Services Management &amp; Provision, and</li> <li>• Farmer Production Support Unit.</li> </ul>

### 8.5.5.1.4. Hekpoort Precinct Plan

Table 2418: Highlights of Hekpoort Precinct Plan

PRECINCT PLAN / OBJECTIVE	STRATEGIES OF THE PRECINCT PLAN
Create a rational & efficient rural settlement pattern	<ul style="list-style-type: none"> <li>• To create a rational &amp; efficient settlement pattern will require locating rural settlement near employment opportunities &amp; social amenities.</li> <li>• Rural settlements will need to be located near nodal areas containing social amenities</li> </ul>
Integrate land use & public transportation.	<ul style="list-style-type: none"> <li>• This requires the placing of rural settlement near major roads, which provides access to public</li> </ul>
Provide access to municipal services & social amenities	<ul style="list-style-type: none"> <li>• Economic &amp; settlement development within the Hekpoort should will be subjected to the development of municipal services &amp; community facilities</li> </ul>
Protection of open space & high-potential agricultural soils where feasible to support agriculture & tourism	<ul style="list-style-type: none"> <li>• Linked to agricultural development is the protection of high potential agricultural soils &amp; linked to tourism development is the conservation &amp; conservation-worthy natural environments, such as the Magaliesberg mountain range.</li> </ul>

### 8.5.5.1.5. COHWHS Precinct Plan 2014

Table 2519: Highlights of COHWHS Precinct Plan

PRECINCT PLAN / OBJECTIVE	STRATEGIES OF THE PRECINCT PLAN
Protect & support the World Heritage Site by ensuring that development that will compromise the Outstanding Universal Value of the area is not permitted.	<ul style="list-style-type: none"> <li>• Only allowing development that is inherent &amp; ancillary to the existing &amp; established character &amp; function of the area (i.e. agriculture, rural residential &amp; tourism)</li> </ul>
Protect the rural character of the area from a visual & functional perspective.	<ul style="list-style-type: none"> <li>• Dealing with the formalisation of informal settlements &amp; the provision of workers' housing in the most environmentally sensitive &amp; responsible manner</li> </ul>
Protect cultural resources in the Cradle of Humankind World Heritage Site, in particular the caves & karst landscapes in which the fossils are located, with appropriate buffers.	<ul style="list-style-type: none"> <li>• Restricting the development footprint &amp; intensity of development, thereby reducing ecological &amp; visual disturbance in the area</li> </ul>
Ensure Best Environmental Practice in agriculture, tourism & other land use activities	

Allow for sustainable housing delivery that will address socio-economic needs in the area but at the same time respecting the cultural & environmental sensitivity of the area

Promote sustainable economic development opportunities based on the Cradle of Humankind World Heritage Site status to the benefits of landowners, all residents & society at large

- Ensuring strict Impact Assessments to determine the true development potential (from an ecological & conservation perspective) of any site
- Protecting the cultural resources in the Cradle of Humankind World Heritage Site with appropriate buffers; and
- Ensuring strict site development controls for all development.

### 8.5.5.1.6. Krugersdorp Precinct Plan (2017)

The detailed plan for the Krugersdorp CBD is contained in Krugersdorp Precinct Plan 2017. The plan aims at reinforcing the role of Krugersdorp CBD as a service centre for public services and amenities in this part of Gauteng province. This important role is cemented by the role the CBD plays as a rail, taxi and bus commuter node. The Precinct Plan confirms the 2014, vision for the CBD as, “Developing a regional node with social and economic vibrancy that attracts private sector development whilst enhancing its unique character.”<sup>2</sup>

The 2017 Precinct Plan identifies some of the challenges that need to be addressed as follows:

- **Declining economic activity:** Mogale City Local Municipality remains seriously challenged in its efforts to attract investment to the inner city because of the low average economic growth rate for the sectors located within the Municipality.
- **Unbalanced economy:** The inner-city economy remains primarily focused on outdated forms of manufacturing that are increasingly uncompetitive and under strain. Informal sector trade within Krugersdorp CBD is not adequately supported by the Municipality.

**On-going dereliction and vulnerability amongst inner city residents:** Krugersdorp CBD is significantly residential in nature, even though it is mainly informal. This has not been matched with adequate provision of social services and facilities

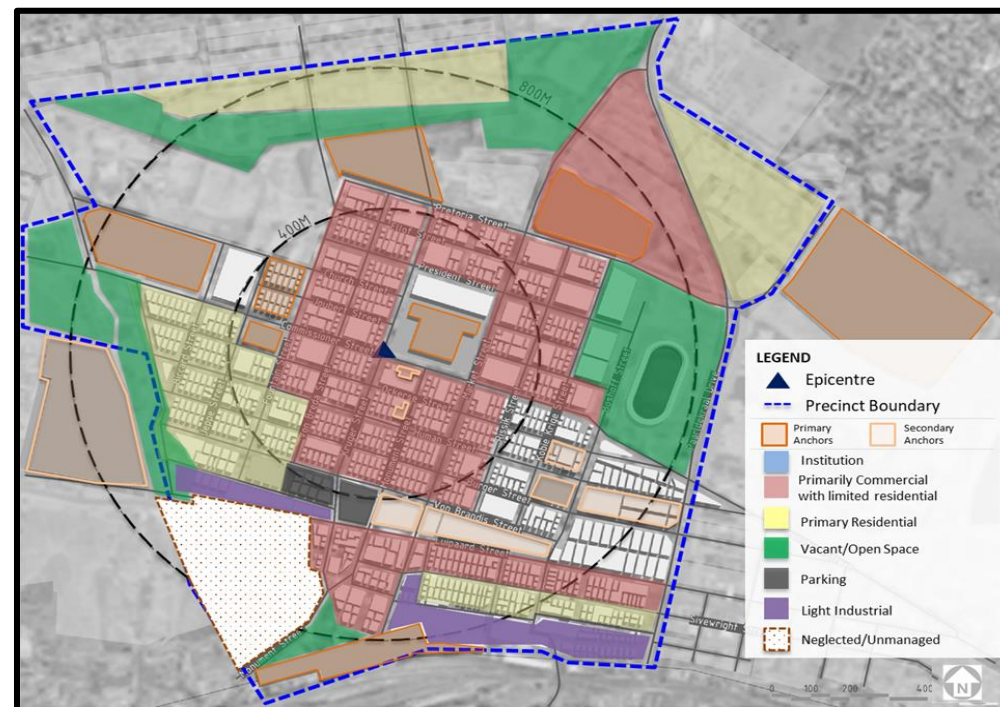


Figure 54: Krugersdorp CBD precinct area key land uses

In terms of the structure, the Civic Centre is at the core of the Krugersdorp CBD. The CBD is well served with access through the urban fabric throughout the whole area. The CBD has an 800 m precinct radius drawn from the core which represents a walkable radius. The precinct boundaries are defined by the following features

- The southern boundary bound by the railway line;
- The eastern boundary largely following the R28 by-pass to the CBD. The residential area immediately northwest of Dr Yusuf Dadoo hospital is included as an opportunity to develop high density housing near the CBD.
- The western boundary includes neglected and vacant land towards the southwest of the CBD, the area along the canal in front of the prison as well as the vacant property earmarked for Canal West Housing Development.

<sup>2</sup> KD Inner-City Regeneration Business Plan presented to Mogale City Exco, 2 July 2014.



- The northern boundary comprises of Blommenstein Street in Quellerie Park as the link between Van Reibeeck Road and the R28.

The precinct plan identifies sixteen anchors that are generators of pedestrian activity at different times of the day, week and month across the CBD. The plan divides these anchors into primary and secondary anchors. The primary anchors are based on the volume of daily traffic they generate and their ability to generate city-wide movements. The primary anchors are: President's Mall, Dr. Yusuf Dadoo Hospital, the Taxi Rank and Train Station, the Civic Centre alongside key public services such as Home Affairs, Traffic Department and the Magistrate's Court fall within this primary set of anchors contributing prominently to the activity in the Krugersdorp CBD. The prominent anchors generating pedestrian movements is the taxi rank and train station. These anchors act as significant gateways and/ or points of entry to the CBD precinct. The Civic Centre and the mall are important destinations in the precinct. These are complemented by a range of public facilities, namely the Dr Yusuf Dadoo public hospital, the traffic department, home affairs and the magistrate's court.

The secondary anchors generate less activity compared to the primary anchors. They are equally important in that they introduce further destinations and represents a different set of amenities available for users in the Krugersdorp CBD. The secondary anchors represent a subsector of CBD activity generated for purposes as diverse as education, the South African Revenue Services, Correctional Services, a library, museums and private hospital. Whilst these anchors are located towards the centre of the precinct area, these amenities may form additional destinations and pedestrian trips as people using the CBD may move interchangeably between primary and secondary nodes depending on times of day, month and year.

#### 8.5.5.2. Proposed Precinct and Local Spatial Plans

In this SDF, we propose that all the Precinct Plans that were done in 2011 (Muldersdrift, Magaliesburg, Hekpoort Precinct Plan, and Tarlton) need to be reviewed and updated in line with this SDF and the Land Use Scheme. (Further discussions on the issue of Precinct Plans is provided in Section 11.2 of this SDF, titled "Precinct Plans and other Plans needed")

In addition, we **propose to have one new additional Precinct Plan** as follows:

- **Zeekoehoek Precinct Plan:** Zeekoehoek area has a unique blend of institutional – schools, high quality hotels & accommodation facilities. The fact that the school has a water purification & sewer plant may provide an opportunity for developing this area into a node.

And three **Local Spatial Development Frameworks** as follows:

- **Magalies-Hekpoort Local Spatial Framework Plan.** This would cover the area nested between the ridges along the R24/R563/R96. It is important to guide the opportunities for Tourism, Agricultural and Institutional Establishments such as hotels and schools. A framework plan is needed to address the comprehensive land use and future demand for engineering services, transport, employment and skills development. The revised Precinct plans of Hekpoort, Zeekoehoek and Magaliesburg would be articulated within this spatial framework plan.
- **Mining Belt Local Spatial Development Framework (within MCLM):** The Gauteng Planning Division (GPD) has embarked on a process to initiate a Regional Spatial Development Policy (RSDP) for the mining belt area, as part of the implementation core action of the GSDF 2030. The purpose of the Mining Belt Regional Spatial Policy is to set a common spatial rationale for the area as a platform for coordination, integration & guidance of business plans for planned & ongoing national, provincial, municipal & private sector interventions. Mogale City needs to link up with this initiative which can help in carrying out a detailed investigation into the long-term rehabilitation & development potential of the mining land between Krugersdorp & Kagiso. Based on the findings of this study, a local spatial development framework must be drafted for the area
- Finally, we also propose finalization and formalization of the **Cradle Precinct Plan as a framework plan** but with a focus on specific issues such as approaches to human settlements for people already living in the cradle, and detailed guidelines on how to marry development proposals with environmental management principles in specific nodes identified for development.



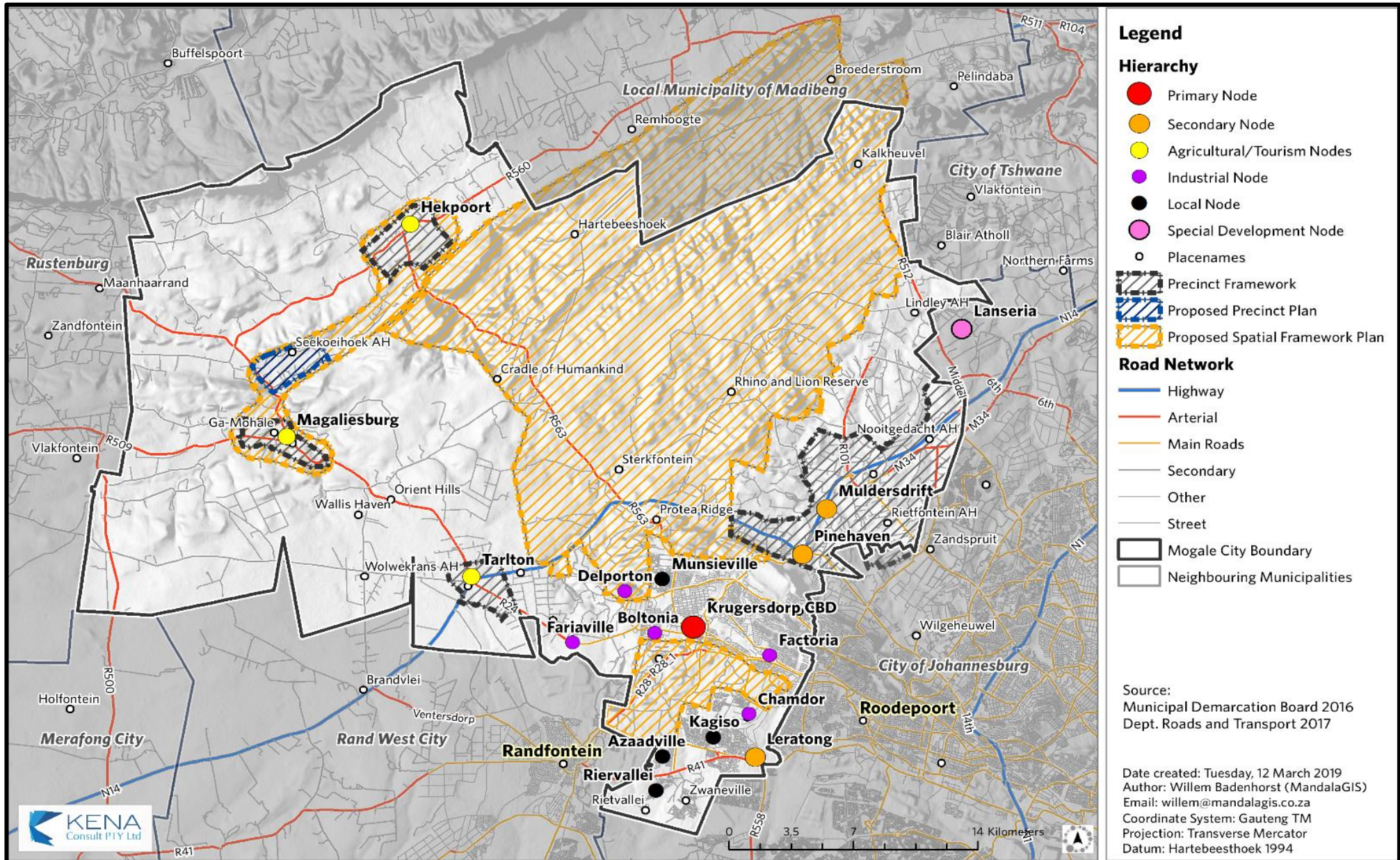


Figure 55: Old and proposed Precinct and Local Spatial Plans



## 8.6. Liveability and Sense of Place

Liveability and sense of place include aspects such as convenience, safety, security, identity, image and all other aspects related to one's experience of the physical environment, either as a resident or as a visitor. This aspect also directly relates to the desirability and marketability of an area from a qualitative perspective. Strategies/approaches in support of liveability in MCLM include:

- Township Regeneration
- Housing and Human Settlements
  - Addressing Housing through Restructuring Zones
  - Addressing Housing Backlogs through Densification
  - Rural Residential Developments
  - Addressing informal settlements
    - Dolomitic Areas Challenges
    - RDP housing

The MCLM Human Settlement Master Plan must form the basis of the concept within the SDF. Care should also be taken not to place new developments in areas of high risk in terms of dolomitic conditions, accessibility and lack of social amenities.

### 8.6.1. Township Regeneration

Townships were historically places of exclusion, designed to house the labour force required by capitalists in the Apartheid racial capitalist system. Accordingly, they were segregated from white suburbs by barriers and distance and given the cheapest infrastructure compatible with the most basic standards of health and safety. However, it must be remembered that townships are residential areas and will never become major locales of production or drivers of economic growth. Regeneration must thus focus not only on increasing the potential for local economic development but also on lowering the cost of and improving access to the (external) economic centres. Importantly significant focus is required to improve resident's employability

The primary regeneration objective is to improve living standards. These are defined not just in terms of income but also include:

- Ensuring residents enjoy adequate nutrition as this is essential for childhood development, cognitive development for educational achievement and work capacity in addition simply for well-being
- Adequate housing to accommodate a sound family life.
- Community safety
- Access to affordable public transport that delivers safety and convenience
- Adequate social and economic infrastructure services.
- Education and skills development to improve not just wages but productivity, and

- Work and opportunities to work.

A particular focus is needed for the regeneration of the Kagiso complex and Munsieville. The following strategies are proposed.

#### Box 11: Strategies for township regeneration

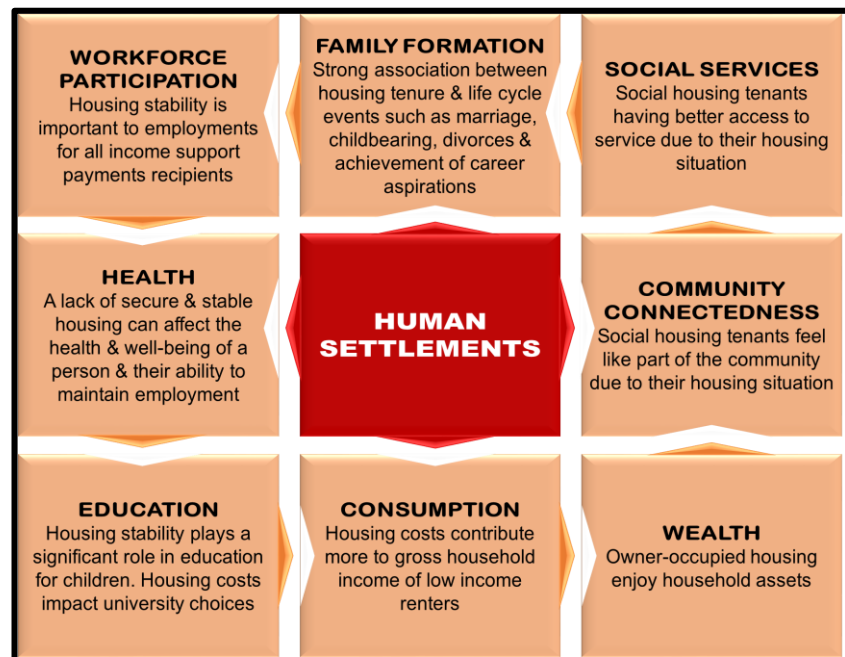
- *Use nodes and activity streets to give structure to the townships:* In line with the concept of strengthening nodes and bringing it down to the local scale it desirable to develop a set of nodes and activity streets within the townships. An activity street is a local form of an activity corridor. Both activity streets and nodes hinge on the creation of good, well designed public spaces and sidewalks that convey recognition via quality and scale.
- *Introduce and support mixed density housing:* Housing in the Kagiso complex and Munsieville tends to be single stand residential with one house on a plot. Housing policy seeks to change this with "Breaking new Ground". This policy notes that it is desirable to create increased densities near to the nodes and corridors and this objective is appropriate in greater Kagiso and Munsieville. The Leratong node development proposes just this extending it to cater for mixed incomes as well thus promoting inclusiveness as well.
- *Manage backyard shacks:* The presence of backyard shacks is a measure of the failure to meet housing goals but does effectively increase residential densities. Shacks are not desirable housing and need to be eliminated. Two options exist in this regard – outright demolition or conversion via formalisation. The former requires the construction of new formal housing which is a long process. As long as the demand for accommodation exceeds supply a household moved from a backyard shack is likely merely to create a vacancy easily filled by someone else. Policing as a means to prevent this has proved very difficult to achieve.

Other strategies include improvements in the quality and quantity of infrastructure and formalisation of informal settlements.

### 8.6.2. Housing and Human Settlements

While housing is intended to address basic human needs for shelter, safety and security, the much more encompassing concept of sustainable human settlements provides a more intuitive platform for conceptualizing and analyzing issues within the sector. As noted in the BNG (2004), housing should not only be understood as the provision of well-designed developments at good locations. The role it plays in integrated sustainable development, wealth creation, and poverty eradication is central to social and economic development. Sustainable human settlements should provide:

- Economic opportunities
- A mix of housing and tenure types
- Reliable basic services and community amenities including, such as educational, cultural, health, welfare and safety and security services, and
- Transport and mobility opportunities.



**Figure 56: Human settlements as a development imperative**

It also provides that where the housing function can best be administered locally it can, by agreement, be assigned or delegated to a municipality provided that the municipality has the capacity and resources to perform the function.

However, despite its socio-economic importance, the chasm between the promise of delivery and its full realization has been widening. Evidently, the housing backlog is particularly becoming very acute, especially in Gauteng Province, as the economic hub of the country.

In MCLM the largest number of households are concentrated to the East and South that is, in and around the CBD. There are a considerable number of households in the farming areas to the west, however they are dispersed over a large area.

The low-income residential areas are spatially removed from the urban core areas by the mining belt. These include large residential areas of Kagiso, Rietvallei and Azaadville. Munsieville is to an extent spatially integrated with Krugersdorp urban area.

Several informal settlements also occur in the rural parts of the district with concentrations being around Tarlton/Orient Hills, Ga-Mohale (Magaliesburg), eTembalethu and Rietfontein both in

Muldersdrift, Hekpoort and Nooitgedacht, adjacent to the south of the Lanseria Airport. According to the Mogale City Human Settlements Plan 2016 – 2019 (Draft).

### 8.6.3. Population Projections and Demand for Housing

Based on the findings of the Census 2011, the Mogale City Local Municipality had a total population of 362 422 people and a total of 117 373 households. In 2016, the population was estimated at 383 864 people. According to the West Rand District Municipality Spatial Development Framework, the population of Mogale City Local Municipality is projected to rise to 555 814 people by 2025 while the number of households will increase to 191 459 by the same year (refer to Table 26).

**Table 2620: Projections of population, households and job opportunities**

POPULATION				NUMBER OF HOUSEHOLDS				JOB OPPORTUNITIES			
2001	2011	2025	2037	2001	2011	2025	2037	2001	2010	2025	2037
292 643	362 422	555 814	609 169	85469	117 373	191 459	212 405	55 623	84 330	15 5859	216 833
Percentage Growth											
2001-2011	2011-2025	2025-2037	2011-2037	2001-2011	2011-2025	2025-2037	2011-2037	2001-2011	2011-2025	2025-2037	2011-2037
2.0%	3.1%	0.8%	2.0%	3.2%	3.6%	0.9%	2.3%	4.7%	4.2%	2.8%	3.6%

(Source: WRDM SDF 2014)

The population figures imply that demand for housing for all income groups will increase to accommodate 191 459 households in 2025 and 212 405 by 212 405 in 2037.

Table 27 provides a land use budget to accommodate the incremental population/households and associated job opportunities based on the baseline year 2011 and going onto 2025. The incremental dwelling units in MCLM up to 2025 will be 74 086 to cater for an increase of the population by 193,392. This can be annualised to about 4,940 units between 2011 and 2025.

**Table 2721: MCLM incremental land use budget 2011-2025**

LAND USE	MOGALE CITY LOCAL MUNICIPALITY		
	No	Hectares	%
Base Data		3 704	69%
Dwelling Units	74 086	3 704	
Population	193 392		
Education	91	28	1%
Pre-primary	44	21	
Primary	29	2	
Secondary	18	5	



LAND USE	MOGALE CITY LOCAL MUNICIPALITY		
	No	Hectares	%
Retail (floor area in M <sup>2</sup> )	367 445	114	2%
Small & Local Convenience Centers (floor area in M <sup>2</sup> )	96 696	24	
Neighbourhood & Community Centers (floor area in M <sup>2</sup> )	154 714	52	
Regional Retail Centers (floor area in M <sup>2</sup> )	116 035	39	
Offices (floor area in M <sup>2</sup> )	36 745	9	0%
Industrial (floor area in M <sup>2</sup> )		133	2%
Community facilities		26	0%
Religious Paces	96	14	
Clinic	19	4	
Hospital (Regional)	1	5	
Post Office	17	1	
Police	8	1	
Community Center/Library	3	2	
Municipal Office	3	2	
Fire Station	3	4	
Open Space		242	5%
Active		89	
Passive		153	
<b>SUBTOTAL</b>		<b>4 257</b>	<b>77%</b>
Street		1 107	21%
<b>TOTAL</b>		<b>5 364</b>	<b>98%</b>

(Source: West Rand District Spatial Development Framework 2014)

The residential increment in up-to 2025 will require 3 704 hectares which can be annualised to 5 087 hectares.

### 8.6.4. Addressing Housing through Restructuring Zones

The Social Act of 2008 defines a restructuring zone as follows: “restructuring zone (RZ) means a geographic area which has been:

- Identified by the municipality, with the concurrence of the provincial government, for purposes of social housing, and
- Designated by the minister in the Gazette for approved projects”.

A number of RZ have been gazetted in MCLM, where the RZ’s contribute to the housing delivery programme in the municipality. The following RZ’s were identified (refer to Table 28 and Figure 57 below):

**Table 2822: Restructuring zones**

IDENTIFIED RZ	SPATIAL CONTEXT & SUPPORTING INFRASTRUCTURE
<b>MOGC01</b>	This area is the CBD of Krugersdorp. It is highly accessible, & all social amenities are in proximity, e.g. schools, government institutions, hospitals / clinics, etc.
<b>MOGC02</b>	This area is close to the CBD of Krugersdorp. It is highly accessible, & all social amenities are in close proximity, e.g. schools, government institutions, hospitals / clinics, etc. Because of its closeness to the CBD, it is proposed that MOGC01 & MOGC02 merge into a single RZ.
<b>MOGC03</b>	This area is surrounded by residential developments & is therefore an infill development. The R41 (to the south), Randfontein Road (to the north) & the M13 (to the west) make this area highly accessible to other social amenities, as well as other modes of transport.
<b>MOGC04</b>	This area is surrounded by residential developments & is therefore an infill development. The R41 (east-west access connector) & the R558 (north-south access connector) make this area highly accessible to other social amenities, as well as other modes of transport. Because of its close proximity, it is proposed that MOGC03 & MOGC04 merge into a single RZ.
<b>MOGC05</b>	Magaliesburg is west of the main urban structure of Mogale City. It is situated on a corridor linking Northwest Province towns (especially Rustenburg & Koster) with Gauteng.





**Figure 57: Restructuring zones, housing projects and Gauteng mega projects in MCLM**

The proposed housing projects in Mogale City are aimed at the development of strategically located properties within the municipality in providing a typology of housing options which include government housing subsidy program, breaking new ground (BNG), FLSP/Bonded houses, Community rental, Military Veterans and Social housing. The proposed projects are phased in various locations in the municipal area as indicated in the Table 29 below.

**Table 2923: Social Housing Projects in MCLM**

	Magaliesburg	Chanclyff & Vlakplaats	TOTAL UNITS
<b>Typology</b>	Proposed Magaliesburg Ext 10 (Rem portion 38 Steenekoppie 153 & Portion 72 Steenekoppie 153) – RZ MOG 05	Proposed Chanclyff Ridge Ext 23, Portions of Farm Vlakplaats 160 (Tarlton) & Portions of the farm Sterkfontein 173	
<b>RDP's and BNG's</b>	576	4 106	5882
<b>FLSP/Bonded</b>	100	1 400	1 500
<b>Military Veterans</b>	150	350	500
<b>Social Housing</b>	1 188		1 188
<b>TOTAL</b>	<b>874</b>	<b>5 856</b>	<b>9 070</b>

### 8.6.5. Addressing Housing Backlogs through Densification

Densification is not an end in itself, but a means to achieve more efficient utilisation of public transport, the creation of the necessary population thresholds to support community and business facilities and to prevent low-density outward expansion and development on land which is valuable from an ecological or agricultural perspective. The three most important rules that should apply to densification are the following:

- Higher density development should be focused around and within walking distance from major activity areas and transport services.
- Commercial and residential development should particularly be encouraged and supported in addition to transport since these land uses are mutually supporting on economic development especially in the CBD which needs to be considered in relation to parking and safe movement.

- Densities should decrease as the distance away from major activity areas increases. Higher densities in the wrong locations or which are removed from major activity areas and transport routes can be harmful to urban efficiency and sustainability.
- Densification needs to take place in conjunction with the availability of bulk infrastructure

The following strategic densification priority zones have been identified:

#### Box 12: Strategic densification zones to address housing backlogs

- Around the Krugersdorp CBD – linked to RZs
- Adjacent to the Beyers Naudé Drive Activity Spine
- In the south-eastern quadrant of the intersection of R512 with the N14, up to the proposed PWV3 extension. This area links up with high density proposals made in the adjacent City of Johannesburg as well as the Lanseria Aerotropolis Restructuring Zones
- Pockets of land located within the mining belt that will be suitable for residential development considered in terms of safety, environment & spatially well located to achieve functional spatial integration.

### 8.6.6. Rural Residential Developments

There is a great need for rural housing development in Mogale City and the sustainable delivery of such housing is a priority. However, the danger of accommodating housing developments in rural environments without thorough consideration and long-term planning is that islands of poverty can be created which have no potential for future economic development or adequate provision of social and community facilities. One of the general principles for housing development that socially and economically viable communities must be created.

#### 8.6.6.1. Guidelines for Rural Residential Developments

To ensure that residents of these settlements are not just housed in any rural location that is devoid of services, facilities and economic opportunities, there are certain principles that should ideally inform the development of rural housing. These are:

#### Box 13: Guidelines for rural residential developments

- Rural housing should be developed as close as possible to existing rural service centres, or, more ideally as close as possible to the Mogale City urban areas.
- Rural housing should focus on providing housing to people who are connected to the rural economy.
- Rural housing development should focus on specific locations in the rural environment where consolidated settlements can be developed. By focusing housing developments in these

locations in the rural environment, it will become possible to develop more sustainable settlements that comprise a range of basic social services & facilities.

The three primary focus areas for rural housing development should be the areas directly around and adjacent to Tarlton, Magaliesburg and Hekpoort (preferably within walking distance from these centres).

### 8.6.6.2. Guidelines for Assessing Applications for Rural Residential Developments

The use of agricultural land for rural residential / low density residential development is subject to a development application. When considering such an application, the focus should be on the potential impact of such a development on agricultural resources. Potential impacts to consider when assessing a land use application for rural residential development should include the following:

#### Box 14: Assessing applications for rural residential dwellings

- Irreversible loss of high potential agricultural land
- Fragmentation of agricultural areas, which limits the ability to expand farming operations
- Loss of employment opportunities for people currently employed in the agricultural sector
- Potential impacts of agricultural operation, such as crop spraying, noise or unpleasant smells, on the proposed residential development
- Increased competition for water resources for purpose other than agriculture, such as the irrigation of golf courses
- An increase in traffic which may impact on roads used to transport agricultural produce, and
- An increase in land value based on expectations of development rights due to approved residential developments in the area
- Moderate to high land capable agricultural land should therefore not be sacrificed where the location of the rural residential area should not result in the establishment of a new node over time, & the development should not result in the use of water reserved for agricultural purposes for other purposes.

### 8.6.7. Informal Settlements

A 2014 Strategy and Programme Report on Informal settlements (Mogale City Local Municipality Strategy and Programme Report) produced as part of the National Upgrading Support Programme (NUSP) presents a comprehensive view of informal settlements in MCLM. It makes the following observations:

- The settlement pattern within some of the wards in MCLM create major logistical issues in terms of the provision of bulk infrastructure to remote settlements and consequently maintaining these infrastructural elements over their life cycle. Accordingly, providing these settlements with bulk infrastructure will result in major escalations in the price, which is

directly related to the distance between the settlements and the identified urban nodes within the municipality. In this sense, it is not only more expensive to provide infrastructure in remote locations, but the price also escalates when it comes to the maintenance over their life cycle due to the fact that they are not located within and around the identified urban nodes where bulk infrastructural capacity exists.

- It is common cause that the City of Johannesburg plays a critical role in the economic landscape of MCLM and generally provides MCLM with significant employment opportunities. On the other hand, MCLM provides the region with housing opportunities, offering lower barriers to entry in addition to economic opportunities. MCLM thus tends to absorb the development pressures of neighbouring municipalities, facilitated by relatively good transportation networks. A case is the corridor development between Rustenburg and Mogale City – the Rustenburg-Mogale Corridor (R24).
- Muldersdrift and Lanseria area are considered as the buffer zone for the Cradle of Humankind World Heritage Site. These two proposed nodes, but especially Muldersdrift, are subject to immense development pressures which are largely brought about by human settlement development that take place on the periphery of the area bordering the City of Johannesburg, as well as on the proposed Lanseria Aerotropolis Precinct. It is foreseen that these two nodes will receive a great influx of population in future.



Figure 5958: Informal housing

### 8.6.8. Challenges for Settlements Mining Belt

This area is characterised by its industrial nature and is not well-suited to human settlement development. This is mainly attributed to the fact that settlements which are currently located on the



mining belt are affected by undermined land, which poses a problem to the construction process, as well as toxic waste particles that are present in the surrounding mine dumps. This, in turn, poses a potential health risk to communities abutting the mine dumps. Spatially, the location of the mining belt constricts the functional integration of the urban environment. This poses a constraint in terms of integrating the lower-income areas to the south with the more affluent urban areas to the north. The mining activities affect Ward 14, Ward 16 and also Ward 26, as well as the settlements of Tudor Shaft and Soul City Extension 1, 2 and 3.

#### Box 15: Interventions for informal settlements in the Mining Belt

- Soul City & Tudor Shaft:** Because Soul City & Tudor Shaft are located alongside radioactive mining tailings, & there are on-going mining operations immediately west of the settlement, re-settlement for the Soul City & Tudor Shaft communities are being investigated at the “Leratong Nodal Development”. Although township establishment applications are approved for this node, it is recommended that Soul City & Tudor Shaft be incorporated into this proposed development. Kagiso Extension 13 is an alternative or additional solution. The Kagiso Extension 13 project is an established township with approximately 721 units, although it is being revised to increase densification.
- Makhulu Gama & West Rand Rail Upgrading & Consolidation Project:** Makhulu Gama & West Rand Rail settlements are earmarked for full upgrading. It is proposed that these settlements be upgraded in situ, provided that the planning & design of the settlements does not take place within the servitude area of the railway. In addition, the settlement of Skoonplaas & Settlement OK should be relocated to this area. The relocation of the settlement OK is, in part, due to its poor location within the urban fabric. The settlement is fragmented from the rest of the municipality & sits between two railway lines to the north & south of the settlement respectively. The settlement is inaccessible & does not present an opportunity for in situ upgrading where social facilities can be accommodated.
- BBR & Swimming Pool in situ Upgrading:** The settlements of BBR & Swimming Pool should be upgraded in situ. Given that BBR & Swimming Pool already operate on a rental basis, it is proposed that these be formalised over the long-term via a rental housing solution. It will be important to utilise the existing infrastructure. In addition, it is proposed that an investigation into the feasibility of alternative, higher density housing delivery mechanisms & relatedly housing typologies be undertaken.

- Portion 58 Kromdraai 520 Jq (Mochineng)
- Portion 58 B Magageng (Caves)
- Kromdraai 520 Jq Portion 8 (Goolhof)
- Kromdraai 520 Jq Portion 10
- Portion 69 Swartkop 172 Iq
- Swartkraans 172 Ptn 55

MCLM wards that are primarily affected by the Cradle of Humankind World Heritage Site are Hekpoort ward 39, Lindley, Heuningklip and Kromdraai. Though the Cradle of Humankind World Heritage Site is not only a tourism drawcard in its own right, it contributes significantly to the growth of the tourism industry in MCLM, it does not allow for human settlement developments primarily due to its sensitive environmental and cultural characteristics. In order to ensure that no developments encroach on this area, especially on the eastern side of the Municipality that borders the City of Johannesburg, a buffer zone in Muldersdrift has been established that will focus human settlement developments in this area.

It is proposed that current settlements in the Cradle of Humankind World Heritage Site be relocated to appropriate development areas that are not located directly within the Cradle’s boundaries, in order to ensure the long-term sustainability and viability of infrastructure and housing investments. This recommendation is based on the risk that would arise if the current settlements were formalised. It would establish a precedent for residential development within this World Heritage site. When coupling this with the fact that there are no guarantees that once these settlements are formalised that new informal settlements would not form around the boundaries of these newly formalised settlements. Accordingly, when considering this risk along with the Municipality’s current lack of capacity to curb the proliferation of informal settlements it is proposed that these settlements be relocated in future.

However, the identification of alternative feasible land portions may take some time, due to the fact that the necessary institutional arrangements will have to be in place to facilitate the communities in the relocation process as well as explaining the need for relocation to the communities (especially in cases where they have to be relocated to different wards). It is thus proposed that the interim strategy for this area be to ensure that all the settlements are provided with basic temporary services. Another strategy that the Municipality will need to adopt is to ensure that stricter settlement growth regulations policies are adopted in this area (due to its unique heritage significance), thus the Municipality will need to create beneficiary lists and ensure that the growth of settlements in this area is mitigated as far as possible.

### 8.6.9. Informal Settlements in the Cradle of Humankind World Heritage Site

The Cradle of Humankind World Heritage site is characterised by multiple informal settlements within it. The settlements which are located within the Cradle are:

- Portion 26 Kromdraai 520 Jq/ Invaders
- Portion 32 Kromdraai 520 Jq (Mavendeng)

### 8.6.10. Informal Settlements Located in Agricultural Nodes

Settlements located in agricultural nodes are typically surrounded by large commercial farming activity areas. MCLM has three such rural nodes, namely, Tarlton, Magaliesburg and Hekpoort. Tarlton is located in Ward 30, Magaliesburg in Ward 31 and Hekpoort in Ward 32. Generally, settlement

development in rural MCLM is discouraged through policy and legislative instruments largely because of the high agricultural potential in the area. However, the agricultural industry that covers most of the municipality's land mass has triggered the establishment of numerous clusters of scattered settlements close to areas of employment in the agricultural value chain. These ad hoc settlement developments allow farm workers the opportunity to be closer to areas of employment. In other words, the increase in job opportunities on the agricultural value chain is not necessarily paired with a concomitant increase in housing opportunities. This situation is exacerbated by the lack of formal transport services from urban areas to the rural areas. It is clear that as activities on the agricultural value chain in MCLM intensify, so will the establishment of informal settlements unless and until a viable settlement development model that could involve settlement consolidation, relocation, upgrading and new developments to accommodate such need is generated.

### 8.6.11. Rural Settlements Consolidation / Relocation / Upgrading

The following are identified rural settlements for either consolidation / relocating / upgrading:

- **Consolidation of Settlements in 3 Full Upgrading Sites (Hekpoort Node):** In addressing the informal settlements currently situated in and around Hekpoort node, located to the west of the municipality in the far western parts of Ward 32, three possible relocation sites have been identified. All three sites have been categorised as Category A settlements. The aim here is to consolidate the upgrading of the informal settlements which were unsuitable for full upgrading in close proximity to their current location.
- **Ga-Mohale and Buya Afrika Upgrading Project:** Ga Mohale and Buya Afrika have been identified as sites with full upgrading potential in and around the Magaliesburg node. The upgrading project is envisioned to accommodate the settlements of Tswelopele and Doornkloof, as well as Camel Estate. All three these settlements were categorised as relocation settlements in the Assessment and Categorisation Report. It is proposed that the settlements marked "2" (Tswelopele and Doornkloof) be moved to one of the full upgrading sites in Area 1 (The Ga Mohale and Buya Afrika Upgrading Project). However, prior to this it is proposed that the relationship between these settlements and the North West province be investigated to determine where these communities work. If these communities work in the North West Province, it is proposed that a joint solution be sought between the North West and Mogale City Local Municipality.
- **Steenekoppies Settlement Development:** The settlements located in Area 4 are situated on the border between Ward 31 and Ward 30. These settlements will, according to current municipal plans, be accommodated in the MCLM's development called Portion 79 Steenekoppies, which is currently underway in terms of development applications.

### 8.6.12. Informal Settlements in Dolomitic Areas

MCLM has both the fortune and misfortune of having a dolomitic belt that runs in a south-western or north-eastern direction through the municipality. This natural feature is a fortune in that it gave rise to the majestic caves that attract many visitors each year. However, because the dolomitic belt transects MCLM into two halves, it is viewed as a significant contributor to the lack of developments that characterize the mid-section of the Municipality. The Wards that are affected by this belt of dolomite are wards 27, 30 and 33.

Environmental and geotechnical studies indicate that areas such as Smokedown and Matshela Pad are not suitable for full upgrading due to their geotechnical conditions. In terms of the proposal, these settlements should be provided with basic services. Sterkfontein, located on the boundary of wards 30 and 32 is located in the COHWHS. It is proposed that this settlement also be relocated given the constraints placed on development in the COHWHS. Given the geotechnical constraints in Ward 30, it is proposed that the informal settlements are provided with basic services whilst alternative, safe land for relocation is identified. The settlements cannot remain in their current location given the potential future impact of the dolomitic conditions. The Municipality will need to identify and, if necessary, acquire land suitable for human settlement development in this node, and within the ward more generally.

### 8.6.13. Addressing Informal Settlements through RDP Housing

The major areas of RDP housing delivery expected in the near future are:

- Chief Mogale Phase 2, in Kagiso
- Dr Sefularo housing development, in Hekpoort
- Dr Motlana housing development in Muldersdrift.

### 8.6.14. Identification and Acquisition of Strategically Located Land

"Strategically located land" refers to land which, through its location and position in the urban network, is considered to hold the key for unlocking development opportunities in specific areas. This is the overarching strategy for the development of human settlements at a municipal scale. The acquisition of strategically located land parcels will work toward the facilitation of a proactive solution to the housing challenge as a whole, as the availability of land directly impacts the human settlement development process, in terms of both timeframes for the execution of projects, the planning of future projects and the connection of these land parcels to infrastructure services and social and civic facilities. This land should therefore ideally be:



- Within close proximity to a public transport node: ensuring that people can meet their traveling needs and desires
- In an urban area/nodal area where economic growth and development is taking place and where long-term, sustainable economic opportunities can be created
- In an area where there is an existing housing demand which can be serviced, or where current trends and pressures indicate future need will be located
- Where appropriate, hold the capacity to accommodate a range of uses that facilitate sustainable settlement development, and
- As far as practical, well-placed in terms of their proximity to existing bulk infrastructure, or where this bulk infrastructure capacity can be created in future.

The importance of the identification of strategically located land relates to its relationship with practically achieving the goals of resource efficiency, facilitating sustainable livelihoods, and promoting densification and urban efficiency. In Mogale City, these goals can be achieved through the consolidation of future development in and around existing nodes.

However, because strategically located land in MCLM is also reported to be expensive, the proposition is that MCLM should seek to work together with other supporting agencies such as the Housing Development Agency (HDA), to facilitate land acquisition. HDA can assist municipalities with land acquisition, for example through the following:

- Negotiations with private land owners/other custodian departments
- Liaison with national and provincial departments of Rural Development and Land Reform, National Departments of Public Works and Public Enterprises/SOCs, and
- Undertake legal transfer/registration of land.

Given the circumstances of MCLM, and the need for land acquisition which will require the buy-in from private land owners, specifically in farm areas, the involvement of the HDA can enable the municipality acquire land ideally suited for human settlement development. This will aid the municipality in creating a viable human settlements land bank for future development.

### **8.6.15. Consolidation of Settlements in Existing Nodes**

As discussed above, one of the development challenges within MCLM is associated with the occurrence of informal settlements in remote locations far from urban opportunities. This is at least in part due to the nature of the agricultural sector of the economy, which provides cyclical work opportunities, as well as development pressure and more specifically housing pressure occurring through movement of people from neighbouring municipalities to access employment opportunities.

This phenomenon presents significant challenges for both the municipality and the associated communities in terms of bulk infrastructure provision, access to social and civic facilities as well as access to economic opportunities. The strategy proposed to address this is the consolidation of human

settlement development in existing nodes, both in the urban core of the municipality as well as the rural or agricultural nodes.

The principle behind this is to ensure that the upgrading of informal settlements, and the development of human settlements more generally, is undertaken in a manner whereby communities are provided with all the essential elements required for sustainable human settlements. This will also facilitate economic viability in terms of enabling infrastructure over its lifecycle. The consolidation of human settlement development in existing nodes also strengthens the municipality's forward planning approach, and creates a platform from which other initiatives, such as public transportation routes and local economic development initiatives can flourish.

This strategy should be a policy approach to the future development of human settlements. The applicability of this strategy to MCLM's informal settlements, will be showcased in subsequent more detailed strategies.

### **8.6.16. Cross-Municipal Institutional Arrangements to Address Informal Settlements**

In addressing the key issues regarding the growth and proliferation of informal settlements within MCLM, it is imperative that inter-municipal partnerships be established. This approach is necessary to ensure that the municipality establishes a pro-active and sustainable approach in dealing with informal settlements through strategic partnerships with neighbouring municipalities and institutional actors and spheres of government.

In this sense, MCLM's geographic location is unique in that it is bordered to the east by the City of Johannesburg and to the north east by the City of Tshwane. These two metropolitan municipalities place tremendous development pressures on Mogale City as they are among the most densely populated municipalities in South Africa, coupled with the fact that together they form the economic heartland of South Africa. Accordingly, these development pressures are associated with phenomena such as impoverished people who are either employed or are looking for employment within the City of Johannesburg (COJ), but cannot find accommodation or afford to live in the COJ, eventually settling in MCLM. This is due to the fact that in Mogale City access to the housing market is relatively easier, whilst still in close proximity to the economic opportunities offered within COJ.

Conversely, the same principle applies in terms of in-migration from municipalities within the North West Province, such as Rustenburg Local Municipality to the west and Madibeng Local Municipality to the North. This in-migration is largely attributed to the higher level of economic activity and opportunity offered within Gauteng Province and specifically the COJ. Accordingly, MCLM's proximity to these economic amenities and opportunities contribute to the proliferation of informal settlements within the municipality.

Importantly, these spatial trends reaffirm the need for inter-municipal and inter-governmental cooperation in terms of addressing the issue of informal settlements. Accordingly, when identifying sites for possible relocation, it is imperative to identify where residents of these settlements are predominantly employed as to relocate them to the nearest suitable site to their area of employment. Consequently, if it is found that the majority of residents within these settlements work within neighbouring municipalities, it will necessitate that a site be identified within that Municipality, or that a solution be reached between the affected municipalities. Consequently, this has significant implications for which municipality is responsible for providing the residents of these settlements with adequate housing. These factors highlight the need for cooperation and the development of strategic interventions to informal settlements upgrading across municipal scale.

Furthermore, these spatial phenomena place tremendous resource constraints on MCLM, in terms of providing adequate housing opportunities, as it is forced to deal with the population overflow of its neighbouring Metropolitan Municipalities. Additionally, the budgetary allowances between MCLM and the CoJ are vastly skewed and it is thus not sustainable for MCLM to continue to act as a net to catch impoverished workers and work seekers without establishing a strategic inter-municipal strategy in dealing with informal settlements. Such initiatives may take different form in facilitating inter-municipal strategic spatial strategies and includes cooperation in terms of development issues such as:

- Development corridors
- Integrated public transport
- Nodal developments
- Environmental planning as well as
- Aligning key projects and urban edges

However, in terms of planning for housing and specifically the upgrading of informal settlements across municipal borders, it is proposed here that Mogale City Local Municipalities and its surrounding local and metropolitan municipalities form either an informal or formal Local Government Organisation as provided for within section C of the White Paper on Local Government.

Such an organisation between MCLM and its neighbouring Local and Metropolitan municipalities will allow for various activities such as (Polity.org.za, 2014):

- Exchange of learning experiences
- Sharing of staff
- Technology and equipment
- Joint investment projects; and
- Collective purchasing

Accordingly, such a partnership in terms of informal settlement upgrading, and especially between MCLM and the CoJ, will be mutually beneficial. This relates to the fact that the CoJ is characterised by limited space for new housing developments but does have adequate budget to roll out large housing

projects, where conversely MCLM has sufficient land but lack the budget to roll out large scale housing developments.

Thus, establishing an inter-municipal partnership through the use of a Local Government Organisation will enable MCLM and its neighbouring metropolitan municipalities to strategically deal with and come up with sustainable solutions to curb the growth and proliferation of informal settlements.

In addressing the key issues regarding the growth and proliferation of informal settlements within Mogale City Local Municipality, it is imperative that inter-municipal partnerships be established. This approach is necessary to ensure that the municipality establishes a pro-active and sustainable approach in dealing with informal settlements through strategic partnerships with neighbouring municipalities and institutional actors and spheres of government.

### **8.6.17. Addressing the Pressure in the Eastern Part of MCLM**

The eastern part of Mogale City is experiencing significant pressure from Johannesburg Metropolitan Municipality. These pressures are set to persist and increase into the future, especially with the proposed expansion of the Lanseria Airport Node, as well as from the Cosmo City. In particular Wards 23, 29 (to some extent) and 33. As stated in the Muldersdrift precinct and re-affirmed in this SDF, the N14 directly to the North as well as the southern part of the N14 which extends to the municipal boundary are viewed as future development zones. However, high density and extensive commercial developments are viewed as being more suitable toward the south of the N14 and thus focus should be placed on expanding the human settlement development potential in this area. It is vital that future development strategies which are formulated take on a collaborative approach between MCLM and the City of Johannesburg and other neighbouring municipalities. The upgrading projects in this Eastern Quadrant is as follows:

- **Lindley Plot 84 & 85 Upgrading Project (Ward 33):** This project deals with the settlements in the north of Ward 33. The proposed strategy that has been formulated is to move the northern settlements to Lindley Plot 85 (Maplankeng) and Lindley Plot 84 (Joe Slovo). These two settlements are strategically located to the Lanseria Airport node and thus show potential to be incorporated into future expansion and development plans for the area. This upgrading project will also incorporate Plot 81 Elandsdrift, Plot 54 and 55 Zwartkop, Lindley Plot 31 and Rhenosterspruit 495 JQ Portion 25.
- **Nooitgedacht Upgrading Project (Ward 33):** In terms of the southern part of the ward the two feasible upgrading areas that have been identified are Portion 42 Nooitgedacht 534 and Portion 89 Nooitgedacht 534. These areas are viewed as viable options for upgrading and as they have potential to absorb some of the growing housing demand that Cosmo City is experiencing towards Mogale City.



- **Portion 11 Heuningklip Upgrading Project (Ward 29)** is primarily viewed as a rural area, but urban development pressures are starting to encroach on the character of this ward, especially due to the fact that this node is in close proximity to the Muldersdrift nodal area. Currently the housing demand in this ward is not as prominent as in the other wards that are affected by eastern development pressures but it is assumed that housing pressures in this area will increase in future and thus the Municipality has identified portion 11 Heuningklip as a feasible upgrading area, especially to cater for the existing settlers who are located in Portion 14 and 60 Heuningklip as well as Portion 24 and 41 Steynsvlei. It is, however, believed that the extent of this proposed area will not be able to cater for all the settlers and therefore further expansion areas will have to be identified by the municipality, and/or more effective and efficient housing designs (higher density) housing which will be able to absorb these settlements readily will need to be generated.
- **Ward 23 Upgrading Projects:** This area is viewed as the Nodal point of Muldersdrift and thus development potential will significantly increase in this area.

In terms of upgrading potential the following settlements have been identified as viable options for upgrading:

- **Project 1: Upgrading of Plot 87 Ethembalethu:** This site is already semi-formalised in parts and is viewed as a feasible infill site to accommodate the residents of Plot 10 Driefontein and Plot 163 Rietfontein. To date, this area is primarily characterised as being a tourism node. It is foreseen that this area will retain its tourism character in future and expand on it which could increase the housing need in the area.
- **Project 2: Upgrading of Portion 81 Rietfontein 189 and Portion 44 Rietfontein:** These areas are directly situated next to each other and are strategically located close to the N14. These areas are considered as viable upgrading areas which could potentially absorb some of the development pressures which areas being experienced by Plot 83 and 90 Rietfontein.
- **Project 3: Upgrading of Portion 83 and 90 Rietfontein:** This project is a feasible extension of the existing formalised settlement to which this site borders. It is therefore viewed as a viable option to upgrade fully. However, the demand for housing in the area is increasing rapidly and it is therefore proposed that some of the households be relocated to Portion 81 or Portion 44 of Rietfontein as these sites are not as densely populated (see project 2).
- **Project 4: Mathumbi Plot 25:** this settlement is strategically located relative to the Muldersdrift node. The settlement is also situated just north of the new Cradlestone Mall and

is considered as a feasible site for human settlement development (especially integrated developments which cater for a variety of income levels and tenure options). It is proposed that Mathumbi Plot 25 accommodate the relocation of the residents of Plot 33 Rietvlei, Plot 189 Rietvlei (3), Plot 21 Rietvlei, Plot 63 Rietvlei, Plot 33 Van Wyk's Restant and Plot 34 Rietvlei.

- **Project 5: The full upgrading of Portion 0 Erf 182 Van Wyk Restant:** This site is located within 1km of Mathumbi Plot 25 and consequently has similar strategic characteristics. It is proposed that this site accommodate the relocation of residents of Portion 42 Rietfontein, Plot 62 (Sekolong), Plot 77 Rietvlei, Plot 71 and 72 Driefontein (Avianto), Plot 189A Rietvlei, Plot 45 Rietvlei, and Plot 8 van Wyk's Restant.

**In Situ Upgrading of Informal Settlements in Ward 27:** Ward 27 is located directly to the North West of Krugersdorp and is characterised by the following informal settlements:

- Pongoville, and
- Villa Gloria.

While Pongoville is considered a natural extension of Munsieville, which is a formalised township, certain parts of the settlement are located on steep slopes, thus land fillings will have to be undertaken on these portions or adjacent level land portions will have to be expropriated and developed to accommodate the growing housing demand in this area. It is foreseen that the housing need in this area will grow as the Municipality has already earmarked this area as a potential relocation area for Coronation Park. Housing demand will also increase due to increasing urbanisation trends as this area is strategically located in the Krugersdorp urban area. The strategy should focus on ensuring that municipal infrastructure is available to support residential densification as well as enablement of forward planning mechanisms to allow for quicker processing of statutory applications, which will attract private sector developers to the area



# 9. MCLM SDF COMPOSITE MAP 2018-2023

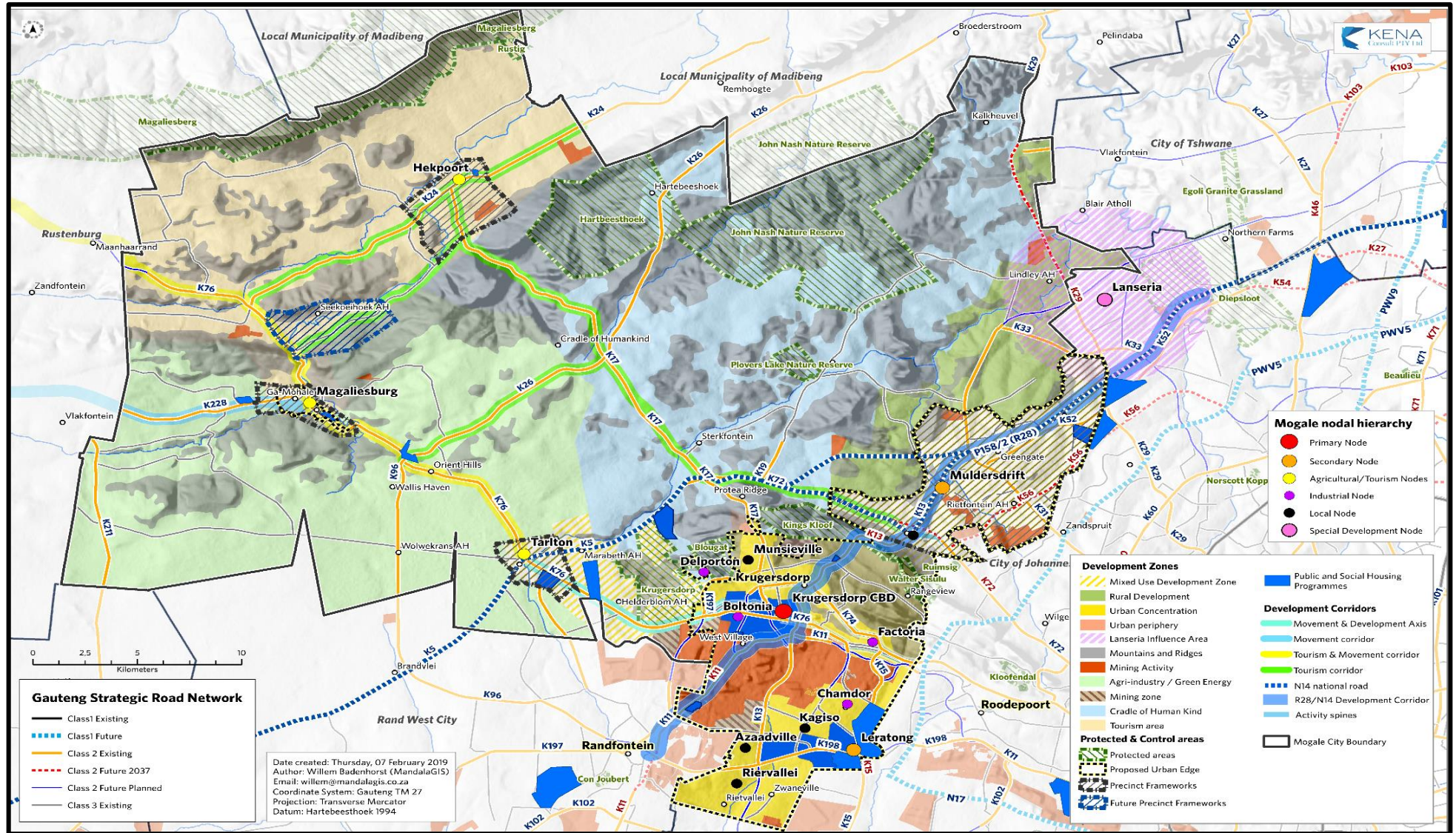


Figure 590: Composite Spatial Development Framework



## 10. LINKING THE SDF TO THE LAND USE SCHEME

### 10.1. Building a Bridge: Connecting the MCLM-LUS to MCLM-SDF

This SDF has been prepared concurrently with the Land Use Scheme (LUS). The link between the SDF and the LUS is through a Land Use Framework (LUF). A Land Use Framework is a necessary step aimed at translating the MCLM-SDF into more detailed land use areas for current and future development, as a prelude to and input into the formulation of detailed zones. The use of statements of intent in the MCLM-LUS assisted in linking the LUS to the broader vision, strategies and policies contained in the SDF, and by extension, the IDP. However, given that SDFs do not always provide sufficient guidance for preparing land use schemes, a set of linking elements was developed in the Land Use Framework. Figure 61 below enumerates these elements.

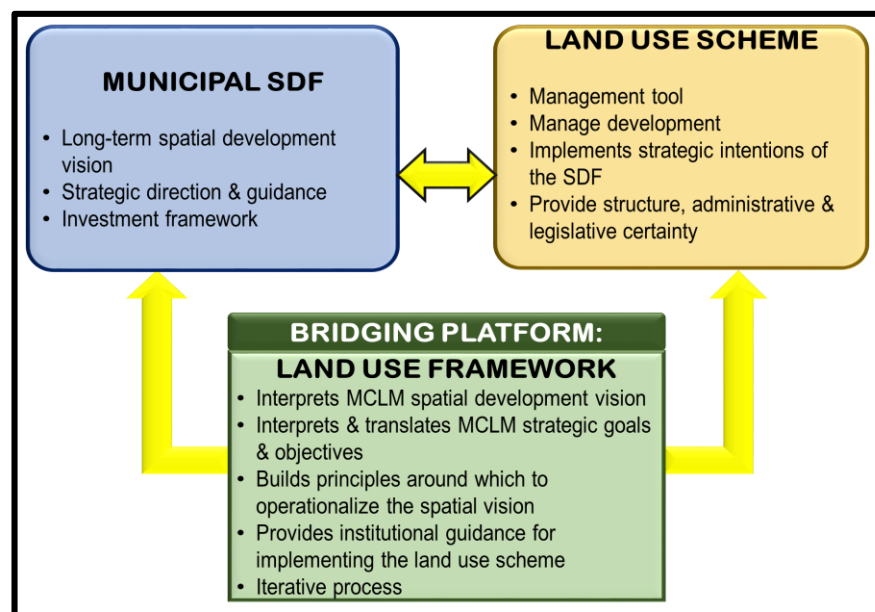


Figure 60: Linkages between SDF and LUS

As a departure point in terms of crafting a new generation wall-to-wall LUS for MCLM, a conscious decision was made to seek to move away from the traditional model of zoning and land use

management largely premised on and directed primarily at land use control, and adopting a more flexible approach to zoning that is both management and development oriented. This orientation is preferred not only because it is less management intensive (especially given the capacity challenges faced by MCLM), but more importantly, it has the capacity to be normatively transformative taking its cue from the developmental trajectory of the MCLM-SDF.

In addition, because of this discernible shift away from the rigid application of a conventional, exclusionary zoning system which often results in a strict separation of land uses, towards a more flexible approach of land use control as indicated above, there is also now a greater acceptance of the principle of mixed land use. This growing recognition that the predetermined regulations under the traditional zoning models cannot cope with the internal and external challenges and opportunities available to MCLM led to the deployment of a flexible adaptive approach to the LUS.

Existing methods of obtaining desired zoning include applications for departure, rezoning and special consent. In addition to these standardized methods, some schemes have adopted the “Special Zone” which provides for a level of discretion and flexibility with respect to developments that do not fit into the existing zoning tables. Granting of these special use applications includes the opportunity for the Municipality to lay down conditions that will assist in regulating the development.

### 10.2. Key principles Embedded in MCLM-LUS

The MCLM Land Use Scheme entrenches some of the key principles that are articulated in the MCLM-SDF. These are among other, the following:

#### 10.2.1. Densification of Selected Areas

Increasing the average density of infill, redevelopment, and Greenfield projects within the confines of the designated MCLM urban boundary is crucial to improving the quality of life in MCLM. Higher density is important to protecting open space and supporting transportation options like public transport, walking, and biking. MCLM should focus much of its higher density where it can be served conveniently by bus or rail public transport, which will also reduce the need to drive and provide other environmental benefits.

Increasing density and intensity in selected areas will yield for MCLM, amongst others, the following:

- Integrating MCLM communities with a view to creating inclusive and cohesive communities
- Buildings and developments that use less energy, less land, and typically less materials – because of the more efficient buildings and the transportation options that reduce the need to drive, residents generate fewer greenhouse gases per capita
- Less pressure to expand development out of the urban boundary, thus protecting agricultural lands, natural open space, bodies of water or sensitive habitats such as COHWHS.

- More effective public transport service
- Support for local shops and services that rely on customers who can walk or bike from surrounding neighbourhoods, and
- More diverse communities with more opportunities for affordable housing, particularly in areas that have high land values and scarce development sites.

### 10.2.2. Transit-Oriented Development

Supportive zoning/land use controls and design standards are a major factor in the success of public transport station development characterized by requirements that encourage increased development densities, endorse mixed-use development, reduce parking requirements, reduce buildings setbacks, and promote pedestrian friendly development. Zoning should thus support higher intensities or pedestrian-scale commerce in appropriate areas. Seven key success factors are critical in planning and implementing successful transit-oriented developments in MCLM (refer to Figure 62).

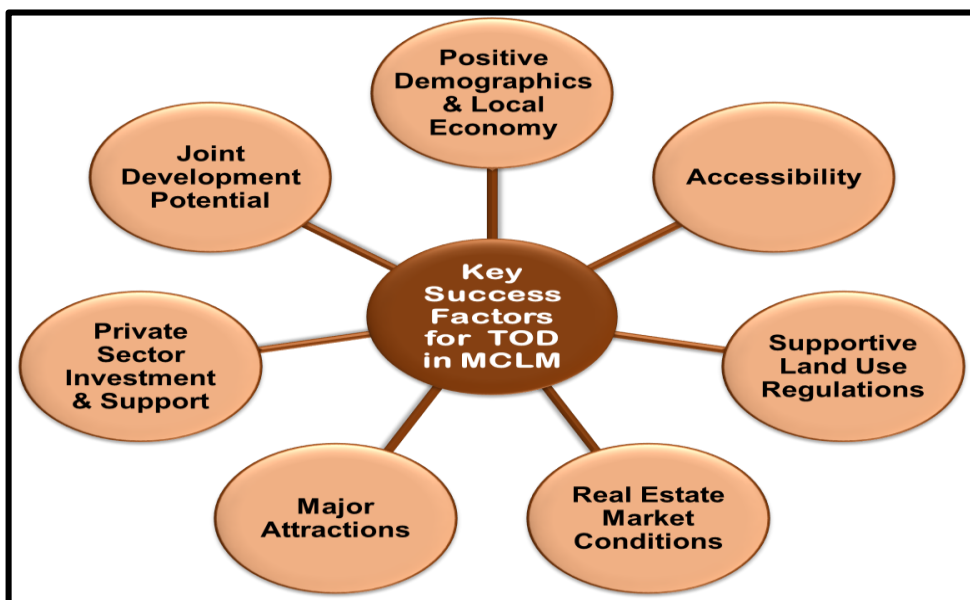


Figure 61: Key success factors for TOD in MCLM

### 10.2.3. Mixed Use Development Zones

The creation of a vibrant and sustainable community requires a variety of uses – commercial, civic/institutional and office uses – all within walkable proximity of a diverse array of types of residential units. Whether dining out, getting milk or dropping off dry cleaning, Euclidian zoning developments often force residents to drive out of their neighbourhood whenever they are in need of basic goods and services. MCLM's stated commitment to sustainability means that the MCLM-LUS must provide options to get people out of their cars and into alternative forms of transportation such as on foot, on a bike or catching a minibus taxi, train or bus. One way to do this is to rethink the built environment and change the regulations that result in car-dominated, Euclidian single-use areas into regulations that promote and encourage accessible, walkable, healthy mixed-use environments to live, work, play, learn and thrive in.

The LUS will include zones that allow small, medium and large scale commercial mixed use developments, as well as a medium-scale zone that would allow a broader array of employment uses. The current MCLM town planning schemes are typically replete with various dimensional standards that govern a range of topics, including minimum erf sizes and widths, floor area ratios, setbacks, and building heights. These standards are generally geared to produce low-intensity, low-rise residential and commercial development. While this development pattern may be appropriate in some areas and under some circumstances, for example, within environmentally sensitive areas of COHWHS, these standards often have unintentionally stifled more compact development in MCLM, truncating the development of attractive, lively, and cost-efficient places. Recalibrating dimensional standards can assist in accommodating and promoting a more compact development pattern and create attractive MCLM urban environments.

Clearly, compact, walkable communities are achievable through design and direction from the land use scheme. As indicated elsewhere in this report, form-based zoning is certainly amenable to widening options for compact form and walkable neighbourhoods. Components of form-based regulations include regulating plans, building form standards (building siting and height), and optional architectural elements.

### 10.2.4. Mixed Use Development Zone Types

The mixed-use zones that constitute a significant characteristic of the Spatial Development Concept – do not conform to “one size fits all” solution for how land uses in MCLM are mixed to accommodate market conditions and design expectations as they will necessarily look different in various contexts – from the Krugersdorp CBD to transit-oriented development (TOD) – to commercial corridors – and, to the neighbourhood corner store. Requiring vertically mixed-use buildings, such as a building with ground-floor retail and offices or residences in the upper floors, along older, pedestrian-oriented corridors can reinvigorate many a sleepy street in the CBD and activity corridors. Alternatively, simply permitting a variety of uses within one zoning area allows a horizontal mix of uses that can break up the monotony of single uses, such as single-family housing. This horizontal mix can make a street



more interesting and bring stores, services, and workplaces closer to residents. Depending on the size and character of the activity node or corridor, mixed use zones could, for example, be categorized as follows:

- **Commercial Mixed-Use 1:** This refers to a large-scale commercial mixed-use zone intended for sites in larger MCLM nodes such as Muldersdrift and along major corridors as the N14, and the proposed in high-capacity public transport station to the south of the CBD. This zone allows a mix of commercial and residential uses, as well as other employment uses that have limited off-site impacts. Buildings in this zone are generally expected to be upwards of six storeys. Development is intended to be pedestrian-oriented, but buildings may be larger than those allowed in lower intensity mixed-use and residential zones. Design review is typically required in this zone.
- **Commercial Mixed-Use 2:** This medium-scale commercial mixed-use zone is intended for sites in a variety of nodes and activity corridors, and in smaller mixed-use areas that are well served by frequent public transport or within a larger area zoned for multi-dwelling development. The zone allows a mix of commercial and residential uses, as well as other employment uses that have limited off-site impacts. Buildings in this zone are generally expected to be three to four storeys. Development is intended to be pedestrian-oriented and complement the scale of surrounding residentially zoned areas.
- **Commercial Mixed-Use 3:** This small-scale commercial mixed-use zone is intended for sites in neighbourhood nodes and corridors, at the edges of the CBD for example, and in smaller mixed-use nodes within lower density residential areas. This zone allows a mix of commercial and residential uses. Buildings in this zone are generally expected to be up to three storeys. Development is intended to be pedestrian-oriented and generally compatible with the scale of surrounding residentially zoned areas.

In investing in mixed use development, MCLM should consider the following imperatives:

- Need to apply the concept in appropriate places where the market is supportive
- Need to ensure that development standards should be flexible to accommodate for the lag between full scale implementation and the market catching up.
- Need to integrate residential, commercial, employment, and civic uses.
- Need to plan and build an interconnected network of streets.
- Need to create a network of public spaces.
- Need to minimize surface parking erfs.
- Need to ensure standards result in human-scaled buildings that fit in with the neighbourhood context, and
- Need to proactively address issues that arise with new, more intensive mixed-use buildings, such as massing and design, transitions and step-downs, and ground floor uses.

### 10.2.5. Mixed Use Development Zone Key Success Factors

Successful mixed-use developments typically share six common elements. Each of these elements has specific zoning and/or design tools that may address some of the issues outlined above. Key success factor includes: (refer to Figure 63).

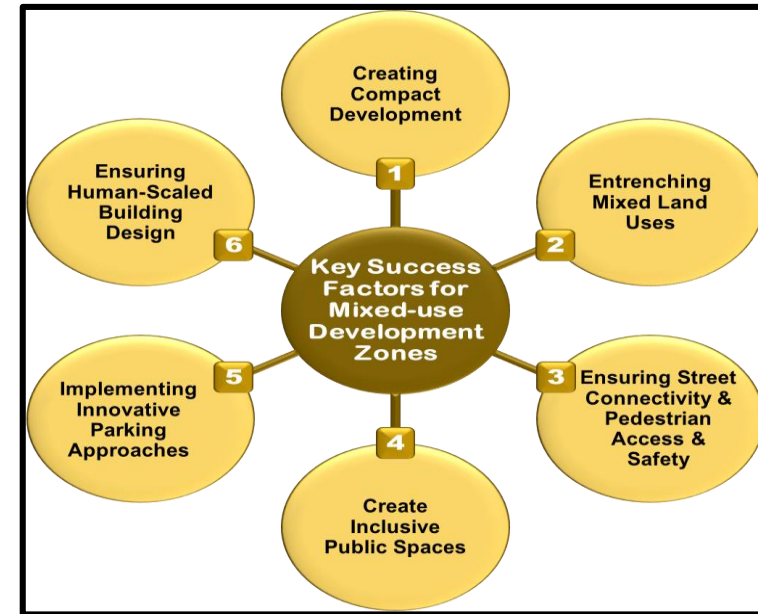


Figure 62: Key success factors for mixed-use development zones

- **Creating Compact Development:** Creating vibrant, walkable communities through mixed-use zones – a strong element of influencing the development of the wall-to-wall MCLM-LUS – includes compact development to take advantage of infill, redevelopment, and revitalization in activity nodes by providing incentives for infill and redevelopment in designated areas while discouraging Greenfield development. Compact development can be achieved by implementing urban renewal and infill projects such as in the CBD and along selected corridors, while traditional overlay zones could be employed to encourage development in designated areas such as in nodes in MCLM by providing incentives, such as fee waivers or reductions, development streamlining, and density bonuses.
- **Entrenching Mixed Land Uses:** Discourage inflexible, one-size-fits-all development standards, but encourage a mix of land uses by developing different types of compatible uses close together in appropriate locations to facilitate alternate modes of transportation, and shorten trips. In this regard, it is important to ensure that zoning regulations allow the integration of residential uses with commercial, employment, and civic uses in appropriate

locations such as in the CBD, nodes and selected corridors. Look for opportunities to provide flexibility in building height, housing density, floor area, lot coverage, yard setback, landscaping, and other zoning provisions for mixed use developments.

- **Ensuring Street Connectivity and Pedestrian Access and Safety:** It is crucial for MCLM to seek to plan and build an interconnected network of streets that support all modes of transportation, and provide linkages to local retail, services, housing and amenities. In addition, MCLM should seek to promote pedestrian access and safety by planning and building on-site vehicle and pedestrian circulation systems that are safe, convenient, attractive, and comfortable for pedestrians and bicyclists.
- **Creating Inclusive Public Spaces:** Create and maintain a network of public spaces including sidewalks, plazas, parks, civic buildings, and places of assembly to allow for informal social interaction and gatherings. MCLM should thus require developments to integrate usable public space whenever possible, and encourage development patterns and projects that recognize and respond appropriately to existing or planned public spaces on or near the site, for example, parks, civic buildings and spaces, public transport stops, sidewalks, plazas, and similar spaces).
- **Implementing Innovative Parking Approaches:** In mixed-use zones, it is important to remember that parking areas should be efficiently designed and managed to minimize unnecessary surface parking. Surface parking can be reduced through implementing form-based zoning, incentives, and innovative site planning. Areas located near public transport should necessarily limit surface parking. MCLM should consider the following regulatory and parking management tools and strategies to limit the amount of land used for surface parking:
  - Parking management plans
  - Shared parking
  - Additional on-street parking
  - Reduced or waived minimum off-street parking standards
  - Reduction in parking standards based on parking impact studies
  - Maximum parking ratios
  - Designated parking areas in lieu of fees for off-street parking
  - Park-once strategies
  - Structured parking, and
  - Park and ride.
- **Ensuring Human-Scaled Building Design:** Building design standards should result in buildings that are human-scaled for pedestrian comfort, and compatibility between other land uses. The same design principles that apply to main streets and downtowns, with some adaptation, may apply to other commercial areas. MCLM-LUS regulations could support human-scale design by requiring building entrance placement close to the street, ground floor windows, articulated façades, appropriately scaled signs and lighting, as well as awnings and other weather protection.



## 11. CAPITAL INVESTMENT FRAMEWORK

The purpose of the Capital Investment Framework (CIF) is to support the spatial proposals as set out in the SDF and to depict where capital spending should be prioritised, what key interventions need to take place, where they need to occur and by whom. CIF must be aligned to the IDP and should help achieve the strategic objectives of the SDF.

Owing to the strategic nature of an SDF, it is not possible to identify all projects and their specific geographical area. The objectives of the CEF are as follows:

- Prioritise key intervention projects and programs based on the spatial vision and objectives of the SDF
- Direct future public and private investment by aligning the capital budget requirements of departments to priority areas.
- Improve the operations and maintenance of the municipality's existing infrastructure
- Identify areas in need of detailed precinct plans, which will assist in better infrastructure services delivery in future, and
- Contribute towards the eradication of service delivery backlogs in targeted areas.

### 11.1. Summary of Priority Projects

Table 30 below represents priority projects for the Spatial Development Framework.

Table 30: Priority projects aligned to the IDP (2016-2021)

SECTOR	PROJECT	TIMEFRAME/FINANCIAL YEAR				
		FY18/19	FY19/20	FY20/21	FY22/22	FY22/23
Economic Services	Krugersdorp Inner City Redevelopment programme consisting of: <ul style="list-style-type: none"> <li>• Institutional Precinct</li> <li>• Primary Commercial Precinct</li> <li>• Western Housing Precinct</li> <li>• Canal Housing Precinct</li> <li>• North Eastern Housing Precinct</li> <li>• Sports Precinct &amp; Coronation Park</li> <li>• North Western Transportation Hub Precinct</li> <li>• North Eastern Gateway Precinct</li> <li>• Station Gateway Precinct</li> <li>• Luipaardsvlei Precinct</li> <li>• Civic Precinct</li> </ul>	Construction of priority projects	Construction of priority projects	Construction of priority projects	Construction of priority projects	Construction of priority projects
	Implement Mogale Citywide Township Economic Development Programme in Kagiso, Munsieville, Riatvallei, Ga-Mogale, Ethembaletu & Rietfontein	Identification of niche sectoral base for each township	Develop specific strategies & identify funding mechanism	Develop a viable institutional framework & enabling conditions	Monitor & provide further support	Monitoring & provide further support
	Townships Regeneration <ul style="list-style-type: none"> <li>• Infill &amp; mixed-use development</li> <li>• Manage backyard shacks</li> <li>• Support to a wide range of SMMMEs linked to Citywide Township Regeneration Programme</li> </ul>	Identify anchor projects	Implement	Implement	Implement	Implement
	Develop & implement Brand, Marketing & Tourism Strategy	Implement	Implement	Implement	Implement	Implement

SECTOR	PROJECT	TIMEFRAME/FINANCIAL YEAR				
		FY18/19	FY19/20	FY20/21	FY22/22	FY22/23
	Develop & implement initiatives to strengthen the Carmel Estate FPSU & Brandvlei Agri-Hub	Implement	Implement	Implement	Implement	Implement
	Develop infrastructure to support Rural Tourism Development	Development of tourism routes (N14, R563, R42 & R560)	Implement	Implement	Implement	Implement
	Prioritise & implement infrastructure projects to densify priority Nodes & Corridors <ul style="list-style-type: none"> <li>The Pine Haven Node at the intersection of R28, N14 &amp; Hendrik Potgieter Road</li> <li>The Drift Node along the R28 in the central part of the Muldersdrift</li> <li>Around the Krugersdorp CBD</li> <li>Within the urban boundary of designated nodes</li> <li>Adjacent to the Beyers Naudé Drive Activity Spine</li> <li>Pockets of land located within the mining belt that are safe for development</li> </ul>	Implement	Implement	Implement	Implement	Implement
	Green Energy Development in Zone 2 of the Spatial Development Concept	Develop strategies for generation of green energy	Implement	Implement	Implement	
<b>Water &amp; Sanitation</b>	Magaliesburg Waste Water Treatment Plant	Complete Construction work	Mechanical & electrical works	Implement	Implement	Implement
	Ptn 47 & 49 Kromdraai Extension of bulk water pipeline & installation of communal stand water pipes	Pipeline construction & installation of communal standpipes	Extension of communal water pipes	Extension of communal water pipes	Extension of communal water pipes	Extension of communal water pipes
	Hartneys Extension of bulk water pipeline installation & communal water stand pipes	Pipeline construction & installation of communal standpipes	Extension of communal water pipes	Extension of communal water pipes	Extension of communal water pipes	Extension of communal water pipes
	Tswelopele Extension of bulk water pipeline Installation of communal water stand pipes	Pipeline construction & installation of communal standpipes	Extension of communal water pipes	Extension of communal water pipes	Extension of communal water pipes	Extension of communal water pipes
	Manharand Extension of bulk water pipeline & installation of communal water stand pipes	Pipeline construction & installation of communal standpipes	Extension of communal water pipes	Extension of communal water pipes	Extension of communal water pipes	Extension of communal water pipes
	Pangoville Extension of bulk water pipeline & Installation of communal water stand pipes	Pipeline construction & installation of communal standpipes	Extension of communal water pipes	Extension of communal water pipes	Extension of communal water pipes	Extension of communal water pipes
<b>Electricity Services</b>	New Randfontein road street lights	Project Rollout	Implement	Implement	Implement	Implement
	Ga-Mogale high mast lights	Project Rollout	Implement	Implement	Implement	Implement
<b>Transport</b>	Implement Public Transport corridors as identified in the WRDM-SDF <ul style="list-style-type: none"> <li><b>Corridor Y:</b> Kagiso - Luipaardsvlei Station - Krugersdorp (Pretoria Street).</li> <li><b>Corridor A:</b> Magaliesburg - R24 - Krugersdorp-R28 – Pinehaven - Hendrik Potgieter Road - Ruimsig (Johannesburg)</li> <li><b>Corridor C:</b> R-28-Randfontein – Mogale City</li> <li><b>Corridor F:</b> Krugersdorp - R28 – Pinehaven - N14 - R512 - Lanseria International Airport</li> </ul>	Implement	Implement	Implement	Implement	Implement



SECTOR	PROJECT	TIMEFRAME/FINANCIAL YEAR				
		FY18/19	FY19/20	FY20/21	FY22/22	FY22/23
	<ul style="list-style-type: none"> <li>• <b>Corridor D:</b> Krugersdorp (CBD) - Ontdekkers - Roodepoort</li> <li>• <b>Corridor E:</b> Randfontein (CBD) - K198 – Leratong - Main Reef Road - Roodepoort</li> </ul>					
	Provide infrastructure around proposed new train stations	Implement	Implement	Implement	Implement	Implement
Housing & Human Settlements	<p>The approach to Human Settlements &amp; some of the specific ongoing projects are discussed in great detail in Section 8.5.2 of this SDF. Key areas where investments need to continue include:</p> <ul style="list-style-type: none"> <li>• Continued investments in the identified Restructuring Zones (MOGC01; MOGC02; MOGC03; MOGC04)</li> <li>• Densification in Strategic Locations (Around the Krugersdorp CBD – Related to Restructuring Zones Adjacent to the Beyers Naudé Drive Activity Spine. In the south-eastern quadrant of the intersection of R512 with the N14, up to the proposed PWV3 extension. This area connects with high density proposals made in the adjacent City of Johannesburg as well as the Lanseria Aerotropolis Restructuring Zones)</li> <li>• Interventions for informal settlements in the Mining Belt</li> <li>• Development of strategically located properties within the municipality into a typology of housing options which include government housing subsidy program, breaking new ground (BNG), FLSP/Bonded houses, Community rental, Military Veterans &amp; Social housing. The proposed projects are phased in various locations in the municipal area as indicated in the Table 27 below</li> <li>• RDP Housing to address Rural Residential Developments, Informal Settlements, Settlements in Dolomitic Areas</li> <li>• Identification &amp; Acquisition of Strategically Located Land</li> <li>• Consolidation of Settlements in Existing Nodes</li> <li>• Addressing the Pressure in the Eastern Part of MCLM</li> </ul>					

## 11.2. Precinct Plans and other Plans Needed

Table 31 below summarises future spatial projects as part of the implementation of the SDF.

**Table 31: Future projects for MCLM**

PROJECT	DESCRIPTION
<b>REVIEW OF EXISTING PRECINCT PLANS</b>	
Review/Updating of Muldersdrift 2011 Precinct Plan	<p>The review/updating of the Muldersdrift 2011 Precinct Plan would among other things focus on;</p> <ul style="list-style-type: none"> <li>• Align the Precinct Plan with the N14 corridor study &amp; in particular, take into account the nature of development along Pine Haven Node at the intersection of R28, N14 &amp; Hendrik Potgieter Road &amp; the Drift Node along the R28 in the central part of the Muldersdrift area;</li> <li>• Address densities associated with nodes and arterials (corridors);</li> <li>• Inclusion of the whole spectrum of tourism opportunities available from the Cradle-WHS</li> <li>• Take into account the realignment of PWV 9 and the resulting impacts</li> <li>• Incorporate into the precinct plan the change of boundaries and housing initiatives with a linkage / inclusion of the Zandspruit settlement and Cosmo City</li> <li>• Identification of environmental sensitivities in different sub-zones of the Precinct and the limits to development imposed by various environmental management instruments.</li> <li>• Assess the impact of the complete development of the Lanseria node</li> <li>• Development of an integrated social facility network in support of residential densities</li> </ul>

PROJECT	DESCRIPTION
	<ul style="list-style-type: none"> <li>• Detailed plans for Transit Oriented Development supported by public transport networks</li> <li>• Assess the potential linkages with urban development in Johannesburg</li> </ul>
<b>Review/Updating of 2011 Precinct Plan for Magaliesburg</b>	<p>The review/updating of the Magaliesburg 2011 Precinct Plan would among other things focus on;</p> <ul style="list-style-type: none"> <li>• Unpack housing development and incorporate a mix of typologies with the spatial logic of Magaliesburg</li> <li>• Complete approach on job creation linked to the local economy and community initiatives linked to a business support system</li> <li>• Innovative traffic management and movement through town</li> <li>• Address the limitations associated with K route status of roads</li> <li>• Provide linkages with the Gauteng PSDF and the SDF, highlighting it as a tourism town – develop mechanisms to retain its unique identity and ambience</li> <li>• Address mining issues in the precinct</li> </ul>
<b>Review/Updating of 2011 Precinct Plan for Hekpoort</b>	<p>The review/updating of the Hekpoort 2011 Precinct Plan would among other things focus on;</p> <ul style="list-style-type: none"> <li>• Road network linked to the K routes and the de-proclamation of certain sections;</li> <li>• Provide guidelines for the development of a proper node with associated supportive nodes;</li> <li>• Incorporate a strategy to address housing in terms of typologies and densities relevant to economy of the area (tourism and agricultural value chains)</li> <li>• Address the principle of social inclusion</li> </ul>
<b>Review/Updating of Precinct Plan for Tarlton</b>	<p>The review/updating of the Tarlton 2011 Precinct Plan would among other things focus on</p> <ul style="list-style-type: none"> <li>• Spatial targeting of the location and functionality of an agri hub linked to specific agricultural value chains</li> <li>• N14 corridor and intersection as a spatial catalyst and enabler</li> <li>• Specific land use management guidelines allowing specific mix / combination of land uses linking to agriculture, housing, business and social amenities</li> <li>• Integrated transport solution for the node – modal split of vehicles, pedestrians, public transport and traffic calming</li> </ul>
<b>Review and formalisation of the 2014 Precinct Plan for the Cradle of Humankind as Broader Framework Plan</b>	<p>Currently, the 2014 Cradle Precinct Plan has no official status as it has not been approved. The plan needs to be reviewed and formalised and given the vast area it covers, should be drawn as a spatial framework plan with the following issues taken into account:</p> <ul style="list-style-type: none"> <li>• Detailed approach to marry environmental / mitigation with development focussed in specific nodes that will support current development needs</li> <li>• Provision of social amenities for people staying within the cradle</li> </ul>
<b>NEW PRECINCT PLANS</b>	
<b>A Framework Plan to Provide Strategic Direction to the Development of the Magalies/ Hekpoort Area</b>	<p>The area nested between the mountain ridges of Magalies and Hekpoort, along the R24/R563/R96. It is important to guide the opportunities for Tourism, Agricultural and Institutional Establishments such as hotels and schools. A framework plan is needed to address the comprehensive land use and future demand for engineering services, transport, employment and skills development. The revised Precinct plans of Hekpoort, Zeekoehoe and Magaliesburg would be articulated within this spatial framework plan</p> <p>The framework plan needs to address the following</p> <ul style="list-style-type: none"> <li>• Complete land use and future planning concept linked to engineering services, transport, employment, skills development</li> <li>• Land use management – To harmonise agricultural, tourism and institutional land-uses</li> <li>• Joint use / development of municipal infrastructure - sewer treatment at Bekker Schools</li> <li>• Application for exclusion of certain areas from Act 70/70</li> </ul>
<b>Develop a Precinct Plan for Zeekoehoe area</b>	<ul style="list-style-type: none"> <li>• Zeekoehoe area has a unique blend of institutional – schools, high quality hotels &amp; accommodation facilities. The fact that the school has a water purification &amp; sewer plant may provide an opportunity for developing this area into a node. A Precinct Plan is needed to guide future development.</li> </ul>
<b>Local Spatial Development Framework &amp; precinct plans for the Mining Belt within MCLM</b>	<p>The Gauteng Planning Division (GPD) has embarked on a process to initiate a Regional Spatial Development Policy (RSDP) for the mining belt area, as part of the implementation core action of the GSDF 2030. The purpose of the Mining Belt Regional Spatial Policy is to set a common spatial rationale for the area as a platform for coordination, integration &amp; guidance of business plans for planned &amp; ongoing national, provincial, municipal &amp; private sector interventions directed towards the project area</p>



PROJECT	DESCRIPTION
	<p>Part of this process has resulted in the development of the Mining Belt Delineation Study (Planning Division, Gauteng Office of the Premier, January 2019), in which Mogale Mining Belt has been delineated as one of the six mining belt sub-regions. Mogale City needs to link up with this initiative which can help in carrying out a detailed investigation into the long-term rehabilitation &amp; development potential of the mining land between Krugersdorp &amp; Kagiso. Based on the findings of this study, a local spatial development framework must be drafted for the area</p>
<p><b>OTHER STUDIES &amp; PLANS NEEDED</b></p>	
<p><b>A Study on Long-Term Demand for Informal Housing Upgrading</b></p>	<p>The ability to develop a robust response is dependent on the availability of, &amp; access to, reliable &amp; recent information. This is because the informal settlement context is dynamic, &amp; changes over time in response to growth trends, employment opportunities (mines, farms), demographics, &amp; access to other urban opportunities. Development proposals for upgrading or formalisation of informal settlements are almost always required to be supported by Government Subsidies</p> <p>To generate interventions/ proposals which take it account the needs of the residents of a particular area, a detailed understanding of the communities residing in these settlements is necessary. It is therefore proposed that a municipal wide socio-economic study be undertaken to determine the housing need across the municipality. This will assist in determining the spatial distribution of the housing need &amp; inform the specific subsidy &amp; tenure options which will facilitate meeting the demand. This will then enable the linking of the housing demand to specific housing delivery mechanisms</p>
<p><b>An Urban Open Space Framework compiled for the Mogale City Urban Areas.</b></p>	<p>MCLM needs to develop a comprehensive framework for its urban open space system. This will help in the development of a well-planned open space network that is linked to the pristine environmental qualities of MCLM. Furthermore, given the undulating terrain of MCLM, urban open space systems provide for flood attenuation, storm-water management &amp; urban agriculture opportunities. MCLM should develop the urban open space system within the ambit of an Urban Open Space Framework as suggested in the Urban Development Framework. The focus of the study should be on:</p> <ul style="list-style-type: none"> <li>• Krugersdorp CBD</li> <li>• The priority densification zones &amp; along identified corridors</li> <li>• In Precincts, Major Activity Nodes and Townships</li> </ul>

## 12. INSTITUTIONAL ARRANGEMENTS FOR IMPLEMENTATION

Implementation of SDF takes place at two key levels.

- Firstly, **state and private sector developments are overseen by the MCLM through its development approval process**. The intent of the Spatial Development Framework is realised through the application of policy and legal guidelines, requirements and mechanisms to direct development towards achieving its overall goals and outcomes.
- Secondly, **the implementation of the SDF relies on capital investment**. These investments guide growth directions and ambitions for future development. Through guiding public investment in bulk infrastructure and services the SDF will in turn incentivise private investments and development in the Municipality. Public sector investment in infrastructure and services represents the most significant portion of capital investment in the city and the direction the spatial framework provides for the capital investment programme are essential for successful implementation.

In terms of Section 26 of the Municipal Systems Act the Spatial Development Framework of a municipality is one of nine legal components of the Integrated Development Plan (IDP) of that municipality. As such the SDF thus becomes part of the statutory processes associated with the IDP, and which includes, amongst others, the processes related to Inter Governmental Relations (IGR), Community Consultation and Participation, and the Budgeting Process of the Local Municipality.

In view of the above it is proposed that this SDF be incorporated into the Local IDP process during the 2019/2020 IDP Review Process. Within the IDP, the MCLM-SDF should then serve as the backdrop against which all development needs, and projects and initiatives should be measured and assessed. All projects and programmes to be implemented by the various spheres of government, parastatal organisations, and/or the private sector should firstly be evaluated in order to ensure that these are in support of the principles of the SDF, and that these will contribute towards the achievement of the spatial vision for the MCLM, before being included into the review of the IDP.

There is need to have a coordinated approach to capital investments by various sectors and investments from the private sector. To this end it is proposed that MCLM develops a strategic development investment platform which will provide a coherent institutional structure to facilitate partnerships, alignment of sector departmental budgets and community-based initiatives. Such platform must contain:

- A consolidated database of all infrastructure project requirements across the MCLM.
- A prioritisation model underpinned by strategic spatial directives, asset management requirements and the growth and development strategies of the municipality.

- A 3-year Medium Term Expenditure Framework (MTEF) linked to financial sources and budget allocations for prioritised projects over multiple years, and
- Project implementation tracking and reporting system.

## 13. MONITORING AND EVALUATION

The White Paper on Local Government (1998), states that “integrated development planning, budgeting, and performance management are powerful tools which can assist municipalities to develop an integrated perspective on the development in their area. It will enable them to focus on priorities within an increasingly complex and diverse set of demands. It will enable them to direct resource allocation and institutional systems to a new set of development objectives”. Furthermore, the Municipal Finance Management Act of 2003 (MFMA) obligates a municipality to complete and adopt the Service Delivery and Budget Implementation Plan (SDBIP). The SDBIP links the IDP with the municipal budget and is based on specific targets and performance indicators derived from the IDP/ Built Environment Performance Plan (BEPP). Section 67 of the MSA also highlights the monitoring, measuring and evaluation of performance by the municipalities. For Mogale City, the monitoring and evaluation of the impact of the SDF is an on-going process that is inclusive, interactive and involves consultation with various stakeholders (internal and external).

Since the IDP process is subject to a cyclical review on an annual basis, it is appropriate that, as part of the annual IDP Review Process, an assessment/ audit should be done each year to determine to what degree the goals and objectives of the SDF have been achieved during the preceding year. As the IDP Review process involve all development partners in the municipal area, it will also be possible to grant each partner an opportunity during the SDF assessment process to report on progress made in implementing their respective spatial initiatives, and for the various stakeholders to illustrate how their initiatives support the realisation of the spatial vision as contained in the WRDM SDF.