ANNEXURE B1:
ENVIRONMENTAL MANAGEMENT

B1.1: GEMF Guidelines
B1.2: CoE Bioregional Plan Guidelines
B1.3: Open Space Development Guidelines
B1.4: Agricultural Land Guidelines
B1.5: Mining Land Development Guidelines
B1.6: CoE Green City Action Plan
B1.7: Smart City Concept
B1.8: Renewable Energy Guidelines

COE MSDF ANNEXURE B CONTENT

DIAGRAM 14.2

B1: Environmental Management

B1.1: GEMF Guidelines
B1.1.1: Environmental Management Zones: Intention and Conditions
B1.1.2: Environmental Management Zones: Compatible/Incompatible Uses
B1.1.3: General Guidelines for Environmental Management Zones
B1.2: CoE Bioregional Plan Guidelines: CELUS
B1.3: Open Space Development Guidelines
B1.4: Agricultural Land Guidelines
B1.4.1: Agricultural Land Preservation Guidelines
B1.4.2: Status of Agricultural Land Parcels around UDB in relation to SALA
B1.5: Mining Land Development Guidelines
B1.6: CoE Green City Action Plan
B1.7: Smart City Concept
B1.8: Renewable Energy Guidelines

B2: Spatial Targeting and Transformation

B2.1: CoE Nodal Hierarchy
B2.2: CoE MSDF: CELUS Linkage Table (Comprehensive)
B2.3: Compatibility Guidelines
B2.4: Evaluating Proposals for Rooms to Let
B2.5: CoE Urban Development Boundary Policy
B2.6: Growth Management Tools (Prioritized)
B2.7: Urban Management Guidelines
B2.8: CoE Capital Prioritization Model and Weighting Matrix
B2.9: Catalytic Land Development Programme

B3: Transportation

B3.1: Class 3 Road Access Management Guidelines
B3.2: Transit Oriented Development Guidelines
B3.3: Typical Activity Spine/Street Cross Section

B4: Economic Development

B4.1: Township Economy Job Opportunities
B4.2: Township Regeneration Node Concept
B4.3: Township Economic Upscaling
B4.3.1: Business/Service Industry Upscaling Concept
B4.3.2-5: Upscaling Examples
B4.4: CoE Shopping Center Hierarchy
B4.4.1: Shopping Center Distribution in CoE (Map)
B4.4.2: Shopping Center Floor Area
B4.4.3: CoE Retail Facility Core Classification and Hierarchy
B4.4.4: CoE Focus/Niche Classification
B4.5: Subsistence Agriculture and Precision Farming
B4.5.1: Subsistence Agriculture Value Chain Diagram
B4.5.2-3: Precision Farming Examples
B4.6: Incremental Floor Space and Workers (Job Opportunities)
B4.6.1: Incremental Workers/Floor Space Residential Related
B4.6.2: Incremental Workers/Floor Space Industrial Related

B5: Sustainable Human Settlement

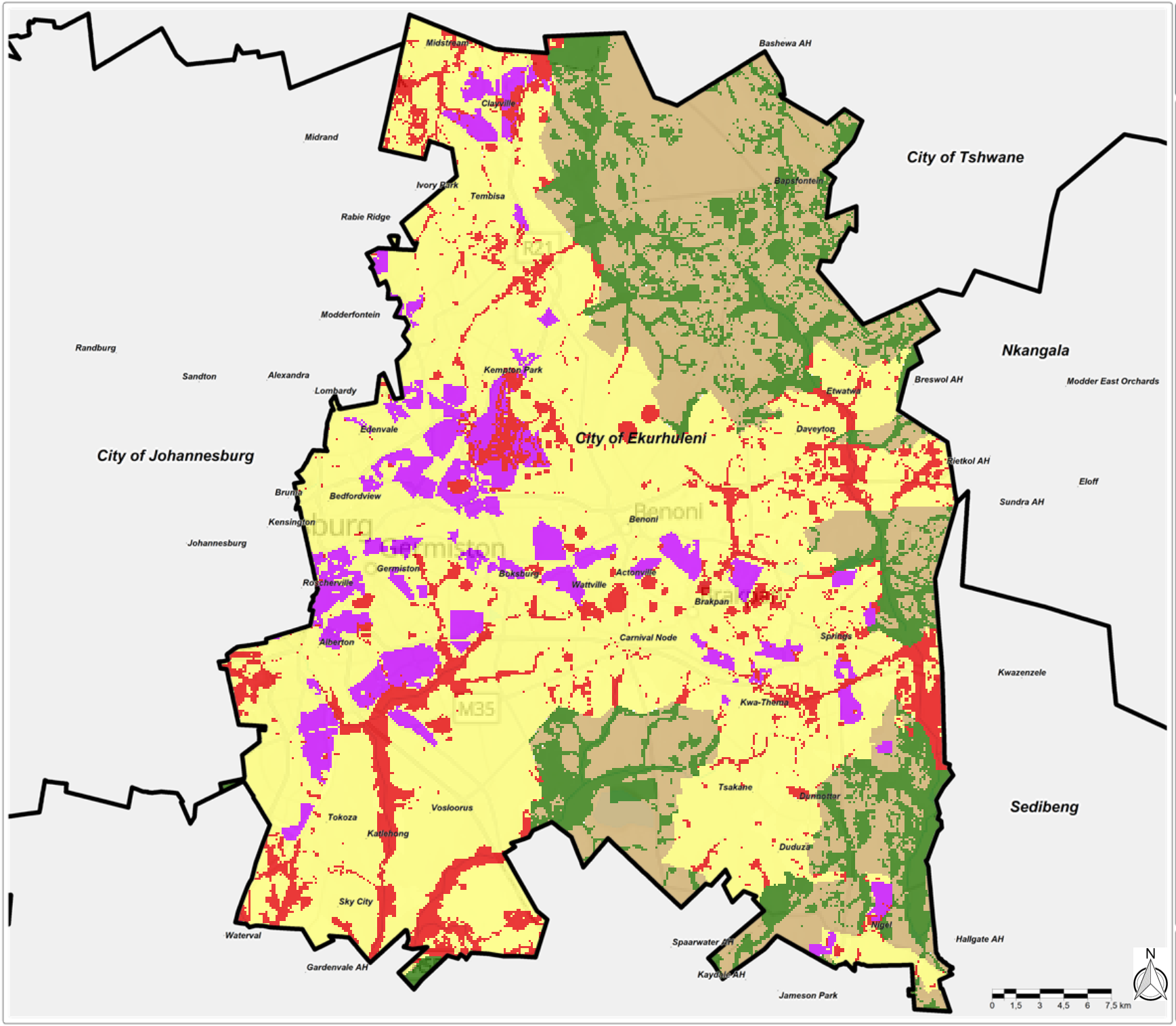
B5.1: Residential Typologies and Densities
B5.1.1: Residential Density Diagram
B5.1.2-3: Residential Typologies (Examples)
B5.2: Multi-Purpose Government Precinct/Thusong Center
B5.2.1: Government Precinct Concept
B5.2.2-3: Thusong Center Example
B5.3: Incremental Residential Capacity (2040)
B5.3.1: Incremental Units/Population per Functional Area
B5.3.2: Incremental Retail/Office Floor Space per Functional Area
B5.3.3: Future Residential Functional Clusters Map
B5.3.4: Total Units and Population per Functional Area Cluster
B5.3.5: Phasing of Development per Functional Area
B5.4: Informal Settlement
B5.4.1: Transitional Informal Settlements (In-Situ Upgrading)
B5.4.2: Informal Settlement Relocation Strategy
B5.5: Community Facilities
B5.5.1: Incremental Lower Order Community Facilities (2040)
B5.5.2: Incremental Higher Order Community Facilities (2040)
B5.5.3: Total Incremental Community Facilities (2040)
B5.5.4: CSIR Norms and Standards for Community Facilities
B5.5.5 Community Facility Location Guidelines
B5.5.6 Guidelines for Cemetery Planning
B5.6: CoE Urban Design Guidelines

B6: Engineering Services

B6.1: Water and Sanitation Master Plan Projects
B6.2: GMS Assessment of CoE IIMP (2019)

B7: Annual Capital Expenditure Framework

CITY OF EKURHULENI MSDF 2023



GPEMF 2021

LEGEND

- District Municipal Boundaries

GPEMF 2021

- Zone 1: Urban Control Zone
- Zone 2: High Control Zone (Inside Urban Boundary)
- Zone 3: High Control Zone (Outside Urban Boundary)
- Zone 4: Normal Control Zone (Outside Urban Boundary)
- Zone 5: Industrial and Large Commercial Focus Zone (Inside Urban Boundary)

Source: GPEMF 2021

City of Ekurhuleni

B.1.1

ANNEXURE B1.1: GEMF GUIDELINES

ANNEXURE B1.1.1: GAUTENG ENVIRONMENTAL MANAGEMENT ZONES: INTENTION AND CONDITIONS

Zone 1: Urban Development Zone

Intention:

The intention with Zone 1 is to streamline urban development activities in it and to promote development infill, densification and concentration of urban development within the urban development zones as defined in the Gauteng Spatial Development Framework (GSDF), in order to establish a more effective and efficient city region that will minimise urban sprawl into rural areas. Certain currently listed activities (see section 5) may be exempted from environmental assessment requirements at the discretion of the competent authority.

Conditions:

- Development in this area must be sustainable in respect to the capacity of the environment and specifically the hydrological system to absorb additional sewage and stormwater loads as a result of increased densities;
- Existing open spaces and urban parks should be retained as open space to cater for the open space needs of the foreseen increased densities; and
- Stormwater drainage must be in accordance with the Water Research Commission Report, 2012 and the South African Guidelines for Sustainable Drainage Systems.

Zone 2: High Control Zone (within the Urban Development Zone)

Intention:

Sensitive areas within the urban development zone must be conserved and where linear development (roads etc.) cannot avoid these areas, a proper assessment and implementation of alternatives must be undertaken.

Zone 3: High Control Zone (outside the Urban Development Zone)

Intention:

Special control zones are sensitive areas outside the urban development zone. These areas are sensitive to development activities and in several cases also have specific values that need to be protected.

Conditions:

- No listed activities may be excluded from environmental assessment requirements in this zone and further activities may be added where necessary to protect the environment in this zone.

ANNEXURE B1.1: GEMF GUIDELINES

ANNEXURE B1.1.1: GAUTENG ENVIRONMENTAL MANAGEMENT ZONES: INTENTION AND CONDITIONS

- Additional requirements (guidelines, precinct plans, etc.) to ensure the proper development of identified areas in this zone, in a manner that will enhance their potential for conservation, tourism and recreation may be introduced.

Zone 4: Normal Control Zone (Outside the Urban Development Boundary)

Intention:

This zone is dominated by agricultural uses outside the urban development zone as defined in the Gauteng Spatial Development Framework. No listed activities may be excluded from environmental assessment requirements in this zone.

Zone 5: Industrial and Large Commercial Focus Zone

Intension:

The intention with Zone 5 is to streamline non-polluting industrial and large-scale commercial (warehouses etc.) activities in areas that are already used for such purposes and areas that are severely degraded but in close proximity to required infrastructure (such as old and even current mining areas). Certain currently listed activities (see section 5), in addition to those intended for Zone 1 may be excluded from environmental assessment requirements in this zone in future.

Conditions:

- Development in this area must be sustainable in respect to the capacity of the environment and specifically the hydrological system to absorb additional sewage and stormwater loads of increased densities; and
- Development in this area must identify any unmapped wetlands, especially seep areas that may occur on any site and when necessary, apply for the required water use licence.
- Non-polluting Industrial promotion areas where selected activities are to be excluded from EIA processes in addition to those excluded in Zone 1.

Protected Areas

Each protected area is required to have a management plan in terms of NEMA: Protected Areas Act. Compatible, conditionally compatible and undesirable development and land-uses in protected areas must therefore be determined in each of the management plans.

ANNEXURE B1.1.2: GAUTENG ENVIRONMENTAL MANAGEMENT ZONES: COMPATIBLE/INCOMPATIBLE USES

ANNEXURE B1.1.2: Development or land-uses that would be compatible, conditionally compatible and undesirable in the Environmental Management Zones

The purpose of this section is to indicate whether proposed developments or land uses are compatible, conditionally compatible or undesirable in the various EMZs. It must serve as a guide for decision-makers in the evaluation of applications and as a guide to developers of what could reasonably be the expected outcome of applications.

Table B1.1.2: Developments or land uses that would be compatible, conditionally compatible and undesirable in the Environmental Management zones

Category of developments or land uses	Developments or land uses[10 i]	Compatible with the developments or land uses	Zones that are: Compatible with the developments or land uses / Conditionally compatible with the developments or land uses	Undesirable for the developments and land uses
Agriculture & Fisheries	Crop production (excluding existing crop production).	4	3	1, 2 and 5
	Cultivation of virgin soil.	4	1 and 5	2 and 3
	Animal production (free range).	3 and 4	2	1 and 5
	Agricultural infrastructure.	4	3	
	Battery farming (poultry, feedlots, etc.).	4	5	1, 2 and 3
	Aquaculture (off stream).	5	4	1, 2 and 3

Category of developments or land uses	Developments or land uses[10 i]	Compatible with the developments or land uses	Zones that are: Compatible with the developments or land uses Conditionally compatible with the developments or land uses	Undesirable for the developments and land uses
	Urban agriculture.	1 and 5	4	2 and 3
Forestry	Production forestry.	4	5	1, 2 and 3
	Subsistence forest use (small scale forest use).	4	1 and 5	2 and 3
	Agroforestry.	4	5	1, 2 and 3
	Forestry research & education.	4	1 and 5	2 and 3
	Forest resource use (natural indigenous).		1, 4 and 5	2 and 3
	Forest recreation & tourism.	3 and 4	1 and 2	5
	Forest cultural / spiritual use.	1, 2, 3 and 4		
Conservation	Protected areas.	2 and 3	4	1 and 5
	Conservation areas.	2 and 3	4	1 and 5
	Cultural and historical conservation of sites, features and precincts.	1, 2, 3, 4 and 5		
Residential	Accommodation establishments / temporary or transient formal residential.	1	5	2, 3 and 4
	Multiple residential.	1	5	2, 3 and 4
	Single residential.	1	5	2, 3 and 4
	Transitional residential settlement area.	1	5	2, 3 and 4
	Dispersed residential.	1	5	2, 3 and 4
	Farm worker accommodation.	3 and 4	5	1 and 2
	Living accommodation for domestic workers.	1	5	2, 3 and 4
	Holiday housing.	1 and 4	3	2 and 5

Category of developments or land uses	Developments or land uses[10 i]	Compatible with the developments or land uses	Zones that are: Compatible with the developments or land uses Conditionally compatible with the developments or land uses	Undesirable for the developments and land uses
	Rural residential development nodes (not dispersed residential).		4	1, 2 3 and 5
	Life style estates[11.ii]		1 and 5	2, 3 and 4
Infrastructure and Transport	Roads.	1, 4 and 5	2 and 3	
	Water network.	1, 4 and 5	2 and 3	
	Railways.	1, 4 and 5	2	3
	Sanitation network.	1, 4 and 5	2 and 3	
	Electricity network.	1, 4 and 5	2 and 3	
	Solid waste.	5	1 and 4	2 and 3
	Telecommunication.	1, 4 and 5	2 and 3	
	Transport.	1, 4 and 5	2 and 3	
Sport and Recreation	Place of refreshment.	1 and 5		
	Place of amusement / entertainment.			
	Holiday resorts, camps, loges and cottage hospitality.	4	1 and 3	2 and 5
	Hospitality industry.	1 and 4	3 and 5	2
	Sports.	1 and 5	4	
	Urban open space.	1, 2 and 5		3 and 4
Industrial and Storage	Domestic service industry.	5	1	2, 3 and 4
	Light industry / service industry.	5	1	2, 3 and 4
	Noxious industry.		5	1, 2, 3 and 4
	Vehicle service-related industry.	5		1, 2, 3 and 4
	Warehousing /distribution and storage.	5		1, 2, 3 and 4
	Agricultural industry.	5	4	1, 2 and 3
Mining and Quarrying	Reconnaissance.		4 and 5	1, 2 and 3
	Active mining.	5	4	1, 2 and 3
	Ore extraction & beneficiation.		4 and 5	1, 2 and 3
	Disposal.		4 and 5	1, 2 and 3

Category of developments or land uses	Developments or land uses[10 i]	Compatible with the developments or land uses	Zones that are: Compatible with the developments or land uses Conditionally compatible with the developments or land uses	Undesirable for the developments and land uses
Community Facilities	Medical and health care services.	`	4	2, 3 and 5
	Cemetery / crematoria.	5	1 and 4	2 and 3
	Childcare centre / facility.	1	4 and 5	2 and 3
	Institution.	1 and 5	4	2 and 3
	Place of assembly.	1 and 5	4	2 and 3
	Place of public worship.	1	4 and 5	2 and 3
	Educational / place of education / place of instruction.	1	4	2, 3 and 5
	Protection services.	1 and 5	3 and 4	2
	Post Offices.	1 and 5	3 and 4	2
	Law Courts.	1 and 5	4	2 and 3
Business	Offices.	1 and 5	4	2 and 3
	Financial Services.	1 and 5	4	2 and 3
	Personal services.	1 and 5	4	2 and 3
	Retail.	1 and 5	4	2 and 3
	Motor vehicle business.	1 and 5		2, 3 and 4

ANNEXURE B1.1.3: GENERAL GUIDELINES FOR ENVIRONMENTAL MANAGEMENT ZONES

The general guidelines in Table B2 are a direct response to key issues identified in the process as well as inputs received from stakeholders that participated. The guidelines should be implemented through the EIA process in the various EMZs. Where activities are excluded from the requirement of the relevant EIA process, it will serve as conditions of such exclusions.

Table B1.1.3: General guidelines for the Environmental Management Zones

Ref.	Guideline Description	Applicable Zones
	Water Utilisation	
1.	Water utilisation from the surface natural hydrological system in this zone should be kept to an absolute minimum. Preservation of the water systems in its most natural state possible is desired as rivers and streams form the most important links with natural areas in other zones. No additional damming of rivers and streams should be allowed in this zone.	1, 2, 3, 4 and 5
2.	Water abstraction from karst aquifers (aquifers occurring in dolomite) in this zone should be prohibited except in places where it forms part of the management of Acid Mine Drainage (AMD) as authorised by the Department of Water and Sanitation (DWS).	1, 2 and 5
	Water Quality and Stormwater Management	
3.	The water quality of all rivers in this zone is unacceptable and should not be allowed to deteriorate any further due to any kind of development. Legislation to protect water quality and prevent pollution should be strictly enforced and policed.	1, 2, 3, 4 and 5
4.	The management of stormwater to prevent flooding must be done in accordance with the requirements of the relevant municipal engineer, and in accordance with DWS requirements, which must ensure that additional runoff water is stored and released at a rate that will not impact negatively (not be more than before the development activity) on the natural flow capacity of rivers and streams. Caution must be exercised in dolomitic areas where stormwater retention methods and structures should be approved by the South African Council for Geosciences. Special caution must also be	1, 4 and 5

Ref.	Guideline Description	Applicable Zones
	exercised in instances where additional runoff is released on granitic soils, especially in the presence of shallow perched water tables underlain by a hard plintic (hard ferrous or "ouklip") layer.	
5.	Stormwater retention facilities should ideally incorporate an additional 15% to 20% capacity to cater for potential higher runoff events that are likely to occur as a result of climate change.	1 and 5
6.	The use of impermeable surface in new developments should be kept to the minimum and SuDS[12iii] components should be included to the extent possible.	1 and 5
7.	Stormwater management must be based on the following principles: • The need to protect the health, welfare and safety of the public, and to protect property from flood hazards by safely routing and discharging stormwater from developments; • the quest to improve the quality of life of affected communities; • the opportunity to conserve water and make it available to the public for beneficial uses; • the responsibility to preserve the natural environment; • the need to strive for a sustainable environment while pursuing economic development; and • the desire to provide the optimum methods of controlling runoff in such a way that the main beneficiaries pay in accordance with their potential benefits. The following guidelines must be applied to all development activities in this zone in a manner that will satisfy these principles: • Water Research Commission Report, 2012. *The South African Guidelines for Sustainable Drainage Systems.* • CSIR, 2000. *Guidelines for Human Settlement Planning and Design, Volume 2, Chapter 6: Stormwater Management.*	1 and 5
8.	Stormwater and sewage drainage must remain separate at all times.	1 and 5
	Wastewater Treatment and Disposal	
9.	No new development of whatever kind should be allowed in this zone unless there is adequate existing capacity for waste water transport (maintained pipes, pumps, etc.) and treatment to the required standard. ***In the light of the current state of affairs***	1, 2 and 5

Ref.	Guideline Description	Applicable Zones
	where many waste water treatment plants are not up to standard[13iv], this crucial requirement may become a major obstacle to development unless it is urgently addressed by the responsible authorities. Municipal SDFs **must** incorporate water catchment management plans that cater for anticipated future increased runoff and sewage.	
10.	No untreated sewage may be disposed of into natural rivers and streams or stormwater systems.	1, 2, 3, 4 and 5
11.	New septic tanks, soak-aways and conservation tanks must be constructed to the specification in Appendix [to be numbered] or to any other specification required by DWS or the relevant municipality for the specific area and conditions.	3 and 4
12.	Where possible, new waste water treatment plants should be located in this zone.	5
13.	The upgrade, modernisation or expansion of existing waste water treatment plants is preferred to new waste water treatment plants in this zone.	1, 2, 3, 4 and 5
	Solid Waste Management and Disposal	
14.	New development activities must comply with legislation[14v] that governs waste management in all instances.	1, 2 and 5
15.	The General Waste Minimisation Plan for Gauteng, 2009, must be consulted in respect to the implementation of the identified waste minimisation options.	1, 2 and 5
16.	For all new development activities the following recyclable materials must be separated from general waste and be recycled[15vi]: • Paper, including: K4 (cardboard), flat news (newspaper), Kraft paper (brown paper), HL-1 (Photostat and printing paper) and Tetra Pak (juice and milk cartons); • Plastic, including: PET (cold drink and mineral water bottles), HDPE (milk bottles), PVC (water pipes), LDPE (clear and coloured plastic bags, shrink wrap), PP (ice cream and yogurt tubs, cold drink bottle caps), PS (polystyrene packaging and food containers); • Metal (ferrous and non-ferrous cans); and • Glass (bottles – no toughened glass).	1, 2 and 5

Ref.	Guideline Description	Applicable Zones
17.	Garden and vegetative food waste should be composted and re-used in gardens whenever possible. Care must be taken that it is not contaminated by pet faeces, which should be removed daily and be disposed of in the sewage system.	1
18.	General (non-recyclable) solid waste generated must be removed by the relevant local authority or service provider to an appropriate class landfill site.	1, 2 and 5
19.	New landfill sites should as far as possible be located in this zone.	5
	Housing / Residential	
20.	All new housing developments must comply with the energy efficiency requirements of the National Building Regulations through the application of South African National Standard$_{16}$ [vii]SANS 10400 Part XA: Energy usage in buildings (See Appendix: Guidance on how to comply with Regulation XA).	1
21.	Green roofs and other source control methods should be incorporated into existing and new developments.	1
22.	Water recycling and the use of grey water should be included in design.	1
23.	The use of coal products for cooking and space heating must be prohibited in all new development activities.	1
24.	Solar energy, especially for the heating of water but also space heating, should be maximised in all buildings.	1
25.	Solar energy for the purpose of lighting must also be promoted together with the use of LED globes and other energy saving innovations.	1
26.	LP Gas or natural gas should be considered as an alternative energy source to electricity for cooking, space heating and water heating (often very effective if combined with solar water heating).	1
27.	The Department of Public Works Guideline, Appropriate Development of Infrastructure on Dolomite: Guideline for Consultants, 2003, as well as the requirements of the Council for Geoscience as reflected in the South African National Standards (SANS)[17viii], must also be taken into account and be adhered to when development is envisaged on dolomites[18ix].	1

Ref.	Guideline Description	Applicable Zones
28.	Residential development in this zone should focus (there should be a bias/preference) on medium-density mixed housing in order to attain the desired higher density for the zone[19x]. Residential development should also be planned to make maximum use of public transport (existing and future).	1
29.	Retail development should be planned to be efficient in terms of location in respect to customers (residential and places of work).	1
30.	Low density residential development, including new natural urban open space, in this zone should be located on land that is not suitable for medium to high density residential purposes due to geological constraints.	1
31.	Gardens and parks should be regarded as an important part of the "green infrastructure" of Gauteng[20 xi]and should be incorporated in the planning of all new development in this zone. It should also be designed to assist with SuDS goals. Food gardens should also be incorporated in design where possible and appropriate.	
32.	Existing indigenous trees should not be removed in new developments and the developments should be designed around such trees.	1
33.	At least 5% of development budgets should be allocated to gardens and parks for all new development activities in this zone and be designed to maximise their green infrastructure value21[xii].	1
34.	High energy and maintenance facilities such as swimming pools should preferably be incorporated into communal facilities instead of private facilities.	1
35.	"Water-wise" gardens and parks are preferred in this zone.	1
36.	The use of vegetation that is endemic (local indigenous vegetation) to the area in gardens and parks is encouraged in order to contribute to the value of the wider Gauteng eco-system.	1
	Business and Retail	
37.	All new business and retail developments must comply with the energy efficiency requirements of the National Building Regulations (SANS 10400-1990[22xiii]) and in particular SANS 10400 Part X: Environmental sustainability and SANS 10400 Part XA: Energy usage in buildings.	1 and 5

Ref.	Guideline Description	Applicable Zones
38.	Solar energy, especially for the heating of water but also space heating, should be maximised in all buildings. Solar energy for the purpose of lighting must also be promoted together with the use of LED globes and other energy saving innovations.	1 and 5
39.	The large roof areas of businesses and retail facilities including covered parking lots provide ideal surfaces for mass installation of solar energy panels and should be considered as an option in every new development.	1 and 5
40.	Green roofs and roof gardens should also be prioritised as this would change the urban heat environment and can add to open space and outdoor recreation space.	1 and 5
41.	Rain water tanks and other source control measures must be incorporated into the designs of buildings.	1 and 5
42.	Rain gardens should be incorporated.	1 and 5
43.	Open parking areas should adhere to principles of SuDS and include permeable paving, swales and bio-retention areas.	1 and 5
44.	Water recycling and use of grey water should be included in design.	1 and 5
45.	Existing indigenous trees should not be removed in new developments and the developments should be designed around such trees.	1 and 5
	Urban Open Space	

46.	The design and development of new urban open space should contribute to the following at every scale:
	• Ecosystem services that include:
	  ○ Climatic amelioration/regulation;
	  ○ Water and air purification;
	  ○ Water supply regulation;
	  ○ Erosion and sediment control;
	  ○ Hazard mitigation;
	  ○ Waste treatment;
	  ○ Noise screening;
	  ○ Stormwater management;
	  ○ Prevent habitat fragmentation; and
	  ○ Provision of habitats for indigenous plants and animals.
		1 and 5

Ref.	Guideline Description	Applicable Zones

	• Social functions that include:
	  ○ Provision of space for leisure and recreation;
	  ○ Facilitating social contact and communication;
	  ○ Allowing access to nature;
	  ○ Providing space for, and allowing access to community (food) gardens;
	  ○ Reduction of social inequality,
	  ○ Promoting access to public open space, and
	  ○ Influencing human health and well-being.
	• Structural and symbolic functions including:
	  ○ Articulating, dividing and linking areas of the urban fabric;
	  ○ Improving the legibility of the urban landscape;
	  ○ Establish as sense of place; and
	  ○ o Provide identity, meaning and values.	

	Industry and Commercial	
47.	Non-polluting industry and large commercial activities should be located in this zone whenever possible.	5
48.	New industrial and commercial developments should only be allowed in this zone if there is no suitable alternative location available in zone 5. Any such location of commercial and industrial developments must take the guidelines applicable to Zone 1 into account.	1
49.	Solar energy, especially for the heating of water but also space heating, should be maximised in all buildings. Solar energy for the purpose of lighting must also be promoted together with the use of LED globes and other energy saving innovations.	1 and 5
50.	The large roof areas of new and existing Industrial and commercial facilities including covered parking lots provide ideal surfaces for mass installation of solar energy panels and should be considered as an option in every new development.	5
51.	Open parking areas should adhere to principles of SuDS and include permeable paving, swales and bio-retention areas.	5
52.	Water recycling and the use of grey water should be included in design.	5
53.	Green infrastructure should be used in these areas for water and air purification and water treatment.	5

Ref.	Guideline Description	Applicable Zones
54.	Green roofs and roof gardens should also be prioritised as this would change the urban heat environment.	5
55.	Rain water tanks and other source control measures must be incorporated into the designs of buildings.	
	Mining	
56.	Existing legal mining operations should be allowed to continue in this zone provided that it meets the relevant legal requirements in terms of emissions, effluent and noise.	1, 2, 3, 4 and 5
57.	New mining development would be preferred in this zone provided that it will meet the relevant legal requirements in terms of emissions, effluent and noise.	5
58.	Green and ecological infrastructure should be used in these areas for water and air purification and water treatment.	5
59.	No new mining development should be allowed in this zone.	1, 2 and 3
60.	All new and existing mining development in this zone must have a rehabilitation and closure plan that will ensure that the mine will be rehabilitated to a condition that is compatible to the preferred land uses of the zone.	1, 2, 3, 4 and 5
	Energy	
61.	The preferred energy sources for new and existing development in this zone are (in order of preference): • Renewable energy (solar, wind and biogas); • Natural gas; • LP gas; and • Electricity from the national grid.	1 and 5
62.	The following energy sources may not be used in new development activities in this zone: • Coal (all types and grades); • Charcoal; • Wood; • Burning of used tyres; • Burning of oil; and	1 and 2

Ref.	Guideline Description	Applicable Zones
	• □ Burning of paraffin.	
63.	LP gas is the preferred fuel for “braais” and barbeques and must be used for new development activities in this zone.	1 and 2
64.	Green roofs and green building design should be used to reduce energy requirements for lighting, heating and cooling.	
	Air Quality (Transportation)	
65.	All new development activities in this zone must encourage “work from home” whenever possible where such work does not impact on the residential nature (e.g. no advertisements or signage) of the area and does not generate noise, additional traffic, effluents, emissions and solid waste that are of an industrial nature.	1 and 5
66.	Development should also encourage people to live and work close to home to reduce travel time, cost and impact.	
67.	All new development activities in this zone must encourage clean transport which is reflected in the provision of transport infrastructure, with preference to (in order of preference): • Pedestrian; • Cycling; • Gautrain; • Metrorail; • Bus rapid transit; • Bus; • Taxi; and • □ Motor vehicles.	1 and 5
	Transportation Infrastructure	
68.	In order to achieve the potential of Gauteng as the regional logistics and distribution centre of Southern Africa, the development of primary and secondary roads as well as railway systems are the highest priority development priorities in this zone and any conflicts in respect to this infrastructure development should be resolved in a fast track process between all the relevant authorities.	1 and 5

Ref.	Guideline Description	Applicable Zones
69.	Parking areas should adhere to the principle of SuDS and include permeable paving, swales and bio-retention areas.	1 and 5
70.	Road networks should use the principles of sustainable streets, using green infrastructure (bio-swales, street trees, permeable paving) where at all possible to reduce the impact of road infrastructure and vehicles on pollution, stormwater, etc.	1 and 5
	Nature Conservation	
71.	Conservation is the primary objective in this zone and no new residential, retail, business, commercial, industrial or any other land use, with the exception of unavoidable linear service infrastructure, may be allowed in this area.	2
72.	Municipal SDFs must establish ecological linkages and corridors with Zone 2: High Control Zone (within the urban development zone) by incorporating municipal Bioregional Plans in the SDFs where such plans exist or by using the Ecological Support Areas (ESAs) as defined in C-Plan 3.3 where there is no municipal Bioregional Plans[23xiv].	1
73.	The protection of Critical Biodiversity Areas and Ecological Support Areas is the primary objective in this zone and no new residential, retail, business, commercial, industrial, mining or any other land use, with the exception of unavoidable linear service infrastructure, may be allowed in this area, with the exception of tourism hospitality facilities that adhere to SuDS and green infrastructure principles where the zone also forms part of a Special Control Zone (e.g. Dinokeng and the Cradle of Humankind Word Heritage Site) which has area specific management plans and objectives.	3
74.	Land used for agriculture in this area forms part of Ecological Support Areas and agriculture should therefore continue on such land as a compatible land use.	3
	Agriculture	
75.	Agriculture is a primary activity in this zone and new development activities that would impact on agriculture potential[24xv] in this zone should not be allowed, with the exception of unavoidable linear service infrastructure that may be allowed in this area.	4

Ref.	Guideline Description	Applicable Zones
76.	New agricultural practices must allow enough land to remain in a natural state to allow for refugia for pollinators and predators of pests (ecosystem services to farmers, especially small scale ones).	4
77.	New agricultural practices should take water wise principles into account, using rain gardens and retention strategies whenever possible.	4
78.	New extensive agriculture should not be encouraged in this zone. Existing farming may continue as long as it remains viable in the urban development context.	1, 2, 3 and 5
79.	Small scale niche market agriculture may be appropriate as part of other development initiatives. The feasibility and desirability of such initiatives should be evaluated as part of the town/development planning process in this zone.	1 and 5
80.	Vegetable gardens and fruit trees within the urban development structure should be encouraged in this zone, especially if it makes extensive use of rainwater runoff.	1
81.	The use of polluting fertilisers and pesticides should be limited and releasing polluted water into the natural system must be prohibited.	4
	Game and Cattle Farming	
82.	Sustainable game and cattle faming may be appropriate in this zone but each new development of such farming activities should be assessed for its sustainability in terms of natural veld conditions.	3 and 4
83.	Game and cattle farming should not be encouraged in this zone. Existing game (with the necessary permits) and cattle farming may continue as long as it remains viable in the urban development context.	1 and 5

[i] Based on the new land use categories currently being developed by the Department of Rural Development and Land Affairs as part of the SPLUMA implementation.
[ii] Life style estates includes any estate that provide exclusive facilities to its residents. It may for example include recreation facilities, sports facilities, education facilities, health and welfare facilities, hospitality facilities, etc.
[iii] The South African Guidelines for Sustainable Drainage Systems (SuDS), 2013 (WRC Report No. TT558/13 of the Water Resource Commission, by University of Cape Town) can be download from:

http://www.wrc.org.za/Pages/DisplayItem.aspx?ItemID=10575&FromURL=%2fPages%2fKH_AdvancedSearch.aspx%3fdt%3d%26ms%3d%26d%3dThe+South+African+Guidelines+for+Sustainable+Drainage+Systems%26start%3d1 (registration might be necessary).

[iv] Department of Water and Sanitation. 2012 and 20123 Green and Blue Drop Reporting documents.

[v] Waste in South Africa is currently governed by means of a number of pieces of legislation, including:
The South African Constitution (Act 108 of 1996);

- Hazardous Substances Act (Act 5 of 1973);
- Health Act (Act 63 of 1977);
- Environment Conservation Act (Act 73 of 1989);
- Occupational Health and Safety Act (Act 85 of 1993);
    - National Water Act (Act 36 of 1998);
    - The National Environmental Management Act (Act 107 of 1998);
    - Municipal Structures Act (Act 117 of 1998);
    - Municipal Systems Act (Act 32 of 2000);
    - Mineral and Petroleum Resources Development Act (Act 28 of 2002);
    - Air Quality Act (Act 39 of 2004); and
    - National Environmental Management: Waste Act, 2008 (Act 59 of 2008).

[vi] There are several service providers that can provide the collection and recycling service. Separation of recyclables is generally also not necessary. The information below has been sourced from the marketing material of some of these service providers i.e. the infrastructure is already in place in Gauteng.

[vii] South African National Standards (SANS) documents must be purchased from the South African Bureau of Standards.

[viii] There are six national standards (SANS), the SANS 1936 series, dealing with the subject of land development on dolomite (October 2012). The objective of the SANS 1936 series is to set requirements for the development of dolomite land in order to ensure that people live and work in an environment that is seen by society to be acceptably safe, where loss of assets is within tolerable limits, and where cost-effective and sustainable land usage is achieved. SANS 633:2012 soil profiling and rotary percussion borehole logging on dolomite land in Southern Africa for engineering purposes was developed for the purpose of soil and rock profiling for dolomite areas. The standard serves to standardise the methods, procedures and nomenclature required to accurately define ground profiles for the purposes of infrastructure development and the repair of subsiding dolomite land. SANS 634:2012 geotechnical investigations for township development identifies the applicable requirements for a preliminary and two-phase detailed geotechnical site investigation on unoccupied undeveloped parcels of land for settlement development purposes. SANS 633 and SANS 634 are complimentary to the SANS 1936 series.

[ix] It is recognised that the cost of geotechnical investigations is very high and that it has a crippling effect on especially low cost housing projects in certain areas with devastating unintended consequences. This is a matter that needs to be dealt with urgently by all the relevant government organisations.

[x] For more insight please read: the June 2011 CSIR factsheet: Focus on medium-density mixed housing – and important component in the transformation of South African housing environments.

[xi] For more insight please read: State of Green Infrastructure in the Gauteng City-Region, 2013. Published by the Gauteng City-Region Observatory, a partnership between the University of Johannesburg, the University of the Witwatersrand and the Gauteng Provincial Government.

[xii] The CSIR "Red Book" Guidelines for Human Settlement Planning and Design Chapter 5.4: Soft Open Spaces, can be consulted for more information.

[xiii] South African National Standards (SANS) documents must be purchased from the South African Bureau of Standards.
[xiv] The establishment of spatial linkages and corridors that form part of the green and ecological infrastructure of the envisaged future urban area can only be achieved in the spatial planning process. It is not feasible to achieve a functional outcome throught the EIA process that focus on individual applications.
[xv] Refer to: Gauteng Agricultural Potential Atlas (GAPA IV), 2014.

ANNEXURE B1.2: COE BIOREGIONAL PLAN GUIDELINES

Table B1.2.1: Matrix of Recommended CoE Zoning Scheme Use Zones permitted per Bioregional Plan Categories

CoE Land Use Definition or Zoning Scheme	Corresponding Activities permissible in the City of Ekurhuleni Land Use Scheme	Bioregional Plan LU Category	CBA 1	ESA 1	ESA 2
Conservation	Land and buildings used for the protection of biological diversity such as, but not limited to, conservancies, protected environments, nature reserves, national parks. For the purposes of the CoE Bioregional Plan, this includes public open spaces zoned as bird sanctuaries and wetland reserves.	Conservation areas	Y	Y	N
Residential 1-4	All residential zoning categories	Urban development built up	N	N	C
Business 1-3	All business zoning categories				
Industrial 1&2	All industrial zoning categories				
Public garage	Petrol and motor dealers/workshops				
Community Facility	Education, social halls, libraries, sports and recreation, places of worshop				
Social Services	Hospitals, clinics, police stations, fire stations, municipal-government offices, old age homes, museums, post offices				
Public Services	Markets, abattoirs, water works, mortuaries, substations, sewage treatment, waste landfill sites				
Parking	Parking bays, garages				
Recreation	Resorts, conference centres, guesthouses, hotels, play parks, social halls, sports and recreational clubs. For purposes of the CoE Bioregional Plan 2020, this activity excludes conservation areas and open parks.				
Transportation	Railway, airports, transport centres, taxi ranks, parking bays/garages				
Infrastructure: powerlines	None	Infrastructure: powerlines	C	Y	Y
Public Services	Linear infrastructure: Water, stormwater and sewage pipelines	Urban development: semi-natural/open space	N	C	Y
	Cemeteries, stormwater retention/attenuation		N	C	Y

CoE Land Use Definition or Zoning Scheme	Corresponding Activities permissible in the City of Ekurhuleni Land Use Scheme	Bioregional Plan LU Category	CBA 1	ESA 1	ESA 2
Roads	Streets, roads	Roads and Transportation	N	C	C
Mining	Land area which is used for operations and activities for the purposes of searching for and extracting any mineral on or in the earth, water or any residual deposit, as defined and regulated in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002). The CoE scheme includes brickmaking into this zone	Mining	N	N	N
Agriculture 1 and 2	Arable, meadow and/or pasture land and buildings used for bona fide farming activities, such as crop or grain farming, grazing, land used for bee-keeping, bird and animal breeding and keeping, livestock farming, dairy farming, game farming, aquaculture, mushroom production, plant nursery gardens, plantations, orchards, market gardens and other ancillary uses and buildings, such as cultivation sheds and store rooms/sheds, farm worker accommodation, equestrian centres	Agriculture: intensive cultivation	N	N	Y
		Subsistence or small-scale agriculture	N	M	M
		Agriculture: grazing	M	Y	Y
Public and private open space	Land set aside or to be set aside for the use by a community as a recreation area. For the purposes of the CoE Bioregional Plan 2020, this only includes parks, natural gardens, stormwater retention/attenuation, development exclusion areas (i.e. around landfill sites). See "Recreation" for developed open space	Public and private open space	C	Y	Y
	Botanical and zoological gardens includes: land and buildings used for the housing, care and exhibition of animals, birds, reptiles and insects for educational and research purposes or for the cultivation with exotic and indigenous plants, which allows restricted access to the public and may include a restaurant	Botanical and zoological gardens	C	Y	Y

1. **Yes (Y):** This is an appropriate land use activity. It is unlikely to compromise biodiversity. The activity is in line with, and may contribute to, the management objective. The land use activity is compliant with the CoE Bioregional Plan.
2. **Conditional (C):** The activity may compromise the integrity of biodiversity or ecological infrastructure. It may not be in line with management objectives. It will require detailed specialist assessment. It will require restrictive conditions (e.g. reduced footprint, clustering, located only on previously cleared land, etc.) and may require biodiversity offsets or set-asides.
3. **Not appropriate (N):** This activity will result in the destruction/degradation of important biodiversity and/or ecological support areas. It is not in line with management objectives. Development activities proposed will require detailed specialist assessment in the appropriate field of study to establish compelling reasons why this activity should be authorised for development. Severe restrictive conditions will be applied, and a biodiversity offset plan must be investigated and developed (using the most up-to-date guidelines and policies, with site specific input from experts) and implemented as a legally binding condition of authorisation.
4. **Management required (M):** It is possible that selected land use activities may not result in further degradation or disruption of biodiversity or ecological infrastructure or processes, provided that these activities are formally managed and monitored throughout the life of the activity. This will require management oversight and will require the development and implementation of a management plan for monitoring and reporting purposes.

ANNEXURE B1.3: OPEN SPACE DEVELOPMENT GUIDELINES

Assessment Guidelines for the Development on Land Forming Part of the Consolidated Open Space System

There may be cases where detailed environmental assessment found that an area forming part of the CoE open space system does not comprise any sensitive biodiversity features or other environmental constraints, and that it is indeed developable.

Intended Functionality of Consolidated Open Space System	
❖ **Ecosystem services:** • Climatic amelioration/regulation • Water supply regulation as well as water and air purification • Erosion and sediment control • Waste treatment and noise screening • Stormwater management and hazard mitigation • Provision of habitats for indigenous plants and animals	❖ **Social functions:** • Provision of public open space for leisure and recreation • Allowing access to nature and providing space for community (food) gardens • Reduction of social inequality and enhancing human health and well-being through social contact and communication
❖ **Structural and symbolic functions:** • Articulating, dividing and linking functional areas of the urban fabric and providing identify, meaning and values • Establishing a sense of place and improving the legibility of the urban landscape	

If the CoE then receives an application for development of this land, the application should be assessed in terms of the following considerations:

- ❖ Could the application impact negatively on any aspect of the intended functionality of the CoE Open Space System as defined below?
- ❖ Does the application site border onto the existing urban fabric or is it located (isolated) within the broader open space system?
- ❖ If it is bordering the existing urban fabric, is the proposed land use compatible with the surrounding land uses?
- ❖ If it is located (isolated) within the broader open space system:
  - What are the implications in terms of provision of engineering services (roads, water, sanitation, electricity, etc.)?
  - Could the development trigger/set president to attract more development to the areas surrounding the development? (Set a new development trend in motion).

ANNEXURE B1.4: AGRICULTURAL LAND GUIDELINES

ANNEXURE B1.4.1: AGRICULTURAL LAND PRESERVATION GUIDELINES

1. DEMARCATION OF AGRICULTURAL LAND

- All agricultural land parcels subjected legally to the provisions of the Subdivision of Agricultural Land Act, 70 of 1970 (SALA) and as defined in the Act, irrespective of its agricultural potential or use, remains subjected to comments / approval from the Department of Agriculture (DoA) for subdivision, change of land use or any related matter as described under the Act.
- The same provisions stated above also prevail, irrespective as to the zoning placed on a land parcel by the municipality through its Land Use Scheme or Spatial Development Framework classification.
- Any formal change of land use on land subjected to the provisions of SALA needs to do in accordance with the jurisdiction of SALA.
- Only once a land parcel has been formally excluded from the provisions of SALA, by means of a gazette will such land parcel no longer be subjected to the provisions of SALA.
- It should further be noted that state land, including land that resorted as former homelands areas or tribal areas (where applicable) are currently not subjected to the provisions of SALA. DoA, under the provisions of SALA, is therefore not in the position to recommend land use zoning on such areas. However, the SALA Act is in the process of being replaced by the Preservation and Development of Agricultural Land Act, 39 of 2024 (PDALA) where in all land not within a formal town plan will resort under the provisions of PDALA – thus inclusive of state land / former homeland areas.
- In view of the above, it is requested that such land currently not resorting under SALA but having an agricultural potential to be used sustainably for long-term food security, be retained and protected for such use in support towards ensuring long-term national food security.
- In view of the above, the assessment conducted has been done within the requirements of both SALA and PDALA to ensure a seamless transition between the two acts for when PDALA will be formally implemented.

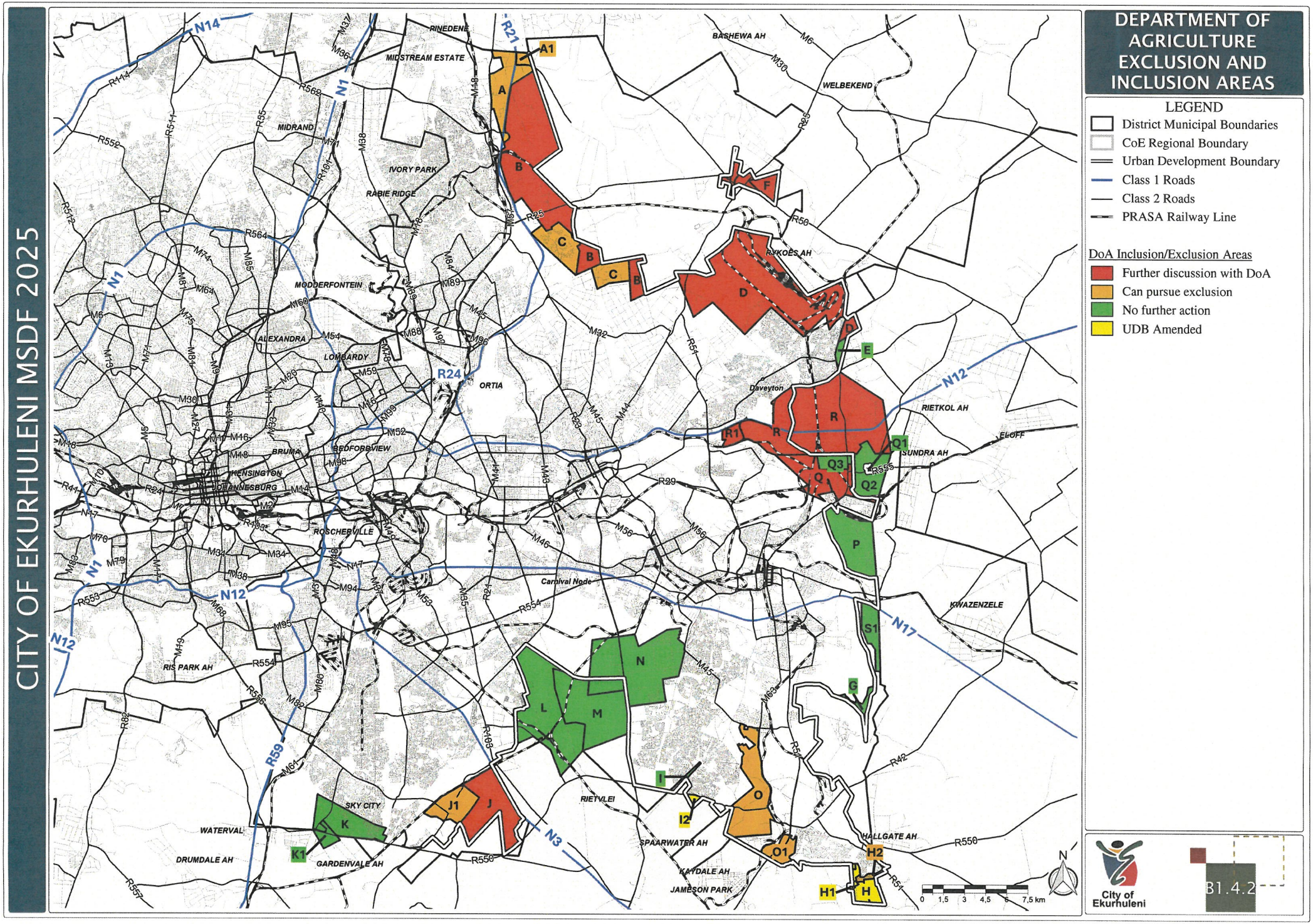
2. PROTECTED AGRICULTURAL AREAS (PAAs)

- The delineated Protected Agricultural Areas (PAAs) - Cultivation has the aim to identify, delineate and protect agricultural land having a high agricultural potential for cultivation purposes.
- Provision has been made for two types of PAAs namely **Rainfed PAAs** - having a priority rating ranging from A, being the highest priority to F, being the lowest priority and **Irrigation PAAs** - having a priority rating ranging from A, being the highest priority to D, being the lowest priority.
- The potential of agricultural land for grazing purposes for GP has also been finalised. As was the case with the Cultivated PAAs a priority rating has also been assigned to each Grazing PAA, ranging from A, being the highest priority to D, being the lowest priority.

- *Any agricultural land, as defined, and located outside of the delineated PAAs that are still subjected to the provisions SALA (& PDALA) will be evaluated on its own merits against its contribution to agricultural production within the larger agro-ecosystem.*
- It should also be mentioned that the PAAs take cognisance of formal approved town planning ordinance areas – areas that are formally excluded from the provisions of SALA, prior to 1994 – as per the definition in the Act. Where possible the delineation of the PAAs aim to exclude such areas but in certain instances the complete town is engulfed by high potential agricultural land. In such instances the PAA's delineation overlaps the town area but the status of such urban area is acknowledged as not being subjected to the regulations of the PAA; the delineated Agro Ecosystems (AES) (seamless delineation) however includes in its delineation areas excluded from the provisions of SALA / PDALA, permanently transformed areas (e.g. mines) as well as the Environmental protected areas or other ecosystems.
- Where high potential agricultural land is located within state land areas (land belonging to the state / government) or areas that were formally regarded as homelands area, these areas were evaluated and where it was determined that such areas have a high agricultural potential for long-term sustainable food production, it was demarcated and delineated as a PAA.
- The delineation of the PAAs has been done per available cadastre boundaries. Where there were no cadastre boundaries available, other visible land use features such as rivers; roads etc. was used to assist with the delineation as far as possible, in relation to the agricultural potential of the area.
- From a Land Use Management Scheme perspective it is recommended that all land parcels within a PAA be zoned as "Agriculture 1" (irrespective of the PAA's priority rating) and that the remaining agricultural land parcels outside of the PAAs be zoned "Agriculture 2".
- The above recommendation zonation may be adjusted in future when the proposed agricultural zoning classes (agricultural areas) have been finalised and gazetted under PDALA. In these classes provision has been made for 1) National Protected Agricultural Areas – similar to Agriculture 1 mentioned above; 2) Provincial Agricultural Areas; 3) Primarily Agriculture; 4) Secondary Agriculture.

3. GENERAL

- **From a Spatial Development Framework perspective it is recommended that all PAAs be included within the SDF that is to guide the priority of the area concerned and preservation of these areas for agricultural production purposes.**
- In the assessment attention was given to the areas already excluded from the provisions of the Subdivision of Agricultural Land Act, 70 of 1970 (SALA / PDALA), with emphasis on Departmental data pertaining to the delineation of agricultural land as defined under SALA (former excluded town planning ordinance areas) as well as areas delineated according to former guide plans' classification classes.
- In terms of SALA, Agricultural Holdings have been excluded from the provision of the Act. However, a legal opinion in terms of Agricultural Holdings under the provisions of PDALA still need to be finalised as many Agricultural Holdings have significant agricultural potential and forms a buffer between non-agricultural land uses and agricultural production areas. Until the legal matter has been resolved in terms of Agricultural Holdings under PDALA, these areas are mapped and discussed separately and are regarded as subjected to the provision s of PDALA, unless, in these areas, a significant amount of land use changes to non-agricultural land uses have occurred, rendering such areas no longer suited for agricultural production.
- In addition to the mentioned, areas that have, according to Departmental records, not yet been excluded from the provisions of SALA but have no longer an agricultural potential have been flagged for exclusion.


CITY OF EKURHULENI MSDF 2025
DEPARTMENT OF AGRICULTURE EXCLUSION AND INCLUSION AREAS
LEGEND
District Municipal Boundaries
CoE Regional Boundary
Urban Development Boundary
Class 1 Roads
Class 2 Roads
PRASA Railway Line
DoA Inclusion/Exclusion Areas
Further discussion with DoA
Can pursue exclusion
No further action
UDB Amended
RINEDENE
MIDSTREAM ESTATE
BASHEWA AH
WELBEKEND
MIDRAND
IVORY PARK
RABIE RIDGE
MODDERFONTEIN
ALEXANDRA
LOMBARDY
ORTIA
RYKOES AH
Daveyton
RIETKOL AH
ELOFF
SUNDRA AH
BRUMA
BEDFORDVIEW
KENSINGTON
JOHANNESBURG
ROSCHERVILLE
Carnival Node
KWAZENZELE
RIS PARK AH
SKY CITY
WATERVAL
DRUMDALE AH
GARDENVALE AH
RIETVLEI
SPAARWATER AH
KAYDALE AH
JAMESON PARK
HALLGATE AH
City of Ekurhuleni
B1.4.2

ANNEXURE B1.4.2: STATUS OF AGRICULTURAL LAND PARCELS AROUND UDB IN RELATION TO SALA (Also Refer to Figure B1.4.2)

MAP AREA	DESCRIPTION	UDB	SALA STATUS	COMMENT
Further Discussion with DoA Required				
B	Adjacent to R21 (eastern side) (M&T)	Inside	Not excluded. High Potential Agricultural Land.	Provisions of SALA apply. Further discussions to take place with DOA.
D	Sentra Rand and area south of Sentra Rand	Inside	Not excluded. High Potential Agricultural Land.	Provisions of SALA apply. Further discussions to take place with DOA.
F	Bapsfontein	Inside	Agricultural Holdings are excluded from the provisions of SALA. Other farmland is considered High Potential Agricultural Land.	Other farmland, Provisions of SALA apply. Further discussions to take place with DOA. Proposal of clustering of non-agricultural uses within a demarcated area will serve to protect the adjacent High Potential Agricultural Land.
J	Tambo Springs (east)	Inside	Not excluded. High Potential Agricultural Land.	Provisions of SALA apply. Further discussions to take place with DOA.
Q1	Welgedacht 74-IR	Inside	Not excluded. High Potential Agricultural Land.	Provisions of SALA apply. Further discussions to take place with DOA.
R & R1	Modder East	Partly Inside / Partly Outside	Not excluded. High Potential Agricultural Land.	Provisions of SALA apply. Further discussions to take place with DOA in respect of land within UDB only.
Can Be Pursued for Exclusion from SALA				
A	Quarries adjacent to R21	Inside	Not Excluded (Can be considered for exclusion)	Explore exclusion from provisions of SALA, in liaison with DOA.
A1	Adjacent to R21 (north of "A")	Inside	Not Excluded (Can be considered for exclusion)	Explore exclusion from provisions of SALA, in liaison with DOA.
C	Serengeti / Dunblane	Inside	Not Excluded	Explore exclusion from provisions of SALA, in liaison with DOA.

			(Can be considered for exclusion)	
H2	Alra Park	Inside	Not Excluded (Can be considered for exclusion)	Explore exclusion from provisions of SALA, in liaison with DOA.
J1	Tambo Springs (west)	Inside	Not Excluded (Can be considered for exclusion) DOA Approval dated 18/02/2016.	Explore exclusion from provisions of SALA, in liaison with DOA.
O & O1	Spaarwater	Inside	Not Excluded (Can be considered for exclusion)	Explore exclusion from provisions of SALA, in liaison with DOA.
Urban Development Boundary Amendment Recommended				
H & H1	Blue Valley AH	Changed to Outside	Not excluded. High Potential Agricultural Land.	UDB has been amended to align with DOA comments (along watercourse).
I2	Spaarwater R/1/171-IR	Changed to Outside	Not excluded. High Potential Agricultural Land.	UDB has been amended to align with DOA comments (along R550).
No Further Action Required from CoE				
E	Breswoll AH	Inside	Agricultural Holdings are excluded from the provisions of SALA.	No further action required from CoE.
G	Marievale Nature Reserve	Inside	Not Excluded (Can be considered for exclusion)	No further action required from CoE.
I	Sonstraal AH	Inside	Agricultural Holdings are excluded from the provisions of SALA.	No further action required from CoE.
K1	Sky City (R/2/152-IR)	Inside	Not excluded. High Potential Agricultural Land. DOA Letter dated 23/08/2010 indicates that R/2/152-IR is not subject to the provisions of SALA.	Clarification required on SALA status, relative to letter.

K	Palm Ridge (Rietfontein 153-IR)	Inside	Not excluded (Can be considered for exclusion). DOA Letter dated 04/02/2020 indicates that Ptns 99, 100, 101 Rietfontein 153-IR not subject to the provisions of SALA.	Clarification required on SALA status, relative to letter.
L	Rooikraal Landfill Site	Outside	Excluded	No further action required from CoE.
M	Ergo Mega Tailings dump	Outside	Not Excluded (Can be considered for exclusion)	No further action required from CoE.
N	Withok AH	Inside	Agricultural Holdings are excluded from the provisions of SALA.	No further action required from CoE.
P	Grootvaly	Outside	Not Excluded (Can be considered for exclusion)	No further action required from CoE.
Q	Presida	Inside	Not Excluded (Can be considered for exclusion)	No further action required from CoE. Existing township.
Q2	Around Presida	Outside	Not excluded. High Potential Agricultural Land.	No further action required from CoE.
Q3	Welgedacht AH	Inside	Agricultural Holdings are excluded from the provisions of SALA.	No further action required from CoE.
S1	Daggafontein	Outside	Not excluded. High Potential Agricultural Land.	No further action required from CoE.

ANNEXURE B1.5: MINING LAND DEVELOPMENT GUIDELINES

Guidelines for Development on/around Mining Land

i) Active Mining:

Due to the potential risks and environmental impacts of mining and quarry operations, there are strictly enforced management and control requirements as noted below:

- Mining and quarry operations are undertaken in terms of an approved Environmental Management Plan (EMP) required in terms of Section 39 of the Mineral and Petroleum Resources Development Act (Act 50 of 1991).
- The implementation of the approved EMP is monitored and assessed by the Minister and the Department of Mineral Resources in terms of the Act and its Regulations.
- In terms of the approved EMP, certain environmental impacts, with mitigation and management measures regarding development, are identified. These include exclusion and safety zones that are defined in terms of the relative proximity of the mining and quarry operations and surrounding current and future development.
- The construction of any buildings, roads, railways or any structure within a horizontal distance of 100 metres from the workings of a mine or quarry must comply with all the requirements and obligations of the Mine Health and Safety Act (Act 29 of 1996) and the associated Mine Health and Safety Regulations.

ii) Development Around Mining Land/Activity:

Existing and proposed development adjacent to the boundaries of the mining and quarrying operations are obliged to take into account the associated exclusion and safety zones as noted above, and the risks associated with the operations. Focus should also be placed on protecting un-mined areas to protect the possible future mining and quarrying operations against development that may restrict and inhibit such operations, and on the rehabilitation of mines and quarries after the closure of the operations.

iii) Post Mining:

Risk Assessment prior to Development of Mining Land: Land use planning for beyond the end of life of mine is done long before a closure application for a mine is initiated. Mine permit holders must develop a comprehensive land use plan as part of an Environmental Management Plan in terms of all applicable legislation and in consultation with the relevant departments and authorities. This should include the CoE and should be considered in terms of the Municipal Spatial Development Framework.

Once the mine tailings are removed, a risk assessment is required to determine the development suitability of the mining land, prior to detailed planning or development. The risk assessment should address, as a minimum, the following aspects:

a) The presence of radon or sulphates post rehabilitation:
A survey report by a radiation specialist is required. Specialists will assess the areas deemed developable (and specify the type of land use/uses that can be considered) and ensure compliance with established standards. The report needs to be submitted to the National Nuclear Regulator (NNR). The NNR will verify the survey and issue a Certificate of Exception.

b) Geotechnical conditions, especially where shallow undermining occurred:
A geotechnical survey is mandatory for all development projects. Within mining belt areas, there is a heightened focus on evaluating underground workings and the proposed top structures. The geotechnical engineer will include these considerations in their report to ensure the safety and viability of the proposed land uses in the development.

The outcomes of the risk assessment as noted above will determine the type of land use/uses that may be permitted on any specific mining land area.

In the event of potential radon contamination or hazardous geotechnical conditions, the land may only be suitable for industrial use with a large building footprint, subject to precautions. Where there are less constraints, the use of land for residential or retail uses may be considered, subject to precautions.

It is imperative that the precautions forthcoming from the risk assessment are carried forward into the conditions of establishment of a township as well as into the title deeds and zoning certificate. This to ensure that the ultimate user of the land is aware of these risks. The municipality is responsible to oversee this.

Section 53 of the Minerals and Petroleum Resources Development Act (Act 28 of 2002) requires that the permission of the Minister of Minerals and Energy is obtained to use mining land for any other purpose than mining or agriculture.

An application for land use rights (usually township establishment) must be circulated to this Department and permission must be given, prior to the approval of the land use rights. The findings of the risk assessment usually form part of the application for land use rights and information circulated to the Department for consideration.

ANNEXURE 1.6: COE GREEN CITY ACTION PLAN

COE GREEN CITY ACTION PLAN PRIORITIES	
Built Environment & Energy	1. Financing Programme for Energy Efficiency Refurbishment 2. Mandatory Green Building Requirements for Large Developments 3. Green Municipal Buildings 4. Energy Efficient Streetlights and Traffic Lights 5. Solar Power Programme
Transportation	1. Encourage Electric Vehicles 2. Parking Restrictions 3. New Buses and Priority Bus Lanes 4. Integrated Payment System and Improvements for Minibus Taxis
Waste	1. Composting 2. Anaerobic Digestion 3. Materials Recovery Facility and Separated Collection of Recyclables 4. Energy from Landfill Gas 5. Waste-to-Energy
Water	1. Reuse of Treated Wastewater 2. Reduction in Unaccounted-for Water Losses 3. Mandatory Efficient Fittings in New Buildings 4. Upgrade Fittings in Existing Buildings 5. Smart Water Meters 6. Combined Heat and Power from Wastewater Biogas
Other Sectors	1. Agriculture Energy Efficiency and Renewable Energy 2. Agriculture Water Improvements 3. Airport Carbon Neutrality 4. Industry Energy Efficiency and Renewable Energy

GREEN CITY ACTION PLAN	
BUILT ENVIRONMENT & ENERGY	
1. Financing Programme for Energy Efficiency Refurbishment	
Description:	The City implements a Property Assessed Clean Energy (PACE) programme to finance energy efficiency improvements and renewable energy in buildings. The loan involved is attached to the property, not the individual or company. Governments or private lenders provide financing to building owners, which helps pay for the upfront costs. Loans are paid back by increasing property taxes by a set rate for an agreed-upon term. Property owners begin saving on energy costs while paying for improvements, often resulting in net gains even with increased property tax. PACE financing could be arranged through financial intermediaries, such as commercial banks and development finance institutions. The PACE programme is accompanied by an energy performance labelling (EPL) programme for some privately-owned buildings, which requires public disclosure of energy performance and adherence to minimum standards. The EPL programme creates the enabling environment for PACE by putting in place the systems to measure and track energy performance. This makes it easy to identify comprehensive energy efficiency improvements that are cost-effective and appropriate to individual buildings. The possible impact assumes that the measure is implemented for 15% of medium-and high-income housing, as well as 30% of commercial buildings, which see a 40%reduction in their energy use. In addition, the EPL programme is implemented in 50%of all buildings, and consequently they see on average a 10% reduction in their energy use.
2. Mandatory Green Building Certification Requirements for Large Developments	
Description:	The City requires half of all new developments to meet the Excellence in Design for Greater Efficiencies (EDGE) Advanced Green Building Certification Standards, which offer ease of use, low cost, and scalability. The standards entail a minimum of 40% energy savings beyond the current building code requirements, as well as savings in water use and embodied energy in materials. The City pairs the regulatory policy with incentives to encourage developers to pursue green buildings. The costs of building green would be borne by private developers and financiers, but the City and/or national government could contribute with fiscal and non-fiscal incentives. The possible impact of this measure is based on implementation in 50% of all new buildings that are considered large developments; these see a 40% reduction in their energy and water use.
3. Green Municipal Buildings	
Description:	The City commits to building green for all new municipal buildings, as well as retrofitting existing buildings to be more energy and water efficient through a refurbishment programme. The City generates renewable electricity with solar photovoltaic (PV) panels on rooftops of municipal buildings. Green upgrades to municipal buildings could be funded through national grants, City/utility budgets, loans from financial institutions, or private sector financing models such as energy services companies (ESCOs), and through PPPs. Possible impact assumes that all new and existing municipal buildings see a 40% reduction in their energy use on average. In addition, the equivalent of 30% of the municipal roof area is allocated to generating solar electricity with photovoltaics, equating to an additional 11,000 kWp installed capacity.

4. Energy Efficient Streetlights and Traffic Lights	
Description:	The City upgrades all streetlights and traffic lights with energy efficient bulbs. Lighting upgrades could be funded through national grants and City/utility budgets, or with the private sector, including through lease-to-own models, ESCOs, and/or PPPs. The possible impact that is indicated assumes the remaining 85,000 streetlights and 800 sets of traffic lights that have yet to be upgraded are upgraded, with approximately 70% energy savings considered.
5. **Solar Power Programme**	
Description:	The City implements a programme to encourage installation of solar PV panels on rooftops of buildings, along with implementing the City's initiative to procure renewable electricity directly from independent power producers (IPPs). There are many options for funding solar panels, such as through financing from banks, or other business models, including PACE financing. Small-scale embedded generation (SSEG) tariffs, and IPP tariffs as part of a long-term power purchase agreement with an acceptable balance of risk, would support investment. The possible impact is based on use of the equivalent of approximately 10% of the roof area of all buildings, equating to an additional 950,000 kWp installed capacity.
TRANSPORTATION	
1. Encourage Electric Vehicles	
Description:	The City encourages residents and businesses to switch from vehicles with internal combustion engines to electric vehicles. The City passes supportive policies to remove existing barriers, offers convenience incentives at first to encourage initial uptake, and works with the private sector to build charging infrastructure. The cost of electric vehicles would be primarily borne by vehicle owners, but the City and/or national government could contribute with incentives. Banks could offer consumer financing options specifically for electric vehicles and investment options for large fleet owners to switch to electric. City-owned vehicles and charging infrastructure could be funded through grants, PPPs, or other private sector business models. The possible impact assumes 25% of new vehicles to be electric and 10% of the existing vehicle population is replaced with electric vehicles.
2. Parking Restrictions	
Description:	The City implements parking restrictions for new developments, placing a maximum on the number of parking spaces that can be constructed per square metre of gross leasable space. The City also implements paid street parking in heavily congested areas at a price that promotes vehicle turnover, carpooling, and public transportation. Parking restrictions are accompanied by transit-oriented development (TOD) and travel demand management (TDM) initiatives. In areas where parking is restricted, the City ensures there is easy access to public transportation to make taking a train, bus, or minibus preferable to driving a private car. Systems to enforce parking restrictions and collect parking fees could be funded by the City or implemented through private sector business models/concessions. The possible impact considers that 2,500 street parking spaces are targeted, with 10% of drivers using these spaces shifting to other modes.

	In addition, 10% fewer new parking spaces are constructed, with a decrease of 1.5 daily car trips for every reduced off-street space.
3. New Buses and Priority Bus Lanes	
Description:	The City implements an enhanced bus system along planned bus rapid transit (BRT) routes. The City operates new buses, some of which are electric. The City implements priority bus lanes to improve bus services and reduce travel time. The priority bus lanes are on existing city streets; therefore, they are distinct from dedicated lanes of BRT systems because they do not require building new infrastructure. Existing traffic lanes are restricted for buses and other priority vehicles, such as electric vehicles and taxis during peak hours, and there is monitoring and enforcement to deter other private vehicles from violating the restrictions. The bus system is accompanied by strategies that encourage public transport ridership, including spatial planning, densification along corridors, and TDM projects such as secure park-and-ride facilities and workplace travel plans. Feeder routes are expanded to improve connectivity to the main trunk lines, including developing arrangements to deploy minibus taxis to serve as first/last mile links to the bus system. New buses also help improve wheelchair accessibility on public transport. New buses could be funded through City budgets, financial institutions, and/or through private sector business models/concessions including asset leasing. The possible impact of this measure considers 445 new buses, 25% of which are electric buses, with 222,500 new daily passengers. One-third of daily ridership occurs on target corridors and adding bus lanes to these improves travel time by an estimated 15%, which increases ridership on the corridors by 7.5%.
4. Integrated Payment System and Improvements for Minibus Taxis	
Description:	The City works with the minibus taxi industry to implement a cashless payment system that is integrated with other public transport modes. Minibus taxi passengers can use a smart card or mobile app to pay their fare. By eliminating the need to carry cash, the integrated payment system can help improve personal safety of both passengers and drivers. In addition, the City works with the minibus taxi industry to implement other actions that improve ridership on minibus taxis. Actions can include prioritising passenger and driver safety, improving roadworthiness of vehicles, and driver training. Travel times can be improved with the usage of priority lanes, and taxi stands and public transport facilities that enhance passenger experiences, particularly in TOD areas. Arrangements can also be made for minibus taxis to provide first/last-mile feeder services to the formal bus network. The City could offer incentives for minibus taxi improvements, and an electronic payment system could be funded through private sector business models/concessions. The possible impact considers an increase in taxi ridership by 15% (displacing private car travel), with approximately 10% more minibus vehicles, half of which are electric, added to the fleet.
WASTE	
1. Composting	
Description:	The City opens centralised composting facilities and requires large garden waste producers, such as golf courses and schools, to compost on site. Composting facilities can be funded with City budgets, financial institutions, and/or PPP arrangements, depending on the business model and end-uses of compost material. The possible impact considers that 40% of garden waste is diverted from landfills, including from large garden waste producers, and composted.
2. Anaerobic Digestion	

Description:	The City collects and processes food waste using anaerobic digestion. In anaerobic digestion facilities, microorganisms break down organic waste in the absence of oxygen and produce a biogas that can be used as fuel. Contamination of food waste arisings, including food packaging and utensils, can interfere with both mechanical and biochemical aspects of the digestion process. Food and beverage manufacturing and pre-consumer food waste sources tend to have lower levels of contamination. Anaerobic digestion could be financed by banks, development finance institutions, and/or PPP arrangements.
3. Materials Recovery Facility and Separated Collection of Recyclables	
Description:	The City works with the private sector to open and operate a materials recovery facility (MRF) that produces marketable end products. An MRF is a specialised plant that receives, separates, and prepares recyclable materials for recycling industries and end-use manufacturers. The facility is paired with separated collection of recyclables. The City also works with communities to implement waste collection and sorting cooperatives, as well as the independent waste pickers to synergise efforts. An MRF could be financed through City budgets, financial institutions, and/or PPP arrangements, depending on the end-uses and market for recyclable materials. The possible impact assumes that 400 tonnes of recyclables are processed per day, with 60% diverted from landfill.
4. Energy from Landfill Gas	
Description:	The City generates energy from landfill gas captured at existing landfill sites. Landfill gas is collected using wells and piping buried into the landfill, then processed and treated for use. Landfill gas has about half the heating value of typical natural gas. Options for use include electricity generation, direct-use of medium-Btu gas, or upgrading to high-Btu, renewable natural gas. Energy from landfill gas could be funded by the City, through financial institutions, and/or with PPP arrangements. Alternative funding sources could also be explored, such as carbon credits or carbon tax inputs. The possible impact of this measure is based on 1,350 m3/hour of landfill gas being captured, with the equivalent of 32 GWh of electricity produced per year.
5. Waste-to-Energy	
Description:	The City works with the private sector to construct a waste-to-energy plant with electricity generation. Waste-to-energy is thermal treatment of waste involving the combustion of waste materials into heat, gas, and ash. Waste-to-energy is primarily a waste management solution that, at the same time, delivers base load electricity to the grid (and can also supply heat). Thus, it typically relies on a combination of tipping or gate fees and electricity tariffs for financial viability. Waste-to-energy could be implemented through a PPP, or it could be funded through the City or financial institutions. Typically, projects rely on tipping fees and electricity tariffs for financial viability. The possible impact considers that approximately 650 tonnes of waste is processed per day, producing 136 GWh of electricity per year.
WATER	
1. Reuse of Treated Wastewater	
Description:	The City and Ekurhuleni Water Care Company (ERWAT) work with large users of non-potable water to supply treated effluent from wastewater treatment works, such as for industrial and irrigation uses. Wastewater reuse could be implemented with commercial finance and/or private investment, supported by creditworthiness of industries and other off-takers. The City utility could generate revenue from the sales.

	The possible impact of this measure considers about one-third of the practical effluent for reuse, 118 MLD.
2. Reduction in Unaccounted-for Water Losses	
Description:	The City implements a programme to reduce unaccounted-for water losses. Unaccounted-for water losses are calculated as the bulk system input less the authorised consumption. Unaccounted-for water losses include apparent losses (i.e., unauthorised consumption, metering inaccuracies) and real losses (i.e., leakage on transmission and/or distribution mains, leakage and overflows of utility storage tanks, and leakage on service connections up to the point of customer metering). Strategies to reduce water losses include repairing and replacing leaking water pipes and tanks, improvements to metering systems, removal of unauthorised connections, and controlling water use through fire hydrants. Loss reduction could be funded by the City, and/or through a private sector deployment model. The possible impact of this measure considers a 20% improvement, in line with CoE's current target of 24% loss reduction by 2030.
3. Mandatory Water Efficient Fittings in All New Buildings	
Description:	The City requires all new buildings to have water efficient fittings, including on taps and showers, as well as water efficient toilets. The cost of water saving equipment would be borne primarily by developers, but the City and/or national government could contribute with incentives. The possible impact considers its implementation in 100% of new buildings, with fittings using 25%to 35% less water than traditional fittings, rolled out over time.
4. Programme to Upgrade Water Fittings in Existing Buildings	
Description:	The City implements a comprehensive programme to upgrade water fittings in existing buildings. Building owners and households are encouraged to replace their fittings. Water saving equipment could be provided free-of-charge, subsidised with a rebate, or tied to another incentive provided by the City. Grants and incentives could help offset the costs of a water fittings upgrade programme, and/or private sector deployment models could be explored. The possible impact of this measure assumes implementation in approximately 30% of existing buildings, including hotels and residential buildings. Efficient fittings use 25% to 35% less water than traditional fittings.
5. Smart Water Meters	
Description:	The City implements a programme to install smart water meters on certain buildings. Smart water meters give the utility real-time data on water use, send notifications when there is a leak or burst in the distribution network, and can help ensure fair billing with accurate monitoring. Smart water meters could be funded by the City as part of improvements to network functioning and the metering and billing system, and/or private sector business models could be explored. The possible impact assumes implementation in 20% of buildings, including hotels, hospitals, large new residential developments, and some schools, helping reduce water use and leakage by 10%.
6. Combined Heat and Power from Wastewater Biogas	
Description:	ERWAT captures biogas from wastewater treatment plants and uses it to generate electricity and heat in a combined heat and power (CHP) system. Biogas is a by-product of anaerobic digestion treatment of sewage sludge. Biogas projects could be funded with national grants, by the City utility, through financial institutions, and/or implemented through a PPP.

	The possible impact assumes that 75% of wastewater treatment plant capacity captures biogas and converts it to heat and electricity, producing 12.7 GWh of electricity and 15.9 GWht of heat per year.
OTHER SECTORS	
1. Agriculture Energy Efficiency and Renewable Energy Upgrades	
Description:	The City works with farmers to implement energy efficiency interventions. Interventions can range from behavioural changes to investing in energy saving and renewable energy technologies. Since agriculture is heavily reliant on energy as a production factor, energy efficiency and renewable energy technologies can help make farming businesses less susceptible to volatility surrounding energy prices and availability. The possible impact of this measure is based on 50% of farms implementing energy efficiency and renewable energy upgrades, estimated to lead to overall energy savings of 20% on these farms.
2. Agriculture Water Improvements	
Description:	In addition to energy improvements, the City works with farmers to implement water efficiency interventions, including drip irrigation systems and exploring the potential for secondary, non-potable water sources. Drip irrigation systems consist of pipes with holes that are either buried or slightly above the ground next to crops, where water slowly drips on the roots and stems. Secondary, non-potable water sources may include treated effluent from industries and/or wastewater.
3. Airport Carbon Neutrality	
Description:	The City encourages O.R. Tambo International Airport to pursue its goal of carbon neutrality by 2030. The possible impact of this measure assumes that the airport achieves its goal of carbon neutrality by 2030. Therefore, all energy use at the airport is considered carbon neutral, either through replacement with renewable sources or through the purchasing of carbon offsets.
4. Industry Energy Efficiency and Renewable Energy Upgrades	
Description:	The City works with industries to implement energy efficiency interventions, such as lighting upgrades and variable speed drives (VSD) for pumps and motors. Lighting upgrades can include LEDs or other bulb upgrades, as well as lighting controls. VSDs regulate the speed of an electric motor to better match the output with the load, which reduces energy consumption, as well as lessens noise generation and wear on mechanical components. Industrial and mining installations can also augment their energy supply through renewable technologies, such as solar. The possible impact of this measure is based on 50% of all industrial buildings conducting lighting upgrades and 20% installing VSDs. Industry lighting upgrades are estimated to reduce total energy use by 15% overall, and VSDs to reduce 20% of overall energy use.

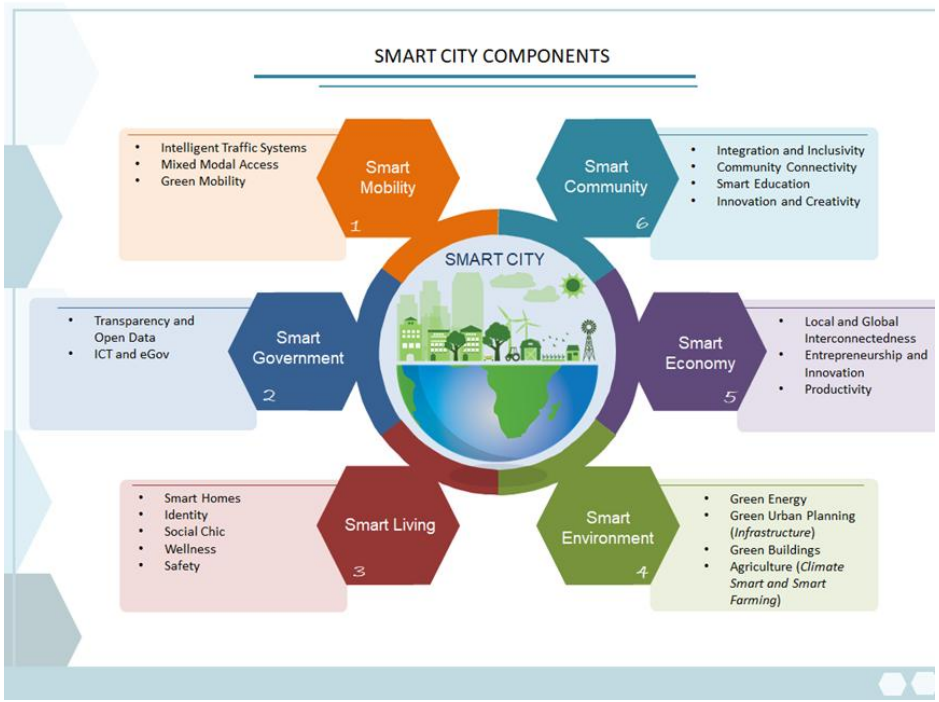
What is a Smart City?

A **Smart City** primarily uses **information and communication technologies (ICT)** to enhance quality, performance and interactivity of urban services, to reduce costs and resource consumption and to improve contact between citizens and government. It connects human capital, social capital and ICT infrastructure in order to address public issues, achieve a sustainable development and increase the quality of life of citizens.

Smart city applications are developed with the goal of improving the management of urban flows and allowing for real time responses to challenges. A smart city may therefore be more prepared to respond to challenges than one with a simple 'transactional' relationship with its citizens.

Smart Mobility aims to provide an on-demand mobility system that would allow customers to choose among motorised public and private transport modes and / or non-motorised transport modes to assemble the fastest or cheapest way of getting anywhere they need to go at any time. It includes new mobile technologies and intuitive apps which integrate public transportation, better infrastructure, and car sharing.

Smart Government entails the use of innovative policies, business models, and technology to address the financial, environmental, and service challenges facing public sector organizations. It relies on open and accessible consolidated information systems and communication networks from which the public becomes better informed about whether the government is performing and conforming to highest ethical standards.



Smart Communities are strategic, purposeful, and resourceful. They are driven by long-term commitments to safeguard their natural resources and economic opportunities for future generations, and preserving the beauty, vitality, and equity of the region. These communities protect their ecological assets from destruction or degradation, promote renewable energy solutions, and practice sustainable development.

Smart Living is fuelled by the rise of devices and objects connected to the internet – wearables, home appliances, fashion accessories etc. Internet-connected appliances that communicate with one another, more efficient energy usage and cloud-enhanced home security are just some of the developments that consumers are starting to enjoy. Advances in technology, such as mobile and GPS-enabled devices, live data sensors, and big data, have created a foundation for governments to develop better services, foster accountability, and increase transparency. When disaster incidents strike, critical information exchange across departmental, municipal, and jurisdictional lines expedites communication to at-risk populations and hastens their evacuation from harm's way. It tracks disasters in real-time, locate medical resources, align logistics, coordinate response teams, and automatically publish updated maps that keep the media and public informed. Similarly, GIS highlight recurring crime hot spot locations, and help deploy critical resources to the right place at the right time. Real-time monitoring tools are used to regulate infrastructure and manage natural and manmade threats like vandalism/ theft.

A **Smart Environment** aims to provide more efficient urban structure, buildings and energy. A compact city characterised by medium and high-density mixed-use environments which are designed around efficient multi modal public transport systems. Careful building design to reduce heat loads, maximise natural light and promote the circulation of fresh air and installation of solar heaters and water harvesting infrastructure. Green energy generated from natural sources: solar power, wind power, hydropower, geothermal energy, biomass and biofuels. Monitoring and controlling operations of urban and rural infrastructures like bridges, railway

tracks, on- and offshore- wind-farms and it can also be used for scheduling repair and maintenance activities.

Smart Economies are largely the result of the influence of ICT applications on all aspects of urban economy, which in turn changes the land-use system. Main Economic Sectors influenced by Smart Technology include:

- Banking and Finance
- Education and Research
- ICT, Mobile and Telecommunications
- Travel, Tourism and Transportation
- Healthcare and Social Welfare
- National Security and Defence
- Retail and Distribution
- Energy and Utilities

1. ALTERNATIVE ENERGY GENERATION PLANTS

1.1 Introduction and Background

The Smart Cities of the future will employ futuristic technology, which includes inter alia:

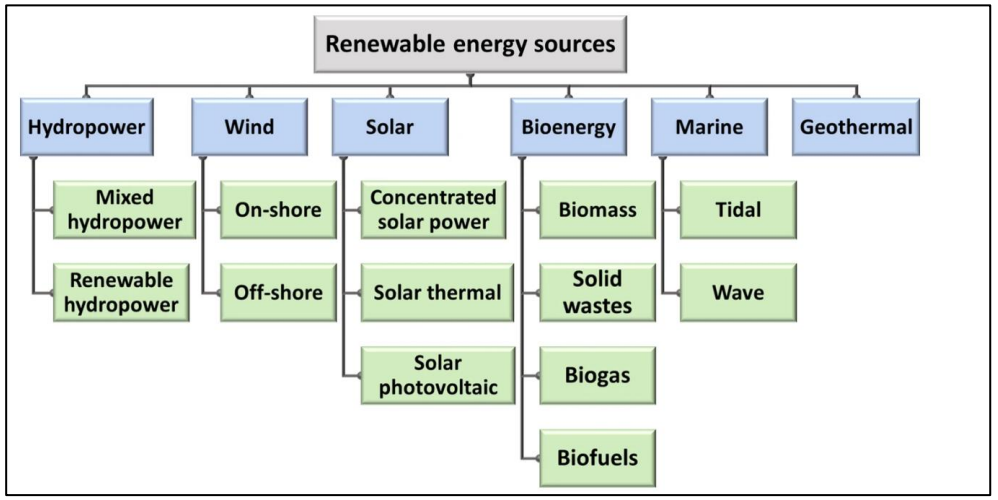
- 'Smart' energy grids;
- Talking and serviceable bots;
- Driverless transport;
- Advanced cybersecurity; and
- Tele-work, tele-health and tele-education services.
- Telecity architecture and virtual companies.

(Smart Cities of Today and Tomorrow, Joseph N. Pelton, Indu B. Singh, 2019

Although some of these aspects seemed farfetched in 2019, the Coronavirus expedited the move towards tele-work and tele-education. Smart energy grids are energy networks that make use of emerging technologies to sense and respond to change and are the future of energy provision.

All energy sources have some impact on our environment. The negative impact of fossil fuels is becoming increasingly evident in terms of pollution, impact on public health and global warming, to name but a few aspects. Renewable energy sources overcome many of the challenges but also bring new challenges that have to be considered from a development and land use point of view. **Figure 1** shows the different types of renewable energy sources and methods of power generation.

Figure 1: Renewable Energy Sources

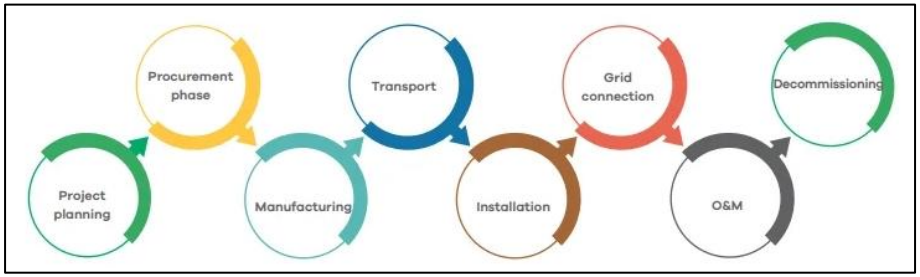


Source: https://link.springer.com/article/10.1007/s10311-023-01587-1

Recent technological advancements in renewable energy systems have led to a reduction in both economic costs and environmental impacts. There is no question about *whether* these sources should be utilised, the only questions are *how and where.*

Figure 2 summarises the renewable energy value chain. Project planning will include finding an appropriate site based on the type of energy source and the appropriate land size required. Any planning applications will have to be finalised during the procurement and manufacturing phase to enable installation and grid connection. This demands a quick and streamlined application process.

Figure 2: Renewable Energy Value Chain



1.2 Challenges to the implementation of alternative energy sources

There are numerous challenges to be overcome in converting to renewable energy sources. The objective of the CoE Metropolitan Municipality should be to make it easy and attractive for investors to choose the municipality as location for generating alternative energy. The section below summarises the main challenges in entering the renewable energy sector. The first obstacle is the large number of government entities involved in developing and implementing policies, plans, and programmes for the electricity sector. The most prominent of these are listed in **Table 1** below.

Table 1: Government Entities involved in the Renewable Energy Sector

Category	Text
DMRE	The mandate of the DMRE is to regulate and transform the sector for the provision of secure, sustainable, and affordable energy and the promotion and regulation of minerals and mining. This includes the electricity sector, governed mainly through the ERA. This department was previously referred to as the Department of Energy and is also responsible for developing the Integrated Energy Plan and IRP.
Eskom	South Africa's state-owned entity, Eskom is responsible for most of South Africa's generation infrastructure, transmission infrastructure, and a large portion of distribution infrastructure. Eskom is in the process of unbundling into transmission, distribution, and generation as separately managed entities. It is a central entity for the large-scale renewable energy industry, serving as both an off taker and a wheeling partner, with most of the private renewable energy projects connected directly to Eskom infrastructure.
NERSA	NERSA issues licences for the operation of generation, distribution, and transmission infrastructure; regulates imports, exports, and trading of electricity; determines and approves electricity prices, tariffs, and the conditions under which electricity may be sold.
National Nuclear Regulator (NNR)	NNR regulates the operation of nuclear power stations such as Koeberg, and all elements of the South African nuclear energy value chain. Its role is to protect people, property, and the environment against nuclear damage.
Department of Public Enterprises	The Minister of Public Enterprises is the shareholder representative of the South African government and has oversight responsibility for Eskom.
National Treasury (NT)	NT is responsible for financial and reporting oversight for Eskom (as a state-owned entity) and has played a pivotal role in providing government loans and guarantees in favour of Eskom.
Department of Water and Sanitation (DWS)	DWS oversees water allocations and ensures adequate water supply infrastructure, among others, for the South African electricity sector.
Department of Forestry, Fisheries, and the Environment (DFFE)	DFFE ensures adherence to environmental compliance and rights protection relating to preventing pollution, ecological degradation, promoting conservation, and securing ecologically sustainable development.
Department of Trade, Industry and Competition (dtic)	The dtic is responsible for ensuring industrialisation including, in the case of renewable energy, through the REIPPPPs economic development component, especially local content and black economic empowerment, and development of small businesses.

Regulations relating to Independent Power Producers (IPPs) are perceived to be a major barrier to renewable energy deployment. There are a myriad of laws governing the sector with uncertainty and ambiguity regarding procurement regulations. Further stumbling blocs for entry into the sector include institutional inefficiencies, and the fragmented structure of the industry and of government arrangements. There is also a lack of coordination between government decision-making entities.

Some of the other challenges that fall within the scope of the municipality include:

a) Corruption: Institutional quality significantly influences South Africa's transition to renewable energy and the inescapable conclusion is that improving governance, reducing corruption and enhancing regulatory frameworks are crucial for advancing the country's renewable energy goals.
b) Workforce challenges: the risk of job losses looms with the transition from labour intensive coal mining. Ways to overcome this challenge includes up-skilling the workforce, prioritising capacity building and skills transfer regarding renewable energy. Public engagement and capacitation on the social and environmental benefits will help to accelerate transformation.

https://repository.up.ac.za/handle/2263/58148

1.3 Current regulatory framework in the City of Ekurhuleni MM

The CoE does not want to become a stumbling block in the conversion to alternative energy. The municipality should carefully consider its role in this regard. The current Ekurhuleni Metropolitan Municipality Spatial Planning and Land Use Management SPLUM By-Law 2019 does not mention renewable energy sources. There is also no approved policy in this regard.

The City of Ekurhuleni Land Use Scheme 2021 deals with alternative energy sources as follows:

"7.3 Uses not considered land uses
The following uses, structures and services are not considered as a land use, but shall need to comply with other relevant legislation and Council's relevant approved policies:
(e) The erection of alternative energy generation equipment, which may include solar panels on buildings, single wind turbines and generators for buildings, but excludes a windfarm or solar farm development, subject to clause 7.6(c);

7.6(c) Wind turbines and solar farms on land or buildings may be erected on any property in any use zone, excluding Residential 1, 2, 3 and 4, subject to the Special Consent of the Municipality."

A special consent application allows for the exercise of secondary rights in terms of a specific zoning and involves a public participation process.

Considering that regulations, policies and decision-making processes are some of the main challenges to the transition to renewable energy, it will not be advisable for the City of Ekurhuleni MM to formulate and introduce additional measures.

The only viable options in the CoE are solar energy and bioenergy (waste to energy). The latter has fixed location requirements, while solar energy can be generated from various surfaces and locations.

1.4 Aspects to be considered in special consent applications for renewable energy generation plants

There is a magnitude of benefits that can be achieved by renewable energy systems, such as local employment, better health, job opportunities, and consumer choice. Total emission reduction decreases exponentially after the installation of renewable energy projects. The social impacts

impacts of renewable energy systems are minor. The following specific aspects should be considered:

a) Solar power can include land use and habitat loss, water use, and the use of hazardous materials in manufacturing, though the types of impacts vary greatly depending on the scale of the system and the technology used—photovoltaic (PV) solar cells or concentrating solar thermal plants (CSP).
b) Biomass power plants share some similarities with fossil fuel power plants: both involve the combustion of a feedstock to generate electricity. Biomass plants thus raise similar, but not identical, concerns about air emissions and water use as fossil fuel plants. However, the feedstock of biomass plants can be sustainably produced, while fossil fuels are non-renewable. Sources of biomass resources for producing electricity are diverse, ranging from energy crops (like switchgrass) to agricultural waste, manure, forest products and waste, and urban waste. Both the type of feedstock and the manner in which it is developed and harvested significantly affect land use and life-cycle global warming emissions impacts of producing power from biomass. In this regard size, access, wind direction and compatibility with surrounding land uses should be considered.

An important land use consideration is security. Coal, nuclear and gas sources offer a secure supply, but renewable energy requires integration with battery storage – a costly technology. Significant investment is directed towards storage solutions, to improve energy security and reliability. Renewable energy generation plants will thus

require high levels of security and access restriction to prevent theft and sabotage.

Land is scarce and costly and renewable energy source plants require large properties. Land outside the Urban Development Boundary and within the Mining Belt are typically suitable for such extensive uses and the SDF should pave the way for permission in this regard. Other suitable properties should not be excluded; need and desirability should determine location.

The following specific guidelines should be kept in mind when considering these applications:

Table 2: Aspects to consider in renewable energy land use applications

Locality	• Resource based. • Consider the merit based on the motivation provided by applicant in accordance with section 6(3) of the SPLUM By-law: *Any land development application in terms of this By-law shall address need, reasonableness, desirability and public interest and sustainability.*
	• Wind direction – bioenergy application. • Land with severe geotechnical constraints that is generally not developable, such as mining land, could be considered for large scale solar generation plants.
Size	• Consider the motivation provided by the applicant. • Future expansion potential.
Access	• Installation and grid connection will generate the most trips. Operation and maintenance will have low trip generation levels. • Access should be appropriate for large delivery vehicles.
Surrounding land uses	• Consider the type of plant and possible impact on surrounding land uses, although the impact is usually small.
Special requirements	• High level of security. • Accommodation and office for security/access management and operational staff. Water, sanitation, electricity and waste removal.

	• Stormwater attenuation measures if required. • Appropriate boundary treatment (fence) that meets security requirements and fits in with the surrounding environment (preferably not a solid wall that creates a dead street front).
Incentives	• Incentives for installation of solar panels on roofs and parking areas could be considered, such as a 10% increase in coverage for residential and business uses.

ANNEXURE B2:
SPATIAL TARGETING AND TRANSFORMATION

B2.1: CoE Nodal Hierarchy
B2.2: CoE MSDF: CELUS Linkage Table (Comprehensive)
B2.3: Compatibility Guidelines
B2.4: Evaluating Proposals for Rooms to Let
B2.5: CoE Urban Development Boundary Policy
B2.6: Growth Management Tools (Prioritized)
B2.7: Urban Management Guidelines
B2.8: CoE Capital Prioritization Model and Weighting Matrix
B2.9: Catalytic Land Development Programme

ANNEXURE B2.1: COE NODAL HIERARCHY – DEFINED ACCORDING TO CRITERIA

Classification				Status				Administrative Function (Regional)	High Order Community Facilities (Regional)							Lower Order Community Facilities (Local)			
MSDF Node Number	Region	Name	Suburb	Existing / Future	Centre Hierarchy Ranking	Road Network	Service Area	Civic/Municipal/ CCC	Magistrate Court	Fire Station	Police	Hospital	Regional Government Departments	Tertiary Education	Regional Sport Complex/ Stadium	Library	Clinic	Community Hall	Community Sport Facilities
P1	North	Tembisa CBD	Igqagqa	Existing	(2)	Class 3/Class 4	Regional	●	●	●	●		●		●	●	●	●	●
P2	North	Kempton Park CBD	Kempton Park	Existing	(1)	Class 2 /Class 3/Class 4	Regional	●	●	●	●	●	●	●	●	●	●	●	●
P3	North	Emperors Palace/OR Tambo	Jurgenspark	Existing	(1)	Class 1/Class 2	Regional												
P4	North	Edenvale CBD	Edenvale	Existing	(1)	Class 2 /Class 3/Class 4	Regional	●	●	●	●		●	●	●	●	●	●	●
P5	North	East Gate/Bedfordview CBD/Bedford C	Bedfordview	Existing	(1)	Class 1/Class 2 /Class 3/Class 4	Regional			●		●		●		●	●	●	
P6	North	East Rand Mall Node	Jansen Park	Existing	(1)	Class 1/Class 2 /Class 3/Class 4	Regional			●									
P7	South	Germiston CBD	Germiston	Existing	(1)	Class 3/Class 4	Regional	●	●	●	●	●	●	●		●	●		
P8	South	Boksburg CBD	Boksburg	Existing	(1)	Class 2 /Class 3/Class 4	Regional	●	●	●	●	●	●	●	●	●	●		●
P9	South	Alberton CBD	Alberton	Existing	(1)	Class 2 /Class 3/Class 4	Regional	●		●	●	●	●	●	●	●	●		●
P10	South	Vosloorus CBD Node	Vosloorus	Existing	(2)	Class 1/Class 2 /Class 3/Class 4	Regional	●	●	●	●	●			●	●	●	●	●
P11	South	Palm Ridge CBD	Palm Ridge	Existing	(2)	Class 2 /Class 3/Class 4	Regional	●	●	●						●		●	●
P12	East	Daveyton CBD	Daveyton	Existing	(1)	Class 1/Class 3	Regional	●	●	●	●			●	●	●	●	●	●
P13	East	Benoni CBD	Benoni	Existing	(1)	Class 2 /Class 3/Class 4	Regional	●	●	●	●	●	●	●	●	●	●	●	●
P14	East	Carnival City Node	Dalpark	Existing	(1)	Class 1/Class 2	Regional												
P15	East	Brakpan CBD	Brakpan	Existing	(1)	Class 2 /Class 3/Class 4	Regional	●	●	●	●	●	●	●	●	●	●	●	●
P16	East	Springs CBD	Springs	Existing	(1)	Class 3/Class 4	Regional	●	●	●	●	●	●	●	●	●	●	●	
P17	East	Tsakane Community Centre	Tsakane	Existing	(1)	Class 1/Class 3	Regional	●	●	●	●	●			●	●	●	●	
P18	East	Nigel CBD	Nigel	Existing	(1)	Class 3/Class 4	Regional	●	●	●	●		●	●	●	●	●	●	
S1	North	Babsfontein Node	Babsfontein	Existing	(3)	Class 2 /Class 2	Community										●		
S2	North	Midstream Node	Clayville Corobrick Qu	Future		Class 3	Community												
S3	North	Olifantsfontein Road Node (K-27)	Olifantsfontein	Existing	(1)	Class 2 /Class 3/Class 4	Community			●	●								
S4	North	K27/Class 2 Express Way	Clayville east of R21	Future		Class 2 /Class 2	Community												
S5	North	Oakmoore Station	Tembisa x7	Existing	(3)	Class 2 /Class 4/Rail Station	Community												●
S6	North	Birch Acres Mall/Tembisa Plaza Node	Birch Acres/Tembisa	Existing	(1)	Class 3/Rail Station	Community									●	●	●	●
S7	North	Witfontein Node (R21/K60)	Witfontein	Future		Class 1/Class 2	Community												
S8	North	Esselen Park Node	Witfontein x52	Existing	(2)	Class 1/Class 2	Community						●						
S9	North	Witfontein Node (R21/K155)	Witfontein	Future		Class 1/Class 2	Community												
S10	North	Glen Acres Shopping Centre Node	Glen Marais	Existing	(1)	Class 2 /Class 4	Community										●		●
S11	North	Riverfield Node	Riverfield	Future		Class 2 /Class 2	Community										●		
S12	North	Eden Meadows Shopping Centre	Edenvale x5	Existing	(1)	Class 1/Class 2	Community												
S13	North	Aero City Centre	Brentwood Park	Future		Class 1/Class 2 /Class 3/Class 4	Community												
S14	North	R23-Brentwood Node	Brentwood	Existing	(2)	Class 2 /Class 4	Community			●									
S15	North	Meadowdale Node	Sunnyrock x7	Existing	(1)	Class 1/Class 2 /Class 3	Community												
S16	North	Primrose Node	Primrose	Existing	(2)	Class 2/Class 3	Community			●						●	●		●
S17	South	Boksburg North Strip (K106)	Boksburg North	Existing	(1)	Class 1/Class 2 /Class 3	Community				●							●	●
S18	South	Comet Station/Taxi Rank	Comet x17	Future		Rail Station	Community												
S19	South	Lambton Court Shopping Centre Node	Lambton	Existing	(2)	Class 2	Community												
S20	South	Elsburg Strip/Industrial	Elsburg	Existing	(2)	Class 3	Community									●	●	●	
S21	South	The Reef Shopping Centre Node	Union x56	Existing	(2)	Class 2	Community									●			
S22	South	Sunward Park Lifestyle Centre	Sunward Park	Existing	(2)	Class 2 /Class 4	Community												
S23	South	Klippoortjie Node	Klippoortjie AH	Future		Class 2 /Class 2	Community												
S24	South	Brackenhurst/Brackendowns Node	Brackenhurst/Bracke	Existing	(2)	Class 2/Class 3	Community										●	●	●
S25	South	Admin Triangle	Katlehong	Existing	(2)	Class 4	Community	●					●			●	●	●	●
S26	South	Dawn Park Shopping Centre Node	Dawn Park	Existing	(2)	Class 2	Community				●						●		
S27	South	Natalspruit (Letsoho Shopping Centre)	Thokoza	Existing	(2)	Class 2 /Class 4	Community	●		●	●							●	
S28	South	Chris Hani Crossing Shopping Centre N	Vosloorus	Existing	(1)	Class 2 /Class 4	Community												
S29	South	Ramakonopi Node	Katlehong	Existing	(1)	Class 4	Community												
S30	South	Sky City Mall Node	Watervalspruit x1	Existing	(2)	Class 2 /Class 4	Community												
S31	East	Valkhoogte (K109/K68)	Valkhoogte x13	Future		Class 2 /Class 2	Community												
S32	East	Rynfield Terrace Shopping Centre Nod	Rynfield	Existing	(2)	Class 2/Class 3	Community										●		
S33	East	K86/Lurie Street Node	Mayfield	Future		Class 2 /Class 4	Community										●		
S34	East	Etwatwa CBD	Etwatwa	Existing	(3)	Class 3 /Class 4	Community			●						●	●	●	

Classification				Status				Administrative Function (Regional)	High Order Community Facilities (Regional)							Lower Order Community Facilities (Local)			
MSDF Node Number	Region	Name	Suburb	Existing / Future	Centre Hierarchy Ranking	Road Network	Service Area	Civic/Municipal/ CCC	Magistrate Court	Fire Station	Police	Hospital	Regional Government Departments	Tertiary Education	Regional Sport Complex/ Stadium	Library	Clinic	Community Hall	Community Sport Facilities
S35	East	Northmead Mall Node	Northmead	Existing	(2)	Class 2 /Class 2	Community												●
S36	East	Dersley (K161)	Dersley	Future		Class 2 /Class 4	Community												
S37	East	Actonville/Wattville CBD	Actonville	Existing	(2)	Class 2 /Class 4	Community				●	●				●	●	●	●
S38	East	Springsgate Shopping Centre	Geduld x5	Existing	(2)	Class 2 /Class 4	Community									●			
S39	East	Geduld Strip (K132)	Geduld	Existing	(1)	Class 2 /Class 3	Community								●				●
S40	East	Springs Mall Node	Casseldale x4	Existing	(1)	Class 2 /Class 4	Community												●
S41	East	Daggafontein (K181)	Daggafontein	Future		Class 1/Class 2	Community												
S42	East	Witpoortjie (PWV 17/PWV 16)	Witpoortjie	Future		Class 1/Class 1	Community												
S43	East	KwaThema CBD	KwaThema	Existing	(3)	Class 3/Class 4	Community	●		●					●	●	●	●	
S44	East	Withok Estates AH Node (K109/K136)	Withok Estates AH	Future		Class 2 /Class 2	Community												
S45	East	Shoprite KwaThema	KwaThema/Selcourt	Existing	(2)	Class 2/Class 3	Community						●						
S46	East	Duduza CBD	Duduza	Existing	(3)	Class 1/Class 2/Class 3	Community	●		●	●		●		●	●	●	●	
T1	North	Midstream Square Node	Midstream	Existing	(2)	Class 3	Neighbourhood												●
T2	North	Olifantsfontein Road Node (K-27) West	Olifantsfontein	Future		Class 2/Class 2	Neighbourhood												
T3	North	Tembisa (Winnie Mandela)	Tembisa	Existing	(2)	Class 3/Class 3	Neighbourhood	●								●	●	●	●
T4	North	Swazi Inn	Leboeng/Teanong	Existing	(3)	Class 3	Neighbourhood												
T5	North	Mayibuye Centre Node	Commercia x9	Existing	(2)	Class 2 /Class 3	Neighbourhood			●									
T6	North	Birchleigh North (South of K60)	Birchleigh North	Future		Class 3 /Class 3	Neighbourhood												
T7	North	Birchleigh North Centre Node	Birchleigh North x2	Existing	(2)	Class 2 /Class 3	Neighbourhood									●	●	●	
T8	North	Norkem Park Corner Shopping Centre N	Norkem Park x1	Existing	(2)	Class 2 /Class 3	Neighbourhood												●
T9	North	Terenure Ext 10 (China Gate)	Terenure x10	Existing	(2)	Class 2 /Class 3	Neighbourhood												
T10	North	Kempton Gate Mall Node	Edleeen	Existing	(2)	Class 2 /Class 2	Neighbourhood												
T11	North	Bredell AH (K68/Mun (3))	Bredell AH	Future		Class 2 /Class 3	Neighbourhood												
T12	North	Bonaero Park Shopping Centre Node	Bonaeropark	Existing	(2)	Class 2	Neighbourhood									●	●		
T13	North	Eden Terrace Shopping Centre Node	Eden Glen X55	Existing	(2)	Class 3	Neighbourhood												
T14	North	Brabazon Shopping Centre Node	Croyden	Existing	(2)	Class 2 /Class 3	Neighbourhood										●		
T15	North	Kara Glen Shopping Centre Node	Eden Glen	Existing	(1)	Class 2 /Class 2	Neighbourhood												
T16	North	El Ridge Cnr Shopping Centre Node	Bartlett	Existing	(2)	Class 1/Class 2 /Class 3	Neighbourhood											●	
T17	North	Superspar - Witfield Node	Witfield	Existing	(2)	Class 3 /Class 4	Neighbourhood												●
T18	South	Falcon Crest Shopping Centre Node	Parkdene x2	Existing	(3)	Class 2 /Class 4	Neighbourhood												●
T19	South	Pick & Pay Marios	Reiger Park x1	Existing	(3)	Class 3	Neighbourhood				●		●			●	●		
T20	South	The Apple Bite Roadhouse/Strip	Klippoortjie Agricultu	Existing	(3)	Class 2 /Class 4	Neighbourhood												●
T21	South	Plus Supermarket - Tedstone Ville Nod	Tedstone Ville	Existing	(3)	Class 2 /Class 4	Neighbourhood												
T22	South	Elsburg Tailing Complex Node	Elsburg Tailing	Future		Class 3	Neighbourhood												
T23	South	Parkdene/ Park Rand Node	Park Rand	Existing	(2)	Class 3	Neighbourhood												
T24	South	Sunward Palms Shopping Centre Node	Sunward Park x8	Existing	(2)	Class 3 /Class 3	Neighbourhood												●
T25	South	Sunward Park Centre Node	Sunward Park	Existing	(2)	Class 3	Neighbourhood					●							
T26	South	Elspark/Freeway Park Node	Elspark	Existing	(2)	Class 2 /Class 4	Neighbourhood												
T27	South	Meyersdal Node	Meyersdal	Existing	(2)	Class 3	Neighbourhood												
T28	South	R59/ Nelson Mandela Ave Node	Randhart	Existing	(3)	Class 2 /Class 4	Neighbourhood												●
T29	South	Green Valley Meat Market Node	Klippoortjie AH	Existing	(3)	Class 2 /Class 3	Neighbourhood												
T30	South	Rondebult Shopping Centre Node	Klippoortje AL	Existing	(3)	Class 2 /Class 2	Neighbourhood												
T31	South	Rondebult (K129/K136)	Rondebult	Existing	(3)	Class 2 /Class 4	Neighbourhood												
T32	South	Roodekop (N3/M53)	Roodekop x22	Existing	(2)	Class 2 /Class 2	Neighbourhood												
T33	South	Bracken Gardens Centre Node	Brackenhurst x2	Existing	(2)	Class 3 /Class 4	Neighbourhood									●			
T34	South	Mayberry/Mayro Park (K89/Delphinium	Mayberry/Mayro Park	Future		Class 2 /Class 4	Neighbourhood												
T35	South	Spruitview Node	Spruitview	Existing	(2)	Class 2 /Class 4	Neighbourhood										●		
T36	South	Mapleton AH (K155 /K129)	Mapleton AH	Future		Class 2 /Class 4	Neighbourhood												
T37	South	Pilot Station	Katlehong	Existing	(3)	Train Station	Neighbourhood									●	●	●	
T38	South	Tshongweni Node	Katlehong	Existing	(3)	Class 2 /Class 4	Neighbourhood								●				
T39	South	Mogoerane Regional Hospital Node	Vosloorus x14	Existing	(3)	Class 3 /Class 3	Neighbourhood					●							
T40	South	Tinasonke Node	Tinasonke	Future		Class 3	Neighbourhood												
T41	South	Eden Park CBD	Eden Park	Existing	(3)	Class 2 /Class 4	Neighbourhood				●					●	●	●	●

Classification				Status				Administrative Function (Regional)	High Order Community Facilities (Regional)							Lower Order Community Facilities (Local)			
MSDF Node Number	Region	Name	Suburb	Existing / Future	Centre Hierarchy Ranking	Road Network	Service Area	Civic/Municipal/ CCC	Magistrate Court	Fire Station	Police	Hospital	Regional Government Departments	Tertiary Education	Regional Sport Complex/ Stadium	Library	Clinic	Community Hall	Community Sport Facilities
T42	South	A P Khumalo (Sontonga Mall)	Katlehong	Existing	(2)	Class 4	Neighbourhood												
T43	South	Katlehong Crossing Node	Katlehong South	Existing	(2)	Class 2 /Class 3	Neighbourhood												
T44	South	Vosloorus X28 Mahoodisa /Moagi St	Vosloorus X28	Future		Class 3 /Class 3	Neighbourhood												
T45	South	South of Eden Park Node	South of Eden Park	Future		Class 3 /Class 3	Neighbourhood												
T46	South	Palm Ridge (Sontonga/Umquandane)	Palm Ridge	Future		Class 3 /Class 3	Neighbourhood												
T47	South	Zonkizizwe Node	Zonkizizwe	Existing	(3)	Class 4	Neighbourhood	●		●	●					●	●	●	●
T89	South	Mopeli (Sontonga Rd/Hospital Rd)	Katlehong	Future	(3)	Class 3 /Class 3	Neighbourhood												
T48	East	Benoni AH (K68/Mun (3))	Benoni AHx3	Future		Class 2 /Class 3	Neighbourhood										●		
T49	East	Petit (M32/M44) (East of PWV17)	Petit	Existing	(3)	Class 2 /Class 2	Neighbourhood										●		
T50	East	Lilyvale AH (K68/Mun (3))	Lilyvale AH	Future		Class 2 /Class 3	Neighbourhood												
T51	East	Etwatwa - North Node	Etwatwa x32,34	Existing	(3)	Class 2 /Class 4	Neighbourhood										●		
T52	East	Valkhoogte (K109/Mun (3))	Valkhoogte	Future		Class 2 /Class 3	Neighbourhood												
T53	East	Etwatwa - West Node	Etwatwa	Existing	(3)	Class 3	Neighbourhood				●						●		●
T54	East	Putfontein AH (K169/Mun (3))	Putfontein AH	Future		Class 2 /Class 3	Neighbourhood												
T55	East	Rynfield AH (K86/Mun (3))	Rynfield AH S1	Future		Class 2 /Class 3	Neighbourhood												
T56	East	Oakfields Shopping Centre	Northmead x4	Existing	(2)	Class 3 /Class 3	Neighbourhood											●	●
T57	East	Rynfield Drapers & Outfitters Node	Rynfield AH S1	Existing	(2)	Class 3 /Class 4	Neighbourhood			●									
T58	East	Daveyton x2	Daveyton	Existing	(3)	Class 2 /Class 2	Neighbourhood												
T59	East	Cloverdene Shopping Centre	Chief Luthuli Park	Existing	(2)	Class 3 /Class 3	Neighbourhood												
T60	East	Chris Hani (K173) (North of N-12)	Chris Hani	Future		Class 2 /Class 4	Neighbourhood												
T61	East	Northmead Square Node	Northmead	Existing	(2)	Class 3 /Class 4	Neighbourhood												●
T62	East	Daveyton Shoprite Node	Daveyton	Existing	(2)	Class 2 /Class 3	Neighbourhood											●	
T63	East	The Falls/Farramere Shopping Centre N	Northmead x6	Existing	(2)	Class 2 /Class 4	Neighbourhood							●			●		●
T64	East	K173/Cloverfield Rd (South of N-12)	MODDER EAST 72-IR	Future		Class 2 /Class 4	Neighbourhood												
T65	East	The Conservatory @ Lakefield Node	Lakefield	Existing	(2)	Class 3	Neighbourhood												●
T66	East	Enstra (K173/Railway)	Enstra	Future		Class 2 /Railway Station	Neighbourhood												
T67	East	Modder East (K173/K106)	Modder East	Future		Class 2 /Class 2	Neighbourhood												
T68	East	New Modder (K106/Mun (3))	New Modder	Future		Class 2 /Class 3	Neighbourhood												
T69	East	Leachville (Mun (3)/Mun (3))	Leachville x2	Future		Class 3 /Class 3	Neighbourhood												
T70	East	Bakerton (K175)	Bakerton	Existing	(3)	Class 2 /Class 4	Neighbourhood											●	
T71	East	Dalview Spar Node	Dalview	Existing	(3)	Class 3	Neighbourhood												●
T72	East	Vulcania Station	Vulcania	Existing	(3)	Train Station	Neighbourhood												
T73	East	New Era Station	New Era	Existing	(3)	Train Station	Neighbourhood												
T74	East	Dalpark/Minnebron (K109)	Dalpark/Minnebron	Future		Class 2 /Class 4	Neighbourhood												
T75	East	South of Pollak Park (K161)	South of Pollak Park	Future		Class 2 /Class 4	Neighbourhood												
T76	East	KwaThema Square Node	Maryvlei x1	Existing	(2)	Class 3	Neighbourhood							●					
T77	East	South of Dalpark (Mans Str)	South of Dalpark	Future		Train Station	Neighbourhood												
T78	East	Withok Estates AH (K136)	Withok Estates AH	Future		Class 2 /Class 4	Neighbourhood												
T79	East	Ekhaya Shopping Centre Node	KwaThema x7	Existing	(2)	Class 2 /Class 3	Neighbourhood												●
T80	East	Selcourt Towers Node	Selcourt	Existing	(2)	Class 2 /Class 3	Neighbourhood												
T81	East	Struisbult (Vogelstruisbult Rd)	Struisbuilt	Existing	(2)	Class 3	Neighbourhood						●						
T82	East	Sharon Park Shopping Centre Node	Sharon Park	Existing	(2)	Class 3	Neighbourhood												
T83	East	Langaville/Dunottar Node	Langaville/Dunottar	Future		Class 2 /Class 3	Neighbourhood										●		
T84	East	Bluegum View (Madiba St/Sam Smith R	Bluegum View	Existing	(2)	Class 3/Class 3	Neighbourhood												
T85	East	John Dube Village	John Dube Village x1	Future		Class 2 /Class 4	Neighbourhood												
T86	East	Withok Estates AH (R23)	Withok Estates AH	Future		Class 2 /Class 4	Neighbourhood												
T87	East	North West of Pretoriustad (K150)	North West of Pretori	Future		Class 2 /Class 4	Neighbourhood												
T88	East	Alra Park x5/Laversburg (R51)	AlraParkx5/Laversbur	Future		Class 2 /Class 2	Neighbourhood												
T90	East	Helderwyk x11 (K155/K136)	Helderwyk	Future		Class 2 /Class 2	Neighbourhood												
T91	East	Dalpark (Springs Rd/Afrikaner St)	Dalpark	Future		Class 2 /Class 3	Neighbourhood												

ANNEXURE B2.2: COE MSDF: CELUS LINKAGE TABLE (COMPREHENSIVE)

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																		Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining		
Standard/Base Land Use																						
	Protected Areas	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	All land uses shall be subject to relevant environmental processes / authorization (to the extent applicable), as a **prerequisite, before any alternative land uses may be considered** and the outcome from such processes shall inform the nature and extent of alternative land uses that can be considered. In respect of CELUS zonings indicated with the **symbol** Δ for the particular SDF land use category, a **determination of land uses that can be considered favourably (for purposes of being regarded to be consistent with the land use provisions of the SDF**, as well as **further evaluation of proposals for land uses represented under CELUS zonings indicated with the symbol** Δ) shall be subject to the provisions applicable to the dominant SDF land use category that prevails for the area within which the subject land parcel is located, or the dominant SDF land use category that prevails in the area directly adjacent or directly around the subject land parcel. In the event that the subject land parcel is located on the interface between two dominant SDF land use categories, then the above determination shall be based on the SDF land use category applicable to the geographic area to which the subject land parcel relates functionally (for which purpose factors such as the roads network configuration and orientation of access to the property will be important considerations). See examples, for illustration, in in the interpretation notes below the table.	

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																		Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining		
Standard/Base Land Use																						
	Regional Open Space	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	All land uses shall be subject to relevant environmental processes / authorization (to the extent applicable), as a **prerequisite, before any alternative land uses may be considered** and the outcome from such processes shall inform the nature and extent of alternative land uses that can be considered. In respect of CELUS zonings indicated with the **symbol Δ** for the particular SDF land use category, a **determination of land uses that can be considered favourably (for purposes of being regarded to be consistent with the land use provisions of the SDF**, as well as **further evaluation of proposals for land uses represented under CELUS zonings indicated with the symbol Δ**) shall be subject to the provisions applicable to the dominant SDF land use category that prevails for the area within which the subject land parcel is located, or the dominant SDF land use category that prevails in the area directly adjacent or directly around the subject land parcel. In the event that the subject land parcel is located on the interface between two dominant SDF land use categories, then the above determination shall be based on the SDF land use category applicable to the geographic area to which the subject land parcel relates functionally (for which purpose factors such as the roads network configuration and orientation of access to the property will be important considerations). See examples, for illustration, in in the interpretation notes below the table.	

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																		Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining		
Standard/Base Land Use																						
	Parks, Sports & Recreation Facilities	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	All land uses shall be subject to relevant environmental processes / authorization (to the extent applicable), as a **prerequisite, before any alternative land uses may be considered** and the outcome from such processes shall inform the nature and extent of alternative land uses that can be considered. In respect of CELUS zonings indicated with the **symbol Δ** for the particular SDF land use category, a **determination of land uses that can be considered favourably (for purposes of being regarded to be consistent with the land use provisions of the SDF**, as well as **further evaluation of proposals for land uses represented under CELUS zonings indicated with the symbol Δ**) shall be subject to the provisions applicable to the dominant SDF land use category that prevails for the area within which the subject land parcel is located, or the dominant SDF land use category that prevails in the area directly adjacent or directly around the subject land parcel. In the event that the subject land parcel is located on the interface between two dominant SDF land use categories, then the above determination shall be based on the SDF land use category applicable to the geographic area to which the subject land parcel relates functionally (for which purpose factors such as the roads network configuration and orientation of access to the property will be important considerations). See examples, for illustration, in in the interpretation notes below the table.	

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																			Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining		
Standard/Base Land Use																						
	Public Services	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	In respect of CELUS zonings indicated with the **symbol Δ** for the particular SDF land use category, a **determination of land uses that can be considered favourably (for purposes of being regarded to be consistent with the land use provisions of the SDF**, as well as **further evaluation of proposals for land uses represented under CELUS zonings indicated with the symbol Δ**) shall be subject to the provisions applicable to the dominant SDF land use category that prevails for the area within which the subject land parcel is located, or the dominant SDF land use category that prevails in the area directly adjacent or directly around the subject land parcel. In the event that the subject land parcel is located on the interface between two dominant SDF land use categories, then the above determination shall be based on the SDF land use category applicable to the geographic area to which the subject land parcel relates functionally (for which purpose factors such as the roads network configuration and orientation of access to the property will be important considerations). See examples, for illustration, in in the interpretation notes below the table.	

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																		Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining	
Standard/Base Land Use																					
	Transportation	x	x	x	x	x	•	•	x	•	•	•	x	x	•	•	•	•	x	x	**<u>Uses to be subjected to additional requirements or evaluation criteria:</u>** - **Filling Station** (Subject to environmental assessment.) - **Fuel Depot; Gas Works** (subject to environmental assessment, as well as assessment in relation to compatibility criteria for noxious uses, as per Compatibility Table in **Annexure B2.3**.)	Excluded Uses: - Abattoirs - Bakery - Bed and Breakfast - Boarding Houses - Camping Site - Cemeteries - Commercial Vehicle Mart - Commune - Dwelling House - Dwelling Units - All uses that are, according to the CELUS definitions, related to a "Dwelling House"/ "Dwelling Unit" - Funeral Parlour - Guest House - Home Care Facilities - Mortuary - Motor Dealers - Old Age Homes - Retirement Village - Scrap Yards - Waste Disposal Sites

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																		Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining	
Standard/Base Land Use																					
	Mining Areas	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	All land uses shall be subject to relevant environmental processes / authorization (to the extent applicable), as well as the criteria for re-development of mining land (refer to **Annexure B1.5**), as a **prerequisite, before any alternative land uses may be considered** and the outcome from such processes shall inform the nature and extent of alternative land uses that can be considered. In respect of CELUS zonings indicated with the **symbol Δ** for the particular SDF land use category, a **determination of land uses that can be considered favourably (for purposes of being regarded to be consistent with the land use provisions of the SDF**, as well as **further evaluation of proposals for land uses represented under CELUS zonings indicated with the symbol Δ**) shall be subject to the provisions applicable to the dominant SDF land use category that prevails for the area within which the subject land parcel is located, or the dominant SDF land use category that prevails in the area directly adjacent or directly around the subject land parcel. In the event that the subject land parcel is located on the interface between two dominant SDF land use categories, then the above determination shall be based on the SDF land use category applicable to the geographic area to which the subject land parcel relates functionally (for which purpose factors such as the roads network configuration and orientation of access to the property will be important considerations). See examples, for illustration, in in the interpretation notes below the table.	

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																			Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining		
Standard/Base Land Use																						
	Agriculture	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	In respect of **land located OUTSIDE the urban development boundary / urban edge**, where such land is earmarked for "Agriculture" purposes, **a determination of land uses that can be considered favourably (for purposes of being regarded to be consistent with the land use provisions of the SDF) shall be based on the provisions of the Urban Development Boundary Policy, as per Annexure B2.5**. Evaluation of land use proposals on such land parcels shall also **still be subject to other evaluation considerations**, such as compatibility (as per the **Compatibility Table in Annexure B2.3**), any land use management policy that may be applicable, environmental assessment (if applicable) and any other relevant procedures, legislation, bylaws and policies. For CELUS zonings indicated with the **symbol Δ** in respect of **land located INSIDE the urban development boundary / urban edge**, where such land is earmarked for "Agriculture" purposes, a **determination of land uses that can be considered favourably (for purposes of being regarded to be consistent with the land use provisions of the SDF**, as well as **further evaluation of proposals for land uses represented under CELUS zonings indicated with the symbol Δ**) shall be subject to the provisions applicable to the dominant SDF land use category that prevails for the area within which the subject land parcel is located, or the dominant SDF land use category that prevails in the area directly adjacent or directly around the subject land parcel. In the event that the subject land parcel is located on the interface between two dominant SDF land use categories, then the above determination shall be based on the SDF land use category applicable to the geographic area to which the subject land parcel relates functionally (for which purpose factors such as the roads network configuration and orientation of access to the property will be important considerations). See examples, for illustration, in in the interpretation notes below the table.	

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																		Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining		
Standard/Base Land Use																					
	Residential Areas	•	•	•	•	x	•	•	x	x	•	x	•	•	•	x	•	•	x	x	**<u>In this SDF land use category, the following land uses are required to be clustered in a business node (which could also be a local neighbourhood or convenience business node, of a lower order than a tertiary node). (Note: For this purpose, a cluster of non-residential uses, consisting of only social and community facilities, shall NOT be regarded as a local neighbourhood or convenience business node):</u>** Adult Entertainment; Builder's Yards; Business Purposes; Car Wash (not part of a Filling Station); Clinic; Fitment Centre; Funeral Parlours; Government Purposes; Hospitals; Medical Consulting Rooms; Municipal and Government offices; Offices; Parking Garages; Places of Entertainment; Place of Refreshment; Post Offices; Postal Depot; Service Industries; Shops; Taxi Ranks; Veterinary Hospitals **<u>In this SDF land use category, the following land uses are required to be clustered with other non-residential uses, such as social and community facilities (which could also include a functional public park), or other low-key business uses listed below, or it could also be located in a local neighbourhood / convenience business node:</u>** Animal Care Centre; Beauty/Health Spa; Children's Party Venue; Coffee Shop (restricted as per CELUS definition); Conference Centres; Gymnasium; Institutions; Plant Nurseries **<u>Uses to be subjected to additional requirements or evaluation criteria:</u>** - **Boarding Houses; Boarding Rooms; Commune; Residential Buildings** (Subject to evaluation guidelines for "rooms to let" as per **Annexure B2.4**.) - **Child Care Centre; Spaza Shop; Tavern** (Subject to applicable land use management policy and specific provisions in CELUS.) - **Filling Stations** (Subject to environmental assessment.)	Excluded Uses: - Abattoirs - Airfield - Correctional Services - Electricity Power Station - Gas Works - Military Facilities - Motor Dealers - Motor Workshops - Produce Markets - Resorts - Waste Disposal Sites - Waste Water Works - Zoological Garden

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																			Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining		
Standard/Base Land Use																						
	Community Facilities and Social Services	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	In respect of CELUS zonings indicated with the **symbol Δ** for the particular SDF land use category, a **determination of land uses that can be considered favourably (for purposes of being regarded to be consistent with the land use provisions of the SDF**, as well as **further evaluation of proposals for land uses represented under CELUS zonings indicated with the symbol Δ**) shall be subject to the provisions applicable to the dominant SDF land use category that prevails for the area within which the subject land parcel is located, or the dominant SDF land use category that prevails in the area directly adjacent or directly around the subject land parcel. In the event that the subject land parcel is located on the interface between two dominant SDF land use categories, then the above determination shall be based on the SDF land use category applicable to the geographic area to which the subject land parcel relates functionally (for which purpose factors such as the roads network configuration and orientation of access to the property will be important considerations). See examples, for illustration, in in the interpretation notes below the table.	

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																		Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining		
Standard/Base Land Use																						
	Business Areas	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	In respect of CELUS zonings indicated with the **symbol Δ** for the particular SDF land use category, a **determination of land uses that can be considered favourably (for purposes of being regarded to be consistent with the land use provisions of the SDF**, as well as **further evaluation of proposals for land uses represented under CELUS zonings indicated with the symbol Δ**) shall be subject to the provisions applicable to the dominant SDF land use category that prevails for the area within which the subject land parcel is located, or the dominant SDF land use category that prevails in the area directly adjacent or directly around the subject land parcel. In the event that the subject land parcel is located on the interface between two dominant SDF land use categories, then the above determination shall be based on the SDF land use category applicable to the geographic area to which the subject land parcel relates functionally (for which purpose factors such as the roads network configuration and orientation of access to the property will be important considerations). See examples, for illustration, in in the interpretation notes below the table.	

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																			Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining		
Standard/Base Land Use																						
	Industrial	x	x	x	x	x	•	•	•	•	•	•	•	•	•	x	•	•	•	•	**<u>Uses to be subjected to additional requirements or evaluation criteria:</u>** - **Abattoirs; Brick Making; Compost Producer; Electricity Power Station; Fuel Depot; Gas Works; Noxious Industries*; Waste Disposal Sites** (subject to environmental assessment, as well as assessment in relation to compatibility criteria for noxious uses, as per Compatibility Table in **Annexure B2.3**.) - **Hotels; Institutions; Libraries; Place of Public Worship; Place of Refreshment; Social Halls; Sport and Recreation Clubs; Sports Grounds** (Subject to assessment in relation to compatibility criteria, as per Compatibility Table in **Annexure B2.3**, with due regard for the possible impact of surrounding industrial uses on such uses, as well as the possible reverse impact of such uses on surrounding industrial uses - i.e. the establishment of such uses in industrial areas should not result in limitations to be placed on the operations of surrounding industrial uses.) - **Place of Education; Place of Instruction** (Shall be related to industrial uses only.) - **Filling Stations** (Subject to environmental assessment.)	Excluded uses: - Bed and Breakfast - Boarding House - Camping Site - Child Care Centre - Children's Party Venue - Dwelling House - Dwelling Units - All uses that are, according to the CELUS definitions, related to a "Dwelling House"/ "Dwelling Unit" - Guest Houses - Old Age Home - Residential Buildings - Resorts - Retirement Village - Self-catering Units - Waste Water Works

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																		Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining		
Standard/Base Land Use																					
	Light Industrial/Commercial	x	x	x	x	x	•	•	x	•	•	•	•	•	•	x	•	•	•	x	**<u>Uses to be subjected to additional requirements or evaluation criteria:</u>** - **Compost Producer; Electricity Power Station; Fuel Depot; Gas Works; Waste Disposal Sites** (Subject to environmental assessment, as well as assessment in relation to compatibility criteria for noxious uses, as per Compatibility Table in **Annexure B2.3**.) - **Hotels; Institutions; Libraries; Place of Public Worship; Place of Refreshment; Social Halls; Sport and Recreation Clubs; Sports Grounds** (Subject to assessment in relation to compatibility criteria, as per Compatibility Table in **Annexure B2.3**, with due regard for the possible impact of surrounding industrial uses on such uses, as well as the possible reverse impact of such uses on surrounding industrial uses - i.e. the establishment of such uses in industrial areas should not result in limitations to be placed on the operations of surrounding industrial uses.) - **Place of Education; Place of Instruction** (Shall be related to industrial uses only.) - **Filling Stations** (Subject to environmental assessment.)	Excluded uses: - Abattoirs - Bed and Breakfast - Boarding Houses - Camping Site - Child Care Centre - Children's Party Venue - Dwelling House - Dwelling Units - All uses that are, according to the CELUS definitions, related to a "Dwelling House"/ "Dwelling Unit" - Guest Houses - Old Age Home - Residential Buildings - Resorts - Retirement Village - Self-catering Units - Waste Water Works

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																		Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining		
Mixed Land Use Developable Area (Overlays)																					
Mixed Use: B1	Highest order of Business Land Use Mix and Intensity.	•	•	•	•	•	•	•	x	•	•	•	•	•	•	•	•	•	x	x	**<u>Uses to be subjected to additional requirements or evaluation criteria:</u>** - **Boarding Houses; Boarding Rooms; Commune; Residential Buildings** (Subject to evaluation guidelines for "rooms to let" as per **Annexure B2.4**.) - **Filling Stations** (Subject to environmental assessment.)	Excluded uses: - Abattoirs - Agricultural Uses - Airfield - Airport - Camping Site - Commercial Vehicle Mart - Electricity Power Station - Fuel depot - Gas Works - Waste Disposal Sites - Waste Water Works
Mixed Use: B2	Business/Offices in combination with Multiple Residential Development.	•	•	•	•	x	•	•	x	x	•	x	•	•	•	•	•	•	x	x	**<u>Uses to be subjected to additional requirements or evaluation criteria:</u>** - **Boarding Houses; Boarding Rooms; Commune; Residential Buildings** (Subject to evaluation guidelines for "rooms to let" as per **Annexure B2.4**.) - **Filling Stations** (Subject to environmental assessment.)	Excluded uses: - Abattoirs - Agricultural Uses - Airfield - Camping Site - Correctional Services - Electricity Power Station - Gas Works - Military Facilities - Resorts - Waste Disposal Sites - Waste Water Works

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																			Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining		
Mixed Use: B2 (TEZ) Township Enterprise Zone	Mixed Use: Business, Residential, Light Industrial, Commercial on a small scale to be compatible with the surrounding environment	•	•	•	•	x	•	•	x	•	•	x	•	•	•	•	•	•	x	x	**<u>Uses to be subjected to additional requirements or evaluation criteria:</u>** - **Boarding Houses; Boarding Rooms; Commune; Residential Buildings** (Subject to evaluation guidelines for "rooms to let" as per **Annexure B2.4**.) - **Filling Stations** (Subject to environmental assessment.) - **Commercial Purposes; Light Industry** (Must be of such nature and scale that it does not create a nuisance to neighbouring properties and applicant must illustrate how the use can be accommodated within the extent of the property boundaries and in compliance with all CELUS requirements.)	Excluded uses: - Abattoirs - Agricultural Uses - Airfield - Auctioneers - Camping Site - Commercial Vehicle Mart - Correctional Services - Electricity Power Station - Fuel depot - Gas Works - Military Facilities - Mortuary - Resorts - Scrap Yards - Waste Disposal Sites - Waste Water Works
Mixed Use: R&O	Redevelopment of area into Multiple Residential and or Offices	•	•	•	•	x	x	•	x	x	•	x	•	•	•	•	•	•	x	x	**<u>In this SDF land use category, the following land uses are required to be clustered with other non-residential uses, such as social and community facilities (which could also include a functional public park), or other low-key business uses listed below, or it could also be located in a local neighbourhood / convenience business node:</u>** Adult Entertainment; Animal Care Centres; Conference Centres; Gymnasium; Hospitals; Institutions; Place of Entertainment; Service Industries; Sport and Recreation Clubs; Swimming Pools; Taxi Ranks; Veterinary Hospitals **<u>Uses to be subjected to additional requirements or evaluation criteria:</u>** - **Boarding Houses; Boarding Rooms; Commune; Residential Buildings** (Subject to evaluation guidelines for "rooms to let" as per **Annexure B2.4**.) - **Child Care Centre; Spaza Shop; Tavern** (Subject to applicable land use management policy and specific provisions in CELUS.) - **Filling Stations** (Subject to environmental assessment.)	Excluded uses: - Abattoirs - Airfield - Correctional Services - Electricity Power Station - Gas Works - Military Facilities - Motor Dealers - Motor Workshops - Produce Markets - Resorts - Waste Disposal Sites - Waste Water Works - Zoological Garden - Shops (To be excluded in accordance with recommended CELUS amendments depicted in Table 51 of the MSDF-report)

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																		Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories	Exclusions (Specific land uses excluded from the particular MSDF land use category)
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining	
Mixed Land Use Developable Area (Overlays)																					
Mixed Use: BLIC	Mixed Use: Business, Residential, Light Industrial, Commercial	●	●	●	●	x	●	●	x	●	●	●	●	●	●	●	●	●	●	x	**Uses to be subjected to additional requirements or evaluation criteria:** - **Abattoirs; Compost Producer; Electricity Power Station; Fuel Depot; Gas Works; Waste Disposal Sites; Waste Water Works** (Subject to environmental assessment, as well as assessment in relation to compatibility criteria for noxious uses, as per Compatibility Table in **Annexure B2.3**.) - **Filling Stations** (Subject to environmental assessment.) - **Boarding Houses; Boarding Rooms; Commune; Residential Buildings** (Subject to evaluation guidelines for "rooms to let" as per **Annexure B2.4**.)	

Interpretation of annotations in Linkage Table:

●	CELUS zonings indicated with the symbol ● for a particular SDF land use category can be considered favourably for purposes of linking the particular SDF land use category to specific CELUS land uses for consideration under the particular SDF land use category, subject to specific provisions, requirements and exclusions stated in respect of particular land uses and / or the particular SDF land use category, as well as applicable notes for interpretation.
Δ	In respect of CELUS zonings indicated with the symbol Δ for a particular SDF land use category, a determination of land uses that can be considered favourably (for purposes of being regarded to be consistent with the land use provisions of the SDF, as well as further evaluation of proposals for land uses represented under CELUS zonings indicated with the symbol Δ) shall be subject to the provisions applicable to the dominant SDF land use category that prevails for the area within which the subject land parcel is located, or the dominant SDF land use category that prevails in the area directly adjacent or directly around the subject land parcel. (Examples: If the subject land parcel is located within an area earmarked for "Residential" purposes, or if the area directly adjacent or directly around the subject land parcel is earmarked for "Residential" purposes, then the provisions applicable to the "Residential" land use category in the SDF shall serve as basis for assessing the land use proposal under consideration in relation to the SDF. Similarly, if the subject land parcel is located within an area earmarked for "Industrial" purposes, or if the area directly adjacent or directly around the subject land parcel is earmarked for "Industrial" purposes, then the provisions applicable to the "Industrial" land use category in the SDF shall serve as basis for assessing the land use proposal under consideration in relation to the SDF.) In the event that the subject land parcel is located on the interface between two dominant SDF land use categories, then the above determination shall be based on the SDF land use category applicable to the geographic area to which the subject land parcel relates functionally (for which purpose factors such as the roads network configuration and orientation of access to the property will be important considerations).
x	CELUS zonings indicated with the symbol x for a particular SDF land use category shall not be considered for purposes of linking the particular SDF land use category to specific CELUS land uses for consideration under the particular SDF land use category.
*	A determination of noxious uses / activities shall be based on the CELUS definition for "Noxious Industry".

General Notes:
All applications and land use proposals shall be subject to relevant application procedures and any relevant provisions or requirements, as depicted in SPLUMA, CoE SPLUM By-law, CELUS and any other parts of the SDF, as well as access management requirements and any required studies or investigations provided for in any other applicable policy or legislation.

Section B refers to all land uses under columns 3, 4 and 5 in CELUS (Table B) for purposes of linking the particular SDF land use category to specific CELUS land uses for consideration under the particular SDF land use category. Uses listed under column 6 in Table B of CELUS shall not be taken into account for purposes of this Linkage Table, because the uses listed in column 6 relate directly to the particular uses listed under columns 3 and 4 of a particular zoning and shall be dealt with in accordance with the particular zoning applicable to a particular property at the particular time. This Linkage Table relates to the version of CELUS, dated 18 November 2024, operational at the time of formulation of this revised SDF.

General Exclusions: Interpretation of uses in table above does not include "any other uses" and "special uses".

Residential Densities: The reference in the above table to particular zonings in CELUS are not intended to serve as proposals in respect of Residential Densities. Densities are dealt with in a separate section of the SDF.

Municipal Purposes: Refer to provisions of Clause 30.2.2 of CELUS in respect of land uses provided for under "Municipal Purposes".

Noxious land uses: All noxious land uses, as provided for under the CELUS definition for "Noxious Industry" shall be assessed in relation to the compatibility guidelines (as per **Annexure B2.3**) with particular emphasis on the part of the guidelines dealing with noxious industries.

Rooms to let: Any land use concept that involves individual rooms being rented out to unrelated persons (such as *inter alia* boarding houses, boarding rooms, communes, hostels, tenements, but not temporary, short term, hospitality related accommodation, such as hotels and guest houses) shall be evaluated in relation to the Rooms to Let guidelines, as per **Annexure B2.4**.

Functional public park: Reference in the SDF to a functional public park shall mean an open space, with appropriate dimensions, planned and intended to function legally, practically and safely as a park for use by the general public and that is practically accessible to the general public, from the area under consideration. It does not include "space left over after planning" (SLOAP), or open space emanating from or intended for purposes other than a public park, unless the applicant is able to convincingly and to the satisfaction of the municipality illustrate that an adequate extent (with appropriate dimensions) of such "SLOAP" is practically accessible to the general public (from the area under consideration) and can legally, practically and safely function as a park for use by the general public.

ANNEXURE B2.3: COMPATIBILITY GUIDELINES

The tables below must only serve as a guiding tool to evaluate various applications for Triggers and Mitigation Measures relating to compatibility with adjacent land use. When conducting a compatibility assessment and applying mitigation in relation to these compatibility guidelines, it must be done in a manner that does not create an unwanted precedent for similar uses along the same road or within the subject area.

1. Building Scale and Site Design
This factor relates to how an entire site is developed in relationship to neighbouring uses, paying particular attention to building height and scale, orientation, and layout. The presence of these triggers in higher intensity Spatial Planning Categories (e.g. Nodes) may not indicate a compatibility concern because larger differences in scale and massing are expected and appropriate in these more urban areas.
Triggers
Development proposals that trigger the criteria and considerations, such as those listed below, must be evaluated in relation to mitigation measures to mitigate compatibility issues (this is however not an exhaustive list of scenarios).
1. Is the proposed density/intensity of development misaligned with the designated density for the area (with due regard for the residential density guidelines in the MSDF)?
2. Is the proposed built form and/or layout of the proposed development (height, coverage, setback, street frontage, building orientation, building position, etc.) incompatible or in contrast with the surrounding built form?
3. Will the building position creating a shadow effect on adjacent buildings?
Mitigation Measures
List of potential measures, for evaluation, to mitigate issues of compatibility. This list is not exhaustive, and appropriate mitigations may also vary according to the site-specific circumstances and context. Developers are encouraged to propose their own solutions that are suitable to the circumstances of the particular site and that are to the satisfaction of the municipality (with due regard for the relevant objectives and intent of the MSDF/RSDF, as well as CELUS and applicable policies and legislation). Also refer to the Ekurhuleni Urban Design Guidelines (as per Annexure B5.6) for urban design mitigations that may be appropriate for the particular development proposal.
1. Provide gradual transition between smaller and larger residential erven through the arrangement and scale of erven and/or by providing appropriately scaled buffers.
2. Minimize the mass of buildings that directly face smaller, pre-existing buildings by: a) reducing the visual impact with larger setbacks than those prevailing on the street; b) incorporating design and elevation features that complement adjacent lower-density development; c) stepping buildings down to a scale (building bulk, footprint size, and height) complementing adjacent development; and/or e) breaking up massing of buildings.
3. Design structures in a manner that provides a visual or height transition and complements the scale and form of adjacent development. This can be done through reducing building height, providing step-backs, varying massing, increasing setbacks, and other techniques.
4. Request screens on balconies and frosted glass on windows to prevent overlooking onto entertainment areas of single residential properties.
5. Require a physical screening barrier (e.g. a 2 m high screen wall or alternatively require the use of plants to provide screening) along the boundaries of the erf abutting residential properties.
6. In cases where boundary walls are causing a negative impact on neighbouring properties, the application of architectural responses, such as green wall responses, are encouraged as means of softening the imposing impact on neighbouring properties. In cases where the wall is creating a dark space, the implementation of adequate lighting solutions is encouraged.
7. Alternating/undulating facades, especially for buildings longer than a standard block.

8. Use drainageways, mature trees, wetlands, and grassland areas to improve compatibility in building scale.
9. Locate, design, and manage stormwater management features (including retention and detention basins, surface drainageways, constructed wetlands, and greenways) to provide visual amenities or entryways, or to provide opportunities for passive recreation.
10. Require open space (active or passive) as an interface. This could be an attribute to a development and provides environmental and climate resilience in terms of water run-off and cool environments.
11. Impose a servitude or building line on the common boundary to separate the uses and protect low density residential development.
12. Use landscape, pedestrian ways, and parking design to divide large parking lots into smaller blocks.
13. Use landscaped buffers and screening to reduce the visual impact of parking facilities on adjacent residential areas.

2. Traffic
In auto-oriented settings, the amount, timing, and routing of traffic generated by the use can produce impacts on the surrounding area. This measure focuses on the differences in the amount and type of traffic generated between a proposed development and existing uses. Issues of traffic compatibility may be less of a concern in Nodes. The potential impact of a proposed development on pedestrian and traffic safety should also be considered.
Triggers
Development proposals that trigger the criteria and considerations, such as those listed below, must be evaluated in relation to mitigation measures to mitigate compatibility issues (this is however not an exhaustive list of scenarios).
1. Is the development proposal consistent / inconsistent with Committee of Transport Officials (COTO) guidelines as determined by the relevant Roads Authorities?
2. Does average daily traffic to be generated by the proposed development substantially exceed that of existing, adjacent uses?
3. Could proposed access arrangements have an undesirable impact on the functioning of adjacent or nearby higher order roads?
4. Could the proposed development place undue pressure on the capacity of the surrounding roads and transportation infrastructure network?
5. Is the proposed development likely to result in the mixing of incompatible vehicle / transportation types (with due regard for not only light passenger vehicles and large delivery vehicles, but also public transport and pedestrians and non-motorised modes of transport)?
6. Could the proposed development have a potential detrimental impact on pedestrian and traffic safety?
Mitigation Measures
List of potential measures, for evaluation, to mitigate issues of compatibility. This list is not exhaustive, and appropriate mitigations may also vary according to the site-specific circumstances and context. Developers are encouraged to propose their own solutions that are suitable to the circumstances of the particular site and that are to the satisfaction of the municipality (with due regard for the relevant objectives and intent of the MSDF/RSDF, as well as CELUS and applicable policies and legislation).
1. Coordinate with the municipality (and relevant Roads Authorities) to construct improvements necessary to mitigate the proposed development's impact on the subject street or intersection. Enter into a development agreement with the City to jointly upgrade intersections or networks over time.
2. Utilize site designs, building groupings, and site features that accommodate and encourage the use of transportation alternatives, including pedestrian, bicycle, and public transportation. Examples of techniques include continuous walkways from public sidewalks, transit stops, and multi-use paths and trails to building entrances; use of durable surface materials to define pedestrian routes and crossings; and visible and convenient bicycle parking facilities.
3. Increase the connectivity of the street network to reduce reliance on single routes for access.
4. Design connections to avoid channelling traffic generated by higher intensity uses onto neighbourhood streets except as part of comprehensively planned mixed-use developments. Provide means of access to residential areas that avoids requiring residents to use arterial streets for short-distance trips.
5. Use traffic calming techniques to promote pedestrian and traffic safety.
6. Illustrate how access to the proposed development, as well as associated parking and manoeuvring space will be provided in a manner that does not compromise pedestrian and traffic safety along the road reserve.

3. Operational Impact
These potential conflicts are caused by operational characteristics such as noise, dust, light, hours of operation, emissions, and odours. Typically, operational impact concerns arise when a development is proposed next to a less intense use. However, in some cases the proposed development may need to take measures to reduce the impact of an existing use, such as a residential use proposed next to an existing industrial use.
Triggers
Development proposals that trigger the criteria and considerations, such as those listed below, must be evaluated in relation to mitigation measures to mitigate compatibility issues (this is however not an exhaustive list of scenarios).
1. Will the noise levels exceed the ambient noise levels in the surrounding area and is any noise emanating from the proposed development likely to be audible from outside the property?
2. Will there be any detectable odours, or other emissions emanating from the proposed development?
3. Will any dust emanate from the proposed development?
4. Will any spill light, brighter than the ambient level of light in the surrounding areas, emanate from the proposed development (e.g. spotlights, floodlights, security lighting, etc.)?
5. Will hours of operation of proposed use be compatible with the nature and character of the surrounding area?
Mitigation Measures
List of potential measures, for evaluation, to mitigate issues of compatibility. This list is not exhaustive, and appropriate mitigations may also vary according to the site-specific circumstances and context. Developers are encouraged to propose their own solutions that are suitable to the circumstances of the particular site and that are to the satisfaction of the municipality (with due regard for the relevant objectives and intent of the MSDF/RSDF, as well as CELUS and applicable policies and legislation).
1. Contain operating effects (including noise and odours) within building walls to the maximum degree possible and at least within site boundaries.
2. Refuse storage areas for non-residential uses should be far from adjacent residential uses to prevent nuisance caused by smells, rodents and flies.
3. Minimise dust pollution, through proposed mitigating measures for dust control.
4. Use vertical screening to block visual effects of high-impact components such as mechanical equipment and service areas.
5. Direct light generated by higher intensity uses, including direct illumination of parking and service areas, signs, and structures, away from adjacent residential areas.
6. Screening and orientation of buildings for drive-through services, to mitigate the noise impact of intercom systems on the amenity of adjacent residential properties.
7. Integrate screening into the overall design of buildings and landscaping.
8. Reduce noise through additional wall insulation, plantings, fences and walls, and strategic placement of doors and windows, as well as appropriate site layout.
9. In cases where there are two incompatible land uses (such as residential and industrial) adjacent to each other, the treatment of the interface between these uses is crucial.
10. Restrict operating hours to be compatible with the character of the area.

4. Scale of Uses/Development in Residential Areas
The scale of uses/development in residential areas relates to the impact that non-residential uses have in predominantly residential areas. The evaluation criteria are aimed at directing higher impact non-residential use to cluster in appropriate locations (e.g. Business areas, Light Industrial/Commercial, B1, B2, R&O, BLIC - MSDF/RSDF Spatial Planning Categories). Furthermore, in designated residential areas (outside and around the above-mentioned designated mixed-use areas) non-residential uses are required to be limited to types of uses that directly support the surrounding residential community and such non-residential uses are also required to be clustered together, as opposed to be scattered randomly throughout the residential area. Proposals for non-residential uses in designated residential areas, that do not conform to the above-mentioned clustering requirements, are discouraged. All proposals for non-residential uses in designated residential areas (outside and around the above-mentioned designated mixed-use areas) will be subject to scrutiny in relation to the nature and scale of such development proposals (as per typical considerations and mitigations listed below), as well as other relevant compatibility criteria and policies.
Triggers
Development proposals that trigger the criteria and considerations, such as those listed below, must be evaluated in relation to mitigation measures to mitigate compatibility issues (this is however not an exhaustive list of scenarios).
1. Is the proposed use located within a land use area typical of a low-density residential suburb (e.g. low density residential, typical 1 dwelling house per erf, single to double storey buildings)?
2. If a use is proposed to be clustered with other non-residential uses, is it related to the nature of such other non-residential uses that it is intended to be clustered with?
3. Is the proposed use a type of use that will serve the needs of the directly surrounding residential community, or is it a type of use that is likely to draw patrons from a wider area into the local residential area where the proposed use will be located?
4. Is the intended scale of the proposed use of such an extent that it will serve only the directly surrounding residential community, or is it likely to draw patrons from other residential neighbourhoods in the wider surrounding area?
5. Does the proposed development constitute a "destination" type of development, that is likely to attract patrons from other residential neighbourhoods in the wider surrounding area?
6. Will the proposed non-residential use coexist with a residential use (e.g. a dwelling house / dwelling units) on the same property and, if so, what will the ratio of the non-residential use to residential use be (with due regard for the extent of the non-residential use and the residential use respectively)?
7. What is the nature (type of vehicles), volume and frequency of non-residential traffic likely to be drawn to the proposed development, into the neighbourhood from wider surrounding areas?
8. Is the property easily accessible from main roads, or will access to the property require travelling along low order internal roads, through the inner parts of the residential neighbourhood?

Mitigation Measures
List of potential measures, for evaluation, to mitigate issues of compatibility. This list is not exhaustive, and appropriate mitigations may also vary according to the site-specific circumstances and context. Developers are encouraged to propose their own solutions that are suitable to the circumstances of the particular site and that are to the satisfaction of the municipality (with due regard for the relevant objectives and intent of the MSDF/RSDF, as well as CELUS and applicable policies and legislation).
1. Illustrate how the nature, scale and locality of the proposed non-residential use will be appropriate, with due regard for considerations above and with particular emphasis on the point of departure stated above, i.e.: "In designated residential areas (outside and around the above-mentioned designated mixed use areas) non-residential uses are required to be limited to types of uses that directly support the surrounding residential community and such non-residential uses are also required to be clustered together, as opposed to be scattered randomly throughout the residential area. Proposals for non-residential uses in designated residential areas, that do not conform to the above-mentioned clustering requirements, are discouraged".
2. In the event that the above cannot be illustrated to the satisfaction of the municipality (with due regard for the relevant objectives and intent of the MSDF/RSDF, as well as CELUS and applicable policies and legislation), it is suggested that, either the proposed non-residential use be relocated to an appropriate area or cluster of non-residential uses, or the proposed non-residential use be scaled down to an appropriate scale.
3. Illustrate how the proposed use can serve as a compatible interface / buffer between low density areas and high density residential development, or other non-residential uses.
4. Use traffic calming techniques to promote pedestrian and traffic safety.
5. Illustrate how access to the proposed development, as well as associated parking and manoeuvring space will be provided in a manner that does not compromise pedestrian and traffic safety along the road reserve (CELUS compliant).

5. Locality of Noxious Industries

This section relates to the locality of noxious industrial uses (as defined in CELUS). Noxious industries should, as a point of departure, be located within the designated Industrial areas as per the MSDF and RSDF (where "Industrial 1" zonings in terms of CELUS are typically prevalent). The triggers and mitigation measures below relate to the evaluation of proposals for noxious industries / uses within designated Industrial areas.

Triggers

Development proposals that trigger the criteria and considerations, such as those listed below, must be evaluated in relation to mitigation measures to mitigate compatibility issues (this is however not an exhaustive list of scenarios).

1. Is the proposed use a "noxious" use / industry as defined in CELUS?
2. Is the proposed use classified as a "Major Hazard Installation" (MHI), in terms of the MHI-Regulations, under the Occupational Health and Safety Act?
3. Will the proposed use trigger any requirements for environmental authorisation or licencing?
4. Will the proposed noxious use be located close to the outer border of the designated Industrial area and, if so, will it be located close to other uses (near or adjacent to the Industrial area) that may be sensitive to noxious uses?
5. Will the ongoing adverse effects of the day-to-day operations of the noxious use extend beyond the boundaries of the application property?
6. Will the ongoing adverse effects of the day-to-day operations of the noxious use be perceptible on an ongoing / regular basis from beyond the boundaries of the application property?
7. Is a buffer zone associated with the proposed noxious use and, if so, does the buffer zone extend beyond the borders of the Industrial area and does the buffer zone overlap surrounding uses that should not be permitted within the buffer zone?

Mitigation Measures

List of potential measures, for evaluation, to mitigate issues of compatibility. This list is not exhaustive, and appropriate mitigations may also vary according to the site-specific circumstances and context. Developers are encouraged to propose their own solutions that are suitable to the circumstances of the particular site and that are to the satisfaction of the municipality (with due regard for the relevant objectives and intent of the MSDF/RSDF, as well as CELUS and applicable policies and legislation).

Applicant needs to address and illustrate the following in the application:

1. Compliance with all relevant environmental and licencing requirements;
2. Surrounding land uses and the potential impact of the proposed noxious use on such surrounding land uses;
3. Proposed measures aimed at containing and mitigating any regular and ongoing adverse effects emanating from the day-to-day operations of the noxious use, as well as measures aimed at containing and mitigating risk factors and potential or latent adverse effects that may emanate from possible contingencies associated with the type of noxious use;
4. Buffer area around the proposed noxious use (if a buffer zone is applicable) and the impact that such buffer area may have on the development potential of the surrounding area (with due regard for the extent of the buffer area and the type of uses that should not be permitted within the buffer area); and
5. The presence of existing uses within the buffer area, that should not be permitted within the buffer area.

CONSIDERATIONS FOR EVALUATING PROPOSALS FOR ROOMS TO LET

These considerations are intended to be applied to types of residential development in which individual habitable rooms are intended to be rented out for an extensive period of time to unrelated individuals, which typically include concepts such as boarding houses, boarding rooms and communes (but does not include short-term or transient hospitality related residential accommodation, such as hotels and guesthouses).

While proposals for rooms to let do not represent conventional residential densification (in the form of dwelling units and would therefore not typically be measured as a ratio of "dwelling units per hectare") it does represent residential intensification and should therefore NOT undermine the strategic residential densification objectives (and related residential densification criteria) as propagated in the MSDF and RSDF's. Given the above-mention recognition of the variation in the character of rooms to let as a residential typology, compared to dwelling houses and dwelling units as a very different residential typology (each catering for different markets / users and each having a different influence on the character of the residential area within which they occur) it is necessary to also take an adjusted approach in assessing proposals for rooms to let, in relation to the residential densification objectives in the SDF (compared to the approach that would be taken in the assessment of proposals for dwelling houses / dwelling units). Such adjusted approach to the evaluation of proposals for rooms to let can be applied through assessment of multiple consideration, which would include *inter alia*:

- contextual geographic locality considerations (with due regard for the presence [or absence] of drivers of demand for rooms to let and urban structuring elements that inform residential densification / intensification);
- magnitude / intensity of the proposed development; and
- qualitative considerations.

With the above-mentioned broad categories of considerations in mind, a two-stage approach to the assessment of proposals for "rooms to let" type of developments is proposed, i.e.:

- Stage 1: Initial QUANTITATIVE assessment towards considering the appropriate magnitude / intensity of a proposed development for rooms to let; and
- Stage 2: Subsequent further QUALITATIVE considerations towards assessing the desirability of a particular magnitude / intensity for a proposed development for rooms to let.

The application of the above-mentioned two stages of assessment is set out below.

Stage 1: Initial QUANTITATIVE assessment towards considering the appropriate magnitude / intensity of a proposed development for rooms to let

One of the key initial factors that need to be taken into account in the assessment of proposals for rooms to let must be to consider the presence (or absence) of triggers that drive the demand for rooms to let in a particular geographic locality. Factors that have been identified as possible key drivers for the demand for rooms to let in a particular geographic area include the presence or close proximity of the following urban features:

- Areas of high concentration of employment opportunities, which could include a high order business node (of primary or secondary node scale, as depicted in the SDF), or an industrial / commercial area, or a general business district, possibly consisting of office / business parks, etc. (noting that a tertiary or local convenience business node is not considered as an employment generator of sufficient magnitude to be recognised as a significant driver for a high demand for rooms to let – thus, areas around such lower order

nodes would require a different assessment, as will also be dealt with in these guidelines); and

- Formal structured public transport stations (such as a commuter railway station, structured BRT-station, formal taxi rank), or TOD-nodes (that would by definition be anchored by a significant formal structured public transport station) – noting that such stations are the points where commuters can get on and off a particular mode of public transport and therefore the mere presence of a public transport route traversing through an area (without the presence of a formal structured station / rank) would not be considered to meet this requirement.

There may well be other drivers of the demand for rooms to let, but for the purposes of these evaluation guidelines, from a spatial planning perspective, the focus is on drivers that relate to urban structuring elements (as per the urban structuring elements identified above). Should there be other possible factors that drive the demand for rooms to let in a particular geographic area, the applicant would be required to identify such other factor(s) and illustrate convincingly how it drives the demand for rooms to let in the particular geographic area. Such other drivers could for example be proximity to a tertiary level educational facility for higher learning (e.g. university, Technicon, technical college, or similar facility for higher learning) that may be associated with the demand for room to let for accommodation for students who attend the particular tertiary level education facility, but in such instances the applicant must be able to illustrate how the proposed development for rooms to let relates directly to the said tertiary level educational facility.

It is also important to note that, while the above identified drivers of the demand for rooms to let do correlate to some degree with certain urban structuring elements applied in the residential densification criteria (in the SDF), there are also certain structuring elements (in the said residential densification criteria) that are NOT regarded as significant drivers of demand for rooms to let, or not of adequate scale to serve as drivers of demand for rooms to let in a particular geographic area. Nevertheless, proposals are also received for "rooms to let" type of developments, in such area that are void of recognised and significant drivers of the demand for rooms to let. Therefore, in recognition of the fact that "rooms to let" type of developments does represent a form of residential intensification (as stated in the introduction), it is necessary and important to also provide guidance for the assessment of proposals for rooms to let in such other areas as well. Thus, it is necessary to differentiate between two different categories of geographic areas for dealing with the assessment of proposals for "rooms to let" type of development.

Due to the fact that proximity to high concentration of employment opportunities and also proximity to formal structured public transport stations are important considerations in the conventional residential densification criteria (aimed at promoting higher population thresholds in close proximity to such areas and facilities), the same residential densification criteria (with associated threshold distances and density thresholds) are used for purposes of differentiating the above-mentioned two categories of geographic areas from each other. Accordingly, the said two categories of geographic areas are differentiated from each other by virtue of the residential density provisions applicable to the geographic area under consideration, as described below:

- Category A-geographic areas: Geographic area within which the SDF residential density guidelines provide for a residential density ratio above 85 dwelling units per hectare; and

- Category B-geographic areas: Geographic areas within which the SDF residential density guidelines provide for a residential density ratio up to a maximum of 85 dwelling units per hectare.

In correlation with the guiding principles describe above, that serve as points of departure for differentiating different categories of areas for assessing proposals for "rooms to let" type of development, the above threshold density ratio of 85 dwelling units per hectare (as threshold density used for

differentiating geographic area categories A and B from each other) serves to:

- Directly link Category A-areas to geographic areas in close proximity to adequately scaled areas of high concentration of employment opportunities and formal structured public transport stations, where higher population thresholds should be promoted; and
- Recognise the variation in the character of the residential built form typology typically associated with residential densities above 85 dwelling units per hectare, compared to that of residential densities up to 85 dwelling units per hectare (which is also recognised in the City of Ekurhuleni Land Use Scheme [CELUS] by virtue of capping the maximum density provided for on "Residential 3" zoned properties to 85 dwelling units per hectare).

Identification of the applicable category of geographic areas (depicted above), in relation to a particular proposal for a "rooms to let" type of development, should serve as the initial assessment to evaluate and determine an appropriate magnitude / intensity for the proposed rooms to let development. Hence, the importance of first assessing the locality of the development / application site under consideration, in relation to the geographic areas associated with the residential densification guidelines in the SDF, in order to determine whether the particular site is located in a Category A or Category B-geographic area (as a key initial factor for consideration, described above).

Subsequently, the application of the initial stages 1-assessment (towards considering the appropriate magnitude / intensity of a proposed development for rooms to let) in respect of each of the above-mentioned two categories of areas, is set out below.

Category A: Geographic area within which the SDF residential density guidelines provide for a residential density ratio above 85 dwelling units per hectare:

In geographic area within which the SDF residential density guidelines provide for a residential density ratio above 85 dwelling units per hectare, the following approach and considerations can be applied to inform the initial assessment of the appropriate magnitude / intensity of the proposed "rooms to let" type of development.

(a) The residential density provisions and / or residential densification criteria depicted in the MSDF / RSDF or any supportive spatial plan (which represents the strategic residential densification objectives for the area under consideration) should serve as the frame of reference for calculating a maximum number of rooms that can potentially be considered (subject to other further considerations also discussed below). However, under this category, the recognition that development proposals for rooms to let are a different residential typology from dwelling houses / dwelling units is brought into the equation (as also described below).

(b) In recognition that development proposals for rooms to let comprise a different residential typology from dwelling houses / dwelling units, the approximate number of persons per household, as per the census data depicted in the MSDF/RSDF's (i.e. approximately 3 persons per household) can be brought into the equation, as a basis for initial calculation of the maximum number of rooms that can be considered (without compromising the densification objective of the SDF). The assumption, for purposes of this equation, is that each conventional dwelling unit (designed for occupation by a single family) that can be considered favourably in relation to the applicable residential density criteria (for conventional residential development for dwelling units) will accommodate on average 3 persons, which can be converted to an anticipated population density, expressed as number of persons. On the assumption that in general each room (in a "rooms to let" type of development) is occupied by a single person, such population density (number of persons) can then be converted to a maximum number of rooms that can be considered, subject to other further considerations

also discussed below, without compromising the densification objective of the SDF. The calculation of the above equation is reflected below.

CALCULATION:

Maximum number of dwelling units that can be considered in relation to SDF-densification provisions and criteria for the particular area / property under consideration X 3 **(i.e. Average 3 persons per household /dwelling unit, as acknowledged in MSDF/RSDF's)**

= **Maximum number of rooms to let that can potentially be considered (subject to other further considerations also discussed below)**

In order to avoid a situation where larger rooms are provided (in compliance with the above calculation for the number of rooms), but where the intention with the larger rooms might be to accommodate more than one person in each such room (thus resulting in potential overcrowding of the property) **the results from the above calculation will also be applied to the maximum number of persons that may be considered to be allowed to occupy the development**. This also aligns with the approach of basing the calculation on the recognised average number of persons per household (as depicted in the SDF).

Category B: Geographic areas within which the SDF residential density guidelines provide for a residential density ratio up to a maximum of 85 dwelling units per hectare:

In geographic areas within which the SDF residential density guidelines provide for a residential density ratio up to a maximum of 85 dwelling units per hectare, a different approach should be followed in calculating the number of rooms that can be considered. The primary objective of such alternative approach should be to protect the character of the residential area, with due regard for the influence that the different residential typology associated with a "rooms to let" type of development (and the magnitude and extent of "rooms to let" type of development) can potentially have on the character of a residential area. In this regard, it must also be noted that the protection of the amenity of residential areas is an important principle entrenched in the SDF.

This category (i.e. Category B) is associated with residential areas characterised by conventional density ratios up to a maximum of 85 dwelling units per hectare. Accordingly, **this assessment approach (i.e. Category B assessment approach) for the evaluation of proposals for "rooms to let" type of developments, should be applied in areas within which the residential density criteria in the MSDF and RSDF's provide for maximum density ratios up to 85 du/Ha.**

Generally such residential areas are typically characterised by predominantly single or double storey, single dwelling houses, on free-standing residential properties (typically zoned "Residential 1" or "Residential 2"), interspersed with some single or double storey, cluster-type or walk-up type residential complexes (typically zoned "Residential 3") – although there may be some isolated variations from the above typology, on individual properties in such areas. This represents the type of residential typology that needs to be protected in such areas. In order to protect the predominance of single or double storey, single dwelling houses, on free-standing residential properties in the typically prevailing character of such areas, the conventional residential density ratio (associated with conventional dwelling units as a residential typology) is not used in these areas, to calculate the maximum number of rooms that can be considered in a "rooms to let" type of development. Instead, applicable parameters in the City of Ekurhuleni Land Use Scheme (CELUS) are used to guide such calculation, with due regard for the following provisions in CELUS at the time of formulating these guidelines:

- Previsions pertaining to second dwelling units; and

- Provision for a maximum of 3 “Boarding Rooms” that can be permitted by means of a “Written Consent A” application on “Residential 2” zoned properties.

For the purposes of these guidelines, the legal and procedural aspects of the provisions in CELUS pertaining to the above two components are not of concern (such legal and procedural aspects must still be applied and enforced, independent from these guidelines for evaluation of development proposals for rooms to let). The significance of the above-mentioned provisions of CELUS for purposes of these guidelines is the number of dwelling units and number of persons represented by such number of dwelling units (based on the above-mentioned average household size), as well as the number of “Boarding Rooms” provided for.

At the time of formulation of these guidelines, Table F, under Clause 23.2 of CELUS provided for second dwelling units as follows (this might change over time, which might influence the application of these guidelines):

TABLE F	
USE ZONE	**MAXIMUM SIZE OF SECOND DWELLING UNIT**
Residential 1 and 2 Less than 250 m²	Second Dwelling Unit is not permitted
Residential 1 and 2 larger than 250m² **and Agriculture**	Second Dwelling Unit is unlimited in floor area provided that the coverage and height in Table G is not exceeded on the property.

According to the content of the above table:

- On properties zoned “Residential 1” and “Residential 2”, that are larger than 250m² in extent, 2 dwelling units can be considered, subject to applicable provisions in CELUS;
- On properties zoned “Residential 1” and “Residential 2”, that are smaller than 250m² in extent, no second dwelling is permitted.

For purposes of these guidelines, the significance of the above information is that 2 dwelling units can be considered on such properties that are larger than 250m² in extent and only 1 dwelling unit is permitted on such properties that are smaller than 250m².

Given the above provisions entrenched in CELUS, it also serves as sound basis for the alternative approach to the calculation of the maximum number of rooms that can be considered in geographic areas within which the SDF residential density guidelines provide for a residential density ratio up to a maximum of 85 dwelling units per hectare. This approach will allow for the same population intensification that is provided for in relation to second dwelling units in CELUS, with the difference that it can be allowed for in the form of rooms to let – subject to the appropriate application procedures and applicable provisions in CELUS still to be complied with.

Applying the above approach will accordingly allow for the following maximum number of rooms to let that can be considered on a property, in geographic areas within which the SDF residential density guidelines provide for a residential density ratio up to a maximum of 85 dwelling units per hectare (**which will also be the maximum number of persons that can be considered to be accommodated on such property**):

- On properties that are 250m² and larger in extent, a maximum of 6 rooms to let (**accommodating a maximum of 6 persons in total**) can be considered (i.e.: equivalent of 2 dwelling units [as provided for in Table F of CELUS] multiplied by 3 persons [based on the above-mentioned average household size of 3 persons per household, as per the census data depicted in the SDF]); and
- On properties that are smaller than 250m² in extent, a maximum of 3 rooms to let (**accommodating a maximum of 3 persons in total**) can be considered (i.e.: equivalent of 1 dwelling unit [as provided for in Table F of CELUS] multiplied by 3 persons [based on the above-mentioned average household size of 3 persons per household, as per the census data depicted in the SDF]).

When applying the above guidelines for Category B-geographic areas, the following further considerations shall be taken into account with the evaluation of proposals for "rooms to let" types of development:

- In the event that part of a property intended to be used for purposes of a "rooms to let" type of development, while also using part of the same property for purposes of a dwelling house / dwelling unit, the maximum permissible number of rooms to let, shall be reduced, subject to the outcome from an evaluation of the number of bedrooms contained in the dwelling house / dwelling unit and the sizes of such bedrooms (with due regard for the underlying objectives of these guidelines to relate the number of rooms and associated number of persons occupying a property, to the expected population density associated with the residential density ratio provided for in the particular area under consideration). Such evaluation may also take into account the provision of the standards under SANS 10400-A (Part A: General Principles and Requirements) and SANS 10400-C (Part C: Dimensions), read with the National Building Regulations And Building Standards Act No. 103 Of 1977 [as amended], which deal with the minimum floor area for "any habitable room other than a kitchen, scullery or laundry", as well as the minimum floor space required per person sharing a room.
- In respect of proposals to use a property for a "commune" (as defined in CELUS), which provides for a maximum number of eight (8) occupants, it should be emphasised that this provision in the said definition is a maximum limit, which implies that a lesser number of occupants (below the maximum number of 8 occupants) can be considered / imposed. Accordingly, in Category B-geographic areas, proposals for "communes" shall also be subject to the same limitation of a maximum of 6 rooms to let (or maximum of 6 occupants) applicable to such areas. Should an applicant wish to propose a "commune" with a maximum of 8 occupants (as provided for in the CELUS definition for "Commune") such proposal would have to be located in a Category A-geographic area.

Stage 2: Subsequent further QUALITATIVE considerations towards assessing the desirability of a particular magnitude / intensity for a proposed development for rooms to let

Once the above initial (Stage 1) assessment (and related quantification) of the possible magnitude / intensity of a proposed development for rooms to let has been undertaken, the following further assessment is still required, aimed at evaluating the desirability of a particular magnitude / intensity for the proposed "rooms to let" type of development.

In evaluating the desirability of the possible maximum number of rooms to let on a particular property, the further considerations mentioned below should be taken into account, with due regard for how appropriate these considerations can be addressed in the particular development proposal. A practical way for the applicant to illustrate how these considerations can be attended to, would be through a site layout plan that should accompany the proposal. In the event that these considerations cannot be dealt with adequately and appropriately, the maximum number of rooms that can be considered should be adjusted downwards to the extent necessary in order for these considerations to be attended to adequately and appropriately.

(a) Provision of **parking** and manoeuvring area on the property itself, in accordance with the provisions of the City of Ekurhuleni Land Use Scheme (CELUS) – i.e. 0,5 parking spaces per bedroom. Also consider compliance with **other relevant provisions of CELUS**.

(b) Provision of adequate **supportive facilities** (communal or private) conducive for a desirable place of human habitation, e.g.:
  - ablution facilities / bathrooms / toilets;
  - kitchen / cooking / dish washing facilities;
  - laundry facilities (for washing and ironing of clothes);
  - a dedicated area for a washing line (for the drying of clothes);
  - indoor recreation room or dining room or lounge;

- outdoor recreation area.

In order to illustrate how such facilities can be provided for adequately, it should be illustrated on a site layout plan, that also depicts the following features / information:

- property boundaries with the dimensions of each boundary and the size of the property;
- footprint of all existing and proposed structures on the property;
- position and internal sizes of all individual bedrooms (existing and future) to be provided on the property;
- position and extent of all supportive facilities (communal or private) to be provided on the property;
- parking layout, together with the necessary manoeuvring area to be provided on the property; and
- position of vehicular access to the property.

(c) **Compatibility with the character of the surrounding residential area**, with due regard for:

- prevailing residential typology (type of housing accommodation);
- prevailing built form (e.g. building height, coverage, etc.);
- interface with neighbouring residential properties (e.g. overlooking / invasion of privacy, noise from outdoor recreation areas, etc.); and
- other relevant compatibility considerations in the Compatibility Guidelines (as per Annexure B2.3 to the SDF).

(d) **Engineering services infrastructure capacity**: Confirmation must be obtained from the relevant engineering services departments to the effect that adequate engineering services infrastructure capacity is available in the area to accommodate the proposed residential intensification.

(e) Compliance with **National Building Regulations And Building Standards Act No. 103 Of 1977 (as amended)**, with particular reference to (but not limited to) the standards under SANS 10400-A (Part A: General Principles and Requirements) and SANS 10400-C (Part C: Dimensions), which deal with the minimum floor area for "any habitable room other than a kitchen, scullery or laundry", as well as the minimum floor space required per person sharing a room.

INFOGRAPHIC SUMMARY OF GUIDELINES FOR EVALUATING PROPOSALS FOR ROOMS TO LET:

Stage 1 Evaluation:

Initial quantitative assessment of the total number of "rooms to let" that can potentially be considered as point of departure

Category A-geographic areas:

Geographic area within which the SDF residential density guidelines provide for a residential density ratio above 85 dwelling units per hectare

Maximum number of dwelling units that can be considered in relation to SDF-densification provisions and criteria for the particular area / property under consideration X 3 **(i.e. Average 3 persons per household /dwelling unit, as acknowledged in MSDF/RSDF's)**

= **Maximum number of rooms to let that can potentially be considered (which also equates to maximum number of occupants)**

Category B-geographic areas:

Geographic areas within which the SDF residential density guidelines provide for a residential density ratio up to a maximum of 85 dwelling units per hectare

Properties that are 250m² and larger in extent:

Maximum of 6 rooms to let (accommodating a maximum of 6 persons in total) (i.e.: equivalent of 2 dwelling units [as provided for in Table F of CELUS] multiplied by 3 persons [based on the average household size of 3 persons per household, as per the census data, depicted in the SDF.])

Properties that are smaller than 250m² in extent:

Maximum of 3 rooms to let (accommodating a maximum of 3 persons in total) (i.e.: equivalent of 1 dwelling unit [as provided for in Table F of CELUS] multiplied by 3 persons [based on the average household size of 3 persons per household, as per the census data, depicted in the SDF.])

Notes for interpretation and application of guidelines:

These numbers of rooms to let / occupants that can be considered per property, represent merely an initial point of departure, which is still subject to:

- Other evaluation considerations detailed in the guidelines; and
- Subsequent further "Stage 2 Evaluation" as depicted below.

Stage 2 Evaluation:

Qualitative assessment of the total number of "rooms to let" that can be considered

The maximum number of rooms that can be considered shall be subjected to further evaluation in respect of the following considerations and shall be adjusted downwards to the extent necessary in order for these considerations to be attended to adequately and appropriately:

- Provision of parking (as per CELUS requirements) and compliance with other relevant provisions of CELUS;
- Provision of adequate supportive facilities (communal or private) conducive for a desirable place of human habitation;
- Compatibility with the character of the surrounding residential area;
- Engineering services infrastructure capacity; and
- Compliance with National Building Regulations and Building Standards Act No. 103 Of 1977 (as amended).

- The purpose with this "Stage 2 Evaluation" is to assess the desirability of a particular magnitude / intensity of "rooms to let" type of development.
- The number of rooms determined through the "Stage 1 Evaluation" above shall serve as baseline point of departure for this assessment.
- A site layout plan is required to accompany the proposal, for purposes of this assessment.

ANNEXURE B2.5: COE URBAN DEVELOPMENT BOUNDARY POLICY

URBAN DEVELOPMENT BOUNDARY POLICY

City of Ekurhuleni

Table of Contents

Definitions 1
Acronyms 2
Legislative Provisions 2
1. **Background** 3
2. **Objectives of the Policy** 4
   a) Objectives as per the Municipal Spatial Development Framework 4
   b) Objectives as per the Spatial Planning and Land Use Management Act 4
   c) Synthesis of Policy Objectives 4
3. **Scope of Policy** 5
4. **Exclusion (From Scope of Policy)** 5
5. **Effective Date** 5
6. **Responsibilities** 5
7. **Policy Provisions and Considerations For Applying The Ekurhuleni Urban Development Boundary** 6
   7.1 Township Establishment Applications 6
   7.2 Rezoning Applications 6
   7.3 Applications in the National Interest 6
   7.4 Special Consent Applications 7
   7.5 Subdivision Applications 8
8. **Procedures** 9
9. **Penalty Clause** 9
10. **Review** 9
11. **Forms and Instructions** 9

DEFINITIONS

"the Act" means the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) and includes the regulations made in terms thereof, SPLUMA shall have the same meaning.

"applicant" means an owner or person duly authorised to make a land development application contemplated in Section 45 of the Act and includes a single applicant, multiple applicants or a legal entity.

"application" means a land development application submitted to the Municipality as contemplated in the Act read with the relevant provisions of the By-law and the scheme.

"by-law" means the City of Ekurhuleni Spatial Planning and Land Use Management By-law, 2019.

"council" means the municipal council and legislative authority of the Municipality as contemplated in section 157 of the Constitution.

"land use" means the purpose for which land is or may be used lawfully in terms of a land use scheme, existing scheme or in terms of any other authorisation, permit or consent issued by a competent authority, and includes any conditions related to such land use purposes.

"land use rights" means adopted land use rights as contemplated in the By-law, read with the land use scheme and, where applicable, aligns with the guidelines of this policy and which land use rights may be reflected in an official zoning certificate issued by the Municipality.

"municipality" means the City of Ekurhuleni Metropolitan Municipality as envisaged in section 155(1) of the Constitution, and for the purposes of this policy includes a municipal department, the Municipal Council and the city manager, the Municipal Planning Tribunal, the Authorised Municipal Official and the Municipal Appeals Authority, where the context so requires.

"national Interest" means the matters described in Section 52 of the Act.

"scheme" means the City of Ekurhuleni Metropolitan Municipality Land Use Scheme, 2021 and includes the regulations made in terms thereof (CELUS shall have the same meaning).

"spatial development framework" means the municipal spatial development framework approved by the council in terms of section 26(e) of the Municipal Systems Act read with sections 20, 21 and 22 of the Act and Chapter 4 of this Policy.

"township" means any property or land laid out, divided, subdivided into, developed or to be developed as a single property or multiple properties for:
(a) Residential, business, industrial, institutional, educational, community services and similar purposes or land uses, as may be contained in a land use scheme;
(b) Where such property or sites are arranged in such a manner as to have the character of what constitutes a township, in the opinion of the Municipality, including intended or actual single or multiple ownership of erven, land or units, and or multiple land use rights;
(c) That may or may not be intersected or connected by or border any public or private street or roadway in the case of a proposed sectional title scheme, and;
a property, properties or street shall for the purposes of this definition include a right of way or a road, roadway or street which has not been surveyed or which is only notional in the character and shall be read with the definition of what constitutes an "illegal township".

"Urban Development Boundary" means a boundary determined and denoted in the Municipal Spatial Development Framework that is a mechanism to manage the outward sprawl of urban areas and to protect potentially vulnerable natural and ecological areas through the introduction of a spatial limit to urban development. ("Urban Edge" shall have the same meaning.)
*All land uses mentioned in this policy shall be as defined in the prevailing Land Use Management Scheme of the Municipality.

ACRONYMS

CoE	City of Ekurhuleni
CELUS	City of Ekurhuleni Land Use Scheme
DAFF	Department of Agriculture, Forestry and Fisheries
ERWAT	Ekurhuleni Water Care Company
GPG	Gauteng Provincial Government
GSDF	Gauteng Spatial Development Framework
LSDF	Local Spatial Development Framework
MSDF	Municipal Spatial Development Framework
RSDF	Regional Spatial Development Framework
SMME	Small Medium & Micro Enterprises
SPLUMA	Spatial Planning and Land Use Management Act (Act 16 of 2013)
UDB	Urban Development Boundary

LEGISLATIVE PROVISIONS

The following national legislation informs this policy:

(a) Constitution of the Republic of South Africa, 1996;

(b) Spatial Planning and Land Use Management Act (Act 16 of 2013);

(c) Subdivision of Agricultural Land Act (Act 70 of 1970);

(e) Municipal Systems Act (Act 32 of 2000);

(e) National Environmental Management Act (Act 107 of 1998);

(f) National Water Act (Act 36 of 1998);

(g) Minerals and Petroleum Resources Development Act (Act 28 of 2002);

(h) Gauteng Transport Infrastructure Act (Act 8 of 2001);

(i) Agricultural Holdings (Transvaal) Registration Act (Act 22 of 1919);

At a City specific level the Policy is also informed by the City of Ekurhuleni Spatial Planning and Land Use Management By-law (2019), as amended. In addition, components from the Municipality's land use management system that inform this policy include:

(a) The Municipal approved Integrated Development Plan (IDP);

(b) The Municipal approved Spatial Development Framework (SDF);

(c) The Municipal approved City of Ekurhuleni Land Use Scheme (CELUS).

(d) The Ekurhuleni Bioregional Plan.

Note: The above list is not exhaustive, and other legislation and policies may be applicable to specific types of land use applications outside of the Urban Development Boundary as determined by the controlling authority.

1. BACKGROUND

The Urban Development Boundary Policy replaces the "Urban Edge Policy, 2003", approved by the Mayoral Committee on 12 June 2003 (Item B-DP 13-2003). The 2003 policy is outdated and requires alignment to the new order SPLUMA planning environment, the imperatives of the built environment as well as city growth and development.

The 2003 policy was premised on the Gauteng Provincial Government (GPG) having determined the provincial urban edge (including the urban edge as it related to individual municipalities), as well as being the approval authority for application decisions beyond the urban edge. That policy would then guide the Municipality to make a recommendation to the GPG. The Gauteng Spatial Development Framework (GSDF) 2011, rescinded the Gauteng Urban Edge Policy, 2007 and any subsequent delineations of such. The last Gauteng urban edge that had effect was the 2009/2010 Gauteng urban edge.

The abovementioned changes took place in light of the decision of the City of Johannesburg Case {*City of Johannesburg Metropolitan Municipality v Gauteng Development Tribunal and Others (CCT89/09) [2010] ZACC 11; 2010 (6) SA 182 (CC); 2010 (9) BCLR 859 (CC)*}. This case emphasised that the 'Municipal Planning' is an exclusive competence of local government as per Part B of Schedule 4 to the Constitution of the Republic of South Africa, 1996.

The findings by the court in the above case led to the enactment of the Spatial Planning and Land Use Management Act (Act 16 of 2013). This Act sets out planning principles that must be considered including in the formulation of planning policies (Section 6(1)(a)). Whilst these principles will be articulated further in this document as required, it is the principle of spatial sustainability (Section 7(b)), with specific reference to spatial planning systems, that:

"(ii) ensure that special consideration is given to the protection of prime and unique agricultural land"; and "(vi) promote land development in locations that are sustainable and limit urban sprawl."

The MSDF (2025) Chapter 4, also states that the Urban Development Boundary is a growth management tool, which seeks to "contain urban sprawl, promote densification and infill development, and protect rural areas for agriculture, conservation and tourism." The UDB is thus a mechanism to distinguish between the urban and rural environment.

The MSDF (2025) Chapter 4, makes reference to the National Development Plan which contains spatial development guidelines that state that "urban sprawl should be contained, and urban fabric should be densified in order to be more efficient in terms of land usage, infrastructure cost and environmental protection."

The MSDF (2025) Chapter 4, further estimates that there is approximately 28 879ha of vacant land available within the UDB, which is sufficient to accommodate required housing and population growth until at least 2040.

The delineation of the UDB to which this policy relates is depicted in the MSDF and ad hoc amendments to the UDB cannot be considered in isolation, without amendment of the MSDF, because any amendments to the UDB has to be considered within the context of the comprehensive MSDF and the implications that such amendments may have for other interrelated components of the MSDF as a whole.

The UDB will support land value capture initiatives of the City to enhance the City's long term financial sustainability, including the sustainability of bulk service infrastructure in conjunction with tools such as the integration zones and spatial targeting zones. This Policy therefore adopts a pro-poor agenda in that it will assist to focus the resources of the City towards the core of the urban area, which will *inter alia* reduce the cost of transport for the citizens of the City and promote ease of access to employment opportunities and economic activities, as well as social and community facilities. This will also ensure that the limited resources of the City are optimised in the correct spatial location.

Therefore, in accordance with the provisions of the MSDF as quoted above, there is a need for the CoE to replace the outdated policy, and to provide policy certainty to land owners and investors on land located outside the UDB, as a growth management tool as stated in the MSDF. It will guide land uses and related activities that may or may not be considered outside the UDB and give guiding principles to be applied in the consideration of proposed land development applications.

2. OBJECTIVES OF THE POLICY

As guidance for formulating the objectives for this Policy, reference is made to the objectives and principles from the MSDF (2025) and SPLUMA which relates to the UDB, as discussed below.

2(a) Objectives as per the Municipal Spatial Development Framework:
This policy is driven by the following objective of the Municipal Spatial Development Framework (2025):

The MSDF (2025) Chapter 4, states that the CoE Spatial Concept is based on Strategic Development Principles including, *inter alia*, Strategic Development Principle 7 to "Contain urban sprawl and generally promote a more compact and sustainable urban environment through efficient application of an Urban Development Boundary Policy for the metropolitan area."

2(b) Objectives as per the Spatial Planning and Land Use Management Act:
In terms of Section 6(1)(a) the general principles set out in Chapter 2 of SPLUMA, apply to the preparation, adoption and implementation of any policy concerning spatial planning and the development or use of land. Therefore, the following principles apply to the formulation of this policy:

- The principle of Spatial Justice (Section 7(a));
- The principle of Spatial Sustainability (Section 7(b));
- The principle of Efficiency (Section 7(c));
- The principle of Spatial Resilience (Section 7(d)); and
- The principle of Good Administration (Section 7(e)).

It is the principle of Spatial Sustainability that primarily guides the objectives of this policy, specifically:

- "Ensure that special consideration is given to the protection of prime and unique agricultural land" - Section 7(b)(ii); and
- "Uphold consistency of land use measures in accordance with environmental management instruments" – Section 7(b)(iii); and
- "Promote land development in locations that are sustainable and limit urban sprawl" – Section 7(b)(vi).

2(c) Synthesis of Policy Objectives:
Based on the guiding principles and objectives (in 2(a) & (b)) above, the overall objectives for this Policy are then synthesised as follows:

- To promote the development of a compact urban structure, which optimises the utilisation of resources – engineering services, transportation infrastructure and social infrastructure.
- To contribute to a sustainable and continuous open space network in order to maintain ecological connectivity and to be accessible to the public as far as possible.
- To optimise food production capacity of the surrounding agricultural areas and to functionally link these areas to the disadvantaged communities in terms of basic food supply, informal trade promotion and SMME development.
- To optimise the job creation capacity of the formal economy in the region by promoting sectoral specialisation and by linking these activity nodes to one another.
- To integrate the disadvantaged communities into the urban fabric by way of infill development and promotion of corridor development along the main linkages between these communities and the major concentrations of job opportunities.
- To actively promote sustainable public transport.

3. SCOPE OF THE POLICY

The policy will include guidelines to guide and inform decisions on changes in land use in areas beyond the denoted UDB, that will not undermine the MSDF or the SPLUMA planning principles, whilst permitting activities that will make optimal use of the land and enhance the economic activities of the Municipality, without promoting urban sprawl.

Proposed land use applications on land outside the UDB shall be evaluated against the MSDF and this policy to determine whether the proposed use can be considered outside of the UDB, such applications shall be processed in accordance with the normal processes set out in SPLUMA, read with the By-law, the Scheme and the CoE System of Delegations.

This policy sets out principles and considerations to be applied in the evaluation of applications on land outside the UDB, in pursuit of the objectives stated in this policy with due regard for the relevant provisions in the MSDF.

4. EXCLUSION (FROM SCOPE OF POLICY)

It is not part of the scope of this policy to delineate the UDB, and any possible changes thereto, which will only be done as an integral part of the process of revision of the MSDF in terms of Section 19 (read with Section 16) of the By-law as well as Sections 20 and 21 of SPLUMA. The UDB comprises an integral part of the MSDF and the subsequent implementation of the MSDF, with due regard for considerations such as infrastructure planning, growth management, municipal planning of the neighbouring municipalities, etc. Therefore, it will not do justice to either the UDB or the MSDF if the UDB were to be revised in isolation from the more comprehensive planning process of reviewing the MSDF – hence this fundamentally important approach of only dealing with delineation and possible revision of the UDB during the revision of the MSDF. Consultation on amendments to the UDB shall take place with all affected stakeholders in accordance with the provisions of SPLUMA and the By-law as part of the revision of the MSDF.

This policy does not confer or withdraw land use rights approved on any land outside the UDB, further, this policy does not intend to intervene in the normal procedures for the processing of land development applications. Such applications on land outside the UDB shall be processed in accordance with the normal processes set out in SPLUMA, read with the By-law, the Scheme and the CoE System of Delegations.

5. EFFECTIVE DATE

The effective date is the date on which the policy is adopted by the Council, or a different date specified by the Council in the council resolution.

6. RESPONSIBILITIES

The City Planning Department is the custodian of this Policy and shall oversee the implementation of this Policy in consultation with the relevant internal departments, external parties involved/affected (applicants, landowners, neighbouring municipalities, government departments, state owned enterprises, etc.)

Implementation of this Policy, in processing of land development applications on land outside the UDB, shall be in accordance with the relevant processes set out in SPLUMA, read with the CoE SPLUM By-law, the City of Ekurhuleni Land Use Scheme and the CoE System of Delegations, by relevant parties / officials / structures authorised to do so.

7. POLICY PROVISIONS AND CONSIDERATIONS FOR APPLYING THE EKURHULENI URBAN DEVELOPMENT BOUNDARY

When evaluating proposed land uses outside the UDB, the point of departure for such evaluation must be to promote the planning principles contained in SPLUMA, read with the applicable provisions in the MSDF and the objectives of this Policy. Therefore, when considering land use proposals, due regard must be given for promoting the optimal use of land and enhancement of economic activities within the City, without promoting urban sprawl and in a manner that will not undermine the MSDF or the SPLUMA planning principles, nor the principles objectives of this Policy.

The availability of bulk engineering service infrastructure that may be accessible from bulk providers (such as ESKOM, SASOL, Rand Water, ERWAT) is not a factor that can be used as motivation for developments outside the UDB, in opposition to other provisions and considerations in this policy. Further, the City will be under no obligation to provide bulk engineering service infrastructure outside the UDB, should land uses be approved outside the UDB in line with this Policy.

Except in so far as the provisions of the Scheme permit this Policy to prescribe land uses that may be permitted by Special Consent outside of the UDB, this Policy does not prescribe the type of application to be followed when applying for land uses outside of the UDB, but it does set considerations to be taken into account when determining the appropriate type of land development application.

Accordingly, the following considerations must be taken into account, when the type of land development application is determined, with due regard for the planning principles contained in SPLUMA, read with the applicable provisions in the MSDF and the objectives of this policy:

7.1 Township Establishment Applications

Developments that are 'urban' in nature, to the extent that it requires a township establishment application in terms of Section 38 of the By-law, shall be discouraged outside of the UDB, except where:

- The proposal is in the national interest; or
- The proposal is aligned to the objectives of this policy and the MSDF as well as the SPLUMA principle of sustainability (Section 7(b)) where:
    - It will not have a negative impact on food security (protection of prime and unique agricultural land); and
    - It does not rely on the provision of engineering services by the Municipality (Promote land development in locations that are sustainable and limit urban sprawl).
- The type of land use may otherwise result in an "illegal township" (as defined in the By-law) e.g. *bona fide* 'agri-villages', mine housing villages, etc.

7.2 Rezoning Applications

Applications in terms of Section 48 of the By-law, can be considered outside of the UDB. However, such proposals must in principle:

- Be aligned to the objectives of this policy and the MSDF;
- Not have a negative impact on food security;
- Be related to and supportive of the agricultural sector outside the UDB;
- Be aligned to the land use provisions of the MSDF and RSDF;
- Not be residential in nature; and
- Not create an "illegal township" (as defined in the By-law).

The above provisions apply only where a special consent application (see 7.4 below) would not be possible.

The above-mentioned criteria for considering applications in terms of Section 48 of the By-law may only be deviated from in the event that the proposal is in the National Interest.

7.3 Applications in the "National Interest"

Development applications affecting the national interest, are subject to the provisions of Section 52 of SPLUMA, which includes inter alia, the referral of the application to the Minister of Rural Development and Land Reform by the applicant (Section 52(1),(2),(3)) and/or by the Municipal Planning Tribunal (Section 52(4)).

In terms of Section 20(4) read with Section 96(a) of the CoE SPLUM By-law, the "Municipal planning tribunal or authorised official may on merit consider and decide a land development application outside the urban development boundary provided the development is in the national interest."

96 Classification of applications to be determined by the municipal planning tribunal

The municipal planning tribunal may hear, consider and decide any land development application

-

(a) affecting national interest;

(b) where objection has been received;

(c) that deviates from spatial policies;

7.4 Special Consent Applications

Applications in terms of Section of 58 of the By-law, can be considered outside of the UDB, subject to the proposal being in line with the principles and objectives of this policy.

The uses listed in Table B of the Scheme – Use Zone 12 "Agriculture" are permitted by Special Consent outside the UDB subject to the proposal being in line with the principles and objectives of this policy [Table 1 - Column 2]. Additionally, the Scheme provides as follows:

"Other uses may be considered on merit, subject to applicable provisions in the MSDF/RSDF, read with any relevant policy dealing with the urban development boundary." [Table 1 - Column 3].

The last column (Table 1 – Column 4) provides additional criteria that must be taken into account when determining whether a Special Consent is the appropriate application procedure for the particular land use.

Table 1: Uses permitted by Special Consent in terms of the Scheme

Column 1	Column 2	Column 3	Column 4
TYPE OF LAND USE	**LAND USE ALREADY LISTED IN TERMS OF USE ZONE 12 (CELUS)**	**LAND USES THAT CAN BE CONSIDERED AS PER THIS POLICY IN TERMS OF USE ZONE 12 (CELUS)**	**QUALIFYING STATEMENT / CONDITION**
Camping Site	✓	n/a	n/a
Children's Party Venue	✓	n/a	n/a
Compost Producer	✓	n/a	n/a
Electricity Power Station (Solar Farms and Wind Turbines only)	✓	n/a	n/a
Sport and Recreation Clubs	✓	n/a	n/a
Abattoirs	n/a	✓	The scale of the operation must be considered. It must be subservient/ ancillary to the agricultural use on the land.

Airfield Helistop	n/a	✓	Only permitted where it is subservient to the bona fide agricultural use (e.g. crop dusting, distribution of agricultural produce). Civil Aviation Authority approval required.
Auctioneers	n/a	✓	Only for the auctioning of agricultural produce / livestock / wild game and *bona fide* agricultural equipment.
Bona fide repair of Agricultural Equipment	n/a	✓	The applicant must demonstrate that the proposal will serve the local agricultural sector.
Botanical Garden	n/a	✓	
Cemeteries	n/a	✓	Subject to appropriate studies.
Child Care Centre; Places of Education ancillary to Agricultural Uses; Places of Instruction ancillary to Agricultural Uses	n/a	✓	The locality and scale of the facility should be appropriate to provide instruction in farming activities and / or serve the needs of a local community, in the directly surrounding area (from outside the Urban Development Boundary), to the satisfaction of the Municipality.
Conference Centres (wedding venue only)	n/a	✓	A wedding venue including a chapel is permitted, but no other uses listed under the definition of a Conference Centre.
Conservation Area	n/a	✓	
Filling Stations	n/a	✓	In principle it is accepted that filling stations are required outside the UDB. The land use application procedure will be determined on a case-by-case basis. Subject to environmental authorisations.
Guest Houses	n/a	✓	As per the relevant policy and requirements of the Scheme.
Place of Refreshment	n/a	✓	Subordinate and related to another main use.
Place of Public Worship	n/a	✓	The locality and scale of the facility should be appropriate to serve the needs of a local community, in the directly surrounding area (from outside the Urban Development Boundary), to the satisfaction of the Municipality.
Processing of Agricultural Produce (canning, bottling, etc.)	n/a	✓	The scale of the operation must be considered. It must be subservient/ ancillary to the agricultural use on the land.
Resort	n/a	✓	Place of Refreshment shall only be considered as a subservient use to the resort.

Resource Based Uses	n/a	✓	These are non-agricultural uses that by virtue of the location of the input source material for the use are required to be located at or near to the source with empirical proof to be supplied to the satisfaction of the Municipality. Subject to any required environmental authorisations.
Waste Disposal Sites	n/a	✓	Subject to relevant environmental authorisations.
Waste Water Works	n/a	✓	Subject to relevant environmental authorisations.
Zoological Garden	n/a	✓	
Animal Care Centre	✓		As provided for in Column 5 (Written Consent Use A).
Equestrian Centre	✓		As provided for in Column 5 (Written Consent Use A).
Veterinary Hospital	✓		As provided for in Column 5 (Written Consent Use A).

As the above list is not exhaustive, other uses that would not be appropriate within the UDB or will be more appropriate outside the UDB can be considered provided that the principles of this policy are complied with.

Where a special consent use application is for a use on only part of a farm portion outside the UDB, the Municipality may accept a surveyed diagram of the part of the land or the specific buildings to which the special consent will be applicable that will form part of the conditions of approval of the special consent, provided that no illegal township (as defined in the By-law) will be created.

7.5 Subdivision Applications
Applications in terms of Section 53 of the By-law, can only be considered, where:

- The land is excluded or approval has been obtained from the Department of Agriculture, Forestry and Fisheries (DAFF), in terms of the Subdivision of Agricultural Land Act (Act 70 of 1970); and
- There is no possibility of an illegal township (as defined in the By-law) being created.

8. PROCEDURES

All application procedures on land outside the UDB shall align to the normal processes set out in SPLUMA, read with the By-law, the Scheme, and the CoE System of Delegations. In this regard it must be noted that:

- Development applications outside the UDB or authority on applications outside of the UDB shall not be construed as an amendment to the UDB.
- Deviations from the spatial frameworks outside the UDB can only be considered by the Municipal Planning Tribunal if it is in the national interest (Section 20(4) of the By-law).
- The City will be under no obligation to provide bulk engineering service infrastructure outside the UDB, should land uses be approved outside the UDB in line with this Policy.
- All structures shall comply with the provisions of the National Building Regulations.

9. PENALTY CLAUSE

The provisions of the City of Ekurhuleni Spatial Planning and Land Use Management By-law, 2019 as well as the City of Ekurhuleni Land Use Scheme, provide that it is an offence, punishable by law, to conduct an illegal activity from land or buildings within the municipal area without having the necessary authorisation to do so.

Further, it may also be an offence to operate an illegal activity from land or buildings within the municipal area without having the necessary authorisation to do so in terms of the legislation listed in (3) above.

10. REVIEW

This policy may be reviewed at such time as may be deemed appropriate by the Municipality.

11. FORMS AND INSTRUCTIONS

All forms related to applications in terms of the City of Ekurhuleni Spatial Planning and Land Use Management By-law, 2019 are prescribed by the said By-law.

ANNEXURE B2.6: GROWTH MANAGEMENT TOOLS (PRIORITIZED)

Growth management refers to various tools and mechanisms used by the government to encourage, direct, facilitate and prevent development. This is done to ensure that there are services available to meet the required demands as the population grows. The concept goes beyond traditional land use planning, zoning, and other development controls in both the characteristics of development influenced and the scope of government powers used.

In fulfilling its mandate, the CoE must continuously respond to any specific situation's particular demands. In this process, the city must adopt different roles depending on the situation. In meeting these multi-dimensional demands, the city has various tools and mechanisms to its disposal to support it in addressing any specific problem.

To allow the CoE to fulfil its legislative, policy, and regulatory mandate, the tools and mechanisms at its disposal can broadly be grouped into the following categories.

- **Regulation-oriented tools:** This technique controls urban growth through procedural planning. Till the 1980s, this concept was a common technique. Nowadays, it is criticised. The Regulation Oriented approach aims to set limits for growth and preserve open space by applying specific controls to the development activities to regulate their impacts. Many tools are used to implement the regulation approach.
- **Incentive-oriented tools:** This tool-type aims to foster private urban growth decision-making. The idea is to manage urban growth with monetary mechanisms to support achieving development goals. These tools are useful, especially in the market-oriented realm. The private sector is always looking for financial benefits and returns.
- **Design-oriented tools:** This is another technique that can direct urban growth but with a different approach. When a more aesthetic component is added to the functional realm of planning, focusing on the quality of spaces, more people will be attracted to these special zones that are intended to be developed. A new urbanism concept is a design-oriented tool that focuses on providing unique design preferences to the community, such as a human scale, pedestrian-friendly, and mixed-use environment. The Design Oriented tool's objective is to shape the urban environment with new concepts of design that enhance the quality of life, which leads to the generation of more urban growth in these areas.
- **Collaboration-oriented tools:** The collaborative approach is a newer approach than the regulative-oriented one. It seeks the involvement of different stakeholder groups in the community. This methodology includes small-scale approaches from stakeholder involvement to the scale of collaborative programs at the regional level. Many aspects are intended to be sustained in this concept, such as democracy, ethics and legitimacy in the planning process.
- **Inter-Jurisdictional and Regional Cooperation:** Regional and Inter-Jurisdictional cooperation are also essential. For avoiding conflicts between neighbour communities, a higher level of coordination in the planning system should formulating policies, creating guidelines, collecting best practice examples, and acting as moderators. These tasks support local decision-making.
- **Information oriented tools**: The process of urban growth decision making needs knowledge. Planning does not work without information. Using information technology to provide such knowledge can empower this process. Systems like Geographical Information Systems (GIS) might support decision-making processes in planning. This system is no longer used to measure urban growth but to monitor and analyse growth patterns.

Therefore, it can forecast the development pattern and improve the decision-making process. All these urban growth management tools and techniques can be used separately or collaboratively depending on urban growth management strategy.

Table: Growth Management Tools and Mechanisms

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS
HIGH PRIORITY
1. Tool: Fast-tracking Applications
Description: Processes and procedures to move non-controversial and targeted development projects rapidly through the development application process, for example, favouring administrative review and approval. This can be achieved through "One-Stop" development application / Designated Coordination, Pre-Application Conferences, development application tracking, Concurrent Reviews and Administrative Approvals. **Comment:** Within the Framework of SPLUMA and the reviewed regulations, mechanisms and procedures were developed to minimise approval periods for land-use changes. There are set performance criteria for developers and the council based on the legal principles underlying legislative and regulatory frameworks. Appropriate application process management systems and procedures can ensure minimum delays on the approval of land-use change applications. This tool is thus

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS
not applicable in full to the council, but aspects such as technology used for the approval process can assist in effective management to minimise delays.
2. Tool: Fiscal Impact Analysis
Description: This refers to a municipality conducting a study of the projected short and long-term costs and revenues associated with new development in a community. It can be used to evaluate the most appropriate time and place for development to occur based on using existing utilities and the rate of development. In essence, this is thus a cost-benefit model that supports a cost-effective, incremental approach towards urban expansion. **Comment:** Local government has a constitutional obligation to deliver services. The decisions to provide services are not necessarily driven by the financial benefits of a project. However, this does not absolve a municipality to consider the long-term financial implications of its service delivery policies and strategies. The requirements in terms of the Constitution (Section 152 (2)) requires that the municipality must be financially sustainable and operates within its institutional capacity. There are obvious developments where the cost of development can be recovered. It is for this reason that the principle of cross-subsidisation in the municipality applies. The total impact of over and under-recovery on services was dealt with in chapter 2 of phase 3 of this project, where the scenario framework for financial and institutional sustainability was assessed.

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

3. Data as an Asset

Description:

To effectively plan for and manage growth in a city, it is critical to have access to up to date and reliable data and data sources. Spatial data is a special data category amongst all the data within the municipal operation environment. There is an increased tendency to relate data to its spatial context. Furthermore, the rapidly changing nature of municipal areas makes it necessary for the municipality to institute or develop systems to reflect both short and long-term changes in the municipal area. In terms of municipal accounting standards, data qualifies as an asset that can be reflected on the balance sheet of the municipality.

Comment:

All though there are efforts in the CoE to capture and maintain spatial data, it remains focused on the needs of the urban planning functions of the city. The nature of this data is mostly “reactive”. In other words, data is usually captured during or after the completion of a project. Municipalities do not often generate new data or access data on a pro-active basis from outside the municipality to guide planning and decision making. The fact that data is not regarded as an asset implies that it is always treated as a subservient part of a project.

In order to allow planning and decision making in the council to be appropriate and fact-based, it is imperative that the council develop sustainable data systems with up to date and relevant content.

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

4. Comprehensive Plan

Description:

As per the definition in the MSDF, a comprehensive plan as a document composed of written goals and policies as well as maps used to guide the type, location, and quantity of development in a community over a ten or 20-year period based on existing conditions and future hopes. This plan is strategic in nature and should include goals for economic growth and how it can be contained within existing areas or areas designated for growth. Such plans can be compiled at a regional (metropolitan) level as well as at the local (precinct) level.

Comment:

This is a term borrowed from American planning practice. In essence, it is nothing more than the strategic development frameworks and plans developed by a council such as the GDS, MSDF, RSDFs and precinct plans. It is suggested that the term “Comprehensive Plan” be avoided and should not be introduced as part of the lexicon of planning in the City of Ekurhuleni.

Initial adoption and periodic update of these strategic plans such as the GDS, MSDF, RSDFs and Precinct Plans, including policies and proposals addressing land use and other plan elements as appropriate, should be reviewed and updated as part of the existing planning frameworks and processes as described in SPLUMA and related guidelines.

5. Land Use Management System (LUMS) Review

Description:

To ensure consistency with the adopted local plans and to reflect current development practices, initial and periodic review and evaluation of the LUMS are required.

Comment:

Land use management and specifically zonings that describes land use rights have ramifications for property ownership and property rights. Zonings and land use rights are in principle, not open to or subject to general review. Land use rights cannot arbitrarily be changed outside the framework of land use legislation and regulations.

6. Threshold Public Service Standards

Description:

This relates to the level of public services that must be provided for different types of development. Service levels can be set for schools, water, sewers, roads, transport, libraries and parks. A proposed development that will result in the non-maintenance of these service levels can be denied approval. In the case of Ekurhuleni, these standards are set in the 'Customer Service Standards, 1st Edition, 2009'. Service levels are also described in the various sectoral plans as prepared by the various Ekurhuleni Departments.

Comment:

Service standards refer to the qualitative issues regarding service delivery. It sets the performance criteria for service delivery and should not be confused with the

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

level of services. The level of services refers to the quantitative aspects of service delivery.

The level of services has important capital expenditure consequences and also reflect on the cost of delivering services (the operating impact of service delivery). This matter was addressed in phase 3 of this project.

7. Land-use and Infrastructure Coordination

Description:

This tool requires development to occur in areas already served by existing bulk service networks or areas planned to be served by such networks in order to prevent leapfrog development and continuous demands for service extensions.

Comment:

Bulk service provision is one of the most important tools in directing growth and development. This is based on the ability of the council to direct development over the short and medium-term to areas that have sufficient bulk services capacity to accommodate development. This is often a very neglected growth management tool because of a break in coordination between the technical and city planning department in a municipality.

Bulk capacity needs to be expressed at a very detailed, spatial level, for example, per catchment or reservoir zone rather than broad brush indications per customer care area as they are currently presented. This high-level assessment makes co-ordination with land uses very difficult.

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

8. Spatial Structuring Elements (e.g., nodes, corridors, TODs, density targets)

Description:

The objective is to facilitate and encourage growth towards areas specifically designated for development (i.e., activity nodes and corridors) and to provide the infrastructure required to grow and maintain these areas. This approach also links to the implementation of appropriate public transportation defining these nodes as clear destinations.

Comment:

This is one of the most recognised tools embedded in the council's spatial planning processes.

9. Functional Growth Management Areas (FGMAs)

Description:

The Functional Growth Management Areas is a spatial structuring and prioritisation tool used to assist the City in decision making to prevent, direct, encourage future development.

Comment:

The Functional Growth Management Areas was derived during the development of the GMS. The uses and benefits of the FGMAs are defined in chapter 6 of the CoE GMS.

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

10. Capital Investment Framework

Description:

The CIF is applied through the Capital Prioritisation Model and Geographic Priority Areas on annual basis with the IDP and Budget Process. The Function of the CIF is to spatially and strategically guide, co-ordinate and align the capital investment of the CoE. Prioritisation is therefore geared towards providing a spatial rational to the budget as guided by the spatial trajectory of the MSDF.

Comment:

The CIF has been implemented with the IDP and budget since 2014 and is supported in its application through an automated system under the ERP of the CoE and supported by a ratified Operational Task Team that is comprised of key departments.

11. Capital Expenditure Framework

Description:

The CEF is a legislative requirement stated in SPLUMA and SPLUMA bylaw. The intention of the CEF is to serve as a catalyst to streamline programme- and project-level preparation, prioritisation and implementation and to overcome hierarchical and silo-based approached. The CEF therefore also supports the CIF in guiding programme-based investment that speaks to the spatial strategy and priority of the MSDF. Part of recommendations for transitioning out of BEPP is that cities translate BEPP into CEF to allow for long-term pipeline of projects and proper implementation of CLDPs. National Treasury recognised and adopted CEF as the vehicle to direct prioritization and expenditure. Infrastructure provision and maintenance become central in the economic growth and job creation which brings the urgency in the development of the CEF in the city in order to guide, integrate and align capital projects and expenditure thereof. CEF therefore serves as a tool to GMS to ensure

that the recommended models of the strategy are systematically and strategically implemented in response to outcomes-based approach.

Comment:

Although CEF is not a new concept, it has not been applied in many municipalities including the City of Ekurhuleni. With the enactment of SPLUMA in 2013 and National Treasury planning and budgeting reforms, going forward government's goal is to measure performance on Capital Expenditure and therefore implementation of CEF is becoming a priority to the city.

12. Active Land Use Control

Description:

Public sector enforcement of building, zoning and housing policy to combat commercial blight and neighbourhood deterioration by ensuring adherence to minimum standards of health, safety and maintenance, including the elimination of nuisances.

Comment:

The application of active land use control ensures compliance with existing development rights and building codes. It happens after the event, and although it is important, it is not regarded as a tool for growth management.

13. Land Value Capture

Description:

Land value capture is a mechanism to share the benefits of a land value increase that result from public investment in infrastructure and amenities (e.g., public transit infrastructure, roads, parks or bulk service upgrades) or other public action (e.g.,

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

rezoning, increasing development rights, etc.). It ensures that government, private developers and the general public realise a return on public investment (through rates increases, operating revenue, land transfers etc.), and that this return can be used for maintenance of infrastructure and re-invested into new improvement projects.

Comment:

Land Value Capture is an expected consequence of a normal development process where the public sector creates an environment conducive to development by providing infrastructure and amenities required by the private sector to invest. This results in higher land values witch through the property tax system, generates income for the council. However, social-political objectives prioritise social investment, e.g., access to services and social facilities for marginalised people who cannot afford such services. Social investment, therefore, does not result in growing the tax and revenue base of the council and therefore, land value capturing does not take place. It is necessary to invest in areas that can render a return on investment to affect Land Value Capture.

14. Bulk Service Contributions

Description:

Bulk service contributions are a cost assessment imposed against new development to generate revenue to fund or recover the costs of reasonable service improvements necessitated by the development. This tool must be imposed carefully to balance the competing demands presented when dealing with the pros and cons of new development. Obligations imposed during development applications generally require developers to fund, build and dedicate for public use basic facilities required by future residents of the new developments. In Ekurhuleni, the bulk services contributions are through the following service contribution policies:

- ❖ Roads and Stormwater Bulk Engineering Services Contributions Policy;
- ❖ Policy on Bulk Services Contributions for Water and Waste Water;
- ❖ Policy on Contributions Required for Bulk (External) Electricity Services for Private Development; and
- ❖ Payment of Open Space Contributions.

The relevant Bulk Service Contribution Policies will be linked to the CIF to promote development in priority geographic areas. This will be done in terms of rebates on bulk service contributions in geographic priority areas. **Qualifying developments must comply with the land-use proposals.**

Comment:

Bulk services contributions should, in principle, cover the cost burden witch a new development puts on the city's bulk services. As indicated above, any rebate come at a cost to the city and not recovering bulk services will imply that shortfalls will have to recover from other sources. Furthermore, bulk services contributions go into the general income fund of the council, and the fact that bulk services contributions are paid by developers does not guarantee that such contributions will be used for the improvement of bulk services.

15. Infrastructure Financing and Development

Description:

Coordination of infrastructure development including financing, phasing and construction, with reliance on public-private partnerships and intergovernmental cooperation to ensure proper timing and necessary funding for identified improvements.

Comment:

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

The emphasis on infrastructure financing and development as described in the BEPP, CIF and Asset Management Plans is on capital investment and meeting capital expenditure targets. Two aspects are important. Namely, these plans are drafted and exist independently of each other and consequently conflict in their objectives and outcomes. Furthermore, none of these plans considers the operating consequences of capital expenditure and investment. As shown in phase 3 of this project, the council faces serious cashflow constraints that put the financial sustainability of the council at risk. Within this financially constrained environment, infrastructure provision remains one of the most powerful tools and mechanisms for structuring long terms growth and development.

MEDIUM PRIORITY

16. Architectural Design Guidelines/Design Review

Description:

Site planning and architectural design criteria and review procedures intended to promote high-quality development; recommended for defined geographic areas where visual quality and coherence is especially important.

Comment:

The CoE developed an Urban Design Policy in 2017. This tool is available and should be used.

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

17. Blight Clearance / Reclaimed Property / Redevelopment / Regeneration

Description:

Involves rehabilitation and repositioning or removal and replacement of blighted commercial and multi-family complexes, often with new mixed-use / mixed-income development.

Comment:

These elements should be addressed in the relevant precinct plans. The precinct plans should be the tool for addressing urban regeneration and redevelopment. Redevelopment and regeneration are expensive undertakings with serious associated capital and operating consequences. The extent to which the council can lead such processes will be determined by their financial resources and capacities. It might be more appropriate for the council to play a facilitating role in a partnership with private sector developers.

18. Strategic Development Areas

Description:

These are strategically located vacant areas designated for growth by the local government. The area is chosen due to its strategic location, the services available in the area, and/or because of local zoning regulations or development plans. These areas are used as priority funding areas and can represent both infill development and urban expansion.

Comment:

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

The councils' strategic development areas comprise SUDs, priority housing developments areas, priority development areas, housing upgrading areas, and the Aerotropolis hubs and priority sites.

Strategic development areas within the current framework define major projects rather than strategic focus areas. It is a priority for the council but not necessarily a tool or mechanism to structure or guide long term future development. However, the implementation of these projects has a profound impact on the long terms structure of the city.

19. Urban Development Boundaries

Description:

The intention of an urban edge is to establish limits beyond which urban development should as a rule not occur and aims to promote urban and environmental efficiency, effectiveness and economy in the interest of all.

Comment:

The assessment completed during phase 3 of this project showed that the urban development boundary of the City might be regarded as archaic and inappropriate in the current dynamic development environment confronting the CoE. Alternative approaches such as the FGMAs described in this report may be more appropriate to show the limits of future growth and expansion. The current urban development boundary also does not consider infrastructure capacity constraints and the release of land over time as capacity becomes available.

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

20. Streetscape Linkages

Description:

The redesign of arterial and local streets as safe and comfortable public space accessible to multiple users, especially pedestrians; enhanced streetscapes incorporating street trees and other amenities should link activity nodes and community open space.

Comment:

This element should be considered as part of open space and public space planning, urban design and precinct planning initiatives in the city. This element is not a tool or mechanism per se but enhances and contributes to tools such as land value capture, precinct planning, urban design and transportation planning policies.

21. Public Realm Design Palette

Description:

A well-considered and coordinated palette of design elements associated with the public realm (e.g., street trees, streetlights, transit stops, etc.) to improve the visual quality of the environment and enhance the identity of the city.

Comment:

This aspect is recognised as part of creating a city identity but is not regarded as a critical tool in growth management. This can be applied across the city with an enhanced focus on important nodal areas. The CoE Aerotropolis 25 Year Master Plan makes a specific recommendation and provides a high-level framework for focussing these initiatives in terms of the Aerotropolis.

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

22. Ring-fencing (City Improvement Districts)

Description:

A CID is a geographical area that has been demarcated in a CID plan, which plan has been proposed by and accepted by a certain percentage of the owners of properties situated in that geographical area. The CID plan is a document that sets out a comprehensive plan of action to improve the area for all its residents. It indicates which municipal services are lacking or are needed in greater abundance and provides for a budget (which is to be funded by levies imposed on all owners within the CID area) to cover any additional cost of providing those services.

Comment:

There is no national legislation authorising the creation and management of City Improvement Districts (CIDs). In Gauteng, the Gauteng City Improvement District Act 2 regulates CIDs (CID Act). In a 2015 judgement, Randburg Management District (CID) v West Dunes Properties 141 and the City of Johannesburg (COJ) found that the CID was not lawfully established and could not lawfully levy any charges. Although the Court did not expressly pronounce on this issue in this case, it remarked it had "grave concerns" as to whether any CID operating in Gauteng is lawfully entitled to charge owners levies as a result. CIDs is a result of initiatives taken by property owners. In the case where a municipality contemplates additional or special property taxes for a selected geographical area, the council will have to obtain a legal opinion on its ability to do so. In terms of Section 22 of the Property Rates Act, a municipality can establish Special Rating Areas (SRA) where additional taxes can be levied. However, there are very specific legal requirements for doing this to ensure that the objective of creating Spatial Rating Areas is achieved.

23. Express Transit Lines

Description:

Bus service providing faster connections with a minimum of intervening stops between major destinations or commuter nodes. This element is not a tool or mechanism per se but enhances and contributes to tools such as land value capture, precinct planning, urban design and transportation planning policies.

Comment:

This element was incorporated in the planning of the City's BRT system.

24. Incentive Zoning

Description:

Amendments to the LUMS offering incentives (e.g., density bonus) to promote desired land use patterns and policy outcomes; in particular, mixed-use and transit-oriented (i.e., smart growth) development at key activity nodes.

Comment:

South Africa's land use and zoning system have its roots in the British land use management system in South Africa in the 1930s. The first major update of the whole system was done in the 1970s as an outflow of the introduction of Ordinance 25 of 1965. After 1994, and with the aim of rationalising different land use management systems, SPLUMA was introduced. However, the approach to zoning and land use management did not change fundamentally. Different and new demands created by contemporary planning approaches make it difficult to reconcile modern planning approaches and initiatives with archaic land use management systems. Rather than adopting instruments such as incentive zoning, it might be more appropriate to

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

change or add zoning categories to accommodate the approach to mixed-use developments with different density and building density (Floor Area Ratio) requirements.

25. Gateway Treatment and Public Art

Description:

Special design treatment (e.g., landscape, lighting, monument signage, public art, etc.) at gateways to targeted areas, providing a heightened sense of place.

Comment:

This aspect is recognised as part of creating a city identity but is not regarded as a critical tool in growth management. The CoE Aerotropolis 25 Year Master Plan makes a specific recommendation and provides a high-level framework for focussing these initiatives.

LOW PRIORITY

26. Wayfinding and Signage System

Description:

A formal wayfinding and public signage system (encompassing district identity, vehicular directionals, pedestrian directionals, historical markers and interpretive signage, etc.) to facilitate orientation and reinforce city identity.

Comment:

This aspect is recognised as part of creating a city identity but is not regarded as a critical tool for growth management.

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

27. Enhanced Transit Stops

Description:

Highly identifiable transit stops located at major activity centres and employment nodes, incorporating seating, shelter, wayfinding information, and other amenities to promote user convenience and comfort.

Comment:

This element should be considered as part of the transport planning and urban design and precinct planning initiatives in the city. This element is not a tool or mechanism per se but enhances and contributes to tools such as land value capture, precinct planning, urban design and transportation planning policies.

28. City Initiated Rezoning

Description:

The City initiates and undertakes comprehensive rezoning to promote consistency with the adopted local plans and its associated land-use policies; it serves as an approach to streamlining the entitlement process for targeted redevelopment sites.

Comment:

Changes in land use right through zoning have tax and tariff implications for landowners. It can, therefore, not be appropriate for the CoE to initiate such an initiative that affects private landowners. The tool should only be used and applied to council-owned land. The benefits of applying this tool will be limited.

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

29. Land Banking

Description:

The practice of aggregating vacant and underdeveloped parcels for later productive use.

Comment:

The concept of land banking is acceptable; however, land banking implies capital expenditure on the councils' side with the aim of generating long term returns. Given the current financial stress under which the CoE operates, one should consider such an approach within the broader framework of financial demands on the council. This also includes land that should be set aside for public use such as cemeteries and landfill sites.

30. Parks Acquisition and Improvement

Description:

The planning, acquisition, expansion and improvement of public parks and recreation facilities; within identified areas, the acquisition should generally focus on neighbourhood parks for underserved areas and greenways.

Comment:

Notwithstanding neighbourhood open space requirements, the metropolitan scale open space system is closely linked to sensitive environmental features which have been recognised in the council's planning and been largely discounted in historical development.

31. Special Economic Zones (SEZ)

Description:

A special economic zone is an area in which the business and trade laws are different from the rest of the country. SEZs are located within a country's national borders, and their aims include increased trade balance, employment, increased investment, job creation and effective administration.

Comment:

An SEZ has been in the planning process in the City of Ekurhuleni for nearly a decade, known as the OR Tambo International Airport SEZ. The focus of the OR Tambo SEZ development has been on the delivery of a 7.5-hectare land parcel, which is referred to as ORTIA Precinct 1. This is a greenfield development that commenced in 2016 with the development of the essential bulk infrastructure and enablement works.

SEZs are the responsibility of the Department of Trade and Industry, and the establishment thereof is determined from a national level and is not necessarily a local initiative.

32. Purchase of Development Rights (PDR)

Description:

This programme is an effective tool to channel economic development towards certain areas and to deflect growth pressures from others. With a PDR program, a local authority is allowed to create certain districts where the land is reserved for conservation, open space or agricultural production. These districts allow the municipality implementing the program to impose special assessment rates on these districts that are beneficial to the community and which promotes the use of these

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

areas for conservation, open space, recreational or agricultural purposes. In essence, the community in such a district is thus compensated (by way of special assessment rates) to maintain and enhance the existing character in an area instead of urbanising the area.

Comment:

This was described in the CoE BEPP 2020/2021. The tool is currently not used in Ekurhuleni, and the BEPP recommended further investigation. The tool, however, implies sterilising areas with existing development rights to prevent further development. The practice of buying land use rights is not a current practice in the South African environment. It implies that a piece of land in private ownership be stripped of its rights without expropriating the land. Such an approach may have serious ramifications. PDR must be considered within the framework of current land expropriation processes and legislation.

33. Dedicated Bicycle Lanes

Description:

A portion of the roadway designated by striping, signing, or pavement markings for the exclusive use of bicyclists; intended to promote user confidence and safety; an interconnected system of dedicated bicycle lanes is recommended.

Comment:

This element should be considered as part of the transport planning and urban design and precinct planning initiatives in the city. This element is not a tool or mechanism per se but enhances and contributes to tools such as land value capture, precinct planning, urban design and transportation planning policies.

ANNEXURE B2.6: RANKED COE GROWTH MANAGEMENT TOOLS AND MECHANISMS

34. Bicycle Commuter Facilities

Description:

Bike storage and commuter amenities provided for user convenience, and normally located at a transit stop, public facilities, activity nodes, and employment nodes.

Comment:

This element should be considered as part of the transport planning and urban design and precinct planning initiatives in the city. This element is not a tool or mechanism per se but enhances and contributes to tools such as land value capture, precinct planning, urban design and transportation planning policies.

ANNEXURE B2.7: URBAN MANAGEMENT GUIDELINES

1. BACKGROUND

Urban management is needed to sustain the capital investment made and to establish the preconditions for investor confidence and continued investment momentum. Importantly, it does not follow capital investment but is a continuous activity in the precinct/ Catalytic Land Development Area.

Urban management not only includes the day-to-day operations in a precinct, such as cleaning, waste removal, traffic, transport, trader management and security services, but also extends to place-making and marketing and social services.

The management of localised public transport operations is also a critical success factor to successful urban management.

Similarly, the quality of asset or facilities management of public sector facility owners has a considerable impact on successful precinct management.

Effective urban management requires a partnership approach – with the private sector and resident households and businesses – tailored to the specificities of the particular priority precinct.

Hence, successful urban management is based on working with precinct stakeholders on a continuous basis, through mechanisms such as CIDs, in a shared, efficient management and maintenance approach, to retain and increase investment, create jobs, and manage risks for all parties.

This will contribute to the safety and maintenance of precincts. The ultimate objective is to achieve inclusive, vibrant, safe, and investment friendly precincts owned by the community active within them.

In line with the urban management directives noted above, it is recommended that the CoE implement Urban Management Strategies aimed at providing a coordination and strategic advisory role to public and private sector developments in all Catalytic Land Development Areas.

These Urban Management Strategies are intended to contribute to the broader process of urban development and renewal, and on facilitating incremental project scale interventions, such as streetscape upgrades and clean-up campaigns, that result in visible delivery in each of the CLDAs.

2. URBAN MANAGEMENT OBJECTIVES

Specific urban management objectives to be pursued in each of the Catalytic Land Development Areas in the CoE include the following:

- Institutional and inter-departmental coordination with regard to service delivery and intervention in CLDAs, and the identification of an appropriate institutional arrangement for the coordination and implementation of CLDA programmes and projects;
- Continuous application of prescribed land use management processes in the CLDAs;
- The enhancement of the contribution of the public space (environment) in CLDAs through appropriate design interventions and ongoing maintenance;
- The identification and initiation of strategic public investments in CLDAs such as infrastructure, housing, as well as economic and social facilities;
- Guiding and directing strategic private sector investments in CLDAs and facilitating private sector access to mechanisms such as City improvement Districts (CIDs), tax incentives and funding sources.

3. PROPOSED COE URBAN MANAGEMENT STRATEGY AND PROGRAMMES

Diagram 1 below depicts the various programmes of the proposed CoE Urban Management Strategy to be applied in each of the CLDAs.

Each of the eight programmes is briefly summarised as follow:

- **Basic Maintenance and Service Enhancement** comprises six sub-programmes which are all aimed towards achieving a minimum level of basic maintenance and service enhancement in the Catalytic Land Development Areas. It deals with aspects such as joint Memoranda of Understanding/Service Level Agreements with internal and external (other spheres of government) service providers in the CoE; joint maintenance scheduling for CLDAs; the implementation of consistent wayleave procedures for all public and private developments; and the possible establishment of regional, multi-disciplinary Response Crews to clean up/fix problem areas whenever required. This programme also highlights the importance of establishing a Central Complaints or Reporting Centre through which the CoE community can report problems/complaints regarding maintenance, renewal and upgrading in the various areas.

- **By-Law Enforcement** comprises four sub-programmes which include the launching of a public by-law awareness campaign; a renewed focus on by-law enforcement; dedicated prosecution teams to enforce/police by-laws in all CLDAs; and an investigation around the possibility of establishing municipal courts to deal with by-law related contraventions (in order to speed up prosecution processes).

- **Public Space and Properties Management** oversees the proper management and maintenance of all government owned properties and public open spaces in the CoE. This programme focuses on the following three main areas:
  - The compilation and maintenance of a database on government owned properties (municipal, provincial, national);
  - The identification of “problem” government properties and the formulation of redevelopment, disposal or restoration strategies;
  - The development/maintenance of all road reserves, sidewalks, parks and public open spaces.

- **Neglected Private Properties Management** seeks to efficiently monitor and identify poorly maintained and neglected private properties in order to pro-actively prevent urban decay. The programme comprises two sub-programmes: the first dealing with the compilation of a database for poorly maintained or neglected privately owned properties; and the second comprising a strategy or programme of intervention to deal with each of these properties in consultation with the private owners.

- **Safety and Security** aims to establish private sector confidence and to create a climate conducive to private investment in specific areas. This programme comprises four sub-programmes. It includes aspects such as visible policing and support services; the implementation of CCTV and other crime prevention strategies; the provision/maintenance of street lighting in priority areas; and design guidelines aimed at designing-out crime, e.g. building orientation providing “eyes on the street”, etc.

- **Social Development and Care** is aimed at investing in people. It seeks to formulate a Social Capacity Building and Training Strategy which will result in human behaviour supportive to urban development/renewal.
  - The Social Care Sub-Programme focuses on providing proper shelter, health and welfare services to the homeless in the CLDAs. This also includes initiatives to deal with prostitution, drug trafficking and abuse, alcohol abuse and street children.
  - The Sustainable Livelihoods Sub-Programme focusses on skills development and training for emerging entrepreneurs, as well as initiatives to facilitate economic upscaling of informal traders in order to incrementally become part of the mainstream formal economy in CLDAs.

Diagram 1: CoE Urban Management Strategy and Programmes

Programme 1: Basic Maintenance and Service Enhancement
1.1. Improved Basic Service Levels
1.2 Joint Maintenance Scheduling Programme
1.3 Consistent Wayleave Programme
1.4 Inter-Governmental Joint Service Agreements
1.5 Dedicated Regional Response Crews
1.6 Communication Management System
Programme 2: By-Law Enforcement
2.1 By-Law Awareness Campaign
2.2 By-Law Enforcement
2.3 Prosecution Teams and Municipal Courts
Programme 3: Public Space and Properties Management
3.1 Government Properties Database
3.2 "Problem" Government Properties Strategies
3.3 Sidewalks and Public Parks and Open Space Maintenance Programme
Programme 4: Neglected Private Properties Management
4.1 Neglected Private Properties Database
4.2 Intervention Programme for Neglected Properties
Programme 5: Safety and Security Enhancement
5.1 Visible Policing and Support Services
5.2 Crime Prevention Strategies: CCTV

5.3	Street Lighting Provision/Maintenance
5.4	Design-Out Crime
Programme 6: Social Development and Care	
6.1	Social Care Programme: Shelter, Health, Welfare (Grants)
6.2	Sustainable Livelihoods Programme: Emerging Entrepreneur Upscaling Sustainable Livelihoods Programme: Emerging Entrepreneur Training
Programme 7: Precinct Development Plans and Guidelines	
7.1	Area Specific Development Plans and Strategies (Precinct Plans)
7.2	CoE Urban Design Guidelines
Programme 8: Incentive and Investment Promotion	
8.1	Urban Development Zones: CID, Restructuring, Integration
8.2	Integrated Incentive Policy
8.3	Strategic Developments Fast Track Programme
8.4	Establishment of Development Agencies
8.5	Business Liaison Mechanisms

- **Precinct Development Plans and Guidelines** provides for the compilation of detailed precinct plans and development strategies for each of the Catalytic Land Development Areas in the City of Ekurhuleni. The main benefit of such plan is the fact that it creates a common spatial vision towards the future development of the precinct (based on the collective inputs from local stakeholders). Future public and private investment are then directed by this plan.

  A set of Urban Design Guidelines for the CoE as a whole should inform the individual precinct plans and ensure consistency in urban design approach, standards, etc. applied in all Catalytic Land Development Areas.

- **Incentive and Investment Promotion** firstly focuses on identifying and declaring specific areas to qualify for certain incentive schemes (e.g. Restructuring Zone; City Improvement District; Integration Zone, etc.). It also comprises a Strategic Development Fast Tracking Programme to speed up administrative processes for high profile (catalytic) projects.

  The establishment of Development Agencies to provide specialist support to facilitate development; and establishment of Business Liaison mechanisms in order enhance public-private partnerships also form part of the Incentive and Investment Promotion Programme.

ANNEXURE B2.8: CAPITAL EXPENDITURE FRAMEWORK: CAPITAL PRIORITISATION MODEL AND WEIGHTING MATRIX

CAPITAL EXPENDITURE FRAMEWORK:

CAPITAL PRIORITISATION MODEL

Prepared by the

CITY OF EKURHULENI METROPOLITAN MUNICIPALITY

REAL ESTATE AND DEVELOPMENT PLANNING DEPARTMENT

a partnership that works

City of Ekurhuleni

Table of Contents

1. **Capital Prioritisation Model** 3
   - 1.1. **Methodology** 4
   - 1.2. **CPM Project Categories** 10
   - 1.3. **Capital Prioritisation Weighting Model Overview** 12
   - 1.4. **Automated Prioritisation** 16
   - 1.5. **Concluding Summary** 17

Appendix I: Functional Requirement Specifications for the Capital Prioritisation Models Weighting Matrix

List of Figures

Figure 1: 3 Tier Prioritisation 6
Figure 2: Capital Prioritisation Model Phases 7
Figure 3: CEF Project Statuses 8
Figure 4: CEF Project Category Capital Budget Target 12
Figure 5: Capital Prioritisation Model - Weighting Matrix Summary 14
Figure 6: Prioritisation Weighting Criteria 16
Figure 7: Budget Prioritisation Module Data sets 17

List of Acronyms

ACRONYMS	DESCRIPTION
CEF	Capital Expenditure Framework
CoE	City of Ekurhuleni
CLDP	Catalytic Land Development Programme
CoGTA	Co-operative Governance and Traditional Affairs
CPM	Capital Prioritisation Model
DDM	District Development Model
GPA	Geographic Priority Area
GDS	Growth and Development Strategy
GMS	Growth Management Strategy
IDP	Integrated Development Plan
MFMA	Municipal Finance Management Act
MSDF	Metropolitan Spatial Development Framework
MTREF	Medium Term Revenue and Expenditure Framework
SMT	Strategic Management Team
SPLUMA	Spatial Planning and Land Use Management Act

1. CAPITAL PRIORITISATION MODEL

The Capital Prioritization Model (CPM) is an instrument utilized in the implementation of the Capital Expenditure Framework (CEF) in alignment with the annual budget and IDP process that spatially and strategically prioritises the multi-year capital budget. The CPM strives to align the capital budget with project management (project readiness and life cycle), IDP ward needs, mayoral priorities, IDP strategic objectives, spatial priorities, the Service Delivery and Budget Implementation Plan (SDBIP), Climate Change risks and socio-economic factors as integral information that feeds into the prioritization decision making of the capital budget.

The CPM in the prioritisation process attempts to bring spatial prioritization of the budget to the fore as a key outcome of the CEF by means of utilising geographic priority areas and integration zones to guide the capital budget spatially and promote targeted spatial investment into these identified intervention areas. The CPM establishes a set process for implementation of capital budget prioritisation as aligned to the budget and IDP process that provides guidance to municipal departments on the capital project prioritisation process and requirements.

The key objective of the CPM is therefore to prioritise municipal capital infrastructure projects in alignment with the spatial and strategic objectives and priorities of the CoE. In summary the CPM is geared towards achieving the following outlined objectives as part of the Capital Programme Management process:

- Facilitate and guide prioritisation of the multi-year capita budget.
- Establish a uniform process to be followed during the budget process in the allocation and prioritisation of the budget both strategically and spatially.
- Guide the budget allocation split.
- Promote collective action and collaboration between essential departments with an identified strategic involvement in the budget process (i.e. Finance, Strategy and Corporate Planning (IDP), EPMO Human Settlements, Economic Development, Environment, Real Estate and City Planning).
- Promote alignment of departmental functions, strategic policies and sector plans.
- Outline key actions to be pursued by interested and affected parties during the capital budget prioritisation process.
- Include monitoring and evaluation as an integral component to the prioritization steps in order to assess the impact of the CEF on the multi-year capital budget.

- Make provision for a transparent and accountable budget process.

The CPM is therefore intended to support the CEF as a component of the MSDF in achieving its legislative requirement in terms of 21(n) of the Spatial Planning and Land Use Management Act (SPLUMA) 16 of 2013, that stipulates a Municipal Spatial Development Framework (MSDF) must "determine a capital expenditure framework for the municipality's development programmes, depicted spatially". The CPM under the CEF also supports the following stipulated legislative requirements for the MSDF in accordance with SPLUMA:

- Forms a vital component for requirements listed under Section 21(p) for an Implementation Plan that includes:
  - "Specification of institutional arrangements for implementation".
  - "Specification of implementation targets, including dates and monitoring indicators".
  - And Specifications, "where necessary, for any arrangements for partnerships in the implementation process".

The CEF further utilises the CPM to strengthen the Catalytic Land Development Programmes (CLDPs) as an identified requirement from National Treasury. The CLDP's have been identified as the vehicle for meeting the requirements of Section 21(n) of SPLUMA in the determination of the CoEs development programmes in accordance with the spatial strategy of the MSDF and infrastructure needs of the municipality.

1.1 Methodology

The Capital prioritisation model of the CEF in its methodology identifies 3 overarching prioritisation tiers as illustrated in **figure 1**. The CEF places departments at the forefront of prioritisation as experienced and knowledgeable professional custodians of the department's capital projects. The first tier of prioritisation indicates that departments are ultimately responsible for planning and prioritising departmental capital projects as informed by master plans and developmental strategies of the CoE. Noting that capital prioritisation begins at the planning stage with departments, it is essential for the CEF to guide departments at this first tier of prioritisation by providing the departments with prioritisation criteria, targets and catalytic land development programmes/projects within priority areas that form part of the decision-making process during departmental project planning and in turn inform the draft capital project submission by the department.

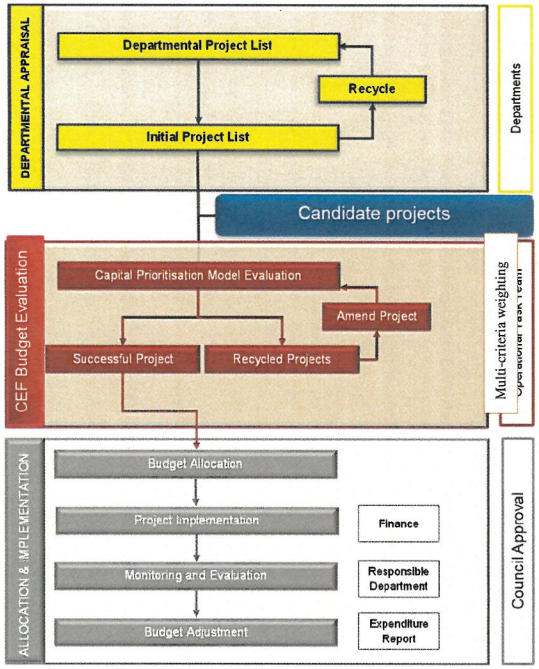
Tier 2 of prioritisation in the methodology requires that the CEF prioritises the multi-year capital budget with a focus on spatial prioritisation in support of the budget evaluation of draft departmental capital budget submissions and provide a preliminary prioritised budget proposal based on the consolidated budget that will be forwarded to relevant CoE Committees for consideration and adoption. The CEF prioritisation is to be applied with the support of a scientifically derived multi-criteria weighting prioritisation matrix that produces a score ranking of all candidate[1] capital projects. The prioritisation score should be utilized to provide guidance to departments in prioritising draft capital budget submissions and inform relevant committees in so far as budget allocation in accordance with the CoEs spatial priorities.

The CEF's prioritisation of the capital budget should assess project readiness, affordability, risk factors, criticality and alignment to municipal priorities including spatial priorities, and ward needs based on sound predetermined targets in meeting the developmental objectives of the CoE. This is aimed at providing for transparent, accountable, and informed decision making in the budget process.

The third tier of prioritisation acknowledges the Executive and Legislatures evaluation of the budget. It is a compulsory component of the budgets process as outlined in the CoE's key schedule of deadlines for the municipal budget; and as the budget progresses through the relevant Council Committees for adoption it is probable that changes to the capital budget may arise. Whilst changes by the Executive and Legislature to budget prioritisation outcomes from tiers 1 and 2 may be unavoidable the CPM targets, criteria and weighting matrix as applied to the capital budget should align to the development needs and spatial priorities of the City in accordance with the IDP and MSDF to mitigate significant changes. Both the Executive and Legislature must be informed of the CEF Capital Prioritisation Model and how it impacts the prioritisation decision making of the multi-year capital budget. Outcome of the third tier is to obtain Council approval of the capital budget for implementation by the CoE departments.

[1] Note: Candidate projects refers to new draft capital project submissions by municipal departments. Prioritisation of the capital budget takes place annually and focuses on prioritising candidate projects submitted for the new MTREF period.

Figure 1: 3 Tier Prioritisation



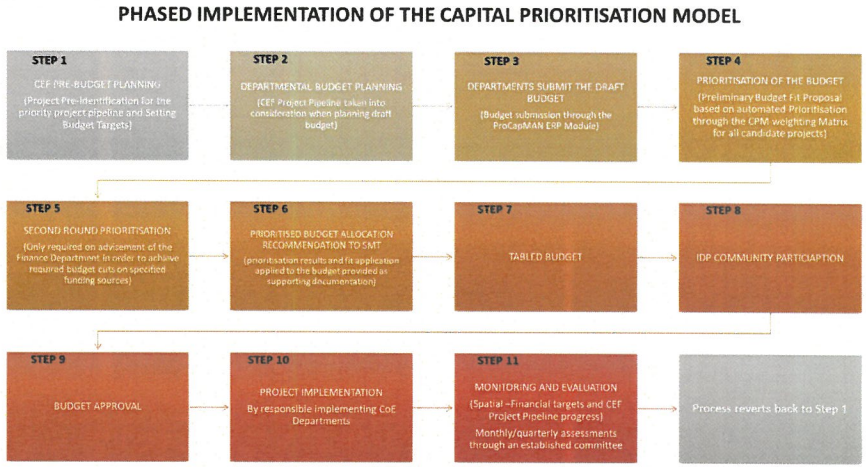
The phasing in of the CEF needs to ultimately promote increased alignment of departmental capital projects with impactful investment into the spatial priority areas of the CoE that not only addresses service delivery backlogs, but also drives economic growth, job creation and facilitates upgrading and renewal of exiting capital assets.

In outlining the methodology of the CPM there are 13 defined phases of the CPM that are geared towards guiding the capital budget prioritisation process for the CoE in accordance with the 3 tiers of prioritisation. The below **figure 2** provides a summative view of the CPM phases in guiding the prioritisation process of the capital budget from planning to implementation and monitoring and evaluation.

It is essential to note that the prioritisation process as aligned to the capital budget addresses project prioritisation over the MTREF period. Although the CEFs prioritisation of the budget is only applied over the 3-year MTREF period the CEF through the Catalytic Land Development Progamme Pipeline provides a minimum 10 year project projection and

a longer terms spatial prioritisation strategy in accordance with the MSDF. The CEF can therefore be understood as an annual process together with the budget and IDP that is progressive in nature in achieving medium to long term spatial strategy through co-ordinated investment.

Figure 2: Capital Prioritisation Model Phases



STEP 1: CEF BUDGET PRE-PLANNING

- Set Intervention Areas (i.e. Geographic Priority Areas and Integration Zones and Functional Areas)
- Project Category percentage split;
- Percentage of budget for targeting into the priority areas;
- MTREF Rand value cap for year 1, 2 and estimate for year 3;
- Identify CEF Development Programmes (10 year Priority Project Pipeline). Spatial prioritisation must be a key decision-making factor in the identification and allocation of CEF Programmes. (*see Annexure B 7.3 – Catalytic Land Development Programmes*).
- Identified CEF Priority Project Pipeline (CLDP's) sent to implementing departments.

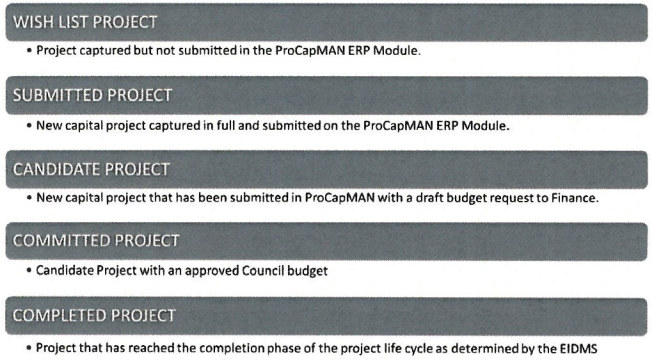
STEP 2: DEPARTMENTAL BUDGET PLANNING

- Budget guidelines inclusive of the identified CEF priority project pipeline (CLDPs) are sent to departments;
- Departments prioritise departmental projects prior to the budget capturing process.
- Departments to *register* projects from departmental and municipal strategies (eg. Human Settlements), ward priorities and the Capital Expenditure Framework *(CLDPs and Spatial Priorities to be communicated to departments prior to commencement of the IDP and budget process).*
- Departments to prioritise departmental projects based on master plans, asset management, CEF priority project pipeline (CLDPs), IDP ward needs, projects life cycle in terms of CIDMS, affordability etc.

STEP 3: DEPARTMENTS DRAFT BUDGET SUBMISSION

- System budget capturing by departments (includes mapping of projects works and affected area).
- New capital projects with allocated budget requests obtain a candidate status and unique ID number for reference. ***Figure 3*** *illustrates the capital budget project statuses.*
- Project information captured by departments will be utilized to inform the budget evaluation in step 5.

Figure 3: CEF Project Statuses



STEP 4: CAPITAL BUDGET PRIORITISATION

- Allocate funding sources for the draft multi-year capital budget;
- Projects are allocated to a CEF Project Category (i.e. Urban Restructuring, Upgrading and Renewal, and Economic Development).
- Candidate capital projects are passed through the capital prioritization models weighting matrix and allocated a score.
- Projects are fit to the budget based on score and budget cap per CIF Project Category and per funding source ***(targets set in step 1 play a role in application of the budget fit)***.
- The ProCapMAN (automated prioritisation) ERP module generates a draft budget fit proposal for the capital budget based on the department's budget requests (candidate projects).[2]

STEP 5: BUDGET FIT PRIORITISATION POST BUDGET EVALUATION

- The Finance Department based on the outcome of step 4 may recommend a partial budget fit for a specific department(s) or funding source(s) or Project Category(ies) in the event there is an identified need to cut back on budget requests or in the event that new draft budget requests have been placed onto the budget.
- Outcomes of a second round of budget fit as determined by an automated process will be provided to the Finance Department on request and the affected department(s).
- Departments can adjust the budget fit proposal with the Finance Department with due consideration to the targets that were identified in **step 1**.

STEP 6: BUDGET RECOMMENDATION TO SMT

The CEF budget prioritisation and budget fit results should be provided to SMT with the draft annual MTREF budget as supporting documentation and recommendation to the Committee as outcomes of the CPM. The submission of draft budget prioritisation results and recommendations to SMT should be headed by the Finance Department.

The SMT Committee should be afforded an opportunity to query the multi-year capital budget prioritisation recommendations put forward.

[2] Note: Prioritisation of candidate capital projects excludes vehicles, Special and Operational Equipment.

STEP 7: TABLED BUDGET

- Draft Budget Tabled to CoE committees.

STEP 8: IDP COMMUNITY PARTICIPATION

- IDP participation process.
- Projects identified for inclusion from the community participation process and included to the affected departments budget will be forced in. Force in of projects after the budget fit process will either result in select departmental projects being forced out or reduction of budget on the departments portfolio of projects (specific to the affected funding source and project category).
- Updated Project Fit and Budget Fit based on outcome of above.
- Final CPM Evaluation Report (To include a spatial evaluation of the capital budget and assessment of CLDPs that form part of the draft MTREF).

STEP 9: BUDGET APPROVAL

- CoE Council Committee approves the annual MTREF.

STEP 10: PROJECT IMPLEMENTATION

- Departments implement capital projects for the current financial year.

STEP 11: MONITORING AND EVALUATION

- CEF project performance will be assessed based on expenditure and stage gate progress. EPMO, Strategy and Corporate Planning and Finance to play a significant role in tracking project performance and reporting.
- CEF project performance will inform the CEF priority project pipeline (CLDPs) review and allocation for the upcoming MTREF.

1.2 CPM Project Categories

The CEF as part of the prioritization process proposes that capital projects be grouped according to one of three defined project categories for projects to be prioritized within the respective allocated project categories and not across categories to ensure that homogenous projects compete fairly for budget within the same pot of funding.

The CPM has identified the following Project Categories in the allocation of capital projects as part of the prioritization process:

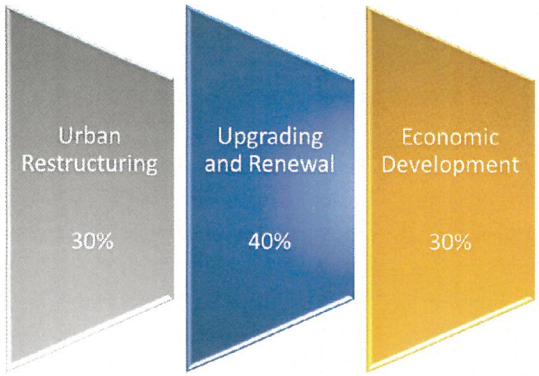
I. **Upgrading and Renewal:** The portion of the capital budget to be spent on upgrading and renewal of existing infrastructure and maintenance of social facilities and physical infrastructure. Upgrading refers to the extension of existing bulk capacity, whilst renewal refers to the maintaining of existing bulk infrastructure. This category can also be termed 'The City Present' category of the budget.

II. **Urban Restructuring:** The portion of the capital budget to be spent on the eradication of existing service backlogs within marginalized and formally disadvantage areas that relates to both physical and social infrastructure. This category can also be termed 'The City Past' category of the budget. Projects included should focus on major housing projects and service delivery within marginalized areas.

III. **Economic Development:** The portion of the capital budget to be spent on growing the economy of the city. This can also be termed 'The City Future' category of the budget. Projects included here should focus on industrial areas and major investment and development projects. This category refers to projects that are focused towards extending bulk infrastructure for the purpose of the stimulating growth and are therefore purely income generating projects. This includes Income generating services: Purely New Infrastructure that will generate revenue.

The CEF as part of the prioritization process in addition to the categorization of capital projects also provides targeted budget percentage allocations to each Project Category to ensure fair distribution of the budget across the various infrastructure types. Capital projects therefore compete within the allotted project category and within the identified budget cap per category as illustrated in the below figure.

Figure 4: CEF Project Category Capital Budget Target



A fourth project category is acknowledged in the Capital Expenditure Framework (CEF), namely Category 4 – Local Interventions. This category represents the portion of the capital budget to be spent on specific political identified and prioritised projects not necessarily included in other categories of the capital budget and which are at the discretion of the Executive Mayor and his political executive. This category is not accommodated in the prioritisation model owing to its discretionary nature, but is rather accommodated in the CPM automated budget fit process [3] whereby discretionary budget list adjustments or negotiated adjustments can be accommodated using the "forced-in" and "forced-out" methodology.

1.3 Capital Prioritisation Model Weighting Matrix Overview

"The need for a mechanism such as the CPM weighting matrix to drive the strategic, yet equitable, allocation of capital within the city, that stems from the following realities:

- Urbanisation, immigration and growth;
- The importance of the city and regional economy
- Increasing Maintenance Burden
- Coordination and Inter-dependency

[3] CPM automated prioritisation is presently undertaken through the ProCapMAN ERP Module.

- Competing Interests
- Spatial Transformation Agenda"[4]

"Within a resource-constrained environment, it is inevitable that capital expenditure needs to be carefully and considerately prioritised in the municipal environment. Prioritisation needs to strike a balance between the different objectives of all role-players in a manner that optimises the effectiveness and efficiency of spending in a quantifiable, defensible manner. Prioritisation should have a strong spatial emphasis and be informed by underlying financial and socio-economic and environmental analysis. Given the diverse range of different departments and divisions within the municipality and the divergent needs stemming from each, it was deemed essential that the prioritisation weighting matrix lends itself towards easy calibration by key decision makers to fully take into account all factors relevant in deciding which projects to receive priority".[5]

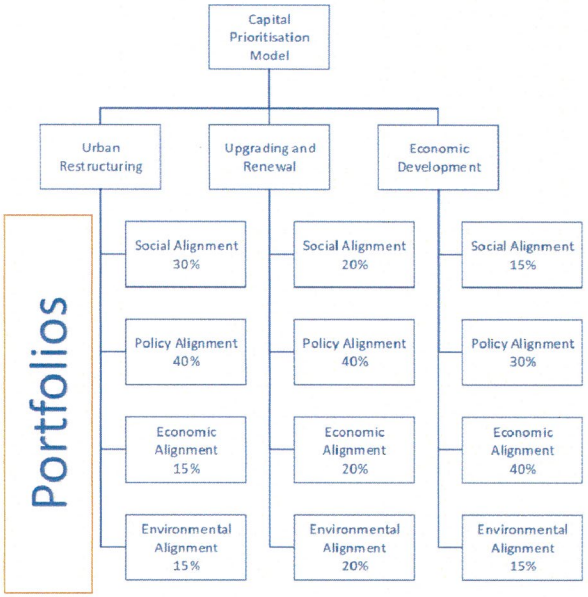
The prioritisation weighting matrix should therefore assist in placing a higher ranking towards capital projects that support spatial priorities, form part of the City's strategic programmes, address the development agenda of the City, maximises resources, lends itself to environmental sustainability and climate change, promotes sustainable development, add to the asset base of the municipality, and prove financially viable for the City in the long terms. The CPM therefore supports collaborative decision making for budget prioritisation by firstly providing key role players in the decision-making process with a scientifically determined project priority scoring and ranking; and secondly, by the accumulation and dissemination of project information as placed against relevant policy, environmental, social, financial and economic criteria that speak to the needs of the CoE.

The below **figure 5** provides a summarised view of the CPM weighting matrix for the CEF as referenced in **step 4** of the CPM methodology. The CPM weighting matrix is a multi-criteria analysis tool that is based on 3 overarching project categories namely Urban Restructuring, Upgrading and Renewal and Economic Development. Projects are identified to a project category based on the nature of the capital project and each Project Category has an allocated budget target within which homogenous projects compete for budget. Projects are scored against the weighting portfolios Social Alignment, Policy Alignment, Economic Alignment and Environmental Alignment criteria.

[4] Extract from Appendix 1: CoE FRS Budget Management Module – Capital Projects Prioritisation Model: Weighting Matrix and Budget Fit, pages 1 - 2

[5] Extract from Appendix 1: CoE FRS Budget Management Module – Capital Projects Prioritisation Model: Weighting Matrix and Budget Fit, page 3

Figure 5: Capital Prioritisation Model - Weighting Matrix Summary



Percentages reflected in **figure 5** illustrate how the CPMs weighting matrix functions based on the four portfolios that inform project prioritisation. The portfolio weightings per project category may be subject to change based on the strategic objectives and development goals of the CoE.

Figure 6 is an extension of the CPM weighting matrix summary figure and provides an overview of the criteria that is applied per weighting portfolio. It is important to note that the portfolio weightings vary based on the Project Category as a strategic application of weightings to optimize a portfolio ranking under a category that significantly aligns to the intended outcome of that Project Category. The CPM weighting matrix criteria weighting is detailed within **Appendix 1**. Detail includes weighting levels, definitions, input variables, data sources, process and mathematical operators per criteria. It's necessary to note that the successful application of the CPM weighting matrix should be supported by an automated system that must be able to retain project details, run projects through the mathematical algorithm of a multi-criteria analysis and provide budget fit results in a format that is comprehensible to all role players in the budget process.

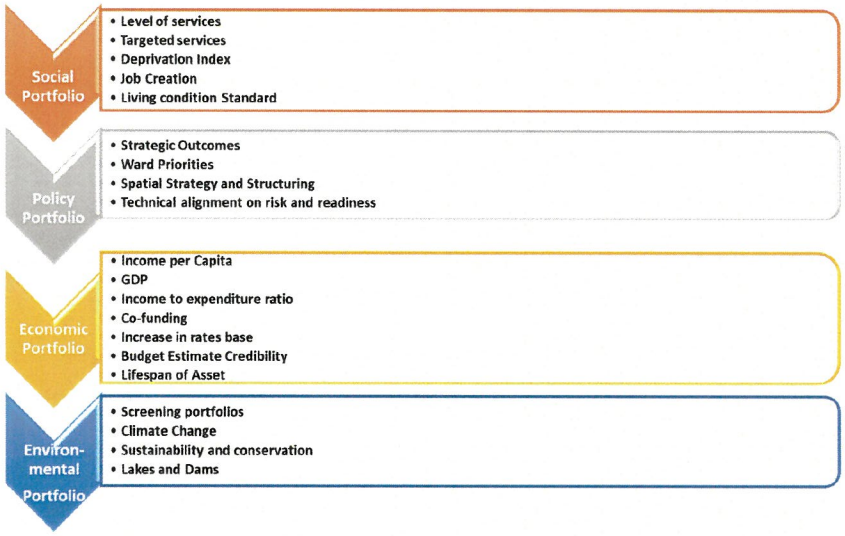
The **Social Alignment Portfolio** should have a higher weighting allocation under the Urban Restructuring Project Category as the criteria for the social portfolio is geared towards addressing the social needs of the City with a focus on marginalized and previously disadvantaged areas. Social criteria weigh a capital projects responsiveness in addressing bulk and social service backlogs and access, spatial placement as based against the deprivation and living condition indices for the CoE, and ability to generate employment opportunities according to the project type.

The **Policy Alignment Portfolio** measures the extent to which a capital project aligns with the strategic and spatial policy objectives of the through City. This includes assessing a projects readiness and risk associated with not undertaking the project. It is suggested that the policy portfolio carry a relatively higher weighting to the other portfolios to strengthen prioritisation weighting in favour of projects that address the strategic, spatial and technical needs of the City. The higher weighting under the policy portfolio will also assist the CEFs objective to promote spatial investment and co-ordination of capital projects as a significant criterion in the prioritisation of the capital budget to promote a spatial rational is applied in the decision-making process.

The **Economic Policy Alignment Portfolio** measures the extent to which a capital project contributes to the economic well being of the City with consideration to revenue generation and financial austerity. Criteria under this portfolio firstly, assess a projects contribution to the economic sustainability of the City in terms of income per capital, expenditure to revenue ratio, and GDP contribution. In addition, the criteria evaluate a projects financial feasibility in terms contribution to the municipal asset base in relation to adding to the lifespan of an asset, co-funding, increase in the municipal rates base, affordability, and credibility of the projects total budget estimate.

The **Environmental Alignment Portfolio** measures a capital projects responsiveness to the environmental sustainability and climate mitigation objectives of the City as outlined by the Environmental Resource and Waste Management Department. Criteria under the environmental portfolio evaluates the extent to which projects align with lakes and dams, contribution to environmental heritage conservation and alignment to the City's C40 target areas. Projects are also screened against climate risk factors, open space network, effluence, and the water network as either posing a positive, negative or neutral impact.

Figure 6: Prioritisation Weighting Criteria



1.4. Automating Prioritisation

Prioritisation of the capital budget should in its application utilize both key stakeholder engagement in the form of a dedicated committee and an automated system formulated to support the CEF's CPM prioritisation weighting matrix. The benefits of automating the capital prioritisation process are outlined as follows:

- Central point for electronic storage of capital project data;
- Access to reliable budget information by multiple users;
- Budget transparency within the City;
- Utilisation of collated project data as input to the prioritisation weighting matrix's multi-criteria analysis;
- Processing capacity of complex data sets into derived algorithms for a multi-criteria analysis.
- Scientifically derived ranking of projects and budget fit application as based against targets derived for the budget;
- Maintain record of prioritisation results;

- Information that is easily accessible and retrievable in numerous document formats eg. Excel, PDF and JPEG.
- Provides a summary of prioritisation results in dashboard format.

The below **figure 7** demonstrates the types of data sets that the automated prioritisation module should carry in order to effectively support the prioritisation process.

Figure 7: Budget Prioritisation Module Data sets

1.5 Concluding Summary

In summary the CPM is one of the CEF tools with a specific focus to support implementation of the CEF by aligning budget prioritisation with the capital budget and IDP process in providing a spatial rational to the budget in support of the spatial priorities set out in the MSDF. The CPM identifies role players at each tier of budget prioritisation, outlines steps for prioritisation of the capital projects, supports roll out and inclusion the CEF priority project pipeline to the budget process, and promotes non-subjective prioritisation of the capital budget through the application of a multi-criteria analysis weighting matrix in support budget decision making. Furthermore, the CPM promotes transparency and accountability of the budget as a co-ordinated and collaborative process.

City of Ekurhuleni

Capital Prioritisation Model: Weighting Matrix

Appendix 1

Real Estate and Development Planning Department

Glossary

The following table includes abbreviations or notations that are used in the document.

Abbreviation	Description
BEPP	Built Environment Performance Plan
CAPEX	Capital Expenditure
CEF	Capital Expenditure Framework
CPM	Capital Prioritisation Model
FRS	Functional Requirements Specification
GDP	Growth Domestic Product
GDS	Growth and Development Strategy
GPA	Geographic Priority Area
HOD	Head Of Department
IDP	Integrated Development Plan
IZ	Integration Zones
KPA	Key Performance Area
MSCOA	Municipal Standard Chart of Accounts
MSDF	Metropolitan Spatial Development Framework
OPEX	Operational Expenditure
RSDF	Regional Spatial Development Framework

Table of Contents

1 Introduction 1
2 Purpose of the Capital Prioritisation Model 3
3 Capital Prioritisation Model Mathematical Framework 3
4 Capital Prioritisation Model High-level Structure 5
5 Capital Prioritisation Model Criteria 8
5.1 Social Alignment 8
5.1.1 Basic Service Delivery 9
5.1.2 Social Impact Module 15
5.2 Policy Alignment 21
5.2.1 Strategic Outcomes 22
5.2.2 Spatial Alignment 26
A. Strategic 26
B. Structuring 28
5.2.3 Technical Alignment 32
5.3 Economic Alignment 40
5.3.1 Economic Impact Model 41
5.3.2 Financial Alignment 52
5.4 Environmental Alignment 59
5.4.1 Focus on Heritage Conservation 60
5.4.2 Focus on Environmental Conservation 63

List of Figures

Figure 1: Capital Prioritisation Model 6
Figure 2: Weighting of the CPM Project Categories 8
Figure 3: CPM: Social Alignment 9
Figure 4: CPM: Policy Alignment 21
Figure 5: CPM: Economic Alignment 40
Figure 6: CPM: Environmental Alignment 59

List of Tables

Table 1: Targeted Service Areas 9
Table 2: Level of Social Services 10
Table 3: Deprivation Index 13
Table 4: Living Condition Profile Index 15
Table 5: Job Creation (Opportunities) 17
Table 6: Strategic Outcomes Alignment: Mayoral Programmes 22
Table 7: Strategic Outcomes Alignment: National KPAs 24
Table 8: Alignment to Ward Needs 25
Table 9: Alignment with Geographic Priority Areas (GPAs) 26
Table 10: Alignment with Spatial Structuring Elements 28
Table 11: Alignment to BEPP Integration Zones 30
Table 12: Project Readiness 32
Table 13: Departmental Technical Rating 34
Table 14: Sector Maps 35
Table 15: Risk Rating 39
Table 16: Economic Activity (Income) in terms of Gross Domestic Product (GDP) 42
Table 17: Income-expenditure ratio 46
Table 18: Income per capita 50
Table 19: Austerity: Affordability 53
Table 20: Austerity: Co-funding 55
Table 21: Credibility: Budget Estimate Credibility 56
Table 22: Increase in Rates Base 57
Table 23: Lifespan of Asset 58
Table 24: MSCOA Environmental Conservation and Heritage Alignment 60
Table 25: Spatial Sustainability and Conservation Alignment 61
Table 26: Environmental Portfolio Alignment 63

1. Introduction

In South Africa, the capital expenditure of a city should primarily be driven by the IDP. The regulations published in MFMA Circular No. 80 (Municipal Finance Management Act No. 56 of 2003), compels all municipalities to ground their capital expenditure in the IDP process. SPLUMA Chapter 4 furthermore compels local authorities to formulate a Capital Expenditure Framework (CEF). The meaningful allocation of capital expenditure for municipalities is however a challenging balancing act that must seek to address:

- infrastructure backlogs,
- the restoration of human dignity,
- the creation of a safe and secure environment,
- the provision of basic services,
- the maintenance of existing assets,
- the protection of our heritage and environment,
- the creation of sustainable job opportunities,
- the boosting and creation of economic activities/opportunities and
- Strategically investing into a growing, sustainable, livable and globally competitive city environment.

A prioritisation methodology is therefore required that will consider qualitative, quantitative and spatial priorities as articulated by municipality's strategic as well as technical leadership, and as enshrined by municipality's various strategic plans such as the MSDFs, the RSDFs, GDS and the IDP. It is recognised that the planning environment is continuously changing in response to new challenges and new dynamics gets introduced constantly due to a variety of reasons. The process of prioritisation therefore, must possess the ability to comprehensively take on-board new issues for consideration and easily, and most importantly transparently, adapt and change to the changing needs of the municipality.

The need for a mechanism to drive the strategic, yet equitable, allocation of capital within the city, stems from the following realities:

- Urbanisation, immigration and growth

  "The State of South African Cities" report produced Cities Support Network in 2016, report that South African Cities are inundated by rapid urbanisation. A significant number of the population within South African cities has low levels of education resulting in high unemployment, very low incomes and poor living standards. There are not enough job opportunities for unskilled labourers in the economy to address this issue adequately.

  Because of this urbanisation, cities must deal with a relentless demand for infrastructure and services. Unconstrained urbanization and population growth have resulted in the demand for infrastructure and services outstripping the financial resources of cities. Given the limited resources to address these needs, prioritization of capital expenditure has become a factor of critical importance.

- The importance of the city and regional economy

  One of the main drivers of economic sustainability is the creation of job-opportunities. Affecting economic changes requires a multi-pronged approach involving a range of interventions across a number of industries. From a capital expenditure perspective though, the process of prioritisation can benefit from the sophistication of a complex, macro-economic econometric model.

- Increasing Maintenance Burden

  Cities are faced with the conundrum of balancing spatial, social and economic transformation, whilst maintaining the existing asset base of the city. Spatial, social and economic transformation is often associated with the provision of new, quality infrastructure in support of liveable communities either in newly demarcated development areas or as part of upgrading severely marginalized communities, with a poor service provision history and a backlog of service delivery demands.

  A balanced approach to capital spending, focusing partially on the provision of new infrastructure, whilst maintaining the existing asset base and revenue stream is important. A fundamental consideration of all capital expenditure therefore must include the estimated OpEx burden that will result from the capital that is being spent. The OpEx burden is inevitable – a situation can however arise whereby the OpEx continues to grow to the extent that it starts to impact on the available CapEx.

- Co-ordination and Inter-dependency

  Capital project preparation is often undertaken in a non-integrated way in that the different departments, divisions and agencies plan and budget for capital projects in isolation from each other. This is not necessarily intended, it is simply a consequence of a large, multi-disciplinary organisation. Departments often have their own priorities and their own methods of determining such priorities. These methods vary in terms of sophistication and detail. The provision of municipal infrastructure requires integrated project planning and preparation. Therefore, a decision support system, which facilitates the coordination and integration between planning and infrastructure provision on a project preparation as well as an institutional level is critical.

- Competing Interests

  Although basic services infrastructure (i.e. water, sanitation, electricity and solid waste management) is often as high on the community delivery agenda as social facilities and amenities (i.e. clinics, libraries, community facilities etc.), these different infrastructure types do not always receive equitable capital allocation. Often, income generating capital expenditure (i.e. capital spent on infrastructure which can yield some form of monetary return) receives larger quantities of capital budget than non-income generating infrastructure. A decision support system, which allows for scenario testing in relation to the ratio of income generating and non-income generating capital expenditure, taking into account the impact that this would have on the city's financial sustainability is required.

- Spatial Transformation Agenda

  The spatial vision of South African cities seeks to transform the developmental landscape to become a more inclusive, efficient and equitable. Consequently, capital spending should be earmarked to drive the spatial transformation agenda which in turn will result in a spatially transformed and economically sustainable city structure. A decision support system, which enables capital project prioritisation, reporting and tracking quantitatively, qualitatively and spatially, is required to ensure that capital spending is focused on strategic spatial structuring areas to achieve the desired city spatial form.

The complexity and interdependency of these issues is very challenging, and each year, new considerations and priorities are introduced. The need for a system that assists in the facilitation of such a process, together with additional benefits of record-keeping, tracking and reporting is therefore evident.

The prioritisation process facilitated by a system, should be easy to understand and interpret whilst allowing for accessibility and input by its users on any level of detail required. Given the diverse range of different departments and divisions within the typical South African municipality and the divergent needs stemming from each department, it is essential that the prioritization methodology lends itself towards participation and allows for easy calibration by key decision makers.

In the process of prioritization, the importance of a multitude of considerations must be emphasized. Although it is commonly accepted that the municipality's IDP in alignment with the MSDF should be the primary driver of priorities, there are however many other metrics that should be considered in the process. Some of these considerations are briefly highlighted.

The first fundamental to consider is funding that is available for implementation and how this capital is sourced. This informs of the affordability of implementing the list of capital needs. In a municipal environment, capital is

sourced from a number of places. Among these sources are bonds and loans. The affordability and the debt thresholds set by the MFMA are important considerations in this process.

Technical inputs stemming from the municipality's asset management system or from other technical reports or processes represent another important aspect to consider in the process of prioritization. These technical inputs often do not align optimally with IDP objectives but are important all the same due to age, wear or other important reasons. Other technical aspects such as the technical interdependence of projects also play an important role. This will have the consequence that projects that appear to be of a lower priority, may be elevated in importance if they are enablers of other, important projects.

The economic, socio-economic and environmental impacts also represent impact lenses that casts an important perspective on project impacts. There are various methods and models to determine these impacts to varying degrees of accuracy. Within a service delivery framework, it is essential that these elements be included in the prioritization process.

Lastly and very importantly, the spatial alignment of a project to a municipality's strategic or political objectives needs to be included in prioritization process. The assumption is often erroneously made that these spatial aspects are adequately captured by the IDP process. The reality is however more complex and dynamic. Spatial priorities are often revealed throughout the IDP cycle by new processes such as the development of Strategic Development Frameworks (SDFs).

The Prioritisation process in taking into account the above-mentioned considerations in prioritization of the capital budget should be applied in terms of a multi-criterion analysis that can provide a non-subjective approach to prioritization of the capital budget by prioritizing projects based on a projects alignment to identified key social, economic, technical and strategy outcomes.

2 Purpose of the Capital Prioritisation Model

ProBudget: Project Prioritisation follows a prioritisation method which is based on the City of Ekurhuleni Capital Prioritisation Model. It is a standard framework with bespoke weighting and scoring criteria developed specifically for the City of Ekurhuleni. Some of the bespoke elements of the prioritisation are still under development, with an initial alignment to the City's legacy systems.

Prioritisation and budget fit are done after capturing by the respective City departments, facilitated by a dedicated planning and budgeting committee.

Within a resource-constrained environment, it is inevitable that capital expenditure needs to be carefully and considerately prioritised in the municipal environment. Prioritisation needs to strike a balance between the different objectives of all role-players in a manner that optimises the effectiveness and efficiency of spending in a quantifiable, defensible manner. Prioritisation should have a strong spatial emphasis, which should be informed by underlying financial and socioeconomic analysis. Prioritisation requires an in-depth understanding of community needs, and should also consider criticality, project preparation and readiness. Prioritisation should also provide feedback– highlighting critical needs where solutions are under-developed and not ready for implementation, where specific thrust is required and where alternative, more effective and efficient technical and service delivery options may be explored. Such optimisation will only be realised through in-depth understanding, structured, informed and collaborative decision-making. To effectively prioritize the municipal budget in order to spatially and strategically guide, align and co-ordinate the municipal budget across all sectors in order to allow for transparency and accountability of the budgeting process.

3 Capital Prioritisation Model Mathematical Framework

The prioritisation process should be easy to understand and interpret whilst allowing for accessibility and input by its users on any level of detail required. Given the diverse range of different departments and divisions within the municipality and the divergent needs stemming from each, it was deemed essential that the methodology lends itself towards participation and allows for easy calibration by key decision makers.

To fully take into account all factors relevant in deciding which projects to receive priority, the utility analysis method is used that takes all the relevant system constraints into account.

"Utility analysis is in effect a semi-quantitative means of 'trading off' the effects of implementing any given scheme, that is, the relative desirability of achieving a given set of goals and objectives and the degree to which this target system is fulfilled, are combined to give a measure of how far each scheme will go in meeting all or any of the goals and objectives, and so provides the answer to the question of effectiveness of the scheme. The distinguishing feature of utility analysis is that it can handle financial, quantitative and qualitative effects simultaneously. Consequently, all of the impacts or effects of a project which can be envisaged can be included in the analysis." – Evaluation of Transportation Projects – Utility Analysis; JV Baxa; January 1981; CSIR.

A utility analysis provides a structured input for the decision-maker. It provides an indication to the overall effectiveness with which alternatives will satisfy the complex target system. The process begins by defining the problem in a structured way. As already mentioned, the problem definition can incorporate diverse inputs which covers quantitative, qualitative and financial factors. Firstly, certain goals that should ultimately be addressed, must be established. For each of these goals, relevant objectives then must be established. Each objective requires a specific input, which will be modelled based on a predetermined method or value function, to provide an output.

The following basic steps apply:

- Define the relative preferences for each goal that was set out;
- Define relative preferences for each objective that was set out;
- Weight each criterion that was set up to reflect their relative importance.
- *The relative importance of each weighting is an iterative process which through consultation with the COE and other stakeholders will continue to undergo refinement and optimization on an ongoing basis. The weightings put forth in this document are default weightings which at time of release have been applied in the CPM.*

By following these steps, each alternative can be 'scored' to attain a measurement of performance that can be translated into a number of points. The points system with which each criterion is weighted, as indicated on the matrix of utilities, is a number between 0 and 100.

Example Weighting Calculations:

The below examples are derived directly from the above diagrams to assist with interpretation of how the weighting calculation works.

Simple Functions example:

Table 1: Targeted Services -> Upgrading and Renewal

<Output> = <Table 1 Scoring % Input> x 33% x 50% x 20%

OR Gates:

Alignment with Geographic Priority Areas OR Alignment of Priority Wards -> Economic Development

Select Maximum <Table 10: Scoring % Input, Table 11: Scoring % Input>

<Output> = Maximum <Table 10: Scoring % Input, Table 11: Scoring % Input> x 50% X 33% X 30%

Special Functions:

Dealing with Table 22 and 23 -> Urban Restructuring (IF statement also applicable to other categories, with different theme weightings applicable)

IF: Economic Land Use, <Output> = <0Table 22: Scoring % Input> x 100% x 50% x %50 x 15%

Else: <Output> = <Table 23: Scoring % Input> x 40% x 50% x %50 x 15%

The complexity of the number of issues that had to be taken into account in the model from the municipality's point of view, required that the model methodology had to be adapted to allow for more than one level of "objectives". Importantly, these objectives all contribute towards a fundamental set of goals. These goals possess of the ability to influence the way in which projects will be rated rather dramatically. The benefit of this is that the municipality now has the ability to fix the fundamental considerations on this level, to ensure that it manifests in prudent financial management whilst still ensuring that the radical transformation as contained in the various city strategies, manifests itself at this level.

The application of this methodology in PROCAPMAN (ERP Module for Capital Prioritisation) had to find a balance between complexity and simplicity. This is required to ensure participation in the process by a very broad range of departments and divisions within departments. Not all departments are technically focussed to the same level of sophistication – as is the case with the infrastructure departments. It is therefore necessary to find criteria and measurements that do not exclude such department.

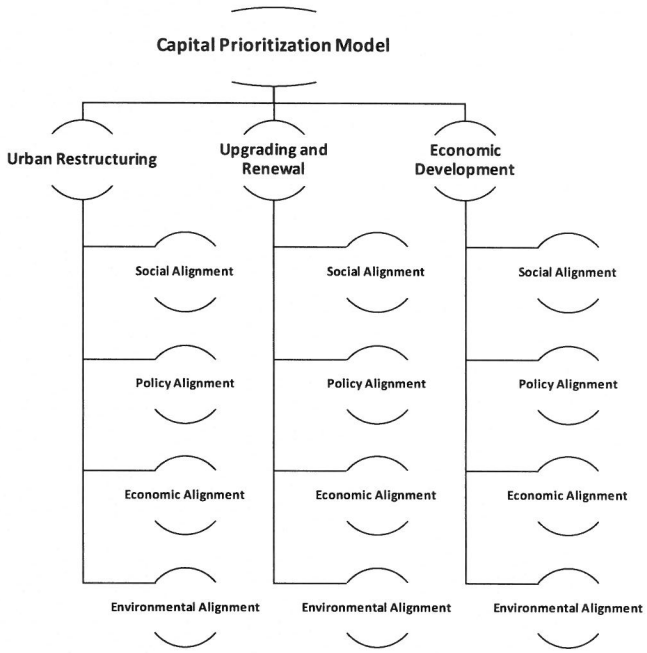
This approach offers a significant advantage in that the "principles" of prioritisation becomes important debating points, instead of individual merits projects. Projects emanating from different departments do not have "common ground" to enable a meaningful one-to-one comparison. Using this model though, provides a platform where all projects, irrespective of their origin or sophistication, is subjected to the same principles.

4 Capital Prioritisation Model High-level Structure

The CPM allows for projects to be ranked or scored in three distinctive or mutually exclusive project categories, and consequently the model is structured into these three branches (Refer to Figure 1):

- Urban Restructuring
- Upgrading and Renewal
- Economic Development

Figure 1: Capital Prioritisation Model



The definition of each of the project categories are as follows:

- **Category 1 – Urban Restructuring:** The portion of the capital budget to be spent on the eradication of existing service backlogs within marginalized and formally disadvantage areas that relates to both physical and social infrastructure. This category can also be termed 'The City Past' category of the budget. Projects included should focus on major housing projects and service delivery within marginalized areas.

- **Category 2 – Upgrading and Renewal:** The portion of the capital budget to be spent on upgrading and renewal of existing infrastructure and maintenance of social facilities and physical infrastructure. Upgrading refers to the extension of existing bulk capacity, whilst renewal refers to the maintaining of existing bulk infrastructure. This category can also be termed 'The City Present' category of the budget.

- **Category 3 – Economic Development:** The portion of the capital budget to be spent on growing the economy of the city. This can also be termed 'The City Future' category of the budget. Projects included here should focus on industrial areas and major investment and development projects. This category refers to projects that are focused towards extending bulk infrastructure for the purpose of the stimulating growth and are therefore purely income generating projects. This includes Income generating services: Purely New Infrastructure that will generate revenue.

A fourth category is prescribed in the Capital Expenditure Framework (CEF), namely **Category 4 – Local Interventions.** This category represents the portion of the capital budget to be spent on specific political identified and prioritised projects not necessarily included in other categories of the capital budget and which are at the discretion of the Executive Mayor and his political executive. This category is not accommodated in the prioritisation model owing to its discretionary nature, but is rather accommodated in the PROCAPMAN budget fit process whereby discretionary budget list adjustments or negotiated adjustments can be accommodated using the "forced-in" and "forced-out" methodology.

Each of the broad CPM model categories are further broken down into prioritisation goals or themes which are duplicated or consistent across all three CPM model categories. These CPM prioritisation themes or goals are as follows:

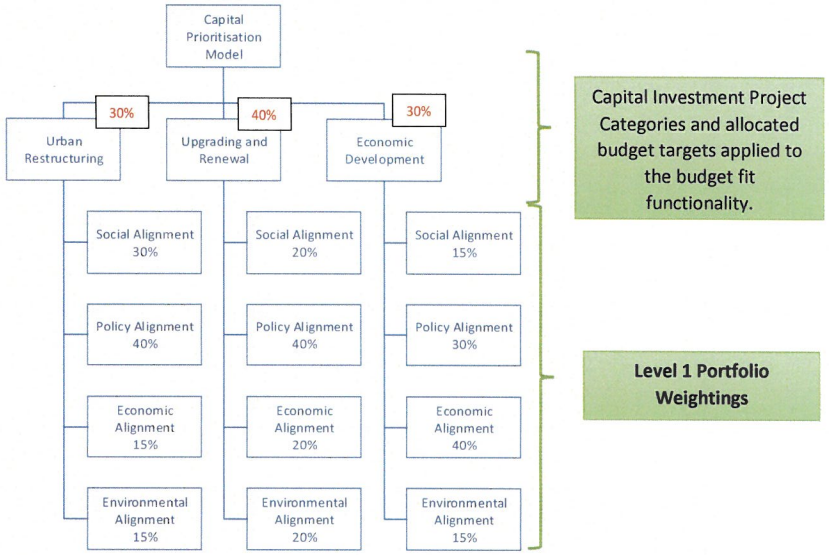
- Social Alignment (Level 1 weighting)
- Policy Alignment (Level 1 weighting)
- Economic Alignment (Level 1 weighting)
- Environmental Alignment (Level 1 weighting)

The weights of each of these goals or themes differ between the three CPM categories (i.e. Urban Restructuring, Upgrading and Renewal and Economic Development) and these weights have been approved by the mayoral committee as part of the IDP and budget process.

Level 1 Portfolio Primary weightings on the CPM weighting matrix are deemed adjustable from time to time per CEF Project Category by ICT and City Planning approved ProBudget Project Super users to the Capital Prioritisation Model Grid Interface. Level 1 adjustments would be exempt from sign off of the FRS addendum on Project Prioritisation

Record of Changes on all level 1 weightings must be retained by the ProBudget Projects CPM Weighting Matrix with a date stamp and previous record of results.

Figure 2: CPM Budget fit Project Categories and Level one Portfolio Weightings



5 Capital Prioritisation Model Criteria

5.1 Social Alignment

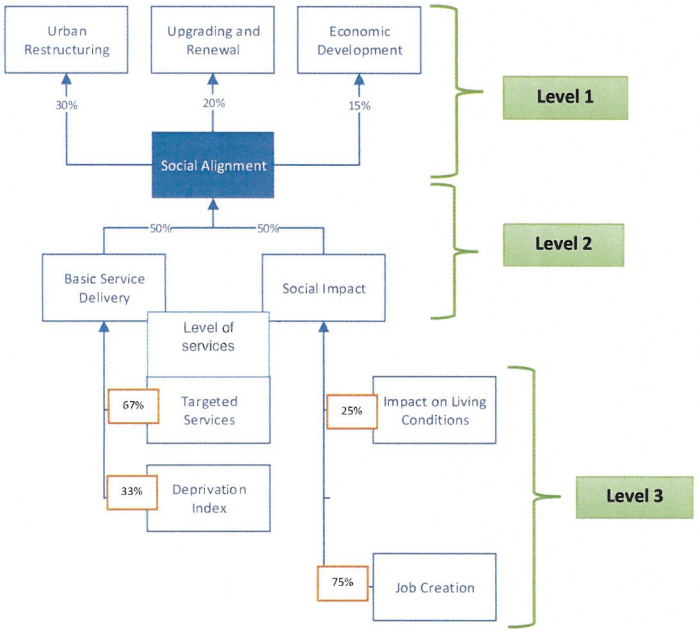
The social alignment goal or theme of the Capital Prioritisation Model (CPM) tests the social impact or the contribution towards redressing social inequality of each project. The social alignment score is calculated in two distinct categories, namely:

- Basic Service Delivery (Level 2 weightings)
- Social Impact Model (Level 2 weightings)

Level 2 weightings on the CPM weighting matrix are deemed adjustable from time to time by ICT and City Planning approved ProBudget Project Super users to the Capital Prioritisation Model Grid Interface. Level 2 adjustments would be exempt from sign off of the FRS addendum on Project Prioritisation

Record of Changes on all level 1 and 2 weightings must be retained by the ERP Module forP CPM Weighting Matrix with a date stamp and previous record of results.

Figure 3: CPM: Social Alignment



5.1.1. Basic Service Delivery (50%)

The provision of basic services is scored according to the following criteria:

- Targeted Services
- Deprivation Index

These issues measured under these sub-branches are to ensure that projects relating to basic services in priority and/or designated areas receive the necessary priority to elevate them into the tier of top scoring project within the overall list of prioritised projects. Basic infrastructure in disadvantaged and poor areas receive the highest priority here. A scale has however been developed spatially across the entire municipal area for all the issues measured under the sub-branches here, to ensure a spread of priorities that reflects the demographic landscape of the city with the highest scoring special emphasis in areas with the highest poverty and needs.

Table 1: Targeted Service Areas _ SP1_Targeted Services

Category	Description
Definition	Targeted service areas score projects on their ability to provide basic services within the municipality. Specific municipal functions are deemed to contribute to basic service delivery and the MSCOA functional classification provides a mechanism to ring-fence service delivery focussed projects.
Branch Weight	**67% (highest weighting pushed through between table 1 and 3 per the scripting)**

Category	Description
Data Source:	**National Treasury** **Managed by CoE Finance Department** **BEPP Marganilised Areas _ Shapefile** **Detail is available in Annexure "A"**
Input Variables	MSCOA Functional Segment is tested per project at both the municipal function level. MSCOA scope builder is populated by the official using the scope builder dropdown menus.
Process	The following MSCOA functions receive elevated score as these functions and are deemed to address basic service delivery: • Energy Sources (including electricity, nonelectric energy and energy sources) **100%** • Waste Management **100%** • Waste Water Management (including sewerage and storm-water) **100%** • Water Management (including water distribution **100%** • Health **100%** • Public Safety **100%** • Housing **100%** • Road Transport **100%**
Mathematical Operator	**Maximum Value** for projects that fall within a targeted service. **0 value** allocated when a MSCOA function selected that does not form part of the identified list of targeted services. The attained value of either 100% or 0% is passed through to the parent scoring branch of 67% based on highest ranking between Level of service table 3 and table 1 (targeted services) of the scripting.

Table 2: Level of Access to Social Services _ SP34_Social Services (Table 3 in the scripting)

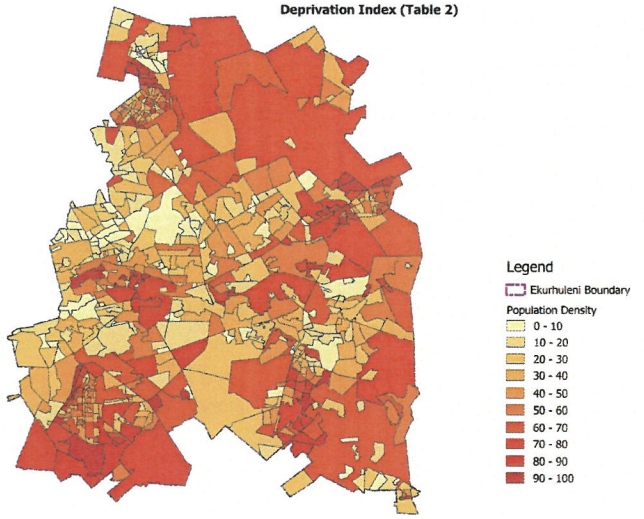
Category	Description
Definition	The level of social services criteria is geared towards acknowledging and supporting the development and renewal of social services infrastructure in areas where accessibility to social services is at a minimum per the CSIR accessibility standards.
Branch Weight	**67% (highest weighting pushed through between table 1 and 3 per the scripting)**
Data Source:	**Shape File: Level of services** MSCOA Project Type, Function and Sub Function ProBudget Prioritisation_GIS Front end capturing _ Projects Affected Area Shapefile Polygon (First) Where an affected area is not available the projects works area must be utilised:

Category	Description
	allprojectsworkslocationslinestring allprojectsworkslocationsmultilinestring allprojectsworkslocationsmultipoint allprojectsworkslocationsmultipolygon allprojectsworkslocationspoint allprojectsworkslocationspolygon Detail on Data Source and location: Annexure "A"
Input Variables	Social services affected will be identified through the selected mSCOA Function and Sub Function. The capital projects identified service will be read against the related social services map and based on the projects mapped locality by affected area first and then works if the affected area is not available will score per the proposed services spatial location in either an area with excellent, medium or minimum accessibility. Social infrastructure projects that fall within a minimum level of services zone based on population density growth and identified services gap and minimum access to existing related services will gain highest score in noting that the project is addressing social service capacity backlog in an area.
Process	

Community Service	Excellent LoS (Top 25%)	Medium LoS (Top 50%)	Minimum LoS (CSIR) (80)%	Outside the Minimum LoS is a service gap (100%)
Licensing Services	7.5km	15km	30km	Service Gap
Stadiums	0.75km	1.5km	3km	Service Gap
Taxi Ranks	0.375km	0.75km	1.5km	Service Gap
Police Station	2km	4km	8km	Service Gap
Museums	7.5km	15km	30km	Service Gap
Cemetery	3.75km	7.5km	15km	Service Gap
Clinics	1.25km	2.5km	5km	Service Gap
Civic Centre	3.75km	7.5km	15km	Service Gap
Community Centre	2.5km	5km	10km	Service Gap
Community Hall	2.5km	5km	10km	Service Gap
Customer Care Centre	7.5km	15km	30km	Service Gap
Fire Station	2km	4km	8km	Service Gap
Hostels	2.5km	5km	10km	Service Gap
Libraries	3.75km	7.5km	15km	Service Gap
Pay Points	3.75km	7.5km	15km	Service Gap
Indoor Facilities	2.5km	5km	10km	Service Gap
Regional Sport Facilities	3.75km	7.5km	15km	Service Gap
Outdoor Facilities	2.5km	5km	10km	Service Gap

Category	Description
	Outdoor Facilities: Swimming Pools | 1.25km | 2.5km | 5km | Service Gap Weighting Range: Social Service Gap: 100 Social service Minimum access: 80% Social service medium access: 50% Social Service Excellent: 25%
Mathematical Operator	Ranked value achieved by the project is passed through to the parent scoring branch. Note: Table 1 and 2 share the services branch and the highest weighting is pushed through between the two criteria on the 33% weighting branch.

Table 3: Deprivation Index _ SP2_Deprivation Index

Category	Description
Definition	Deprivation index is determined by population density by sub places and as compared to household income, unemployment, and access to services. The results are based on highest score location to areas that place high on the deprivation index based on the aforementioned factors.
Branch Weight	33%
Input Variables	Project works area is used as the input to test the deprivation index score of each project based on the deprivation layer or area returned based on the spatial intersect between project works area and deprivation index shapefile.
Data Source	Shape File : di_population_density Excel: Annexure B Table2_Population_Density ProBudget Prioritisation_GIS Front end capturing _ Projects Affected Area Shapefile Polygon (First) Where an affected area is not available the projects works area must be utilised: allprojectsworkslocationslinestring allprojectsworkslocationsmultilinestring allprojectsworkslocationsmultipoint allprojectsworkslocationsmultipolygon allprojectsworkslocationspoint allprojectsworkslocationspolygon Detail on Data Source and location: Annexure "A"
Process	The Deprivation Index for municipality is shown below. The warmer the area (i.e. dark red) the higher the deprivation index value and consequently the level of poverty or lack of access to basic services. Projects with affected/works areas overlapping or intersecting with areas with low levels of service delivery will receive elevated score. 

Category	Description
	Range Value summary from Variable Input Annexure "B": **Normalised Value 100 to 80: 100%** **Normalised Value 79 to 60: 80%** **Normalised Value 59 to 40: 60%** **Normalised Value 39 to 20: 40%** **Normalised Value 19 to 10: 20%** **Normalised Value 9 to 0: 10%**
Mathematical Operator	Maximum value achieved by the project is passed through to the parent scoring branch.

5.1.2 Social Impact Module (50%)

Table 4: Living Condition Profile Index _ SP4_Living Condition profile index

Category	Description
Definition	The "Living Condition Profile Index" takes the following into account: • Hostels • Tertiary education • Taxi ranks • Swimming pools • Stadiums • Sport Facilities • Solid Waste Disposal • Secondary School Primary School • Police Station • Paypoints Parks • Licensing Services • Libraries • Indoor • District Hospital • Regional Hospital • Fire Stations • Customer Care Centres • Creche • Community Hall • Clinics • Civic Centers • Church • Community Centres • Colleges • Cemetries • Outdoor The index determines each small area by population density which combined with the above indicators output a relative score per small area plotted on the living conditions profile index.
Branch Weight	50%
Data Source	Shape File: di_living_condition_profile_index Excel: Annexure C Table4_Living_Condition_Profile_Index ProBudget Prioritisation_GIS Front end capturing _ Projects Affected Area Shapefile Polygon (First) Where an affected area is not available the projects works area must be utilised:

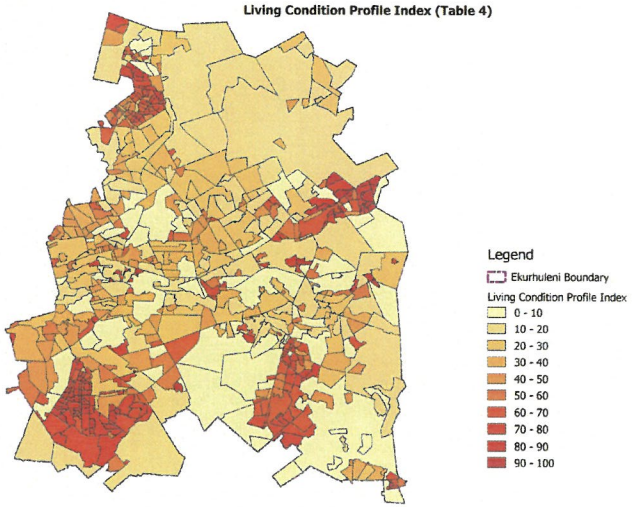
Category	Description
	allprojectsworkslocationslinestring allprojectsworkslocationsmultilinestring allprojectsworkslocationsmultipoint allprojectsworkslocationsmultipolygon allprojectsworkslocationspoint allprojectsworkslocationspolygon Detail on Data Source and location: Annexure "A"
Input Variables	Project works area is used as the input to test the living conditions profile index score of each project based on the deprivation layer or area returned based on the spatial intersect between project works area and deprivation index shapefile.
Process	 **Range Value summary from Variable Input Annexure "C":** **Normalised Value 100 to 80: 100%** **Normalised Value 79 to 60: 80%** **Normalised Value 59 to 40: 60%** **Normalised Value 39 to 20: 40%** **Normalised Value 19 to 10: 20%** **Normalised Value 9 to 0: 10%** The Living condition profile index for the municipality is shown above. The warmer the area (i.e. dark red) the higher the living condition profile index value and consequently the level of services and amenities. Projects with works areas overlapping or intersecting with areas with low levels of access to services and amenities will receive elevated score.
Mathematical Operator	Ranked value achieved by the project is passed through to the parent scoring branch.

Table 5: Job Creation (Opportunities) _ SP6_Job Creation

Category	Description
Definition	The "Job Creation" indicator represents the relative number of people that may become employed across all industries as a result of the project. It distinguishes between direct jobs created and indirect jobs created within the City. Job opportunities measures the relative potential jobs that may be generated across all industries on the back of matured implementation. The metric further applies a spatial component in the form of unemployment per small area. The premise is that if jobs are created in areas where higher levels of unemployment are prevalent the project will be higher prioritised and vice-versa
Branch Weight	50%
Data Source	Sub6 Job Creation mSCOA (SOLAR or Front end capturing?)
Input Variables	Economic indicators provided by UrbanEcon (File name needs to be referenced) SCOA Function and sub function (SCOA Sub Functions should be listed – seen on FRS Technical Review doc)
Process	The indicator calculated based on relative measure of job creation in a specified industry. The affected industry is picked up by the indicated mSCOA function and sub-function of a capital project.

Type	Function	Sub Function	Attrib.
Capital	COMMUNITY AND SOCIAL SERVICES	AGED CARE	0.47
Capital	Community and Social Services	Agricultural	0.815
Capital	COMMUNITY AND SOCIAL SERVICES	ANIMAL CARE AND DISEASES	0.47
Capital	Community and Social Services	Cemeteries, Funeral Parlours and Crematoriums	0.22
Capital	Community and Social Services	Child Care Facilities	0.47
Capital	Community and Social Services	Community Halls and Facilities	0.4
Capital	COMMUNITY AND SOCIAL SERVICES	CONSUMER PROTECTION	0.61
Capital	COMMUNITY AND SOCIAL SERVICES	CULTURAL MATTERS	0.61
Capital	Community and Social Services	Disaster Management	0.71
Capital	Community and Social Services	Education	0.345
Capital	COMMUNITY AND SOCIAL SERVICES	INDIGENOUS AND CUSTOMARY LAW	0.7
Capital	COMMUNITY AND SOCIAL SERVICES	INDUSTRIAL PROMOTION	0.435
Capital	COMMUNITY AND SOCIAL SERVICES	LANGUAGE POLICY	0.59
Capital	Community and Social Services	Libraries and Archives	0.31
Capital	Community and Social Services	Literacy Programmes	0.51

Category	Description			
	Capital	COMMUNITY AND SOCIAL SERVICES	MEDIA SERVICES	0.685
	Capital	Community and Social Services	Museums and Art Galleries	0.3
	Capital	COMMUNITY AND SOCIAL SERVICES	POPULATION DEVELOPMENT	0.655
	Capital	COMMUNITY AND SOCIAL SERVICES	PROVINCIAL CULTURAL MATTERS	0.59
	Capital	COMMUNITY AND SOCIAL SERVICES	THEATRES	0.3
	Capital	COMMUNITY AND SOCIAL SERVICES	ZOOS	0.485
	Capital	Energy Sources	Electricity	0.2
	Capital	Energy Sources	Nonelectric Energy	0.445
	Capital	Energy Sources	Street Lighting and Signal Systems	0.305
	Capital	Environmental Protection	Biodiversity and Landscape	0.705
	Capital	ENVIRONMENTAL PROTECTION	COASTAL PROTECTION	0.485
	Capital	ENVIRONMENTAL PROTECTION	INDIGENOUS FORESTS	0.5
	Capital	Environmental Protection	Nature Conservation	0.675
	Capital	Environmental Protection	Pollution Control	0.525
	Capital	ENVIRONMENTAL PROTECTION	SOIL CONSERVATION	0.5
	Capital	Executive and Council	Mayor and Council	0.425
	Capital	Executive and Council	Municipal Manager, Town Secretary and Chief Executive	0.425
	Capital	Finance and Administration	Administrative and Corporate Support	0.425
	Capital	Finance and Administration	Asset Management	0.265
	Capital	Finance and Administration	Budget and Treasury Office	0.365
	Capital	Finance and Administration	Finance	0.375
	Capital	Finance and Administration	Fleet Management	0.74
	Capital	Finance and Administration	Human Resources	0.52
	Capital	Finance and Administration	Information Technology	0.055
	Capital	Finance and Administration	Legal Services	0.515
	Capital	Finance and Administration	Marketing, Customer Relations, Publicity and Media Co-ordination	0.135
	Capital	Finance and Administration	Property Services	0.35
	Capital	Finance and Administration	Risk Management	0.54
	Capital	Finance and Administration	Security Services	0.68
	Capital	FINANCE AND ADMINISTRATION	SUPPLY CHAIN MANAGEMENT	0.065
	Capital	FINANCE AND ADMINISTRATION	VALUATION SERVICE	0.59
	Capital	Health	Ambulance	0.17
	Capital	HEALTH	CHEMICAL SAFETY	0.39
	Capital	Health	Food Control	0.145
	Capital	Health	Health Services	0.075

Category	Description			
	Capital	Health	Health Surveillance and Prevention of Communicable Diseases including immunizations	0.06
	Capital	HEALTH	LABORATORY SERVICES	0.39
	Capital	HEALTH	VECTOR CONTROL	0.39
	Capital	Housing	Housing	0.36
	Capital	Housing	Informal Settlements	0.315
	Capital	Internal Audit	Governance Function	0.08
	Capital	Other	Abattoirs	0.34
	Capital	OTHER	AIR TRANSPORT	0.21
	Capital	OTHER	FORESTRY	0.5
	Capital	Other	Licensing and Regulation	0.615
	Capital	OTHER	MARKETS	0.455
	Capital	OTHER	TOURISM	0.455
	Capital	PLANNING AND DEVELOPMENT	BILLBOARDS	0.435
	Capital	Planning and Development	Central City Improvement District	0.11
	Capital	PLANNING AND DEVELOPMENT	CORPORATE WIDE STRATEGIC PLANNING (IDPS, LEDS)	0.655
	Capital	Planning and Development	Development Facilitation	0.105
	Capital	Planning and Development	Economic Development/Planning	0.1
	Capital	Planning and Development	Project Management Unit	0.09
	Capital	PLANNING AND DEVELOPMENT	PROVINCIAL PLANNING	0.655
	Capital	Planning and Development	Regional Planning and Development	0.095
	Capital	Planning and Development	Support to Local Municipalities	0.07
	Capital	Planning and Development	Town Planning, Building Regulations and Enforcement, and City Engineer	0.085
	Capital	Public Safety	Civil Defence	0.395
	Capital	PUBLIC SAFETY	CLEANSING	0.335
	Capital	Public Safety	Control of Public Nuisances	0.37
	Capital	Public Safety	Fencing and Fences	0.245
	Capital	Public Safety	Fire Fighting and Protection	0.205
	Capital	PUBLIC SAFETY	LICENSING AND CONTROL OF ANIMALS	0.41
	Capital	ROAD TRANSPORT	POLICE FORCES, TRAFFIC AND STREET PARKING CONTROL	0.335
	Capital	ROAD TRANSPORT	POUNDS	0.41
	Capital	Road Transport	Public Transport	0.185
	Capital	Road Transport	Road and Traffic Regulation	0.025
	Capital	Road Transport	Roads	0.28
	Capital	Road Transport	Taxi Ranks	0.285
	Capital	SPORT AND RECREATION	BEACHES AND JETTIES	0.485
	Capital	SPORT AND RECREATION	CASINOS, RACING, GAMBLING, WAGERING	0.505
	Capital	Sport and Recreation	Community Parks (including Nurseries)	0.275
	Capital	Sport and Recreation	Recreational Facilities	0.235
	Capital	Sport and Recreation	Sports Grounds and Stadiums	0.27
	Capital	Waste Management	Recycling	0.44

Category	Description			
	Capital	Waste Management	Solid Waste Disposal (Landfill Sites)	0.255
	Capital	Waste Management	Solid Waste Removal	0.54
	Capital	WASTE MANAGEMENT	STREET CLEANING	0.335
	Capital	Waste Water Management	Public Toilets	0.32
	Capital	Waste Water Management	Sewerage	0.24
	Capital	Waste Water Management	Storm Water Management	0.355
	Capital	Waste Water Management	Waste Water Treatment	0.195
	Capital	Water Management	Water Distribution	0.215
	Capital	Water Management	Water Storage	0.23
	Capital	Water Management	Water Treatment	0.29
Mathematical Operator	Ranked value achieved by the project is passed through to the parent scoring branch based on the job creation attribute table.			

5.2 Policy Alignment

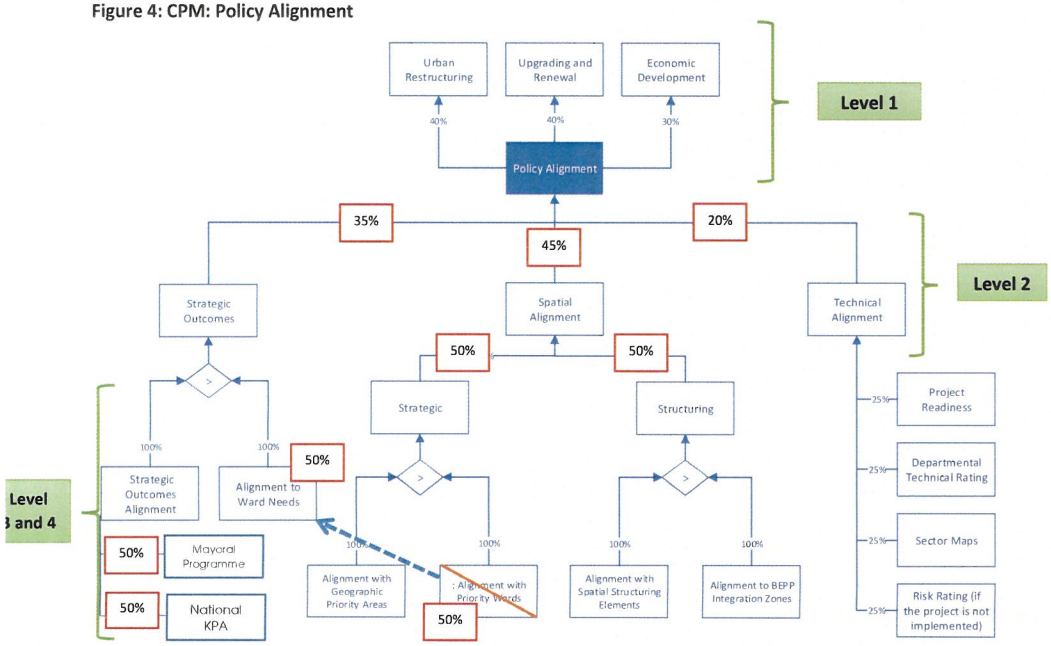
The policy alignment goal or theme of the CPM tests the degree to which projects in the municipal capital budget aligns with the organisational policy and developmental objectives as well as strategic outcomes set out in various strategic documents of the municipality. These documents could include the organisations vision and mission statements, strategic plans, state of the city address, planning documents and other manifestos. The policy alignment score is calculated within three distinct categories, namely:

- Strategic Outcomes (Level 2 weighting)
- Spatial Alignment (Level 2 weighting)
- Technical Alignment (Level 2 weighting)

Level 2 weightings on the CPM weighting matrix are deemed adjustable from time to time by ICT and City Planning approved ProBudget Project Super users to the Capital Prioritisation Model Grid Interface. Level 2 adjustments would be exempt from sign off of the FRS addendum on Project Prioritisation

Record of Changes on all level 1 and 2 weightings must be retained by the ProBudget Projects CPM Weighting Matrix with a date stamp and previous record of results.

Figure 4: CPM: Policy Alignment



5.2.1 Strategic Outcomes (35%)

The alignment of projects to the strategic outcomes of the municipality are scored according to the following criteria:

- Strategic Outcomes Matrix
- Ward Needs

These criteria measured under these sub-branches seek to ensure that projects within the municipal budget align with the strategic organisation objectives of the municipality.

Table 6: Strategic Outcomes Alignment: Mayoral Programmes _ SP8_Stategic outcome alignment

Category	Description
Definition	The strategic outcomes matrix measures the alignment of a project to the various strategic outcomes pronounced on through the different spheres of government. This includes allocating positive weighting to capital projects that support the CoE Mayoral Programmes.
Branch Weight	50%
Data Source	The CoE Mayoral Programmes are managed by the Strategy and Corporate Planning Department in support of the IDP. The input variable must be verified on an annual basis with the managing department. Selection option at the front of ProBudget Prioritsation Module under Strategy
Input Variables	**codeType** **codeValue** **codeDescription** PROGRAMME PROG01 Aerotropolis PROGRAMME PROG02 Beautification of Lakes and Dams PROGRAMME PROG03 Mega Housing Projects (100000 units and 59000 stands) PROGRAMME PROG04 Smart modernised well governed City PROGRAMME PROG05 IRPTN PROGRAMME PROG06 Institutional Review PROGRAMME PROG07 Revitalization of Manufacturing Sector PROGRAMME PROG08 Strategic Land Parcels & Bulk Services for Human Settlements PROGRAMME PROG09 Urban Renewal PROGRAMME PROG10 Ekurhuleni security of Energy (including Power station) PROGRAMME PROG11 Lungile Mtshali PROGRAMME PROG12 Provision of bulk Infrastructure PROGRAMME PROG13 Keep Ekurhuleni Clean PROGRAMME PROG14 Revenue Management and Enhancement PROGRAMME PROG15 Revitalization of Township Economies PROGRAMME PROG16 Siyaqhuba PROGRAMME PROG17 Strategic Urban Developments PROGRAMME PROG18 Public Lighting PROGRAMME PROG19 Aqua Leap: Investing in water infrastructure PROGRAMME PROG20 Electrification of all informal settlements PROGRAMME PROG21 Ekurhuleni University PROGRAMME PROG22 Up scale service delivery to informal settlements PROGRAMME PROG23 Safe and Capable City PROGRAMME PROG24 Single City Identity

Category	Description		
	PROGRAMME	PROG25	Empowering SMMEs and Job creation
	PROGRAMME	PROG26	Sustainable City
	PROGRAMME	PROG27	Development of Roads in the East
	PROGRAMME	PROG28	Healthy City including increasing the number of clinics and piloting 24 hour clinics
	PROGRAMME	PROG29	Development of Parks Cemeteries and Township Entrances
	PROGRAMME	PROG30	Tourism development
	PROGRAMME	PROG31	Agriculture and Springs Fresh Produce Market
	PROGRAMME	PROG99	No Selection
Process	Given that the strategic outcomes do not have different weights of importance across the different spheres of government, the scoring process of strategic outcomes utilises the extent to which a project aligns to the strategic objectives of the CoE as set out in the IDP. The criteria therefore addresses capital project alignment to the CoE Mayoral Programmes. Projects that support the listed programmes will receive a positive weighting. Range Weighting: Project is in support of a CoE Mayoral Programme: 100% No Alignment: 0% ***Note: The source information here will need to be updated in accordance with the Strategy and Corporate Planning Department on an annual basis.***		
Mathematical Operator	Maximum value achieved by the project is passed through to the parent scoring branch.		

Table 7: Alignment to Strategic Outcomes: National Key Performance Areas _ SP7_Stategicoutcome alignment

Category	Description
Definition	The strategic outcomes matrix measures the alignment of a project to the various strategic outcomes pronounced on through the different spheres of government. The following National hierarchy of strategic outcomes is measured: • National: Key Performance Areas
Branch Weight	50%
Data Source	National Treasury and as managed by the Strategy and Corporate Planning Department. Selection option at the front of ProBudget Prioritsation Module under Strategy.
Input Variables	The strategic outcomes matrix should be populated for each project using the National Key Performance Area builders.
Process	Given that the strategic outcomes do not have different weights of importance across the different spheres of government, the scoring process of strategic outcomes utilises the extent to which a project aligns to the National Key Performance Areas. This criterion therefore also demonstrates a projects alignment and co-ordination in meeting national objectives at a municipal level. The National Key Performance Selection criteria includes: 1. Basic Service Delivery 2. Local Economic Development (LED) 3. Good Governance and Public Participation 4. Municipal Institutional Development and Transformation 5. Municipal Financial Viability and Management The output score for strategic outcomes alignment to National Key Performance Areas will be as follows: 2 + KPA's – 100% 1 KPA – 50% No KPA – 0%
Mathematical Operator	Maximum value achieved by the project is passed through to the parent scoring branch.

Table 8: Alignment to Ward Needs: Ward Priority Projects _ SP9_Alignment to ward needs

Category	Description
Definition	The ward priorities emanating from the community engagement process of the Integrated Development Plan is captured in the PROCAPMAN system according to the Department responsible to address the ward need, the ward in which the ward need was identified, and a description of the ward need raised by the community. The ward need matrix should be populated by each project to demonstrate the possible alignment between the ward need and the project.
Branch Weight	50%
Data Source	Strategy and Corporate Planning Department Data must be sourced from the Managing Department on an annual basis
Input Variables	The Ward Priority matrix should be populated for each project using the Ward Priority Matrix (example shown below): **Ward Number** / **Priorities 2019/2020 Review Process** 1 Taming of John Langalibalele, Dube road 1 Request for traffic lights at Clayville ext 45 entrance 1 Offer to purchase ERF 3180;3181;3182 EXT 26 Clayville for primary and high school 1 Construction of a clinic at Clayville ext 45 1 Construction of a Community Hall at Clayville ext 45 Note: The ward priorities are presently manually linked to the capital projects through a reference ID number generated by the Strategy and Corporate Planning Department. This ID must be retained and linked to the ProBudget generated ID for all capital projects.
Process	Given that the ward priorities within the municipality all carry equal importance, the scoring process will grant maximum score to ward priority projects and 0% to projects that do not support a ward priority. Project aligns to a ward priority – 100% No alignment – 0%
Mathematical Operator	Maximum value achieved by the project is passed through to the parent scoring branch.

5.2.2 Spatial Alignment (45%)

The alignment of projects to the spatial targeting areas of the municipality are scored according to the following criteria:

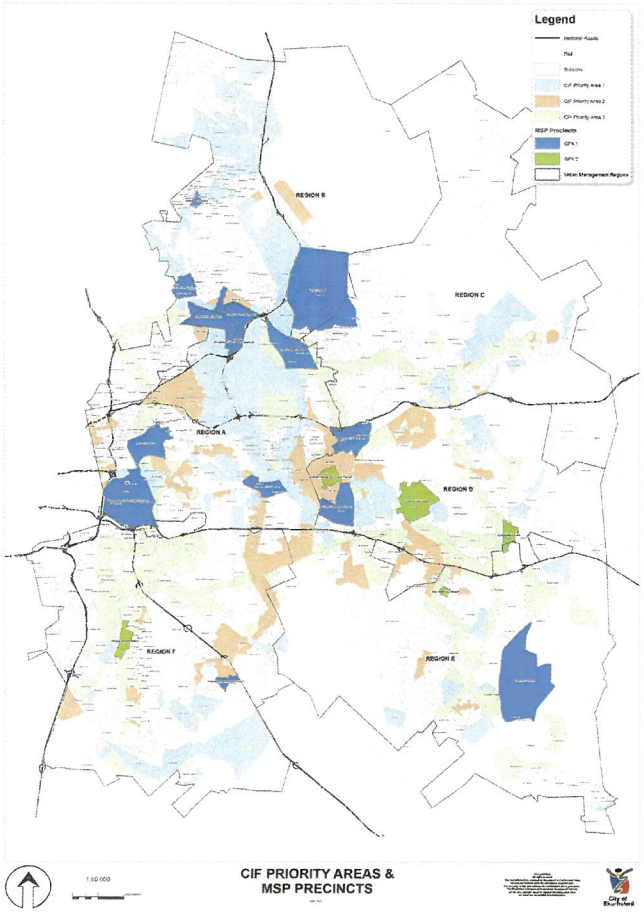
- Strategic spatial areas in terms of the MSDF
  - CEF Geographic Priority Areas (GPAs)
- Spatial structuring
  - SDF Spatial Structuring Elements (SSEs)
  - BEPP Integration Zones

These criteria measured under these sub-branches seek to ensure that projects within the municipal budget align with the spatial structure or spatial development objectives of the municipality.

A. Strategic

Table 9: Alignment with Geographic Priority Areas (GPAs) _ SP10_Alignment with geographic Priority areas

Category	Description
Definition	Geographic priority areas (GPAs) have been defined in the Capital Expenditure Framework (CEF) in order to identify a hierarchy of investment priority areas. Five zones have been identified with different weights or levels of importance. Projects are scored based on their spatial intersect with the geographic priority areas.
Branch Weight	Strategic Geographic Priority Areas (GPAs) _ -> 50%
Data Source	ProBudget Prioritisation_GIS Front end capturing _ Projects Affected Area Shapefile Polygon (First) Where an affected area is not available the projects works area must be utilised: allprojectsworkslocationslinestring allprojectsworkslocationsmultilinestring allprojectsworkslocationsmultipoint allprojectsworkslocationsmultipolygon allprojectsworkslocationspoint allprojectsworkslocationspolygon sse_cif_pa_1_simplified Update to include the MSDF precincts_2021 sse_cif_pa_2_simplified Update to include the MSDF precincts_2021 sse_cif_pa_3_simplified sse_urban_development_boundary sse_Outside pa and within development boundary Detail on Data Source and location: Annexure "A"
Input Variables	Project affected/works area is used as the input to test the geographic priority area score of each project based on the CEF Geographic Priority Area (GPA) shapefile provided by the municipality. A score is returned based on the spatial intersect between project works area and CEF GPA shapefile.
Process	The Geographic Priority Areas (GPAs) for the municipality is shown below. The following GPA categories are scored: • GPA 1 = 100%

Category	Description
	• GPA 2 = 75% • GPA 3 = 50% • Outside Priority Area = 25% • Outside Urban Edge = 0% **NB! If the spatial intersect returns more than one GPA area intersecting with a project works area, then the maximum score between the spatial intersects is passed to the parent branch.** 
Mathematical Operator	Return Maximum Score from intersect of Works Location with CEF Priority Areas. Maximum value achieved by the project is passed through to the parent scoring branch.

B. Structuring

Table 10: Alignment with Spatial Structuring Elements _ SP12_Alignment with spatial structuring elements

Category	Description
Definition	Spatial Structuring Elements (SSEs) give form to the built environment and have been derived out of the municipal Spatial Development Framework (SDF) process in order to focus capital investment in spatially targeted areas. Projects are scored based on their spatial intersect with these spatially targeted areas.
Branch Weight	Structuring -> 50% (Highest weighting between Table 11 and 12 to push through on the parent scoring branch) Spatial Structuring Elements -> 100%
Data Source	Shapefiles: No Intersect ab_cbd_boundaries ab_emm_boundary_2016 sse_urban_development_boundary sse_township_regeneration and Attrib=Core Node sse_township_regeneration and Attrib=Industrial Areas sse_township_regeneration and Attrib=Infill Housing (Densification) sse_township_regeneration and Attrib=IRPTN Corridor sse_township_regeneration and Attrib=Primary Nodes sse_township_regeneration and Attrib=Secondary Nodes sse_township_regeneration and Attrib=Township Regeneration sse shapefile name for addition on MSDF precincts ProBudget Prioritisation_GIS Front end capturing _ Projects Affected Area Shapefile Polygon (First) Where an affected area is not available the projects works area must be utilised: allprojectsworkslocationslinestring allprojectsworkslocationsmultilinestring allprojectsworkslocationsmultipoint allprojectsworkslocationsmultipolygon allprojectsworkslocationspoint allprojectsworkslocationspolygon Detail on Data Source and location: Annexure "A"
Input Variables	Project affected/works area is used as the input to test the spatial structuring element alignment of each project based on the intersect with the SDF spatial structuring element shapefile provided by the municipality. A score is returned based on the spatial intersect between project works area and spatial structuring element shapefile.
Process	The following categories of spatial structuring elements are scored within the shapefile: • Capital Core = 30% • Secondary Nodes = 25% • Industrial Areas = 30% • Infill Housing Densification = 30%

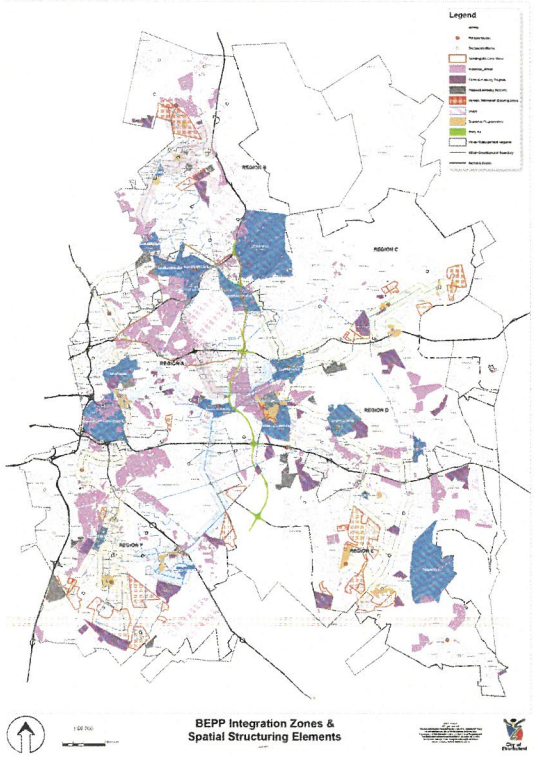
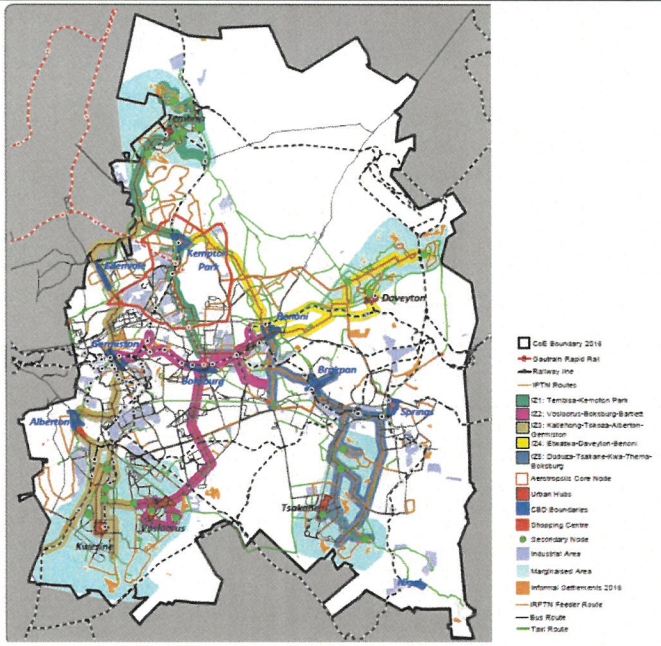
Category	Description
	• IRPTN Corridor = 40% • Precincts = 30% • Township Regeneration = 25% • CBD Boundaries/ Primary Nodes = 25% • Strategic Urban Development Projects = 30%  Given that the spatial structuring element shapefile features are not mutually exclusive (i.e. some of the features overlap), it is quite likely that one project location can return more than one SSE intersect. If the spatial intersect between the project works area and the SSE shapefile layer returns more than one SSE result (i.e. CBD boundaries, IRPTN and Core Node for example), then the sum of the scores between the intersects is passed to the parent branch up to a maximum or ceiling score of 100.
Mathematical Operator	The sum of the project spatial intersect scores, to the maximum / ceiling score of 100, is passed through to the parent scoring branch.

Table 11: Alignment to BEPP Integration Zones _ SP13_Alignment to BEPP Integration zones

Category	Description
Definition	The Build Environment Performance Plan (BEPP) Integration Zones have been defined as part of the municipal BEPP and Capital Expenditure Framework (CEF) process in order to focus capital investment in spatially targeted areas as part of the Urban Network. Projects are scored based on their spatial intersect with these spatially targeted areas.
Branch Weight	Structuring -> 50% (Highest weighting between Table 11 and 12 to push through on the parent scoring branch) BEPP Integration Zones -> 100%
Data Source	Shapefiles for the BEPP Integration Zones with City Planning GIS: BEPP IZs 1 to 5, and marginalised areas Outside IZs ProBudget Prioritisation_GIS Front end capturing _ Projects Affected Area Shapefile Polygon (First) Where an affected area is not available the projects works area must be utilised: allprojectsworkslocationslinestring allprojectsworkslocationsmultilinestring allprojectsworkslocationsmultipoint allprojectsworkslocationsmultipolygon allprojectsworkslocationspoint allprojectsworkslocationspolygon Detail on Data Source and location: Annexure "A"
Input Variables	Project affected/works area is used as the input to test the alignment with the BEPP Integration Zones of each project based on the intersect with the BEPP Integration Zone shapefile provided by the municipality. A score is returned based on the spatial intersect between project works area/affected area and BEPP Integration Zone shapefile.

Category	Description
Process	 The following categories are scored within the BEPP Integration shapefile: Weighting Range: Integration zones 1 to 5 and marginalised areas: score 100% Outside Integration Zones: 25%
Mathematical Operator	Maximum value achieved by the project across all branches is passed through to the parent scoring branch.

5.2.3 Technical Alignment

Table 12: Project Readiness _ SP14_Project readiness

Category	Description
Definition	The project readiness criteria seeks to determine whether a project will be in a position to spend the allocated budget within the financial year in which the budget is requested. In other words, if a project still needs a record of decision on an Environmental Impact Assessment once the project budget has been awarded to the project, it may take between 6-8 months for the record of decision to be finalised. Therefore, the project will only realistically be able to start during the 2nd or 3rd quarter of the financial year. Projects with outstanding project readiness criteria are therefore penalised over projects that have all compliance documentation and approvals in place.
Branch Weight	Technical Alignment -> 20% Readiness -> 25%
Data Source	Front end capturing on ProBudget Prioritisation_Readiness Fields Environmental Screening from ERWM Legislative Compliance Department (Presently a manual input and must be accommodated on the Environmental Dash Board under the enhancements)
Input Variables	A number of project readiness question categories are required to be filled in for each project, namely: • Feasibility study • EIA • Water use license (WULA) • Way-leaves • Township establishment • Rezoning • Site development plan • Land acquisition • Ownership status • Materials availability • Supply chain / procurement • Project readiness comment / motivation • Geotechnical Study Evidence of completion or compliance to any of these project readiness categories required documentation to be uploaded to the system as proof. Environmental Screening on WULA and EIA compliance.
Process	The readiness score of a project is calculated as the minimum score achieved across all project readiness questions. Each of the project readiness categories allow for a standard set of responses, namely: • Duration of time to meet compliance: < 2 months = 100 • Duration of time to meet compliance: 2 - 4 months = 90 • Duration of time to meet compliance: 4 - 6 months = 80 • Duration of time to meet compliance: 6 - 8 months = 50

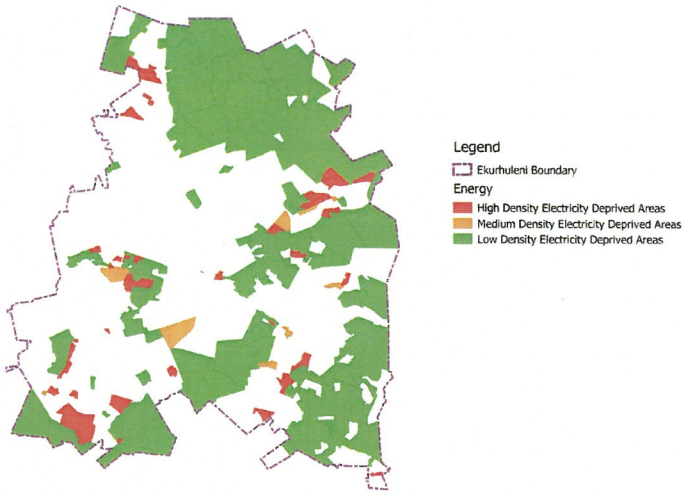
Category	Description
	• Duration of time to meet compliance: 8 - 10 months = 30 • Duration of time to meet compliance: 10 - 12 months = 10 • Duration of time to meet compliance: > 12 months = 0 • Duration of time to meet compliance: Completed = 100 • Duration of time to meet compliance: Not applicable = 100 • Where ERWM screening on the EIA and WULA compliance marks a project as not compliant i.e. a WULA and EIA are required but not marked by the departments then the project will be score 0
Mathematical Operator	Minimum value achieved by the project achieved across all branches is passed through to the parent scoring branch. This is because project readiness is a compliance or governance test, so if for example and EIA is still required, the score of the project should be penalised, hence the minimum value is carried over.

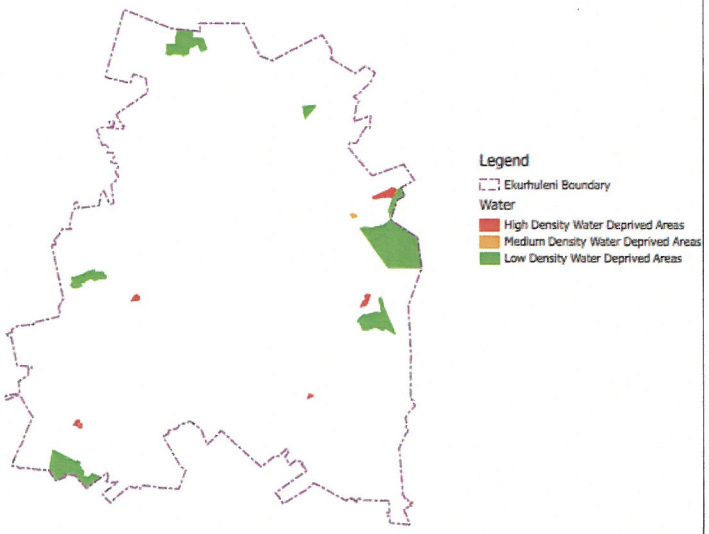
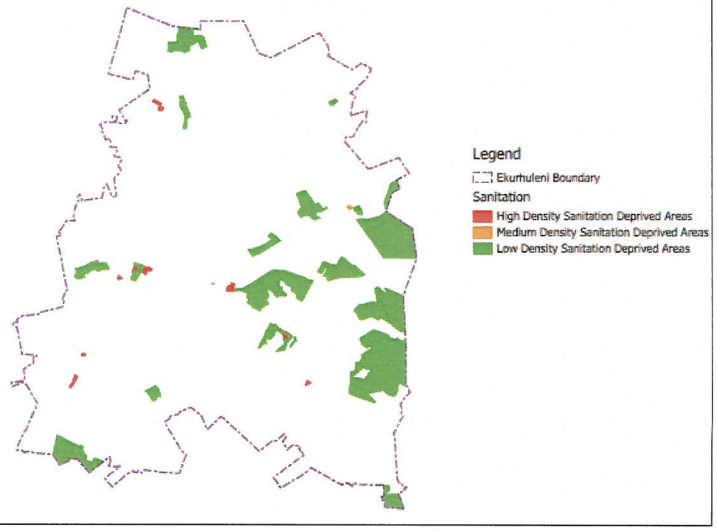
Table 13: Departmental Technical Rating _ SP15_Departmental technical rating

Category	Description
Definition	The departmental rating incorporates the relative importance bestowed on each project by the originating department. A score out of 100 is asked and can be entered by means of a slider. Departments that do not introduce enough variability in their department's project scores are penalised somewhat. This is to prevent that a department marking all their projects as "100" or critical does not get an unfair advantage over departments that rates their projects honestly (i.e. numerous project scores ranging from 0 to 100).
Branch Weight	Technical Alignment -> 25% Department Technical Rating -> 25%
Data Source	Front end capturing_Fundematals_Technical Rating
Input Variables	The department technical rating is captured using a project priority dropdown menu for each project on the technical section of the project capturing screen.
Process	The departmental rating score is a normalised score per project based on the range between the department's minimum project rating and maximum project rating. The above calculation is expressed by the following mathematical equation: $Y = \frac{TPR_{Project} - TPR_{DeptMin}}{TPR_{DeptMax}} \text{ X } 100$ **Where:** • Y = project score • TPR = Technical priority rating (between 0 and 100) • Dept_Min = lowest department project technical rating • Dept_Max = highest department project technical rating Values: 1) Critical = 100% **A1** **1** 2) Urgent = 80% **A2** **0.8** 3) High = 60% **A3** **0.6** 4) Moderate = 40% **A4** **0.4** 5) Low = 20% **A5** **0.2** 6) Very Low = 0% **A6** **0** 7) Unassigned = 0% **A7** **0**
Mathematical Operator	Maximum value achieved by the project is passed through to the parent scoring branch. Given that this test is a mathematical equation which only produces one answer per project, the mathematic operator on the branch is inconsequential.

Table 14: Sector Maps _ SP16_Sector maps

Category	Description
Definition	The purpose of the sector maps or infrastructure hotspot maps is to elevate project scores for infrastructure departments for infrastructure projects, by sector, which respond to sectoral infrastructure pressure points or demands. Only projects from the corresponding sector department can score on the corresponding sectoral spatial layer (i.e. a water project cannot score on an electricity hotspot layer, however it will score on a water hotspot layer).
Branch Weight	Technical Alignment -> 25% Sector Maps -> 25%
Data Source	ProBudget Prioritisation_GIS Front end capturing _ Projects Affected Area Shapefile Polygon (First) Where an affected area is not available the projects works area must be utilised: allprojectsworkslocationslinestring allprojectsworkslocationsmultilinestring allprojectsworkslocationsmultipoint allprojectsworkslocationsmultipolygon allprojectsworkslocationspoint allprojectsworkslocationspolygon Detail on Data Source and location: Annexure "A" MSCOA Function Shapefiles: 'select SHP="di_high_density_water_deprived_areas" ,Attrib="Water",ogr_geometry=ogr_geometry.MakeValid() from eCAP_Ekurhuleni_GIS.dbo.[di_high_density_water_deprived_areas] union a select SHP="di_medium_density_water_deprived_areas" ,Attrib="Water",ogr_geometry=ogr_geometry.MakeValid() from eCAP_Ekurhuleni_GIS.dbo.[di_medium_density_water_deprived_areas] select SHP="di_low_density_water_deprived_areas" ,Attrib="Water",ogr_geometry=ogr_geometry.MakeValid() from eCAP_Ekurhuleni_GIS.dbo.[di_low_density_water_deprived_areas] union all select SHP="di_high_density_electricity_deprived_areas" ,Attrib="Elec",ogr_geometry=ogr_geometry.MakeValid() from eCAP_Ekurhuleni_GIS.dbo.[di_high_density_electricity_deprived_areas] u select SHP="di_medium_density_electricity_deprived_areas" ,Attrib="Elec",ogr_geometry=ogr_geometry.MakeValid() from eCAP_Ekurhuleni_GIS.dbo.[di_medium_density_electricity_deprived_ select SHP="di_low_density_electricity_deprived_areas" ,Attrib="Elec",ogr_geometry=ogr_geometry.MakeValid() from eCAP_Ekurhuleni_GIS.dbo.[di_low_density_electricity_deprived_areas] un select SHP="di_high_density_sanitation_deprived_areas" ,Attrib="SAN",ogr_geometry=ogr_geometry.MakeValid() from eCAP_Ekurhuleni_GIS.dbo.[di_high_density_sanitation_deprived_areas] u select SHP="di_medium_density_sanitation_deprived_areas" ,Attrib="SAN",ogr_geometry=ogr_geometry.MakeValid() from eCAP_Ekurhuleni_GIS.dbo.[di_medium_density_sanitation_deprived_ select SHP="di_low_density_sanitation_deprived_areas" ,Attrib="SAN",ogr_geometry=ogr_geometry.MakeValid() from eCAP_Ekurhuleni_GIS.dbo.[di_low_density_sanitation_deprived_areas] un select SHP="di_high_density_refuse_deprived_areas" ,Attrib="REFUSE",ogr_geometry=ogr_geometry.MakeValid() from eCAP_Ekurhuleni_GIS.dbo.[di_high_density_refuse_deprived_areas] union select SHP="di_medium_density_refuse_deprived_areas" ,Attrib="REFUSE",ogr_geometry=ogr_geometry.MakeValid() from eCAP_Ekurhuleni_GIS.dbo.[di_medium_density_refuse_deprived_area select SHP="di_low_density_refuse_deprived_areas" ,Attrib="REFUSE",ogr_geometry=ogr_geometry.MakeValid() from eCAP_Ekurhuleni_GIS.dbo.[di_low_density_refuse_deprived_areas]') SHP
Input Variables	The following MSCOA functions Water Management, Waste Water Management, Energy Sources and Water Management will be deemed to contribute towards addressing demand from a basic service delivery perspective. Project works area is used as the input to test the alignment of each project, provided it belongs to the corresponding sector or department, with the sector map or department infrastructure hotspot map shapefile provided by the municipality. A score is returned based on the spatial intersect between project works area and sector / infrastructure hotspot shapefile.
Process	The following sector or departmental infrastructure hotspot maps have been created based on Statistics South Africa Census 2011 information at a small area level and the corresponding scoring layers are as follows: • Water

Category	Description
	• Water priority area (high population density) = 100 • Water priority area (medium population density) = 75 • Water priority area (low population density) = 50 • Sanitation • Sanitation priority area (high population density) = 100 • Sanitation priority area (medium population density) = 75 • Sanitation priority area (low population density) = 50 • Energy • Energy priority area (high population density) = 100 • Energy priority area (medium population density) = 75 • Energy priority area (low population density) = 50 • Solid Waste • Solid Waste priority area (high population density) = 100 • Solid Waste priority area (medium population density) = 75 • Solid Waste priority area (low population density) = 50 Below are the sector maps for Energy, Water, Sanitation and Solid Waste: **Sector Maps (Table 16) - Energy** 

Category	Description
	Sector Maps (Table 16) - Water  **Sector Maps (Table 16) - Sanitation** 

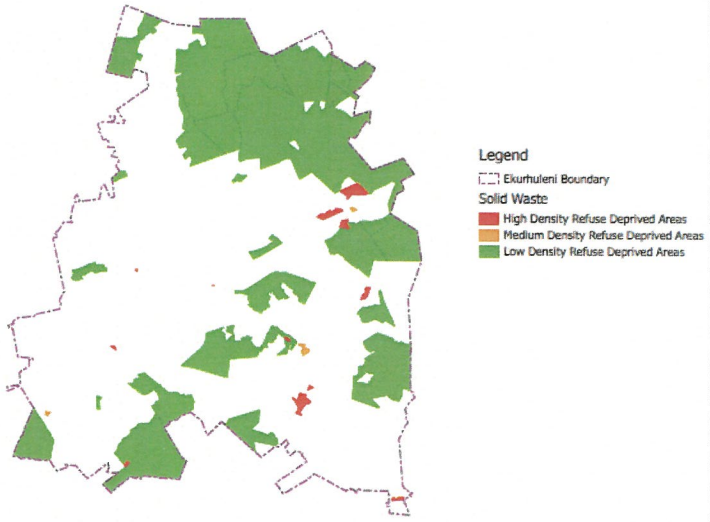
Category	Description
	Sector Maps (Table 16) - Solid Waste 
Mathematical Operator	Maximum value achieved by the project across all branches is passed through to the parent scoring branch. This criteria should not score negatively against any projects that do not fall within these areas.

Table 15: Risk Rating _ SP17_Risk Rating

Category	Description
Definition	The risk rating determines the risk severity, likelihood and impact which may occur if the project is not implemented or excluded from the budget.
Branch Weight	Technical Alignment -> 25% Risk Rating -> 25%
Data Source	Front end capturing on ProBudget Prioritisation_Risk
Input Variables	A risk question is posed under the project question categories and each project is required to complete the question, namely: • What is the impact of not implementing this project? The following responses can be captured by the user in a drop-down menu: • Probable loss of Life • Probable incurrence of tort liability • Probable damage to property • Probable loss of revenue • Probable interruption of service
Process	Each of the question responses carries a corresponding score based on the risk severity, likelihood and impact rating of the response: • Probable loss of Life = 100 • Probable incurrence of tort liability = 80 • Probable damage to property = 60 • Probable loss of revenue = 40 • Probable interruption of service = 60
Mathematical Operator	Maximum value achieved by the project is passed through to the parent scoring branch. Given that more than one answer option can be selected, the answer with the highest corresponding score is passed through to the parent branch.

5.3 Economic Alignment

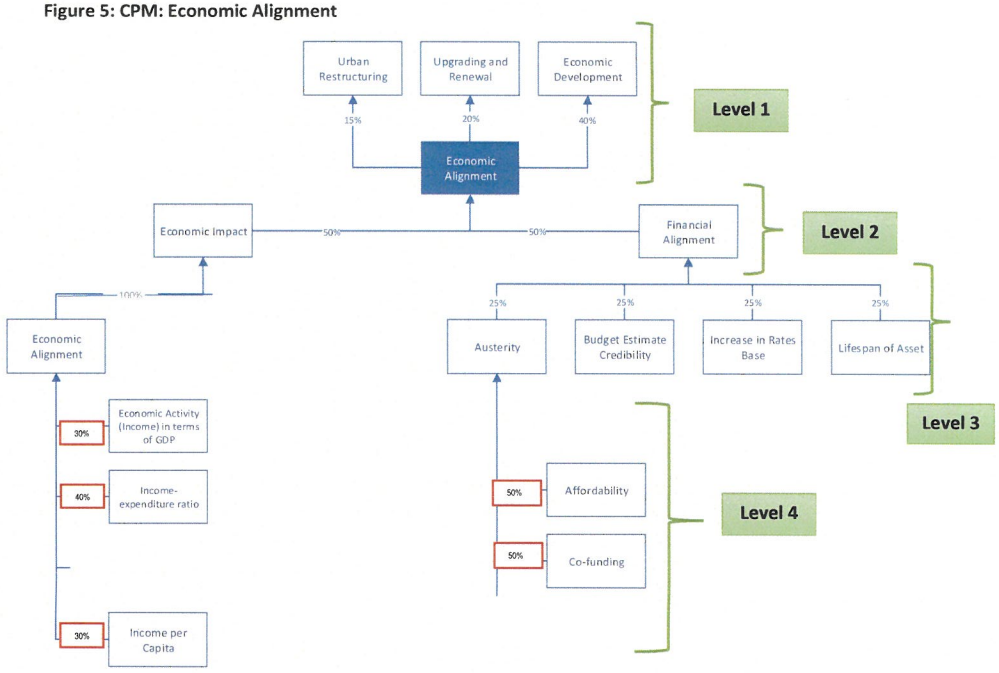
The Economic Alignment branch of the model is split into two distinct areas measuring the economic impact and the financial impact of each project respectively. These two sub-branches contribute equally towards the score that is achieved in terms of economic alignment as shown in Figure 5. There is a close relationship between the economic indicators, which in part derives from the financial indicators, and the financial indicators themselves. Both plays a significant role in the appraisal of the value of each project from an economic perspective, as discussed in further detail in the sub-sections of this report. . The economic alignment score is calculated within two distinct categories, namely:

- Economic Impact (Level 2 weighting)
- Financial Alignment (Level 2 weighting)

Level 2 weightings on the CPM weighting matrix are deemed adjustable from time to time by ICT and City Planning approved ProBudget Project Super users to the Capital Prioritisation Model Grid Interface. Level 2 adjustments would be exempt from sign off of the FRS addendum on Project Prioritisation

Record of Changes on all level 1 and 2 weightings must be retained by the ProBudget Projects CPM Weighting Matrix with a date stamp and previous record of results.

Figure 5: CPM: Economic Alignment



5.3.1 Economic Impact Model

Macro-economic indicators were developed for Ekurhuleni specifically to make use of the data from the PROCAPMAN system. The econometric model is specific for Ekurhuleni and draws from a sophisticated range of financial data, regional data, and population data sourced from STATSSA. As such, the ECONOMIC INDICATORS generate values for the impact of individual and portfolio capital projects in terms of a set of economic, socio-economic and fiscal indicators – for the City as a whole, as well as a selection of key sub-regions or 'main places'.

The ECONOMIC INDICATORS are based on the outputs of a comprehensive suite of econometric models. The workings of the ECONOMIC INDICATORS are dynamic and consider the indirect City-wide impacts of projects and programmes – not only the localised ward-specific impact.

The ECONOMIC INDICATORS therefore capture the iterative, dynamic impacts of all of the role-players within the economy – households, business, government, foreign sector, as well as the full economic flow of goods, services, factors and money is accounted for, and an iterative computational process is utilised.

The outputs from the economic model is further augmented spatially by evaluating the alignment of the project's location and affected area, with geographic areas that were graded across the entire municipal area in terms of its economic impact in a separate economic study that was conducted for this purpose.

Table 16: Economic Activity (Income) in terms of Gross Domestic Product (GDP) _ SP18_Economic Activity (income) in terms of GDP

Category	Description
Definition	GDP measures/represents the value of economic activity (income) that has been generated across ALL industries as a result of the project/ programme/portfolio of projects. It takes into account the value of taxes and subsidies on both production and consumption goods/services. The GDP indicator is valuable in comparing the relative impact of different projects/ programmes or portfolios of projects, in terms of the additional economic activity that they 'unlock' for every Rand invested and/or spent over the project implementation time-line. As projects are classified by SCOA function and then sub function, GDP multipliers and ratings have been applied to each SCOA sub function.
Branch Weight	30%
Data Source	mSCOA Function and Sub Function from National Treasury_Front end Capturing on ProBudget Prioritisation Annexure A – Scoring Technical Review: Sub 18 Eco Activity GDP
Input Variables	Standard Industrial Codes provided by Urban Econ SCOA Function and sub function
Process	The indicator calculated is derived by: 1. Linking SIC (Standard Industrial Codes) to SCOA sub functions 2. Applying GDP multiplier and GDP Rating to each SCOA sub function based on SIC codes. 3. A score is derived from the two metrics above and ranked based on highest to lowest impact on GDP within the City. Extract from Annexure A –Scoring Technical Review: Sub 18 Eco Activity GDP: SIC and GDP link to mSCOA.

Function and Subfunction	GDP
'Capital' ='COMMUNITY AND SOCIAL SERVICES' and [functionSub]='AGED CARE'	0.095
'Capital' ='Community and Social Services' and [functionSub]='Agricultural'	0.88
'Capital' ='COMMUNITY AND SOCIAL SERVICES' and [functionSub]='ANIMAL CARE AND DISEASES'	0.095
'Capital' ='Community and Social Services' and [functionSub]='Cemeteries Funeral Parlours and Crematoriums'	0.185
'Capital' ='Community and Social Services' and [functionSub]='Child Care Facilities'	0.095
'Capital' ='Community and Social Services' and [functionSub]='Community Halls and Facilities'	0.065
'Capital' ='COMMUNITY AND SOCIAL SERVICES' and [functionSub]='CONSUMER PROTECTION'	0.73
'Capital' ='COMMUNITY AND SOCIAL SERVICES' and [functionSub]='CULTURAL MATTERS'	0.73
'Capital' ='Community and Social Services' and [functionSub]='Disaster Management'	0.92
'Capital' ='Community and Social Services' and [functionSub]='Education'	0.045
'Capital' ='COMMUNITY AND SOCIAL SERVICES' and [functionSub]='INDIGENOUS AND CUSTOMARY LAW'	0.86
'Capital' ='COMMUNITY AND SOCIAL SERVICES' and [functionSub]='INDUSTRIAL PROMOTION'	0.275

Category	Description	
	'Capital' ='COMMUNITY AND SOCIAL SERVICES' and [functionSub]='LANGUAGE POLICY'	0.7
	'Capital' ='Community and Social Services' and [functionSub]='Libraries and Archives'	0.02
	'Capital' ='Community and Social Services' and [functionSub]='Literacy Programmes'	0.105
	'Capital' ='COMMUNITY AND SOCIAL SERVICES' and [functionSub]='MEDIA SERVICES'	0.835
	'Capital' ='Community and Social Services' and [functionSub]='Museums and Art Galleries'	0.01
	'Capital' ='COMMUNITY AND SOCIAL SERVICES' and [functionSub]='POPULATION DEVELOPMENT'	0.79
	'Capital' ='COMMUNITY AND SOCIAL SERVICES' and [functionSub]='PROVINCIAL CULTURAL MATTERS'	0.7
	'Capital' ='COMMUNITY AND SOCIAL SERVICES' and [functionSub]='THEATRES'	0.01
	'Capital' ='COMMUNITY AND SOCIAL SERVICES' and [functionSub]='ZOO''S'	0.3
	'Capital' ='Energy Sources' and [functionSub]='Electricity'	0.145
	'Capital' ='Energy Sources' and [functionSub]='Nonelectric Energy'	0.305
	'Capital' ='Energy Sources' and [functionSub]='Street Lighting and Signal Systems'	0.205
	'Capital' ='Environmental Protection' and [functionSub]='Biodiversity and Landscape'	0.885
	'Capital' ='ENVIRONMENTAL PROTECTION' and [functionSub]='COASTAL PROTECTION'	0.3
	'Capital' ='ENVIRONMENTAL PROTECTION' and [functionSub]='INDIGENOUS FORESTS'	0.22
	'Capital' ='Environmental Protection' and [functionSub]='Nature Conservation'	0.825
	'Capital' ='Environmental Protection' and [functionSub]='Pollution Control'	0.6
	'Capital' ='ENVIRONMENTAL PROTECTION' and [functionSub]='SOIL CONSERVATION'	0.22
	'Capital' ='Executive and Council' and [functionSub]='Mayor and Council'	0.06
	'Capital' ='Executive and Council' and [functionSub]='Municipal Manager Town Secretary and Chief Executive'	0.06
	'Capital' ='Finance and Administration' and [functionSub]='Administrative and Corporate Support'	0.05
	'Capital' ='Finance and Administration' and [functionSub]='Asset Management'	0.19
	'Capital' ='Finance and Administration' and [functionSub]='Budget and Treasury Office'	0.03
	'Capital' ='Finance and Administration' and [functionSub]='Finance'	0.035
	'Capital' ='Finance and Administration' and [functionSub]='Fleet Management'	0.455
	'Capital' ='Finance and Administration' and [functionSub]='Human Resources'	0.08
	'Capital' ='Finance and Administration' and [functionSub]='Information Technology'	0.45
	'Capital' ='Finance and Administration' and [functionSub]='Legal Services'	0.075
	'Capital' ='Finance and Administration' and [functionSub]='Marketing Customer Relations Publicity and Media Co-ordination'	0.57
	'Capital' ='Finance and Administration' and [functionSub]='Property Services'	0.025
	'Capital' ='Finance and Administration' and [functionSub]='Risk Management'	0.63
	'Capital' ='Finance and Administration' and [functionSub]='Security Services'	0.82
	'Capital' ='FINANCE AND ADMINISTRATION' and [functionSub]='SUPPLY CHAIN MANAGEMENT'	0.47
	'Capital' ='FINANCE AND ADMINISTRATION' and [functionSub]='VALUATION SERVICE'	0.7
	'Capital' ='Health' and [functionSub]='Ambulance'	0.335
	'Capital' ='HEALTH' and [functionSub]='CHEMICAL SAFETY'	0.18
	'Capital' ='Health' and [functionSub]='Food Control'	0.44
	'Capital' ='Health' and [functionSub]='Health Services'	0.535
	'Capital' ='Health' and [functionSub]='Health Surveillance and Prevention of Communicable Diseases including immunizations'	0.48
	'Capital' ='HEALTH' and [functionSub]='LABORATORY SERVICES'	0.18
	'Capital' ='HEALTH' and [functionSub]='VECTOR CONTROL'	0.18
	'Capital' ='Housing' and [functionSub]='Housing'	0.1

Category	Description	
	'Capital' ='Housing' and [functionSub]='Informal Settlements'	0.23
	'Capital' ='Internal Audit' and [functionSub]='Governance Function'	0.475
	'Capital' ='Other' and [functionSub]='Abattoirs'	0.015
	'Capital' ='OTHER' and [functionSub]='AIR TRANSPORT'	0.12
	'Capital' ='OTHER' and [functionSub]='FORESTRY'	0.22
	'Capital' ='Other' and [functionSub]='Licensing and Regulation'	0.705
	'Capital' ='OTHER' and [functionSub]='MARKETS'	0.32
	'Capital' ='OTHER' and [functionSub]='TOURISM'	0.32
	'Capital' ='PLANNING AND DEVELOPMENT' and [functionSub]='BILLBOARDS'	0.275
	'Capital' ='Planning and Development' and [functionSub]='Central City Improvement District'	0.545
	'Capital' ='PLANNING AND DEVELOPMENT' and [functionSub]='CORPORATE WIDE STRATEGIC PLANNING (IDPS LEDS)'	0.79
	'Capital' ='Planning and Development' and [functionSub]='Development Facilitation'	0.54
	'Capital' ='Planning and Development' and [functionSub]='Economic Development/Planning'	0.53
	'Capital' ='Planning and Development' and [functionSub]='Project Management Unit'	0.52
	'Capital' ='PLANNING AND DEVELOPMENT' and [functionSub]='PROVINCIAL PLANNING'	0.79
	'Capital' ='Planning and Development' and [functionSub]='Regional Planning and Development'	0.525
	'Capital' ='Planning and Development' and [functionSub]='Support to Local Municipalities'	0.5
	'Capital' ='Planning and Development' and [functionSub]='Town Planning Building Regulations and Enforcement and City Engineer'	0.51
	'Capital' ='Public Safety' and [functionSub]='Civil Defence'	0.14
	'Capital' ='PUBLIC SAFETY' and [functionSub]='CLEANSING'	0.16
	'Capital' ='Public Safety' and [functionSub]='Control of Public Nuisances'	0.135
	'Capital' ='Public Safety' and [functionSub]='Fencing and Fences'	0.125
	'Capital' ='Public Safety' and [functionSub]='Fire Fighting and Protection'	0.115
	'Capital' ='PUBLIC SAFETY' and [functionSub]='LICENSING AND CONTROL OF ANIMALS'	0.285
	'Capital' ='ROAD TRANSPORT' and [functionSub]='POLICE FORCES TRAFFIC AND STREET PARKING CONTROL'	0.16
	'Capital' ='ROAD TRANSPORT' and [functionSub]='POUNDS'	0.285
	'Capital' ='Road Transport' and [functionSub]='Public Transport'	0.35
	'Capital' ='Road Transport' and [functionSub]='Road and Traffic Regulation'	0.11
	'Capital' ='Road Transport' and [functionSub]='Roads'	0.25
	'Capital' ='Road Transport' and [functionSub]='Taxi Ranks'	0.255
	'Capital' ='SPORT AND RECREATION' and [functionSub]='BEACHES AND JETTIES'	0.3
	'Capital' ='SPORT AND RECREATION' and [functionSub]='CASINOS RACING GAMBLING WAGERING'	0.07
	'Capital' ='Sport and Recreation' and [functionSub]='Community Parks (including Nurseries)'	0.13
	'Capital' ='Sport and Recreation' and [functionSub]='Recreational Facilities'	0.225
	'Capital' ='Sport and Recreation' and [functionSub]='Sports Grounds and Stadiums'	0.245
	'Capital' ='Waste Management' and [functionSub]='Recycling'	0.265
	'Capital' ='Waste Management' and [functionSub]='Solid Waste Disposal (Landfill Sites)'	0.24
	'Capital' ='Waste Management' and [functionSub]='Solid Waste Removal'	0.75
	'Capital' ='WASTE MANAGEMENT' and [functionSub]='STREET CLEANING'	0.16
	'Capital' ='Waste Water Management' and [functionSub]='Public Toilets'	0.04
	'Capital' ='Waste Water Management' and [functionSub]='Sewerage'	0.235
	'Capital' ='Waste Water Management' and [functionSub]='Storm Water Management'	0.31

Category	Description		
	'Capital' ='Waste Water Management' and [functionSub]='Waste Water Treatment'	0.165	
	'Capital' ='Water Management' and [functionSub]='Water Distribution'	0.195	
	'Capital' ='Water Management' and [functionSub]='Water Storage'	0.2	
	'Capital' ='Water Management' and [functionSub]='Water Treatment'	0.26	
	The GDP impact as linked to the SIC per mSCOA function must be score in accordance with the below weighting range. **weighting Range:** 100% to 81% GDP contribution: 100% 80% to 61% GDP Contribution: 80% 60% to 41% GDP Contribution: 60% 40% to 21% GDP Contribution: 40% 20% to 11% GDP Contribution: 20% 10% to 1% GDP Contribution: 10% 0% GDP Contribution: 0%		
Mathematical Operator	Ranked value achieved by the project is passed through to the parent scoring branch.		

Table 17: Income-expenditure ratio _ SP19_Income expenditure ratio

Category	Description
Definition	The "Income to expenditure ratio" indicator is an indicator of surplus income of potential savings per household. This is a direct "wealth measure". It expresses the potential income gains relative to the higher spending behaviour on the back of changes in economic activity. This indicator therefore measures the impact/effectiveness of the investment/spending portfolio in increasing households' propensity to save. As such, the indicator is also a measure of 'wealth' improvement associated with the project.
Branch Weight	40%
Data Source	mSCOA Function and Sub Function from National Treasury_Front end Capturing on ProBudget Prioritisation Annexure A – Scoring Technical Review: Sub 19 Income Expenditure Ratio
Input Variables	Economic indicators provided by Urban Econ SCOA sub functions
Process	The indicator calculated is derived by Total GDP per 1 ZAR spent and Direct Worker Income per 1 ZAR. The income-expenditure ratio is further derived by applying an economic rating based on GDP and worker income to each project. Below is an extract from Annexure A – Scoring Technical Review: Sub 19 Income Expenditure Ratio

Function and Subfunction	Income to expenditure ratio
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=AGED CARE	0.37
Capital and [Function]=Community and Social Services and [functionSub]=Agricultural	0.025
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=ANIMAL CARE AND DISEASES	0.37
Capital and [Function]=Community and Social Services and [functionSub]=Cemeteries Funeral Parlours and Crematoriums	0.46
Capital and [Function]=Community and Social Services and [functionSub]=Child Care Facilities	0.37
Capital and [Function]=Community and Social Services and [functionSub]=Community Halls and Facilities	0.44
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=CONSUMER PROTECTION	0.815
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=CULTURAL MATTERS	0.815
Capital and [Function]=Community and Social Services and [functionSub]=Disaster Management	0.66
Capital and [Function]=Community and Social Services and [functionSub]=Education	0.52
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=INDIGENOUS AND CUSTOMARY LAW	0.69
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=INDUSTRIAL PROMOTION	0.225
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=LANGUAGE POLICY	0.88
Capital and [Function]=Community and Social Services and [functionSub]=Libraries and Archives	0.595
Capital and [Function]=Community and Social Services and [functionSub]=Literacy Programmes	0.325
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=MEDIA SERVICES	0.695
Capital and [Function]=Community and Social Services and [functionSub]=Museums and Art Galleries	0.615
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=POPULATION DEVELOPMENT	0.755
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=PROVINCIAL CULTURAL MATTERS	0.88
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=THEATRES	0.615

Category	Description	
	Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=ZOOS	0.205
	Capital and [Function]=Energy Sources and [functionSub]=Electricity	0.97
	Capital and [Function]=Energy Sources and [functionSub]=Nonelectric Energy	0.26
	Capital and [Function]=Energy Sources and [functionSub]=Street Lighting and Signal Systems	0.575
	Capital and [Function]=Environmental Protection and [functionSub]=Biodiversity and Landscape	0.675
	Capital and [Function]=ENVIRONMENTAL PROTECTION and [functionSub]=COASTAL PROTECTION	0.205
	Capital and [Function]=ENVIRONMENTAL PROTECTION and [functionSub]=INDIGENOUS FORESTS	0.485
	Capital and [Function]=Environmental Protection and [functionSub]=Nature Conservation	0.76
	Capital and [Function]=Environmental Protection and [functionSub]=Pollution Control	0.975
	Capital and [Function]=ENVIRONMENTAL PROTECTION and [functionSub]=SOIL CONSERVATION	0.485
	Capital and [Function]=Executive and Council and [functionSub]=Mayor and Council	0.43
	Capital and [Function]=Executive and Council and [functionSub]=Municipal Manager Town Secretary and Chief Executive	0.43
	Capital and [Function]=Finance and Administration and [functionSub]=Administrative and Corporate Support	0.42
	Capital and [Function]=Finance and Administration and [functionSub]=Asset Management	0.33
	Capital and [Function]=Finance and Administration and [functionSub]=Budget and Treasury Office	0.5
	Capital and [Function]=Finance and Administration and [functionSub]=Finance	0.49
	Capital and [Function]=Finance and Administration and [functionSub]=Fleet Management	0.58
	Capital and [Function]=Finance and Administration and [functionSub]=Human Resources	0.335
	Capital and [Function]=Finance and Administration and [functionSub]=Information Technology	0.295
	Capital and [Function]=Finance and Administration and [functionSub]=Legal Services	0.345
	Capital and [Function]=Finance and Administration and [functionSub]=Marketing Customer Relations Publicity and Media Co-ordination	0.06
	Capital and [Function]=Finance and Administration and [functionSub]=Property Services	0.555
	Capital and [Function]=Finance and Administration and [functionSub]=Risk Management	0.925
	Capital and [Function]=Finance and Administration and [functionSub]=Security Services	0.73
	Capital and [Function]=FINANCE AND ADMINISTRATION and [functionSub]=SUPPLY CHAIN MANAGEMENT	0.11
	Capital and [Function]=FINANCE AND ADMINISTRATION and [functionSub]=VALUATION SERVICE	0.88
	Capital and [Function]=Health and [functionSub]=Ambulance	0.985
	Capital and [Function]=HEALTH and [functionSub]=CHEMICAL SAFETY	0.57
	Capital and [Function]=Health and [functionSub]=Food Control	0.16
	Capital and [Function]=Health and [functionSub]=Health Services	0.12
	Capital and [Function]=Health and [functionSub]=Health Surveillance and Prevention of Communicable Diseases including immunizations	0.13
	Capital and [Function]=HEALTH and [functionSub]=LABORATORY SERVICES	0.57
	Capital and [Function]=HEALTH and [functionSub]=VECTOR CONTROL	0.57
	Capital and [Function]=Housing and [functionSub]=Housing	0.38
	Capital and [Function]=Housing and [functionSub]=Informal Settlements	0.51
	Capital and [Function]=Internal Audit and [functionSub]=Governance Function	0.105
	Capital and [Function]=Other and [functionSub]=Abattoirs	0.59
	Capital and [Function]=OTHER and [functionSub]=AIR TRANSPORT	0.935
	Capital and [Function]=OTHER and [functionSub]=FORESTRY	0.485
	Capital and [Function]=Other and [functionSub]=Licensing and Regulation	0.835
	Capital and [Function]=OTHER and [functionSub]=MARKETS	0.175
	Capital and [Function]=OTHER and [functionSub]=TOURISM	0.175

Category	Description	
	Capital and [Function]=PLANNING AND DEVELOPMENT and [functionSub]=BILLBOARDS	0.225
	Capital and [Function]=Planning and Development and [functionSub]=Central City Improvement District	0.065
	Capital and [Function]=PLANNING AND DEVELOPMENT and [functionSub]=CORPORATE WIDE STRATEGIC PLANNING (IDPS LEDS)	0.755
	Capital and [Function]=Planning and Development and [functionSub]=Development Facilitation	0.07
	Capital and [Function]=Planning and Development and [functionSub]=Economic Development/Planning	0.075
	Capital and [Function]=Planning and Development and [functionSub]=Project Management Unit	0.085
	Capital and [Function]=PLANNING AND DEVELOPMENT and [functionSub]=PROVINCIAL PLANNING	0.755
	Capital and [Function]=Planning and Development and [functionSub]=Regional Planning and Development	0.08
	Capital and [Function]=Planning and Development and [functionSub]=Support to Local Municipalities	0.1
	Capital and [Function]=Planning and Development and [functionSub]=Town Planning Building Regulations and Enforcement and City Engineer	0.09
	Capital and [Function]=Public Safety and [functionSub]=Civil Defence	0.515
	Capital and [Function]=PUBLIC SAFETY and [functionSub]=CLEANSING	0.54
	Capital and [Function]=Public Safety and [functionSub]=Control of Public Nuisances	0.525
	Capital and [Function]=Public Safety and [functionSub]=Fencing and Fences	0.63
	Capital and [Function]=Public Safety and [functionSub]=Fire Fighting and Protection	0.96
	Capital and [Function]=PUBLIC SAFETY and [functionSub]=LICENSING AND CONTROL OF ANIMALS	0.245
	Capital and [Function]=ROAD TRANSPORT and [functionSub]=POLICE FORCES TRAFFIC AND STREET PARKING CONTROL	0.54
	Capital and [Function]=ROAD TRANSPORT and [functionSub]=POUNDS	0.245
	Capital and [Function]=Road Transport and [functionSub]=Public Transport	0.655
	Capital and [Function]=Road Transport and [functionSub]=Road and Traffic Regulation	0.3
	Capital and [Function]=Road Transport and [functionSub]=Roads	0.275
	Capital and [Function]=Road Transport and [functionSub]=Taxi Ranks	0.27
	Capital and [Function]=SPORT AND RECREATION and [functionSub]=BEACHES AND JETTIES	0.205
	Capital and [Function]=SPORT AND RECREATION and [functionSub]=CASINOS RACING GAMBLING WAGERING	0.35
	Capital and [Function]=Sport and Recreation and [functionSub]=Community Parks (including Nurseries)	0.585
	Capital and [Function]=Sport and Recreation and [functionSub]=Recreational Facilities	0.315
	Capital and [Function]=Sport and Recreation and [functionSub]=Sports Grounds and Stadiums	0.28
	Capital and [Function]=Waste Management and [functionSub]=Recycling	0.47
	Capital and [Function]=Waste Management and [functionSub]=Solid Waste Disposal (Landfill Sites)	0.285
	Capital and [Function]=Waste Management and [functionSub]=Solid Waste Removal	0.84
	Capital and [Function]=WASTE MANAGEMENT and [functionSub]=STREET CLEANING	0.54
	Capital and [Function]=Waste Water Management and [functionSub]=Public Toilets	0.545
	Capital and [Function]=Waste Water Management and [functionSub]=Sewerage	0.305
	Capital and [Function]=Waste Water Management and [functionSub]=Storm Water Management	0.23
	Capital and [Function]=Waste Water Management and [functionSub]=Waste Water Treatment	0.625
	Capital and [Function]=Water Management and [functionSub]=Water Distribution	0.405
	Capital and [Function]=Water Management and [functionSub]=Water Storage	0.32
	Capital and [Function]=Water Management and [functionSub]=Water Treatment	0.255

Category	Description
	Weighting Range: 100% to 81% Income to expenditure impact: 100% 80% to 61% Income to expenditure impact: 80% 60% to 41% Income to expenditure impact: 60% 40% to 21% Income to expenditure impact: 40% 20% to 11% Income to expenditure impact: 20% 10% to 1% Income to expenditure impact: 10% 0% Income to expenditure impact: 0%
Mathematical Operator	Ranked value achieved by the project is passed through to the parent scoring branch.

Table 18: Income per capita _ SP21_Income per Capita

Category	Description
Definition	The "Income per Capita" indicator measures the Rand value of income (through GDP) per member of the population. It links the changes in economic activity (on the back of 'matured' implementation of the project spending on the GDP to household income and therefore presents a measure for income distribution as well as the effectiveness of the project in achieving socio-economic gains.
Branch Weight	30%
Data Source	mSCOA Function and Sub Function from National Treasury_Front end Capturing on ProBudget Prioritisation Annexure A – Scoring Technical Review: Sub 21 Income per Capita
Input Variables	Standard Industrial Codes income per capita impact ratio provided by Urban Econ SCOA sub function
Process	The indicator calculated by applying Total worker income multiplier as derived by SIC and SCOA sub functions and worker income rating in order to rank projects by relative contribution to income per capita. Below is an extract from Annexure A – Scoring Technical Review: Sub 21 Income per Capita

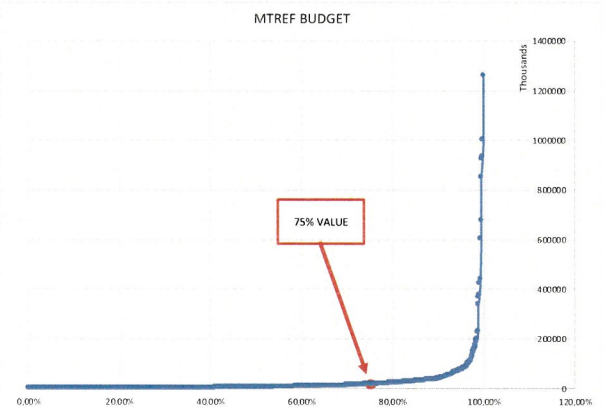
Function and Subfunction	Score
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=AGED CARE	0.265
Capital and [Function]=Community and Social Services and [functionSub]=Agricultural	0.075
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=ANIMAL CARE AND DISEASES	0.265
Capital and [Function]=Community and Social Services and [functionSub]=Cemeteries Funeral Parlours and Crematoriums	0.935
Capital and [Function]=Community and Social Services and [functionSub]=Child Care Facilities	0.265
Capital and [Function]=Community and Social Services and [functionSub]=Community Halls and Facilities	0.715
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=CONSUMER PROTECTION	0.855
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=CULTURAL MATTERS	0.395
Capital and [Function]=Community and Social Services and [functionSub]=Disaster Management	0.565
Capital and [Function]=Community and Social Services and [functionSub]=Education	0.825
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=INDIGENOUS AND CUSTOMARY LAW	0.745
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=INDUSTRIAL PROMOTION	0.425
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=LANGUAGE POLICY	0.925
Capital and [Function]=Community and Social Services and [functionSub]=Libraries and Archives	0.945
Capital and [Function]=Community and Social Services and [functionSub]=Literacy Programmes	0.225
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=MEDIA SERVICES	0.115
Capital and [Function]=Community and Social Services and [functionSub]=Museums and Art Galleries	0.475
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=POPULATION DEVELOPMENT	0.235
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=PROVINCIAL CULTURAL MATTERS	0.405
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=THEATRES	0.475
Capital and [Function]=COMMUNITY AND SOCIAL SERVICES and [functionSub]=ZOOS	0.355
Capital and [Function]=Energy Sources and [functionSub]=Electricity	0.535
Capital and [Function]=Energy Sources and [functionSub]=Nonelectric Energy	0.315
Capital and [Function]=Energy Sources and [functionSub]=Street Lighting and Signal Systems	0.525
Capital and [Function]=Environmental Protection and [functionSub]=Biodiversity and Landscape	0.595
Capital and [Function]=ENVIRONMENTAL PROTECTION and [functionSub]=COASTAL PROTECTION	0.595
Capital and [Function]=ENVIRONMENTAL PROTECTION and [functionSub]=INDIGENOUS FORESTS	0.065
Capital and [Function]=Environmental Protection and [functionSub]=Nature Conservation	0.635

Category	Description	
	Capital and [Function]=Environmental Protection and [functionSub]=Pollution Control	0.985
	Capital and [Function]=ENVIRONMENTAL PROTECTION and [functionSub]=SOIL CONSERVATION	0.065
	Capital and [Function]=Executive and Council and [functionSub]=Mayor and Council	0.925
	Capital and [Function]=Executive and Council and [functionSub]=Municipal Manager Town Secretary and Chief Executive	0.925
	Capital and [Function]=Finance and Administration and [functionSub]=Administrative and Corporate Support	0.885
	Capital and [Function]=Finance and Administration and [functionSub]=Asset Management	0.975
	Capital and [Function]=Finance and Administration and [functionSub]=Budget and Treasury Office	0.965
	Capital and [Function]=Finance and Administration and [functionSub]=Finance	0.955
	Capital and [Function]=Finance and Administration and [functionSub]=Fleet Management	0.295
	Capital and [Function]=Finance and Administration and [functionSub]=Human Resources	0.415
	Capital and [Function]=Finance and Administration and [functionSub]=Information Technology	0.185
	Capital and [Function]=Finance and Administration and [functionSub]=Legal Services	0.745
	Capital and [Function]=Finance and Administration and [functionSub]=Marketing Customer Relations Publicity and Media Co-ordination	0.115
	Capital and [Function]=Finance and Administration and [functionSub]=Property Services	0.015
	Capital and [Function]=Finance and Administration and [functionSub]=Risk Management	0.485
	Capital and [Function]=Finance and Administration and [functionSub]=Security Services	0.625
	Capital and [Function]=FINANCE AND ADMINISTRATION and [functionSub]=SUPPLY CHAIN MANAGEMENT	0.925
	Capital and [Function]=FINANCE AND ADMINISTRATION and [functionSub]=VALUATION SERVICE	0.445
	Capital and [Function]=Health and [functionSub]=Ambulance	0.515
	Capital and [Function]=HEALTH and [functionSub]=CHEMICAL SAFETY	0.505
	Capital and [Function]=Health and [functionSub]=Food Control	0.215
	Capital and [Function]=Health and [functionSub]=Health Services	0.305
	Capital and [Function]=Health and [functionSub]=Health Surveillance and Prevention of Communicable Diseases including Immunizations	0.325
	Capital and [Function]=HEALTH and [functionSub]=LABORATORY SERVICES	0.785
	Capital and [Function]=HEALTH and [functionSub]=VECTOR CONTROL	0.785
	Capital and [Function]=Housing and [functionSub]=Housing	0.205
	Capital and [Function]=Housing and [functionSub]=Informal Settlements	0.545
	Capital and [Function]=Internal Audit and [functionSub]=Governance Function	0.875
	Capital and [Function]=Other and [functionSub]=Abattoirs	0.135
	Capital and [Function]=OTHER and [functionSub]=AIR TRANSPORT	0.345
	Capital and [Function]=OTHER and [functionSub]=FORESTRY	0.065
	Capital and [Function]=Other and [functionSub]=Licensing and Regulation	0.435
	Capital and [Function]=OTHER and [functionSub]=MARKETS	0.375
	Capital and [Function]=OTHER and [functionSub]=TOURISM	0.375
	Capital and [Function]=PLANNING AND DEVELOPMENT and [functionSub]=BILLBOARDS	0.115
	Capital and [Function]=Planning and Development and [functionSub]=Central City Improvement District	0.725
	Capital and [Function]=PLANNING AND DEVELOPMENT and [functionSub]=CORPORATE WIDE STRATEGIC PLANNING (IDPS LEDS)	0.615
	Capital and [Function]=Planning and Development and [functionSub]=Development Facilitation	0.755
	Capital and [Function]=Planning and Development and [functionSub]=Economic Development/Planning	0.765
	Capital and [Function]=Planning and Development and [functionSub]=Project Management Unit	0.815
	Capital and [Function]=PLANNING AND DEVELOPMENT and [functionSub]=PROVINCIAL PLANNING	0.805
	Capital and [Function]=Planning and Development and [functionSub]=Regional Planning and Development	0.805
	Capital and [Function]=Planning and Development and [functionSub]=Support to Local Municipalities	0.855

Category	Description	
	Capital and [Function]=Planning and Development and [functionSub]=Town Planning Building Regulations and Enforcement and City Engineer	0.835
	Capital and [Function]=Public Safety and [functionSub]=Civil Defence	0.665
	Capital and [Function]=PUBLIC SAFETY and [functionSub]=CLEANSING	0.455
	Capital and [Function]=Public Safety and [functionSub]=Control of Public Nuisances	0.675
	Capital and [Function]=Public Safety and [functionSub]=Fencing and Fences	0.865
	Capital and [Function]=Public Safety and [functionSub]=Fire Fighting and Protection	0.995
	Capital and [Function]=PUBLIC SAFETY and [functionSub]=LICENSING AND CONTROL OF ANIMALS	0.655
	Capital and [Function]=ROAD TRANSPORT and [functionSub]=POLICE FORCES TRAFFIC AND STREET PARKING CONTROL	0.705
	Capital and [Function]=ROAD TRANSPORT and [functionSub]=POUNDS	0.655
	Capital and [Function]=Road Transport and [functionSub]=Public Transport	0.345
	Capital and [Function]=Road Transport and [functionSub]=Road and Traffic Regulation	0.275
	Capital and [Function]=Road Transport and [functionSub]=Roads	0.285
	Capital and [Function]=Road Transport and [functionSub]=Taxi Ranks	0.555
	Capital and [Function]=SPORT AND RECREATION and [functionSub]=BEACHES AND JETTIES	0.595
	Capital and [Function]=SPORT AND RECREATION and [functionSub]=CASINOS RACING GAMBLING WAGERING	0.385
	Capital and [Function]=Sport and Recreation and [functionSub]= Community Parks (including Nurseries)	0.035
	Capital and [Function]=Sport and Recreation and [functionSub]=Recreational Facilities	0.025
	Capital and [Function]=Sport and Recreation and [functionSub]=Sports Grounds and Stadiums	0.005
	Capital and [Function]=Waste Management and [functionSub]=Recycling	0.605
	Capital and [Function]=Waste Management and [functionSub]=Solid Waste Disposal (Landfill Sites)	0.495
	Capital and [Function]=Waste Management and [functionSub]=Solid Waste Removal	0.705
	Capital and [Function]=WASTE MANAGEMENT and [functionSub]=STREET CLEANING	0.705
	Capital and [Function]=Waste Water Management and [functionSub]=Public Toilets	0.165
	Capital and [Function]=Waste Water Management and [functionSub]=Sewerage	0.145
	Capital and [Function]=Waste Water Management and [functionSub]=Storm Water Management	0.085
	Capital and [Function]=Waste Water Management and [functionSub]=Waste Water Treatment	0.195
	Capital and [Function]=Water Management and [functionSub]=Water Distribution	0.175
	Capital and [Function]=Water Management and [functionSub]=Water Storage	0.155
	Capital and [Function]=Water Management and [functionSub]=Water Treatment	0.125
	Weighting Range: 100% to 81% Income per Capita impact: 100% 80% to 61% Income per Capita impact: 80% 60% to 41% Income per Capita impact: 60% 40% to 21% Income per Capita impact: 40% 20% to 11% Income per Capita impact: 20% 10% to 1% Income per Capita impact: 10% 0% Income per Capita impact: 0%	
Mathematical Operator	Ranked value achieved by the project is passed through to the parent scoring branch.	

5.3.2 Financial Alignment

Table 19: Austerity: Affordability _ SP24_Austerity - Affordability

Category	Description
Definition	With "Affordability", all the project budget demands summed over the MTREF period is plotted from smallest to largest. The 75th percentile value is calculated across this range of values. This value is used as an approximation of what may be considered as the turning point in the budget range beyond which project can be considered to become increasingly expensive. The term "expensive" is used with great circumspection and should not be used beyond the context of this model. It simply is an indicator representative of the specific range of budget values that were requested over the MTREF for this specific budget cycle. Projects that are "cheaper" than the 75th percentile does not have a great variance in requested budgets and can all be drawn in a relatively flat curve on a graph as shown on the graph below. Projects that are more expensive than the 75th percentile, increases in budget exponentially and rapidly has the "crowding out" effect. "Crowding out" means that a single "expensive" project budget may "crowd out" numerous smaller project budgets. In terms of service delivery, having more projects visibly being implemented often has a greater impact than one "mega project". There are of course many exceptions to this assumption. This criterion simply penalises – from a purely financial budgeting perspective – projects that are excessively expensive. It must be kept in mind that this is simply one criteria out of many in the model and does not have an overriding effect. Contextually though, when looking at the financial planning aspects of a municipality purely, without consideration of anything else, the "expensiveness" of a project is a fundamental consideration. 
Branch Weight	50%
Data Source	Adjustment plus MTREF Value in ProBudget_Front End capturing per Project? Note: Annexure A needs to be revised in correct application of this criteria.
Input Variables	A query is drawn to sum the value of all projects estimated cost and then projects are evaluated against each other using the percentile function.

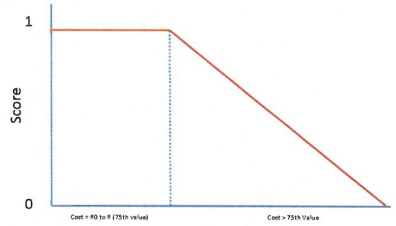
Category	Description
	1. "= PercentileRank (Sum(Estimated Cost) , Estimated CostProject) 2. "= IF (PercentileRank > 75% , TRUE=0%, FALSE = (PercentileRank -75%) / (75% *-1) The input values for this criterion is the total capital budget requested over the MTREF, the 75th percentile of all capital budget requests over the MTREF and the maximum capital budget request over the MTREF.
Process	 $$y = \left(\frac{1}{75th - Maximum}\right)x - \left(\frac{1}{75th - Maximum}\right)Maximum$$ Score = 100 if calculated value <= 75th percentile of MTREF The score decays from 100 to zero using linear regression for any MTREF budget that is more expensive than the 75th percentile MTREF budget (over the entire range of budgets for all projects).
Mathematical Operator	Calculated value achieved by the project is passed through to the parent scoring branch.

Table 20: Austerity: Co-funding _ SP25_Austerity - Co-funding

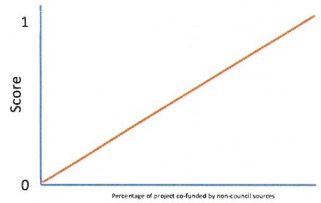
Category	Description
Definition	The "Co-Funding" criterion appraises how much of the requested capital is funded by sources other than the council's own funds. The more co-funding by other sources, the more the project will score under this criterion. The logic behind this is two-fold. Firstly, the more external funding is used, the lesser is the burden on council's own ability to fund the project. Secondly, some of the co-funding sources within a municipal environment is conditional and there are often time-limitations or conditions to these external sources. Therefore, if the funding is not utilised, the opportunity or availability of the funding expires or lapses. Form a budgeting and planning perspective, a project that may be slightly lower down the ranks of priorities, but that has other sources of funding, may be prioritised more in order to gain the benefit from its implementation and the availability of funding to do so.
Branch Weight	50%
Data Source	Note: Automated source on the co-funding from Finance either on ProBudget or through SOLAR needs to be identified. Historically the co-funding has been brought in manually just before budget tabling. Retention of this criteria is dependent on the likelihood of firstly accessing the funding source timeously to inform decision making and automating pull of this information in ERP. The criteria may also be better placed as a fit methodology consideration and not a standalone criteria in the CPM.
Input Variables	The input values for this criterion is the total capital budget requested over the MTREF and the percentage of co-funding over the MTREF.
Process	 $Y = \frac{External\ Source\ of\ Funds}{Project\ Cost} X\ 100$ A maximum score of 100 is achieved under this criterion of the project is 100% co-funded by other sources. The more co-funding, the better the score here.
Mathematical Operator	Calculated value achieved by the project is passed through to the parent scoring branch.

Table 21: Credibility: Budget Estimate Credibility _ SP27_Credibility - Budget estimate

Category	Description
Definition	The "Credibility" of the budget that is being asked for, is measured in by testing the credibility or accuracy of the cost estimate as well as the estimated lifespan of the asset for which funding is requested. The scale provided for the evaluation of budget estimate accuracy, is the scale provided by National Treasury in terms of their CIDMS guidelines. Better accuracy is awarded as well as a longer estimated lifespan of the asset under evaluation.
Branch Weight	25%
Data Source	National Treasury CIDMS Guidelines For addition to the Front end capturing on ProBudget Prioritisation Annexure A – Scoring Technical Review: Sub 27 Credibility - Budget est (For update)
Input Variables	The input variables are taken from the predetermined drop-down list representing the National Treasury prescribed ranges as contained in their CIDMS guidelines. ✓ a. Class 1 (-3% to 3%) b. Class 2 (-5% to 5%) c. Class 3 (-10% to 10%) d. Class 4 (-15% to 20%) e. Class 5 (-20% to 30%) f. Quotation / Tender
Process	The scoring mechanism takes the form of a stepping function with each option carrying a representative score. **Select one of the below Lifespans from Dropdown list (Input)** / **Output** Class 1 (-3% to 3%) / 100% Class 2 (-5% to 5%) / 90% Class 3 (-10% to 10%) / 80% Class 4 (-15% to 20%) / 65% Class 5 (-20% to 30%) / 50% Quotation / Tender / 100%
Mathematical Operator	Ranked value achieved by the project is passed through to the parent scoring branch.

Table 22: Increase in Rates Base _ SP28_Increase in rates base

Category	Description
Definition	The "Increase in rates base" evaluates whether a project's implementation will contribute towards rates and taxes directly or not. From a purely financial perspective, if a project's implementation will directly lead to increased rates and taxes that would be collected by the municipality, this will be beneficial. In order to determine whether a project will contribute to rates and taxes, it has to be ascertained whether the project represents a service (e.g. the provision of electricity) that can be levied from the end-user. Here, the benefit of the data that can be harvested from the MSCOA classification process is evident. The MSCOA classification assists to determine whether the funding applied for is for new infrastructure or for the upgrading of existing infrastructure in order to improve capacities.
Branch Weight	25%
Data Source	ProBudget Prioritisation front end capturing Classification_MSCOA Project Type and MSOCAL_Function Note: (present mSCOA allocations do not always align with SOLAR. This update needs to ensure that the mSCOA allocations are derived from one data set). Therefore, the data source needs to be verified.
Input Variables	A test is performed to ascertain whether the project is from one of the following departments: • Energy 100% • Water and Sanitation 100% • Refuse Removal 100%
Process	If a project is requesting capital and it emanates from one of the departments that provides infrastructure that directly leads towards an increase in the rates and taxes that can be collected, the project will score fully under this criterion. Capital Projects that do not contribute directly to an increase in the rates base should not be penalised by means of not applying this weighting criterion on these projects.
Mathematical Operator	Scored value achieved by the project is passed through to the parent scoring branch.

Table 23: Lifespan of Asset _ SP29_Lifespan of asset

Category	Description
Definition	A fundamental element of responsible financial planning is to consider the lifespan of the asset that will be procured should the specific capital request be approved. The longevity of the asset is something that gets considered in the process of calculating more sophisticated financial indicators such as the return on investment, the net present value, and so on. The diversity of capital requests within a public-sector environment is however of such a nature that the required data to perform such calculations is not readily available for the majority of projects. More rudimentary proxy criteria therefore had to be sought that would provide similar assurances from a financial perspective. Project owners are required to provide an estimate of the lifespan of the asset for which capital is requested.
Branch Weight	25%
Data Source	ProBudget Prioritisation front end capturing_Fundamentals_Life Span of Assets Annexure A – Scoring Technical Review: Sub 29 Life Span of Asset (revise scoring to reflect correctly in the annexure)
Input Variables	The input variables are taken directly from the value chosen by the project owner from the following list:
Process	The scoring mechanism takes the form of a stepping function with each option carrying a representative score.
Mathematical Operator	Ranked value achieved by the project is passed through to the parent scoring branch.

FUNDAMENTALS > Lifespan of Asset	
Select one of the below Lifespans from Dropdown list (Input)	**Output**
0 -2 Years	40%
3 - 10 Years	60%
11 - 20 Years	80%
> 20 Years	100%
Not Applicable	0%

5.4 Environmental Alignment

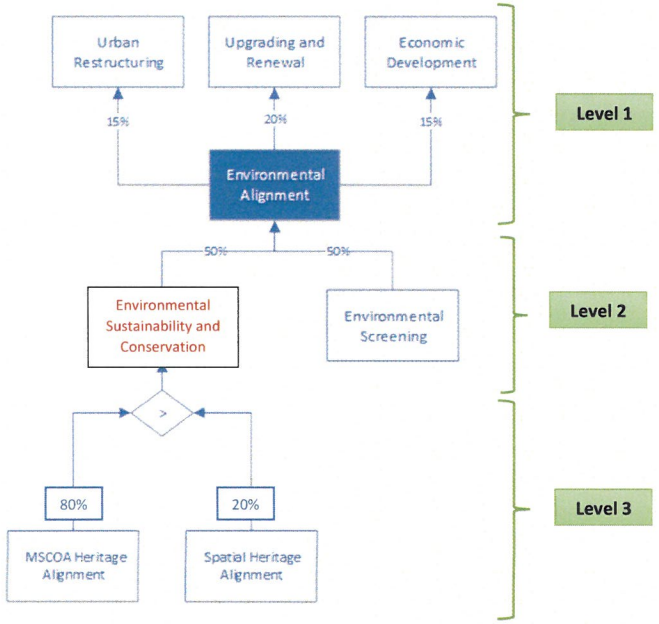
The environmental Alignment branch of the model is split into two distinct areas measuring the project impacts or focus on heritage conservation and the project impact of focus on environmental conservation respectively. These two sub-branches contribute equally towards the score that is achieved in terms of environmental alignment as shown in Figure 6. The environmental alignment score is calculated within two distinct categories, namely:

- Environmental Sustainability and Conservation (Level 2 weighting)
- Environmental Screening (Level 2 weighting)

Level 2 weightings on the CPM weighting matrix are deemed adjustable from time to time by ICT and City Planning approved ProBudget Project Super users to the Capital Prioritisation Model Grid Interface. Level 2 adjustments would be exempt from sign off of the FRS addendum on Project Prioritisation

Record of Changes on all level 1 and 2 weightings must be retained by the ProBudget Projects CPM Weighting Matrix with a date stamp and previous record of results.

Figure 6: CPM: Environmental Alignment



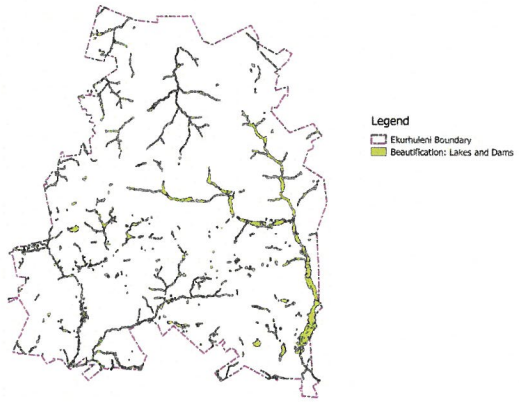
5.4.1 Focus on Heritage Conservation

Table 24: MSCOA Environmental Sustainability Alignment _ SP30_MSCOA Heritage alignment

Category	Description
Definition	Targeted MSCOA functions relating to heritage conservation and theatres score projects on their ability to build and preserve the cultural heritage assets of the municipality. Specific municipal sub-functions according to the MSCOA 6.1 chart are deemed to contribute to heritage asset conversation and the MSCOA functional classification segment provides a mechanism to identify and ring-fence these types of projects.
Branch Weight	100% (80% of Total score)
Data Source	Annexure A – Scoring Technical Review: Sub 30 MSCOA Heritage alignment ProBudget Prioritisation front end capturing_MSCOA sub function (SCOA data source must be verified with SOLAR ERP)
Input Variables	MSCOA Functional Segment is tested per project at the municipal sub-function level. MSCOA scope builder is populated by the official using the scope builder dropdown menus.
Process	The following MSCOA sub-functions receive elevated score as these functions and sub-functions are deemed to address heritage conservation: • Museums and Art Galleries • Theatres • Tourism • Provincial Cultural Matters • Waste Management • Stormwater Management • Community Parks • Public Transport • Water Distribution • Biodiversity and Landscape • Recycling • Environmental Protection Alignment – 100% No Alignment – 0%
Mathematical Operator	Maximum value achieved by the project is passed through to the parent scoring branch. Links to table 28 on Spatial Heritage – a project must fall within one of the listed mSCOA sub-functions in table 27 in order for the project to read score on table 28.

Table 25: Spatial Sustainability and Conservation Alignment _ SP31_Spacial Heritage alignment

Category	Description
Definition	The beautification of lakes and dams has been defined as part of the municipal Spatial Development Framework (SDF) in order to focus capital investment in spatially targeted areas towards conservation and preservation of the environmental heritage of the municipality. Projects are scored based on their spatial intersect with these spatially targeted areas.
Branch Weight	100% (20% of Total score)
Data Source	Annexure D Table 31_Heritage Alignment Annexure A – Scoring Technical Review: Sub 31_Spatial Heritage Alignment Shapefile: sse_water_courses_&_dams ProBudget Prioritisation_GIS Front end capturing _ Projects Affected Area Shapefile Polygon (First) Where an affected area is not available the projects works area must be utilised: allprojectsworkslocationslinestring allprojectsworkslocationsmultilinestring allprojectsworkslocationsmultipoint allprojectsworkslocationsmultipolygon allprojectsworkslocationspoint allprojectsworkslocationspolygon Detail on Data Source and location: Annexure "A"
Input Variables	If MSCOA Function is equal to Community and Social Services or COE Programme selected is Beautification of Lakes and Dams then Project works area is used as the input to test the alignment of each project based on the intersect with the SDF beautification of lakes and dams shapefile provided by the municipality. A score is returned based on the spatial intersect between project works area and SDF beautification of lakes and dams shapefile.
Process	The lakes and dams shapefile has been buffered with 100m buffer in order to increase the surface area of the SDF beautification of lakes and dams shapefile to improve spatial intersect potential with project works areas. ***Only projects that meet the assigned MSCOA Function and Sub-functions identified in Table 27 can obtain score in table 28.***

Category	Description
	Spatial Heritage Alignment (Table 31)  Alignment – 100% No Alignment – 0%
Mathematical Operator	**Maximum value achieved between table 27 and 28 by the project is passed through to the parent scoring branch.**

5.4.2 Focus on Environmental Conservation

Table 26: Environmental Portfolio Alignment _ SP33_Enviromental Portfolio Alignment

Category	Description

Definition	**The Environmental Resource and waste Management Department categorised all projects into environmental portfolios. These portfolios are:**
	Environmental Sustainability:
	• Carbon Emissions
	• River Health
	• Open Space Function
	• Water Network Capacity
	• Sanitation Network Capacity
	• Electricity Network Capacity
	Climate Change Resilience:
	• Climate Adaptation: 2030 Targets
	  • Clean Energy
	  • Smart Sustainable Communities
	  • Natural Resource Management
	  • Waste Reduction
	  • Greenhouse Gas Emissions
	• Climate Hazards
	  • Fires
	  • Floods
	  • Strong Winds
	Each of these portfolios is subdivided into a "Negative", "Neutral" and "Positive" sub-portfolio. A project belonging to the "Positive" set of portfolios is deemed to beneficial or to contribute to the theme, a project belonging to the "Negative" set of portfolios is deemed to be detrimental to the theme and a project belonging to "Neutral" portfolio is deemed to have little to no influence to the theme..
	Only the Environmental Resource Management has the ability to allocate projects to these portfolios.

Branch Weight	50%
Data Source	**Environmental Resources and Waste Management annual screening (ERWM screening of the environmental portfolios must be done on the system. Source should be Environmental Screening Dashboard on ProBudget Prioritisation.**
Input Variables	**Portfolio classification by the Environmental Resource Management** • Carbon Emissions (Negative 0%/Neutral 50%/Positive 100%) • River Health (Negative 0%/Neutral 50%/Positive 100%)

Category	Description
	• Open Space Function (Negative 0%/Neutral 50%/Positive 100%) • Water Network Capacity (Negative 0%/Neutral 50%/Positive 100%) • Sanitation Network Capacity (Negative 0%/Neutral 50%/Positive 100%) • Electricity Network Capacity (Negative 0%/Neutral 50%/Positive 100%) • Climate Adaptation (Negative 0%/Neutral 50%/Positive 100%) • Climate Risks/Hazards (Negative 0%/Neutral 50%/Positive 100%) Request for EIA and WULA compliance if not selected under Readiness criteria must render 0%
Process	**Projects belonging to any of the "Negative" set of portfolios has an overriding effect on this branch rendering that particular project's score to zero, under this environmental sub-branch of the model, whilst a "Neutral score will render a score of 50 and if a project positively contributes, it will score 100% under this sub-branch of the model.**
Mathematical Operator	**Score is returned based on the alignment with a "Positive", "Negative" and "Neutral" sub-set of environmental portfolios.**

ANNEXURE B2.9: CATALYTIC LAND DEVELOPMENT AREAS PROGRAMME

CAPITAL EXPENDITURE FRAMEWORK:

CATALYTIC LAND DEVELOPMENT PROGRAMMES

Prepared by the

CITY OF EKURHULENI METROPOLITAN MUNICIPALITY

REAL ESTATE AND DEVELOPMENT PLANNING DEPARTMENT

a partnership that works

City of Ekurhuleni

Table of Contents

1. Capital Expenditure Framework: Catalytic Land Development Programmes... 4

1.1. CLDP Proposed Institutional Structure 8

1.2. Catalytic Land Development Programmes qualifying criteria..... 9

1.3. Catalytic Land Development Pogrammes 11

List of Figures

Figure 1: Built Environment Value Chain..... 5
Figure 2: Catalytic Land Development Programme Phases..... 7
Figure 3: CLDP Proposed Management Structures..... 9
Figure 4: Development Programme Pipeline Qualifying Criteria..... 10

List of Acronyms

ACRONYMS	DESCRIPTION
BEPP	Built Environment Performance Plan
CEF	Capital Expenditure Framework
CoE	City of Ekurhuleni
CLDP	Catalytic Land Development Programme
CoGTA	Co-operative Governance and Traditional Affairs
CPM	Capital Prioritisation Model
DDM	District Development Model
GPA	Geographic Priority Area
GDS	Growth and Development Strategy
GMS	Growth Management Strategy
IDP	Integrated Development Plan
IUDF	Integrated Urban Development Framework
MFMA	Municipal Finance Management Act
MSDF	Metropolitan Spatial Development Framework
MTREF	Medium Term Revenue and Expenditure Framework
SMT	Strategic Management Team
SPLUMA	Spatial Planning and Land Use Management Act

1. Capital Expenditure Framework: Catalytic Land Development Programmes

One of the key tools of the CEF and a factor to the successful implementation of the CEF is the identification and management of the Development Programmes (Priority project Pipeline) as a legislative requirement in terms section 21(n) of SPLUMA, in support of infrastructure delivery based on spatial targeting. It is proposed that the CEF Development Programmes (Priority Project Pipeline) tie into an existing and complimentary process such as the Catalytic Land Development Programme initiative by National Treasury as an essential outcome to the former Built Environment Performance Plans (BEPP) that were undertaken by Metropolitan Municipalities. The relationship between the CLDPs and the CEF are deemed to be interdependent in boasting a shared goal to achieve spatially targeted and co-ordinated investment for the municipality as outcome to the BEPP Built Environment Value Chain as demonstrated in **figure 1**. Based on this cohesion the CLDPs are proposed to take on the function of the Development Programmes in the CEF.

According to the National Treasury CLD guidelines the CLDPs should be informed by the urban network strategy of the MSDF spatial structuring elements as a guide for spatially targeted investment and promote projects that also seek to achieve maximum consolidated investment potential with minimal cost and efficient use of available resources.

The National Treasury guidelines expand on the definition of the CLDP in that it should also be understood as "a complex interdisciplinary, multi-stakeholder process that takes place within a myriad of laws and regulations in the context of shifting economies, property market demand and considerable social obligation and expectation, and limited resources[1]".

The CLDPs can therefore be understood as the "preparation of a collection of intergovernmental projects to achieve Catalytic Land Developments based on a holistic view"[1] with a focus on agglomerated spatial investment over the medium to long term in order to achieve impactful change on the built environment and realise clear social, economic and financial value benefits for the municipality. CLDP preparation requires "Careful consideration of inter-dependencies, timing, resourcing and risks necessitates managing this process as a programme. It also requires thoughtful and disciplined preparation and the management of corporate decision-making processes to ensure benefit realisation that is aligned with the original intended outcomes"[1]. The CEF Spatial Priorities and the CPM[2] should be utilized to

[1] National Treasury – City Support Programme: Catalytic Land Development Guidelines, August 2018
[2] Capital Expenditure Framework: Capital Prioritisation Model – Annexure B7.2 of the MSDF 2025

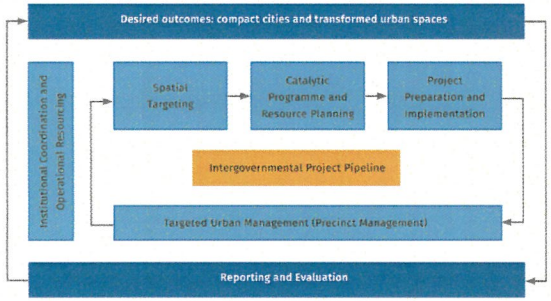
better guide, incorporate and support the identification, implementation and review of the CLDPs as part of the capital budget prioritisation process.

CLDPs are specifically defined as programmes that:

- "Enable integration, that is, mixed and intensified land uses;
- nature and scope of the projects are likely to have significant impact on spatial form and unlock economic activity;
- Involve major infrastructure investment;
- Require a blend of finance;
- Require specific skills across several professions and have multiple stakeholders"[1]. (National Treasury, 2017)

Figure 1 demonstrates the institutional placement of the CLDPs in relation to spatial targeting as part of the built environment value chain.

Figure 1: Built Environment Value Chain



Source: National Treasury, 2017

The National Treasury CLD guidelines also make a link between the CLDPs and the Integrated Urban Development Framework (IUDF) in that the CLD Programmes can be utilised as a tool in supporting the levers of the IUDF. The CoGTA IUDF Unit identifies an opportunity with the CEF to support the IUDF through the conceptualisation of projects that will meet the objectives of the IUDF to achieve spatial and social integration that crosscuts planning through the spheres of government[3].

[3] https://www.sacities.net/publication/the-integrated-urban-development-framework-iudf/

The National Treasury CLD Guidelines propose 5 key factors for the successful value creation and realisation of the CDLPs by guiding municipalities to:

- "Be clear on what kind of social, economic, and financial value they are seeking to create.
- Be rigorous in how they identify CLD opportunities that match the value sought with market demand.
- Be robust in their understanding of what drives property development in their municipality market demand (need and preference), private sector returns.
- Be deliberate in their approach to the preparation of a land development programme that builds value.
- Work in partnership with the private sector"[1].

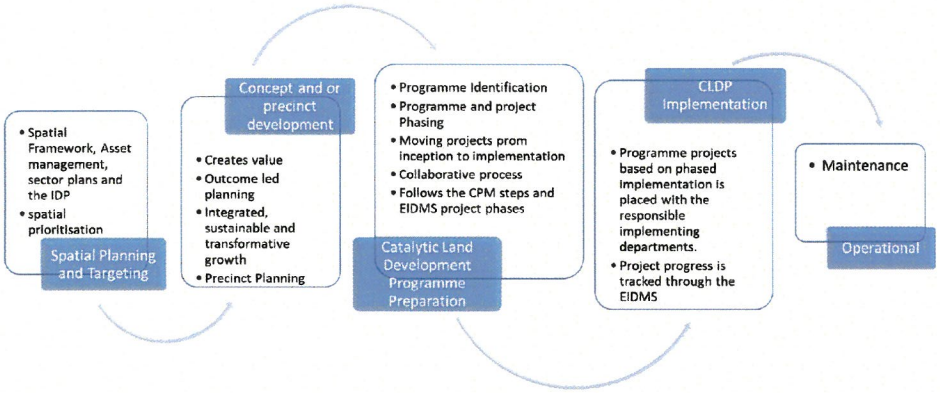
The underpinning Principles of the CLDP are summarised as follows:

1. Value creation, capture and building: - CLDPs to have well defined objectives and based on an outcome led planning approach in achieving social, economic and financial value.
2. Need and objective of the CLDP should be informed by the "MSDF, Strategy, Asset Management and the IDP".
3. Spatial prioritisation to provide as the primary input in the identification of CLDPs.
4. Multi-stakeholder engagement: - The CLDP life cycle requires cohesion and collaboration from multiple interested and affected stakeholders.
5. Requires committed budget over the life cycle of the CLD projects.
6. CLDPs to be subject to informed and rational prioritisation.
7. CLDPs to be institutionalized through alignment with standing City Wide budget, IDP, spatial planning and project management processes.
8. Multiple interdependent complementary projects with multiple implementing departments can form part of a single CLD programme. i.e. utilities (bulk infrastructure), housing, land accusation and disposal, social infrastructure, and Placemaking (landscaping, streetscape, pedestrian walkways/access, public art, and public furniture etc.).
9. Projects can be implemented by the municipality, Provincial Government, National Government and or the private sector.

The **below Figure 2** provides a diagrammatic demonstration of the CLDP phases. The phases were informed by the National Treasury CLD guidelines and modified for the CoE. The five phases of the CLDPs are outlined as follows:

1. Spatial Planning and Targeting
2. Concept and Precinct Development
3. CLDP Preparation – to follow the EIDMS
4. CLDP Implementation
5. Maintenance

Figure 2: Catalytic Land Development Programme Phases



The CLDPs for the CoE are identified based on criteria outlined in the National Treasury Catalytic Land Development guidelines. The CoE CLDP selection put emphasis on revenue generating projects criteria as strategy to induce revenue for future projects. The selected CLD projects should ideally receive financial support and form part of the CoE budget process as SPLUMA recommends. The supporting financial instrument must be available throughout the implementation plan of the projects for success and tangible impact of these projects to come to fruition. Furthermore, CLDPs must be endorsed at a high level institutionally and prioritised during budget fit or budget allocation process throughout the implementation lifecycle. It is therefore critical that the CLDPs form part of the CEF process and inform the project pipeline that should be closely monitored through a formal structure/committee as an integral component to the budget process.

1.1 CLDP Proposed Institutional Structure

A CLDP is a multifaceted procedure that requires a sound, efficient, collaborative, and robust supporting institutional framework to realise the CLDPs. To this end the CLDPs institutionally should be supported from inception through to implementation and maintenance. The strength of the supporting institutional framework for the CLDPs is reliant on the placement of knowledgeable, relevant, and dedicated professionals within the municipality to serve on identified CLDP committees at both the portfolio and programme level over the long term. Proposed portfolio and programme committees would require both executive and political buy-in and to function around clearly defined roles and objectives that are seamlessly co-ordinated with existing municipal processes at financial, strategic and project management level.

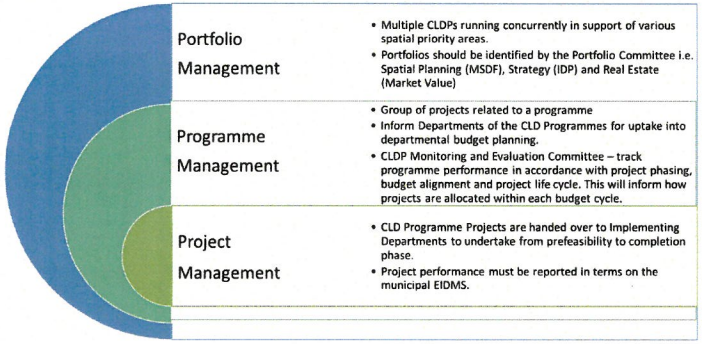
Portfolio Management: "Municipality may be driving several CLDPs in parallel with one another across several priority precincts. These CLDPs are likely to be competing for the same resources in their preparation phases. The portfolio manager should seek to understand property markets and the impact of a CLD (or its phasing), the CLD portfolio and other land development projects on the markets of entire municipalities to prevent the municipality distorting the market"[1]. A CLDP portfolio contains all the CLDPs identified by the municipality in its corporate integrated development and spatial planning. Portfolio Management should be most active during phases 1 and 2 of the CLDP phases with the support of key role players that should include Real Estate and Development Planning and Strategy and Corporate Planning.

Programme Management: "Programme can be a group of projects related to a single precinct development initiative, which entails a variety of multi-disciplinary projects, or a group of projects that are related to a specific discipline or sector e.g. all water related infrastructure projects"[1], nodes, corridors or precincts. The Enterprise Project Management Office (EPMO) should undertake a key role under programme management for the CLDPs together with the key role players identified under Portfolio Management of the CLDP and other interested and affected parties. Programme Management objectives:

- Play a significant role in the prioritisation and phasing CLDP projects per programme and portfolio.
- Hand over CLDP projects for take up for budgeting and implementation by responsible sector departments.
- Monitor and evaluate project progress.
- Review of the CLDP list of priority programmes.

Project Management: CLDP Projects are taken up for implementation by responsible departments following approval of the multi-year capital budget inclusive of the phased CLDPs.

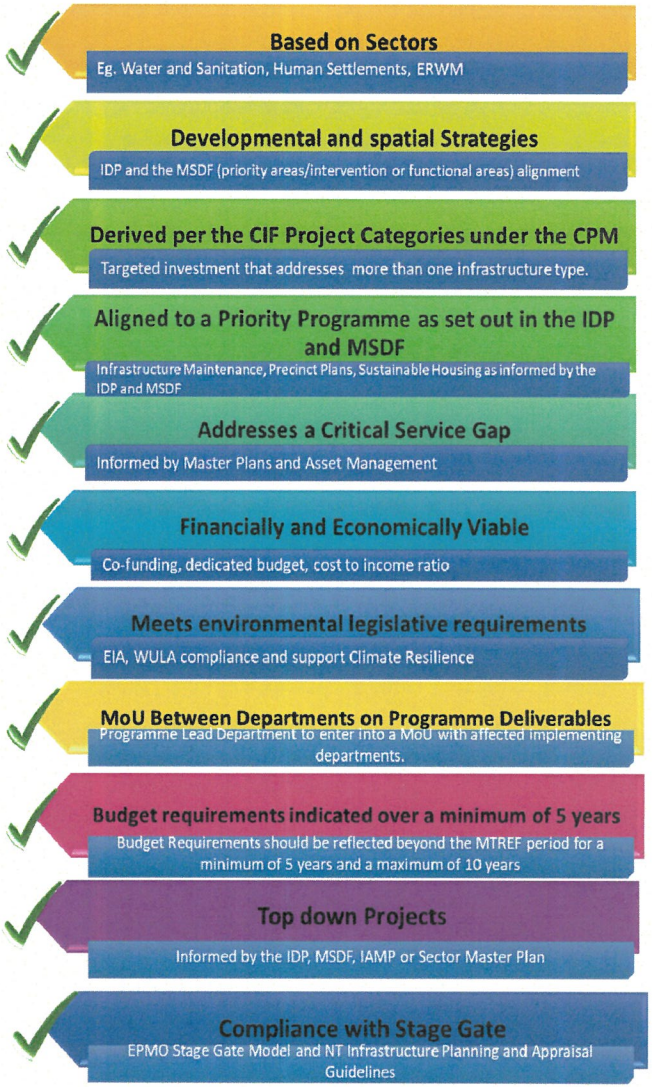
Figure 3: CLDP Proposed Management Structures



1.2 Catalytic Land Development Programme Pipeline - Qualifying Criteria

Figure 4 guides the identification of CLD programmes to form part of the CEF. Primary guiding factors include alignment to developmental and spatial strategy informed by the IDP and MSDF, critical service gaps, and sector master plans. CLD Programmes that promote Economic growth and supports the spatial priorities of the MSDF as underpinned by the CEF with due consideration to environmental, social, and policy factors in achieving sound and sustainable infrastructure delivery are deemed priority projects. The CLDP Portfolio Committee allocated to the CLDPs should collectively apply the proposed criteria in the identification and review of the CLDPs.

Figure 4: Development Programme Pipeline Qualifying Criteria



ANNEXURE B3: TRANSPORTATION

B3.1: Class 3 Road Access Management Guidelines
B3.2: Transit Oriented Development Guidelines
B3.3: Typical Activity Spine/Street Cross Section

ANNEXURE B3: TRANSPORTATION

B3.1 CLASS 3 ROAD ACCESS MANAGEMENT GUIDELINES

1.1 Legal and Policy Background

- Section 6(1)(c) of the Spatial Planning and Land Use Management Act (Act 16 of 2013) (SPLUMA) states that general development principles guide the sustainable use of land. Furthermore, Section 42(1)(iv) and (v) state respectively that the rights and obligations of all affected must be considered as well as the state and impact of engineering services.
- The principles outlined in the Committee of Transport Officials (COTO) guidelines with regards to access management aim at protecting the mobility function of certain roads while ensuring safe access to properties.
- It must be emphasised that access management, which addresses the tension between safe access to properties while maintaining the mobility function of the road, does not only consider the safety of the general road user, but also the safety of the site tenant and patrons.
- The TRH26 document developed by COTO states as follow:
    - Section 1.1: “Road authorities in South Africa have an obligation to plan, design, construct and maintain the road network, to protect the public investment in the road infrastructure, to ensure the continued functionality of the transportation system and to promote the safety of traffic on the road network. Authorities also have the obligation to provide a reliable, effective, efficient and integrated transport system that supports the sustainable economic and social development of the country”.
    - Section 2.1: “A safe and efficient road network is an essential enabler of sustainable development in both urban and rural areas in the country. Economic growth and development require the support of an effective and efficient public, private and freight transport system enabled by the road network. Road Classification and Access Management is the key component in providing a safe and pleasant living and working environment for South Africa’s citizens, whilst at the same time meeting the movement needs of the broader economy”.
    - Paragraph 2.8: “Access management provides the means to ensure that the designated roads are able to serve land uses in an appropriate and efficient manner. Land use and transport integration thus means that the hierarchy and protection of the different road Classes appropriate to their function is an integral part of enabling efficient and sustainable land use”.

1.2 CoE Approach to Development along Class 3 Roads

- As a point of departure, Class 3 roads in the City of Ekurhuleni are mobility routes, and in principle, no direct access is given to land uses from a Class 3 road. Hence, access management principles are applicable to all Class 3 roads in the CoE.
- Where new township layouts are considered, the layouts must make provision for the required Class 3 roads, and it must ensure that all erven gain access from alternative roads.
- In existing developed areas certain retrofitting access management techniques can, however, be applied to allow access to existing properties along existing Class 3 roads (as part of a Road Access Management Plan compiled for that specific road or section of the road). These retrofitting techniques are listed below.

Retrofitting Access Management Techniques: Class 3 Roads

i) Access relocation or closure: This refers to closing and moving an existing access from a Class 3 road to an alternative road usually with a servitude over an adjacent property.

ii) Intersection and access control: Access to large erven can be allowed along Class 3 roads where the access and road intersection spacing allows for this and where appropriate access controls can be implemented. These access controls include traffic circles, traffic lights or all-way stops to name a few.

iii) Provision of a median: With the inclusion of a median along a Class 3 road, accesses are forced to become marginal accesses (left-in / left-out), eliminating the conflicting movements and providing safer access for low-order use. For the purpose of this document, low-order uses refer to uses with an additional trip generation in the region of ten peak hour trips or less.

iv) Implementation of one-way systems: The implementation of one-way systems achieves a similar goal to the provision of a median. The right-turn movements are eliminated, and mobility function of the roads is less compromised.

v) Installing a supporting road network: A supporting road network could either be a mid-block road provided between properties, from which erven on either side can gain access, or a service road adjacent to the Class 3 road but separated by means of a median or similar barrier. This will result in the vehicles wishing to gain access to properties to be removed from the mainstream of traffic, ensuring mobility is maintained along the Class 3 road, while providing safe access to properties. The former is appropriate for higher trip-generating rights whereas the latter is only suitable for low-order uses.

- It must be noted that land use type and intensity do not pose the major problems related to mobility spines or compromise the mobility on such spines, but rather the lack of access control and the frequency of access points along such routes. However, it should also be acknowledged that, if high intensity land-uses are permitted along such routes, without implementation of the necessary access management measures, such high intensity land uses are likely to impact severely on the mobility and traffic safety along these routes.
- Therefore, where the municipality receives proposals for land-use conversions along such routes (where appropriate access management measures (in terms of a dedicated Road Access Management Plan) have not yet been implemented), it is suggested that:
- Such land-use conversions be discouraged and the applicant/developer be encouraged to rather consider an existing node along the subject route for the proposed development (or other appropriate area earmarked for such development); or
- In an event where a trend of land-use conversion has already been established along the particular part of such route, it is suggested that (until such time as appropriate access management measures have been implemented):
  - only land uses considered to be low traffic generators, be considered;
  - the magnitude (in floor area) of such development be restricted to a minimal (as may be determined by the municipality);
  - the applicant/developer be requested to make proposals for both interim and long-term access management arrangements (in liaison with the Ekurhuleni Roads and Transport Management Department); and

- provision be made (where possible, as part of the land-use rights) for possible future access management measures to be implemented (e.g. road widening servitude, service road, future sharing of access with abutting properties, possible future internal mid-block access road that may be shared across abutting properties, left-in-left-out access, monetary service contribution towards implementation of future access management measures, etc.).

❖ It should further be noted that assessment of such development proposals will, despite the above guidelines, still be subject to assessment and authorisation by the relevant transport authority, in terms of any applicable legislation, such as the Gauteng Transportation Infrastructure Act of 2001.

1.3 Existing Road Access Management Plans

❖ There are a number or routes within the City of Ekurhuleni where road access management plans (RAMPs) have been designed and are being enforced (see table below).

City / Area	Specific Road (where applicable)
Bedfordview	Van Der Linde Road
Bedfordview	Riley Road
Bedfordview	Van Buuren Road / K92
Boksburg	North Rand Road / K94
Boksburg	Trichardts Road
Benoni	Pretoria Road
Benoni	Mercury Road
Bredell AH	Various
Pomona AH	Various
Kempton Park	Monument Road
Kempton Park	R.T.J Namane Drive
Kempton Park	Andrew Mapheto Drive
Edenvale	Linksfield Road / K68
Edenvale	Boeing Road

Please note that the list of roads above must not be seen as a conclusive list of the Class 3 roads for which RAMPs had been compiled throughout the City of Ekurhuleni.

❖ It must be noted that these access management plans are not cast in stone and are subject to minor amendments depending on the development proposals as submitted.

❖ In addition, some of these access management plans were developed as a result of existing or planned provincial roads and are, therefore, less flexible.

❖ The same principles outlined in the RAMPs listed above are implemented in areas where development pressures have not been experienced in the past and where formal RAMPs have not been developed.

❖ In the evaluation of applications along a Class 3 route, different access solutions could be available for the same type of land uses in different areas.

❖ The enforcing of the above-mentioned retrofitting techniques could appear contradictory where an application is supported along one Class 3 road, but the same rights not supported along another Class 3 road. This could be due to the lack of available road reserve, extremely high existing traffic volumes or lack of available infrastructure, amongst others. The principles considered remain the same, but the solutions will not always necessarily be the same.

❖ Where suitable retrofitting techniques are not possible, a change in land use cannot be supported. The rights and safety of ALL road users must be emphasised, and not the implied right of a landowner choosing to amend the zoning of their property.

❖ The following roads are not suited to either the provision of a median, installing an adjacent service road as a supporting road network or the implementation of a one-way system.

City / Area	Specific Road (where applicable)	Reason
Edenvale	Terrace Road	Current undivided 4-lane road requiring huge capital investment to construct a safe divided 4-lane road.
Edenvale	Laurie Road	Partially insufficient road reserve.
Benoni	O'Riley Merry Street	Partially insufficient road reserve

1.4 Existing Road Master Plans

- Following is a list of areas where current Road Master Plans exist. These Roads Master Plans must be considered as part of land use application processes. It should be noted that these are "fluid" documents and the latest information must always be obtained from the Department at the commencement of application processes.

Existing Roads Master Plans (Roads or Road Sections		
• Bredell	• Sunlawns/Marwyn	• Springs/Nigel
• Pomona	• Tunney	• Bedfordview
• Kempton Park A.H.	• Benoni	• Boksburg
• Bapsfontein	• Brakpan	• Comet

❖ This is an evolving list which can be expanded to other areas based on emerging development pressures.

B3.2 TRANSIT ORIENTED DEVELOPMENT GUIDELINES

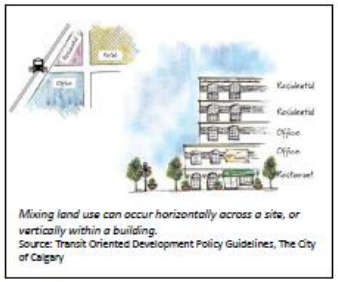
Transit-oriented development seeks to implement a more sustainable approach to urban planning and land use. By optimising the use of land around transit stations, the principles of smart growth are followed and a "triple bottom line" approach can help Ekurhuleni achieve some of its environmental, economic and social objectives.

A typical Transit Oriented Development is characterised by the following:

- High density residential uses (a variety of housing typologies should be used).
- Modal interchanges should be present (between rail and vehicles).
- Mixed-use developments should be present (presenting economic opportunities for some of the immediate area's residents).
- Limited private vehicle parking should be provided (forcing the public to make use of other public transport modes), with the understanding that structured parking facilities can be accommodated, aimed specifically at accommodating the private vehicles of commuters who travel to the modal transfer facility by private vehicle, where they then transfer to a public transport mode for the rest of their journey.

(i) Ensure transit supportive land-uses: Ensure land-uses around transit stations that support ridership by generating high levels of transit use and provide a mixed-use activity node for the local community and city-wide transportation network benefits.

- A station area should allow for a mix of residential, employment and supporting retail and service uses. Typical land uses include: medium to high density residential, employment uses (light manufacturing, businesses, etc.), education, retail, service industries, entertainment, etc.
- The mix of land-uses may be horizontally or vertically integrated: that is, the mix of uses may be found within a particular building, or incorporated in multiple buildings throughout the planning area. This provides a variety of uses within a compact, walkable station area and creates a synergy between the varying types of development.
- Mix housing types and prices by using higher densities to increase the diversity of housing.



Mixing land use can occur horizontally across a site, or vertically within a building.
Source: Transit Oriented Development Policy Guidelines, The City of Calgary

(ii) Increase density around transit stations: Increase density around transit stations to support high frequency, rapid transit service and provide a base for a variety of housing, employment, local services and amenities that support a vibrant station area community.

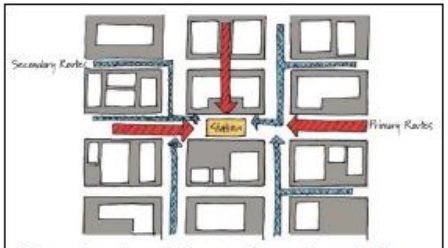
- Density should be increased around transit stations while relating to the surrounding context and particular station type.
- Density should be placed in locations with the best access to transit and the public transport systems.
- Build densely to ensure efficient use of the TOD sites by creating a pedestrian-friendly environment.
- Locate the highest density uses and building forms (e.g. apartments, office towers) as close as possible to the station building.
- Create transition between higher and lower intensity development by stepping down building heights and densities from the station building.

Density should transition from high to lower density, ensuring compatibility with adjacent communities.
Source: Transit Oriented Development Policy Guidelines, The City of Calgary

Whilst densification around transportation nodes and along transport routes is supported, it is important to take noise into consideration and provide noise mitigation measures, especially around residential uses.

(iii) Create pedestrian-oriented design: Create convenient, comfortable, direct and safe pedestrian linkages to and from all transit stations to support a walkable station area and promote the use of transit.

- Each station area should be developed as a unique environment, transforming a utilitarian transit node into a community gateway and a vibrant mixed-use hub of activity.
- Primary and secondary pedestrian routes should be identified in the TOD station area.
- Buildings should be designed to ensure that pedestrian comfort is of primary importance in station areas.



Primary and secondary pedestrian connections provide access to the transit station and throughout the area
Source: Transit Oriented Development Policy Guidelines, The City of Calgary

(iv) Make each station a "place": Each station area should be developed as a unique environment, transforming a utilitarian transit node into a community gateway and a vibrant mixed-use hub of activity.

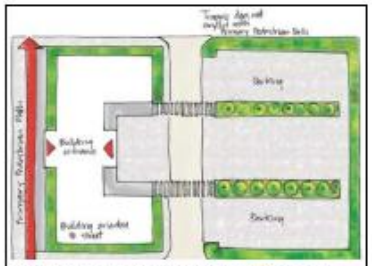
- Use open space.

Create a focus for the local community. Elements should include local gathering places, shopping, services and transit connections.

(v) Manage parking, bus and vehicular traffic: Accommodate transit bus and private vehicle circulation and parking needs, while creating a comfortable pedestrian environment.

- Reduce parking requirements to encourage the use of public transport. Mixed-use projects provide the option of shared parking: office workers use the parking during the day and residents use it during the evenings and weekends.
- Parking areas should be accessed from collector and arterial roads around the station area, without impacting existing communities or the pedestrian environment closest to the station.

Along primary pedestrian routes that lead to transit stations, parking areas should be located to the rear or side of buildings.


Parking areas should be located to minimise conflict with pedestrians
Source: Transit Oriented Development Policy Guidelines, The City of Calgary

(vi) Plan in context with local communities: TOD should benefit the local community. Through consultation with local communities, TOD should provide a wide range of supporting benefits for local communities, including increased uses and services, a variety of housing, increased transportation options, and a more walkable environment and community amenities.

- Work with the local community as they can provide valuable knowledge on services and amenities needed by the community, key pedestrian destinations, current pedestrian habits, etc.
- New developments should provide services and amenities needed by the local communities.

Development should complement the existing development and help to enhance the local character while creating a walkable, vibrant station area.

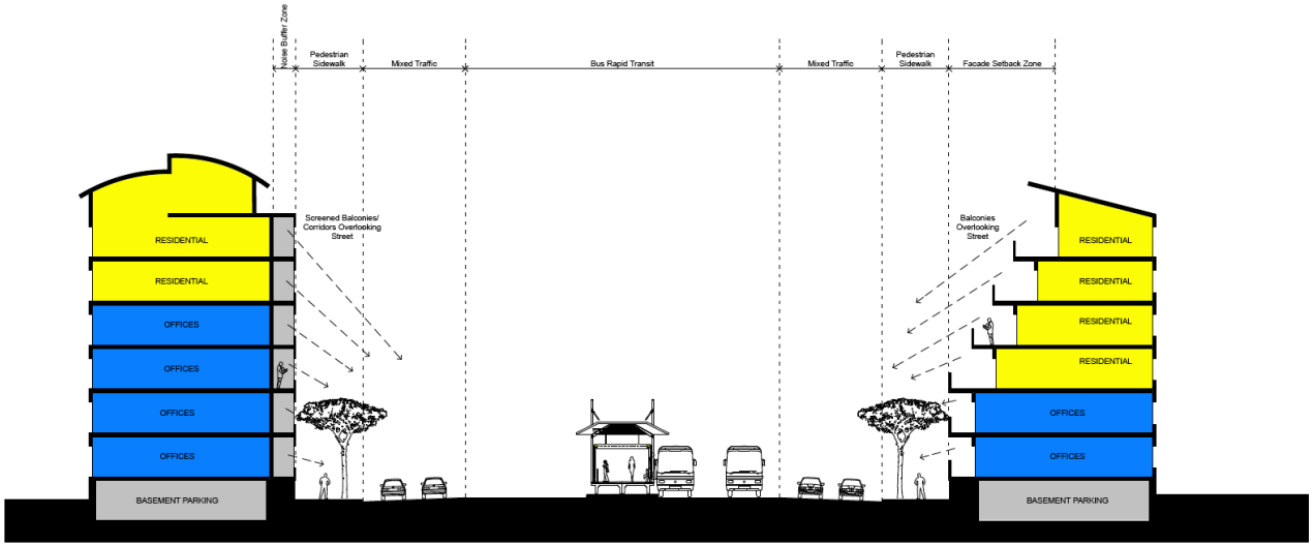
B3.3 TYPICAL ACTIVITY SPINE/ STREET CROSS SECTION

B3.3.1 High Mobility Activity Spine

High Mobility Activity Spines can be identified as busy vehicle movement-dominated streets along which the BRT operates mainly, comprising office and/or medium density residential uses. Typically, the streets are of wider cross section and higher speed traffic located outside BRT station nodes.

Edge characteristics:

- Office/community/leisure (which may be multiple floors) with residential above;
- Discourage location of residential uses at ground floor level.
- Ideally raised half a level above street level facilitating privacy of ground floor spaces and potential for semi-basement parking.
- Encourage design of facades that adequately address noise and air pollution, e.g. through screened buffer zones or building façade setbacks.
- Encourage windows and balconies overlooking street at upper levels.
- Discourage blank walls and facades facing onto street.
- Generous pedestrian sidewalks adjacent to kerb with landscaping against building faces permissible.
- Continuous walkable paved level sidewalk corridor (min 1.5m width), free from street lights, signage, trees and street furniture.

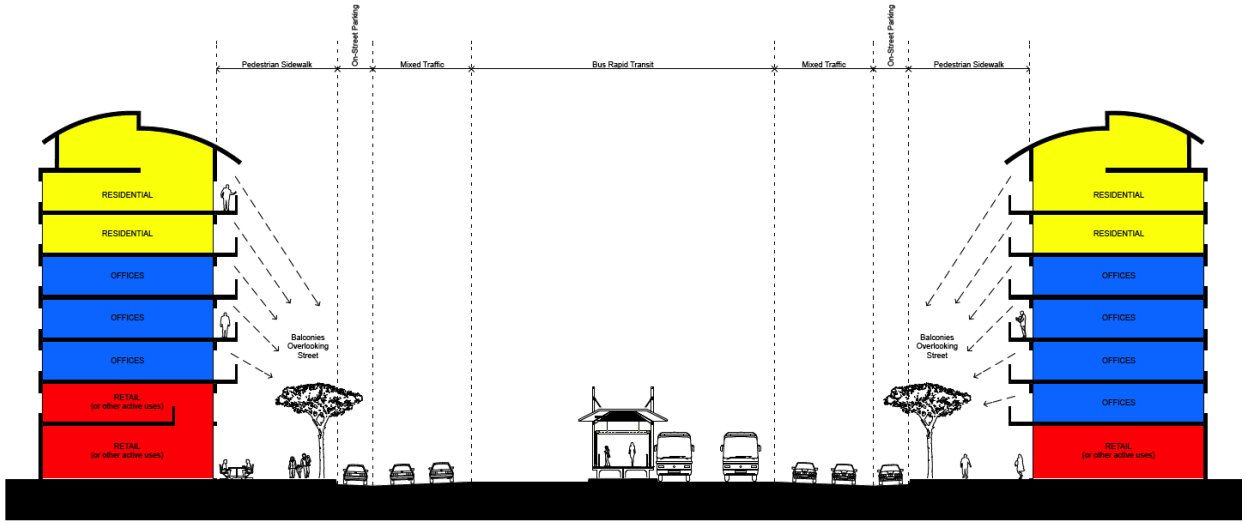


B3.3.2 Lower Mobility Activity Spine

Lower Mobility Activity Spines can be identified as busy mobility streets (Class 3 roads) along which the public transport services operate, characterised by a range of land use (retail, office and residential), and high pedestrian footfall, especially around stations and stops.

Edge characteristics:

- Single or double height retail spaces (or other active uses) vertically mixed with office/community/leisure uses above with residential units at the highest levels.
- Encourage transparency along ground floor facade (i.e. maximum use of windows where possible).
- Concentrate building entrances along street edge.
- Encourage windows and balconies overlooking street at upper levels.
- Discourage blank walls and facades facing onto street.
- Generous pedestrian sidewalks filling space between building facades and kerb.
- Continuous walkable paved level sidewalk corridor (min 1.5m width), free from street lights, signage, trees and street furniture.
- On-street parking bays if road reserve width permits.



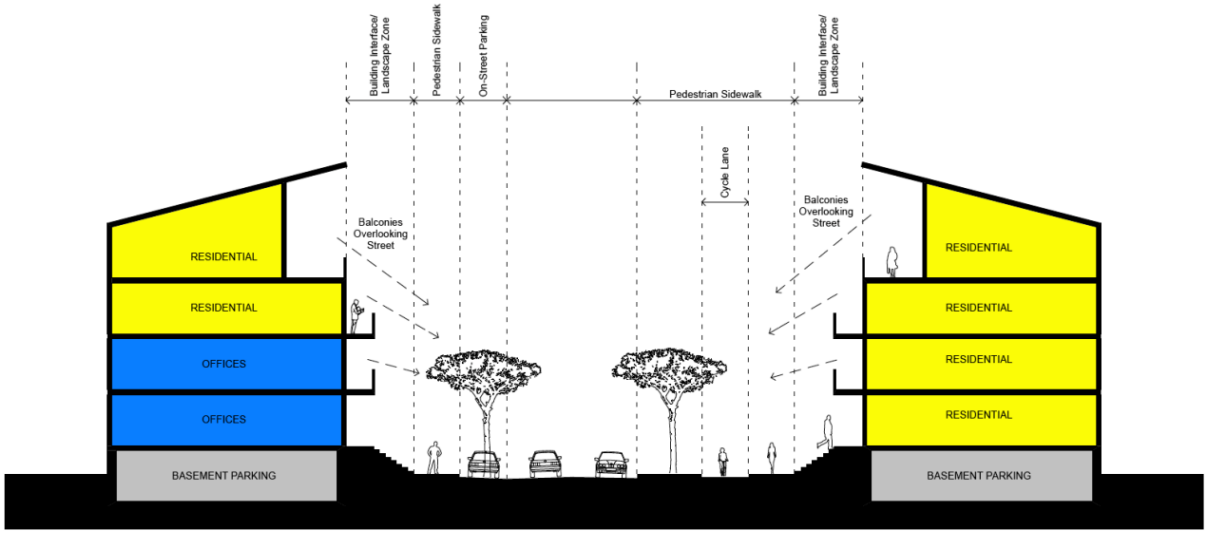
Typical "Shopping Street" Cross-section

B3.3.3 Activity Street

Activity streets (typically Class 4 and 5 roads) can be identified as quieter side streets located within public transport nodes, leading to and from busier shopping streets (typically class 3 roads) and mobility routes (typically class 2 roads).

Edge characteristics:

- Office/community/leisure with residential above or alternatively single use residential;
- Ideally raised half a level above street level facilitating privacy of ground floor spaces and potential for semi-basement parking;
- Concentrate building entrances along street edge;
- Encourage windows and balconies overlooking street at upper levels;
- Discourage blank walls and facades facing onto street;
- Pedestrian sidewalks filling space between building facades and kerb;
- Continuous walkable paved level sidewalk corridor (min 1.5m width), free from street lights, signage, trees and street furniture;
- On-street parking bays if road reserve width permits.



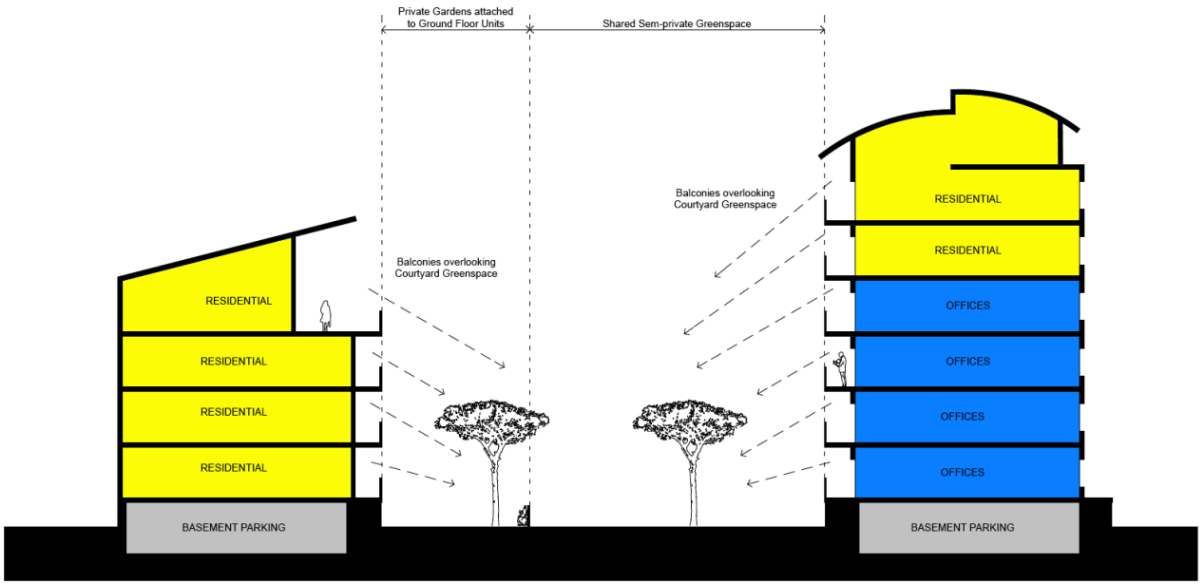
Typical "Urban Street" Cross-section

B3.3.4 Courtyards

A courtyard can be identified as a semi-private or private space enclosed by perimeter block buildings.

Edge characteristics:

- Uses determined by guidelines for street-facing building edges.
- Shared communal garden as well as opportunity for short private gardens attached to ground floor residential units.
- Potential for location of inappropriate uses and functions incompatible with street edge condition (e.g. ventilation stacks, laundry yards).
- Careful design consideration needed to avoid overlooking of internal spaces and protect privacy and maximize natural lighting.
- Encourage windows and balconies overlooking of semi-private courtyard greenspace.
- Encourage landscaping and low hedge partition of courtyard space.



Typical "Courtyard" Cross-section

ANNEXURE B4: ECONOMIC DEVELOPMENT

B4.1: Township Economy Job Opportunities
B4.2: Township Regeneration Node Concept
B4.3: Township Economic Upscaling
B4.4: CoE Shopping Center Hierarchy
B4.5: Subsistence Agriculture and Precision Farming
B4.6: Incremental Floor Space and Workers (Job Opportunities)

ANNEXURE B4: ECONOMIC DEVELOPMENT

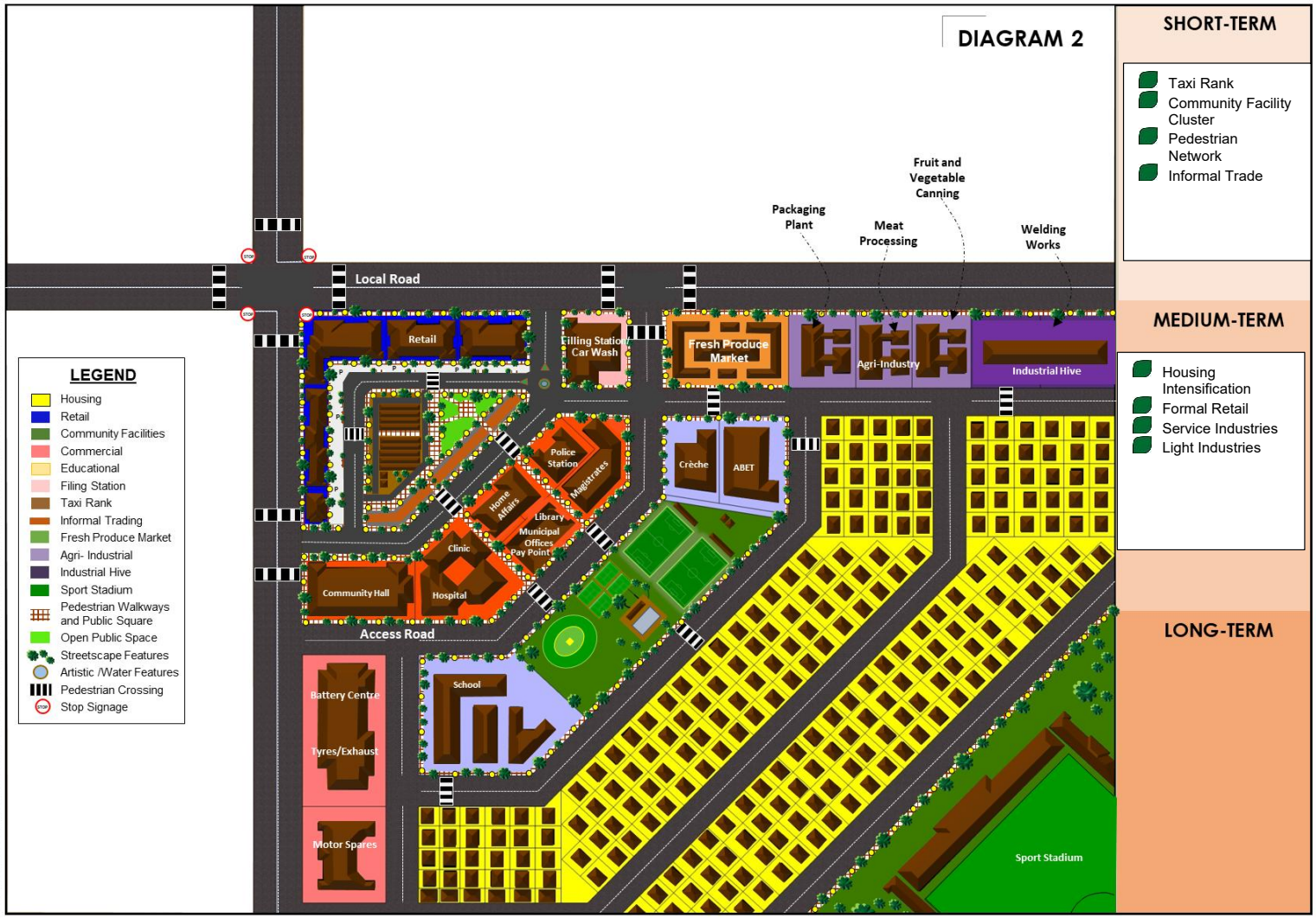
ANNEXURE B4.1: TOWNSHIP ECONOMY: JOB OPPORTUNITIES

Main Sectors	Secondary Category	Examples of Business Opportunities
1. Business	Retail (Formal)	Butchery, Bottle store, Cellphone, Café, Clothing, Tombstones, Fast Food, General Dealer, Farm Shop, Plant Nursery
	Retail (Informal)	Street Vending/Food Seller, Fruit & Vegetable Seller, Brick Making, Liquor Seller, Shebeen, Tavern, Spaza, Tombstone Trader
	Retail (Markets)	Crafters Market, Food & Fresh Produce Market
	Personal Services	Hair & Beauty Salons, Fashion Designer, Laundrette, Gym, Traditional Healer
	Offices	Burial Society, Banks, ATM, Financiers/Cash Loans, Internet Café, Renting of Machinery, Home Office, Security Companies
	Motor Vehicle Related Retail	Car Sales Lot, Car Wash, Cash for Scrapyard, Motor Spares, Filling Station
2. Service Industries	Services	Dress Making/Tailors/Manufacture Uniforms, Bakery/Catering, Engraving, Printing, Picture Framing, Jewellery Manufacturing, Watch/Cellphone Repairs, Shoe Repairs, Key Cutting, Dry Cleaners, Funeral Services (Parlour/Undertaker), Basket Ware and Cane Furniture, Office Furniture, Upholstery
	Infrastructure	Sanitation (plumbers), Electrician, Security Gates & Fencing, Mobile Toilets, Solar Panels/Geysers
	Green Economy	Cleaning Services, Waste Collection and Sorting/Recycling
3. Tourism	Retail (Formal)	Craft/Curio Shop, Coffee Shop, Restaurant
	Retail (Informal)	Crafters Market, Food & Fresh Produce Market
	Offices	Tourist Operators
	Hospitality Establishment	Hotel, Guest House, Bed & Breakfast, Conferencing, Camp Sites
	Services	Catering & Events, Heritage Tourism, Sports/Adventure Tourism, Water Sports and Recreation Parks, Tourist Guide, Hunting Guide

Main Sectors	Secondary Category	Examples of Business Opportunities
4. Creative Industry	Services	Arts & Crafts Workshops/Exhibitions, Cinemas, Music & Entertainment, Music & Video Production, Fashion Designer, Jewellery Manufacturing, Bead Making, Leather/Hide Products, Coordination of Cultural Events
5. Community Services	Medical & Health	Hospital and Clinic, Substance Abuse Treatment/War on Drugs, Hospice/Nursing/Care Centre (treatment and care for HIV/AIDS and other chronic ailments), Traditional Healer
	Funeral / internment services (confinement)	Burial Society, Catering-, Renting-, Cemetery Services
	Institutional Care Facility	Orphanage/Children's Home, Shelters, Soup Kitchen, Care for Elderly, Assisting the Elderly with Social Grants
	Cultural Facilities	Community Centres, Church and Religious Services
	Educational Facilities	Crèche & pre-schools, Schools, Sports Coaching, FET Colleges, Feeding schemes for schools and hospitals
	Other Education	Motor vehicle driving school, Special education - disabilities, Initiation school, Dancing /Music/Art Schools
	Protection services	Security Guards
	Emergency services	Ambulance Services/Paramedics
	Administrative	Postal/Courier Services
	Animal Care Facilities	Indoor / outdoor kennels, Veterinarian clinic, Animal rehabilitation centres
	ICTS	Internet Solutions, Multimedia Service Centres, Internet Cafes, Electronic Repairs, ICT Recycling Depots
6. Agriculture and Agro Processing	Animal production	Livestock/Poultry Farming
	Crop production	Vegetable/Herb Farming
	Agricultural industry	Milling, Feed Mixing, Processing/Sorting/Packing of Farm Produce, Farm Stall, Oil refinery, Biofuels
7. Transport	Services	Taxi Operators/Associations, Logistics companies, Tour Operators
	Infrastructure	Paving of Walkways and Cycle Lanes
8. Finance	Services	Stokvels, Money Lending Schemes, Burial Societies

Main Sectors	Secondary Category	Examples of Business Opportunities
9. Manufacturing	Production & Manufacturing	Food production, Bakery, Manufacturing of Machinery-/Metal (steel)- /Non-metal (charcoal/tar/bricks)-/Clothing and Textile-/ Wood and Furniture (Carpentry) Products, Abattoir
	Motor Service related (Light) Industry	Fitment centre/Vehicle repairs, Panelbeater/Auto body, Towing Service, Motor Workshop
	Engineering Service related (Light) Industry	Engineering Workshop e.g. welding, cutting, joinery, pumps, pipes and fitting, etc. Electrical Workshop/Contractors, Lawnmower Repairs
10. Commercial	Warehousing & storage	Storage Facilities, Storage and selling of coal, sand, building material, Scrap Yard, Recycling Depot, Auction Yard
11. Construction and Real Estate	Services	Construction Business, Property Developers, Estate/Renting Agents
	Infrastructure	Builders, Carpenters, Brick/Paving layers, Electricians, Plumbers
12. Mining	Active Mining	Sand Mining, Quarrying
	Mining Rehabilitation	Cleaning Services, Waste Collection and Planting of new vegetation

ANNEXURE B4.2: TOWNSHIP REGENERATION NODE/ENTERPRISE PRECINCT CONCEPT



ANNEXURE B4.3.1 INFORMAL TRADE / SERVICES INDUSTRY UPSCALING CONCEPT

Informal Trade Empowerment and Upscaling

Annexure B4.3.1 highlights the concept to upscale informal trading businesses, the stages to achieve upscaling are represented as **Level 1 – Level 4. Annexure B4.3.2**– **Annexure B4.3.4** highlights examples of the various informal trade structures referred to the Informal Trade Upscaling concept on Annexure B4.3.1.

LEVEL 1	Informal trading business in a form of selling perishable or non-perishable goods, and informal motor repair businesses are being conducted without adequate formalised informal structures.
LEVEL2	Formalised informal trading structures in this level are very basic. Level 2A structures are temporary and may be placed along pedestrian movement desire lines where space is limited, see examples on **Annexure B4.3.2**. Level 2B structures are more permanent in nature, and may be utilised by small emerging service industries.
LEVEL 3	The structures at Level 3 are permanent and typically larger in size when compared with 'level 1' informal trading structures. Level 3a includes features such as lock-up roller doors for over-night storage, and may include water and sanitation services shared between traders, see examples on **Annexure B4.3.2**. This allows for more comprehensive retail activities including food preparations and/ or service industries such as internet cafes, kiosk, electronic repair services, motor repairs services and welding works, as reflected on **Annexure B4.3.3** and **Annexure B4.3.4**.
LEVEL 4	Level 4 provides that informal traders be incorporated into the formal economy (as illustrated on **Annexure B4.3.5**) by way of providing permanent and formalised trading structures as part of a shopping centre or business incubation centre.

DIAGRAM B4.3.1: DEVELOPMENT APPROACH TO INFORMAL TRADE

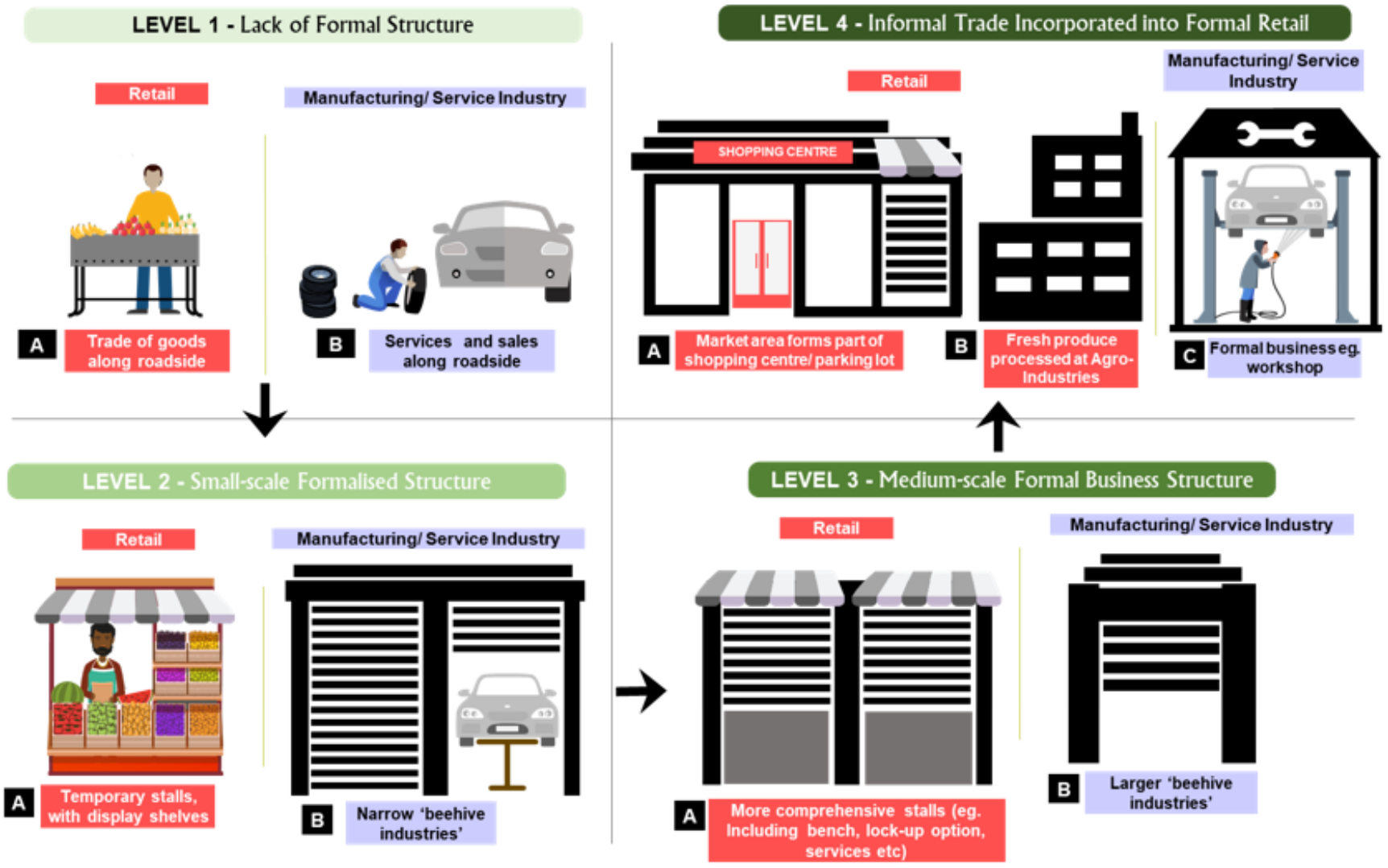


DIAGRAM B4.3.2: TYPES OF FORMALISED INFORMAL TRADE STRUCTURES

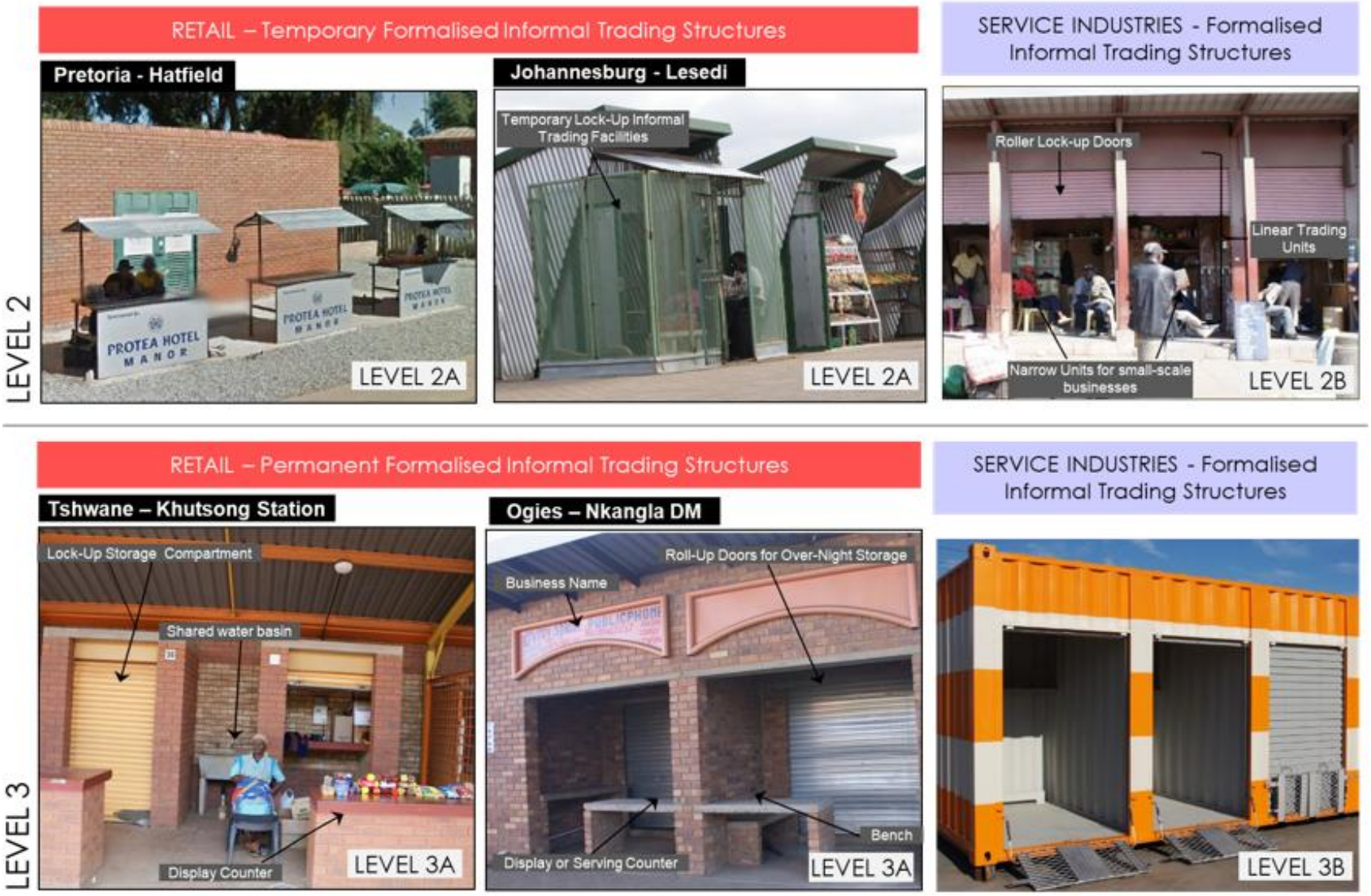


DIAGRAM B4.3.3: LOCAL EMPOWERMENT INDUSTRIAL ZONE – BEEHIVE SERVICE INDUSTRY – SERVICE INDUSTRY UNITS

RETAIL – Temporary Formalised Informal Trading Structures

Local Barber

4Walls Business – Selling and Educating on Green Energy

LEVEL 3B

Local Businesses in Shipping Containers close to Taxi Rank

Spinach King Bakery and Gym in Khayelisha

DIAGRAM B4.3.4: LOCAL EMPOWERMENT INDUSTRIAL ZONE – BEEHIVE SERVICE INDUSTRIES – SERVICE INDUSTRY UNITS

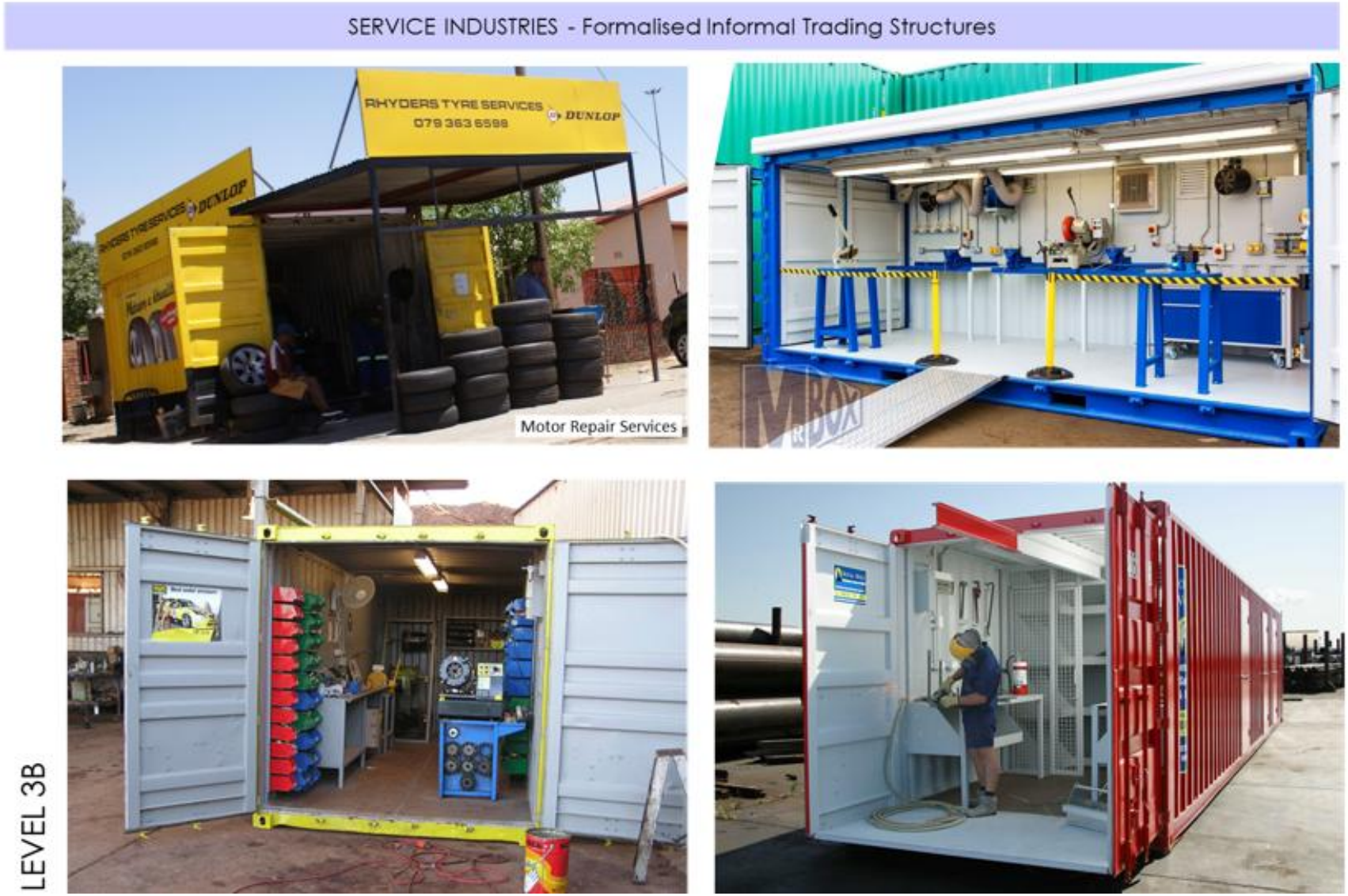
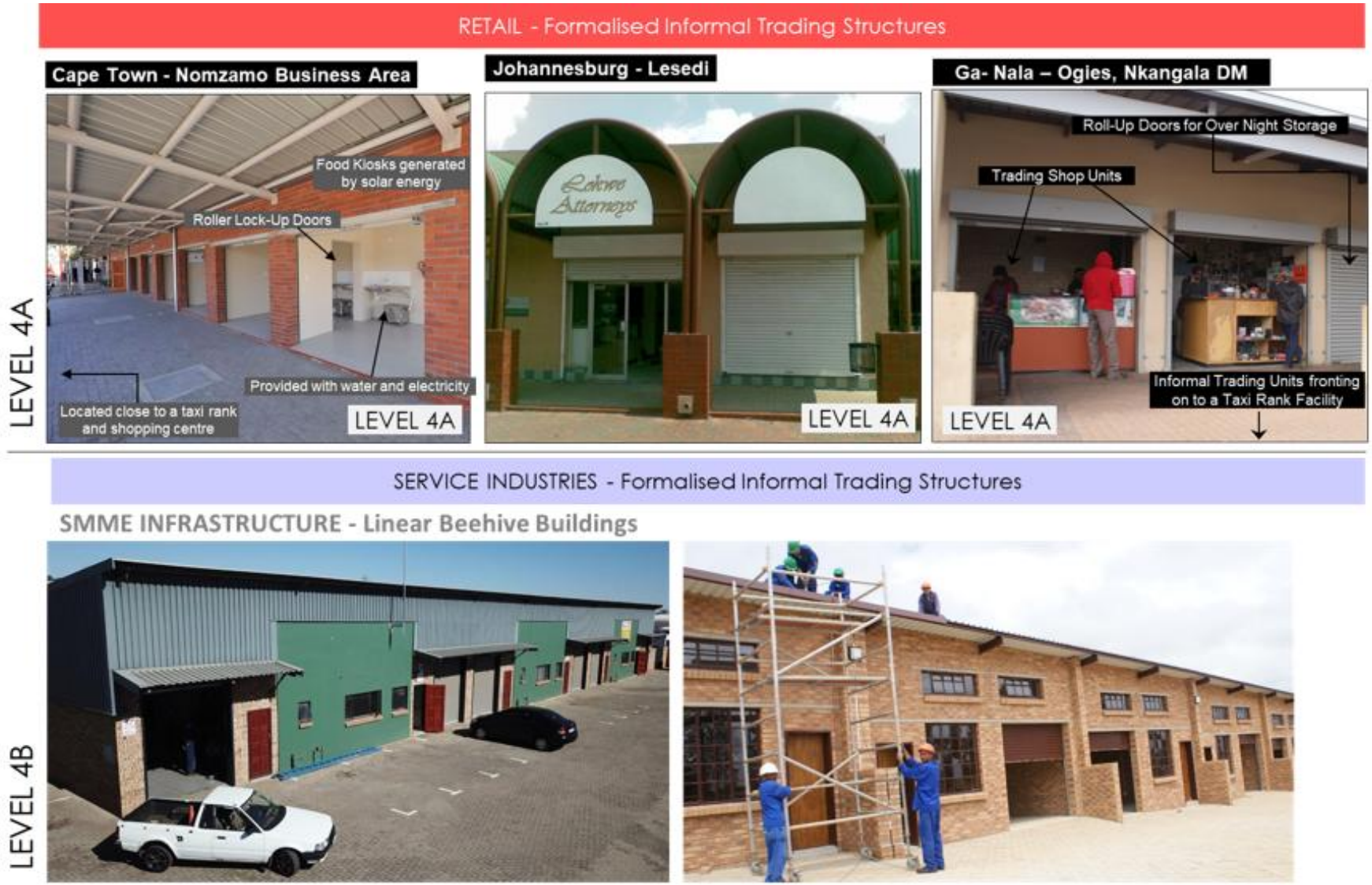


DIAGRAM B4.3.5: TYPES OF FORMALISED INFORMAL TRADE STRUCTURES



ANNEXURE B4.4: COE SHOPPING CENTER HIERARCHY

ANNEXURE B4.4.2: CoE Shopping Centres Retail Floor Area (m^2) per Region, 2022

CoE Type of Centre	Northern			Southern			Eastern			TOTAL		
	Number of Centres	Floor Area Size (m^2)	Average Size (m^2)	Number of Centres	Floor Area Size (m^2)	Average Size (m^2)	Number of Centres	Floor Area Size (m^2)	Average Size (m^2)	Number of Centres	Floor Area Size (m^2)	Average Size (m^2)
Core Classification												
Small Free Standing and Convenience	27	61,368	2,273	25	75,868	3,035	13	35,495	2,730	65	172,731	2,657
Neighbourhood Centre	34	262,805	7,730	18	133,242	7,402	16	119,627	7,477	68	515,674	7,583
Community Centre	7	112,385	16,055	9	128,597	14,289	5	92,203	18,441	21	333,185	15,866
Large Community Centre/Small Regional	4	153,115	38,279	4	154,907	38,727	1	39,356	39,356	9	347,378	38,598
Regional Centre	3	217,054	72,351	0	0		3	214,597	71,532	6	431,651	71,942
Super Regional Centre	1	134,110	134,110	0	0		0	0		1	134,110	134,110
Subtotal	**76**	**940,837**	**12,379**	**56**	**492,614**	**8,797**	**38**	**501,278**	**13,192**	**170**	**1,934,729**	**11,381**
CBD												
CBD/ Town Centre	7	63,233	9,033	5	83,403	16,681	5	65,956	13,191	17	212,592	12,505
Subtotal	**7**	**63,233**	**9,033**	**5**	**83,403**	**16,681**	**5**	**65,956**	**13,191**	**17**	**212,592**	**12,505**
Focus/Niche Classification												
Motor Showrooms	16	91,334	5,708	7	32,380	4,626	4	9,658	2,415	27	133,372	4,940
Big Box Retailers	11	77,412	7,037	6	33,415	5,569	4	13,773	3,443	21	124,600	5,933
Specialty Centre	1	5,050	5,050	1	6,963	6,963	0	0		2	12,013	6,007
Lifestyle Centre	1	12,500	12,500	1	15,884	15,884	0	0		2	28,384	14,192
Hyper Centre	0	0		1	15,000	15,000	1	17,093	17,093	2	32,093	16,047
Value Centre	8	150,447	18,806	1	6,800	6,800	1	11,125	11,125	10	168,372	16,837
Entertainment /Casino	1	15,000	15,000	0	0		1	24,292	24,292	2	39,292	19,646
Airport Retail	1	26,983	26,983	0	0		0	0		1	26,983	26,983
Subtotal	**39**	**378,726**	**9,711**	**17**	**110,442**	**6,497**	**11**	**75,941**	**6,904**	**67**	**565,109**	**8,434**
Total	**122**	**1,382,796**	**11,334**	**78**	**686,459**	**8,801**	**54**	**643,175**	**11,911**	**254**	**2,712,430**	**10,679**

Source: Shopping Centre Directory, 2022. South African Council of Shopping Centres

Measuring Footprints of Buildings, Plan Associates, February 2024

Major Retail Types, Classification and the Hierarchy of Retail Facilities in South Africa, September 2016, Dr Dirk Prinsloo, Urban Studies

ANNEXURE B4.4.3: CoE Retail Facility Core Classification and Hierarchy

PLANNED CORE CLASSIFICATION (HIERARCHY)									
Type of Centre	**Size of Centre (m2) (GLA)**	**Trade Area**	**Role and Function**	**Geographic Segmentation**	**No. of Households**	**Socio-Economic Segments**	**Trade Area Ave Radius (km)**	**Median Travel Time (Mins)**	**Main Tenants**
Small free standing and convenience centre	500 - 5000 5-25 stores	Serves part of a suburb	Offers express convenience	Part of metros and city suburbs	LSM 1-5, <10 000 LSM 6-9, <5 000 LSM 10-10+<2 000	All LSM groups	1 – 1.5	<3	• Small grocery store • Few convenience stores
Neighbourhood centre	±5 000 - ± 12 000 25-50 stores	Centrally located for a group of suburbs	Convenience and express convenience role	Part of metropolitan and city suburbs and townships	LSM 1-5, (20 000-47 000) LSM 6-9, (9 000-20 000) LSM 10-10+(3 600-8 500)	All LSM 4-10	2	4-9	• Supermarket • Convenience • Some small specialised stores
Community centre	±12 999-±25 000 50-100 stores	Strategically located to serve a suburban community	Larger variety of convenience products to more households	Metros, cities, large towns and rural areas	LSM 1-5, (44 000-102 000) LSM 6-9, (15 000-46 000) LSM 10-10+ (16 000-37 000)	All LSM 4-10	3	6-14	• Large supermarket(s) • Convenience • Small national clothing • Restaurant & takeaways • services
Small regional/ Large community centre	±25 000-±50 000 75-150 stores	Specific sub region of city (can be large self-contained community, i.e. Chatsworth)	Larger community and much wider tenant mix. More a community than regional role	Metros, cities, large towns and rural areas	LSM 1-5, (90 000-209 000) LSM 6-9, (40 000-90 000) LSM 10-10+, (16 000-37 000)	All LSM 4-10	3-5	10-16	• large supermarket(s) • 1 or 2 large clothing anchors • Strong national tenant • Comparison good component • Boutiques • Restaurants • Entertainment • services
Regional centre	±50 000-±100 000 150-250 stores	Large region of city/or whole city/rural towns	Large primary and secondary trade areas. Also support from tertiary trade area. Part of a business node	Metros, large cities and metro township areas	LSM 1-5, (180 000-420 000) LSM 6-9, (80 000-185 000) LSM 10-10+, (33 000-76 000)	All LSM 4-10	5-8	14-20	• large supermarkets (even 2) or hyper • 3 or more large clothing stores • Small clothing stores and boutiques • International brands • Entertainment, restaurants • Services • Convenience
Super regional centre	>100 000 >250 stores	Large region in city and surrounding areas/ Tourists	Serves whole metro, region, national and international visitors offering widest tenant mix	Metropolitan suburban	LSM 6-9, (106 000-250 000) LSM 10-10+, (44 000-101 000)	Above average LSM 5-10	10+	24-30	• Same as regional but more emphasis on entertainment and variety
Source: Major Retail Types, Classification and the Hierarchy of Retail Facilities in South Africa, September 2016, Dr Dirk Prinsloo, Urban Studies									

ANNEXURE B4.4.4: CoE Focus/Niche Classification

PLANNED FOCUS/NICHE CLASSIFICATION									
Type of Centre	**Size of Centre (m^2) (GLA)**	**Trade Area**	**Role and Function**	**Geographic Segmentation**	**No. of Households**	**Socio-Economic Segments**	**Trade Area Ave Radius (km)**	**Median Travel Time (Mins)**	**Main Tenants**
Big Box Retailers	Vary from 2 000 to 15 000	Depend on type of store or centre – mostly on regional level	Large single building with one shop offering specialist products	Metros and city suburbs	LSM 6-9, (±25 000) LSM 10-10+, (±14 000)	Mainly above average LSM 7-10	10-30		• Specialist traders
Entertainment/ Casino	Vary from 10 000 to 50 000	Depend on type of store or centre – mostly on regional level	Offer gaming, entertainment, restaurants and retail facilities	Metros, cities and rural areas	LSM 6-9, (40 000-60 000) LSM 10-10+(20 000-30 000))	Average and higher LSM 5-10	5-30	10-30	• Specialist traders/ entertainment and/ or theme centre • Emphasis on food, restaurants & fast-food outlets
Lifestyle Centre	15 000-50 000 (can be smaller or larger)	Upmarket trade areas	Upmarket shopping in relaxed atmosphere	Metropolitan suburban	LSM 6-9, (40 000-60 000) LSM 10-10+ (20 000-30 000)	Mainly LSM 9-10	3-8	6-15	• Upscale supermarket • Book stores • Dining • Entertainment • Speciality retail (house/home/garden) • Fresh produce stores
Value Centre	10 000-50 000 20 – 40 stores	Next to regional sharing same trade area	Complement regional centres with stores not normally in regional centres	Metropolitan suburban and cities	LSM 6-9, (40 000-60 000) LSM 10-10+, (20 000-30 000)	Middle to above average LSM 6-10	3-6	10-15	• Emphasis on big box retailers • Specialist retailers • Home improvement • Small to large groceries
Hyper Centre	15 000-35 000 15 - 20 stores	Strong correlation with regional centre	Offer groceries, hardware, appliances, clothing, furniture, household goods in large store	Metropolitan suburban and cities	LSM 6-9, (60 000-100 000) LSM 10-10+, (21 400-50 000)	Middle to above average LSM 5-10	6-8	10-15	• One hyper store • (70% of area) • Convenience line stores • Services
Motor Stations	500-5 000		Display and sell variety of car brands and models	Metros to rural		Higher LSM suburbs			
Filling Stations	30-600	Local & through traffic plus nearby households	Service through traffic and local households with express convenience	Metros to rural	Depend on size and location of filling station	All LSM 4-10			• Convenience store • ATM • Fast food • Car wash
Airport Retail	1 000-20 000 10-100 stores	Size of airport will determine size of retail	Satisfy retail needs of travellers, family, collectors and workers	Metropolitan and large city airports		Mainly higher LSM			• Mainly food • Curio's & souvenirs • Clothing • Exchange services
Source: Major Retail Types, Classification and the Hierarchy of Retail Facilities in South Africa, September 2016, Dr Dirk Prinsloo, Urban Studies									

ANNEXURE B4.5: SUBSISTANCE AGRICULTURE AND PRECISION FARMING

ANNEXURE B4.5.1 SUBSISTENCE AGRICULTURE VALUE CHAIN

The Subsistence Agriculture Upscaling Model (refer to **Diagram B4.5.1**) is earmarked to specifically establish linkages between small scale / subsistence agriculture and the formal economy in the following way:

- Informal trade stalls and fresh produce markets can be established at urban and rural nodes where local residents can buy/ sell any surplus produce from surrounding plots/ farms.
- Furthermore, formal agreements could be put in place with a number of receiving parties including local schools with feeding schemes or surrounding tourist destinations, where household or communal produce could be sold as food source.
- Small-scale agro-processing industries could also be established locally (at rural nodes or Township Enterprise Zones) where value is added to the goods, to varying degrees (e.g. packaging, processing, etc.).
- Furthermore, in line with the CRDP, one or more co-operatives (co-ops) can be established in order to mobilise and organise small-scale farmers into functional groups to effectively take charge of their own development.
- Coordinated by the co-ops, surplus produce could regularly be transported to the Fresh Product Market (collection/ distribution hub).
- From here, the collected produce could be distributed to formal retailers in nearby towns and agro-industries, according to fixed contracts.
- The increased scale derived from pooling operations will ease negotiations with potential customers, reduce logistics costs and decrease input costs.
- Through such a process, small scale farmers in rural township areas gain access to the formal economy but with limited risk.

Diagram B4.5.1: Establish Linkages between Subsistence Agriculture and Formal Economy

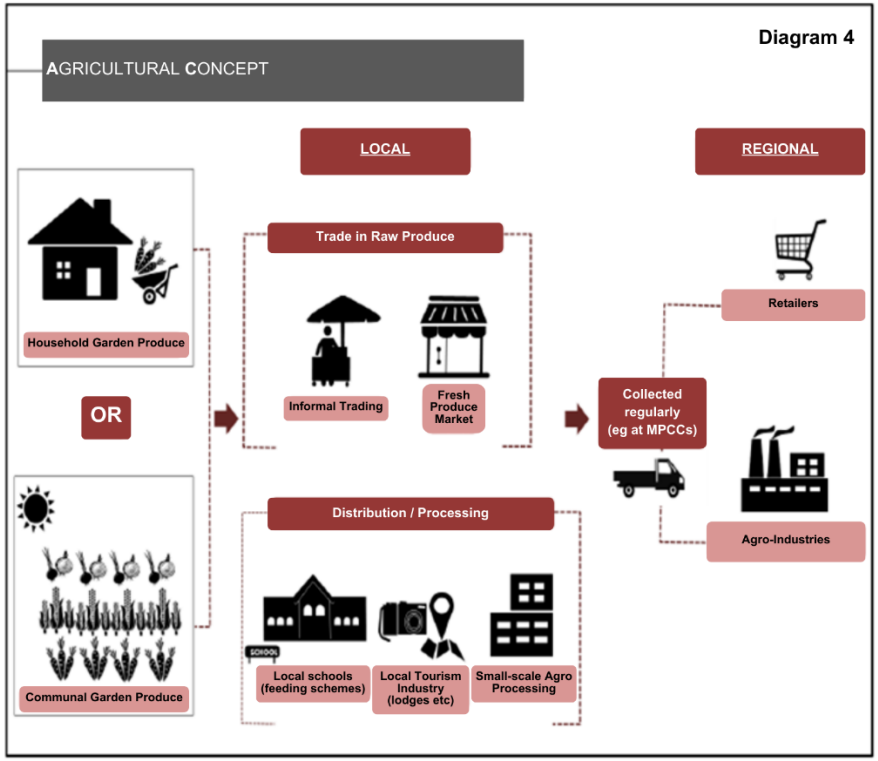


Diagram B4.5.2: Precision Farming

Vertical Farming in Green Building

Horizontal Farming in Green Building

Vertical Farming in an Iron-Zinc Vertical Box

Diagram B4.5.3: Farming in Shipping Containers

ANNEXURE B4.6: INCREMENTAL FLOOR SPACE AND WORKERS

Annexure B4.6.1: Expected Incremental Floor Area (m^2) and number of Incremental Workers associated with Residential Area (2040)

Categories / Region	Number of Units	%	Population	Retail Floor Area (m^2)	Office Floor Area (m^2)	Retail Workers	Office Workers	Community Workers	Total Workers associated with Incremental Residential Area
Total	**709,775**	**100%**	**2,031,265**	**2,345,265**	**193,184**	**61,717**	**8,049**	**89,075**	**158,842**
Subtotal North	128,257	18%	367,051	470,676	42,084	12,386	1,753	17,787	31,926
Subtotal East	439,905	62%	1,258,940	1,425,569	119,387	37,515	4,974	55,782	98,271
Subtotal South	141,613	20%	405,274	449,020	31,713	11,816	1,321	15,507	28,645
Total	**709,775**	**100%**	**2,031,265**	**2,345,265**	**193,184**	**61,717**	**8,049**	**89,075**	**158,842**
1 Subtotal: Tembisa North	22,314	3%	63,858	76,630	7,663	2,017	319	3,174	5,510
2 Subtotal: Midstream	9,332	1%	26,706	32,048	3,205	843	134	1,327	2,304
3 Subtotal: R -21 East	38,086	5%	108,996	130,795	13,079	3,442	545	5,418	9,405
4 Subtotal: R -21 West	15,827	2%	45,295	50,979	5,098	1,342	212	2,112	3,666
5 Subtotal: R -21 South	32,779	5%	93,810	151,529	9,752	3,988	406	4,394	8,788
6 Subtotal: Kempton Park North	859	0%	2,459	1,752	175	46	7	73	126
7 Subtotal: Benoni North	39,136	6%	112,003	163,442	13,410	4,301	559	5,555	10,414
8 Subtotal: Benoni Far North	44,561	6%	127,528	152,580	15,258	4,015	636	6,320	10,971
9 Subtotal: Daveyton North	47,787	7%	136,760	164,112	16,411	4,319	684	6,798	11,800
10 Subtotal: Daveyton West	15,162	2%	43,391	67,929	4,980	1,788	207	2,193	4,188
11 Subtotal: Daveyton	11,538	2%	33,019	43,074	3,962	1,134	165	1,641	2,940
12 Subtotal: Daveyton South/Dersley	54,313	8%	155,435	186,137	17,031	4,898	710	7,324	12,932
13 Subtotal: Benoni-Springs Mining Belt	42,348	6%	121,194	119,891	11,660	3,155	486	4,830	8,471
14 Subtotal: Benoni/Carnival	20,510	3%	58,696	72,798	7,043	1,916	293	2,918	5,127
15 Subtotal: Helderwyk/Withok	79,670	11%	228,004	239,545	13,305	6,304	554	9,560	16,419
16 Subtotal: Daggafontein	28,718	4%	82,187	73,537	3,971	1,935	165	2,726	4,827
17 Subtotal: Kwatsaduza North	38,455	5%	110,052	76,339	6,388	2,009	266	3,305	5,580
18 Subtotal: Kwatsaduza South	23,323	3%	66,746	78,961	7,896	2,078	329	3,411	5,818
19 Subtotal: East Rand Mall	1,257	0%	3,598	6,108	432	161	18	179	358
20 Subtotal: Germiston-Boksburg Mining Belt	42,702	6%	122,208	147,158	3,278	3,873	137	3,315	7,324
21 Subtotal: Leeupoort/Villa Liza	55,597	8%	159,111	178,509	17,851	4,698	744	7,394	12,836
22 Subtotal: Alberton/Rand Airport	1,265	0%	3,619	5,047	434	133	18	179	330
23 Subtotal: Katorus West	33,975	5%	97,232	92,224	8,592	2,427	358	3,865	6,650
24 Subtotal: Katorus East	10,259	1%	29,359	34,142	2,309	898	96	1,065	2,059
Total	**709,775**	**100%**	**2,031,265**	**2,345,265**	**193,184**	**61,717**	**8,049**	**89,075**	**158,842**

Annexure B4.6.2: Expected Incremental Floor Area (m^2) and number of Incremental Workers associated with Mixed Use (B2&LI&Com)/Industrial Area (Capacity)

	Inc.Industrial related Floor Area (m^2)				Inc. Industrial related Workers				Total Inc. Workers
Categories / Region	Mixed Use (B2&LI&Com) Floor Area (m^2)	Industrial 2 (Logistics) Floor Area (m^2)	Industrial 1 Floor Area (m^2)	Total Inc. Industrial Floor Area (m^2)	Mixed Use (B2&LI&Com) Workers	Industrial 2 (Logistics) Workers	Industrial 1 Workers	Total Inc. Industrial Workers	Total Workers
Subtotal North	567,981	8,294,382	2,243,778	11,106,142	14,200	33,506	60,260	107,965	139,892
Subtotal East	2,915,573	1,606,732	2,038,660	6,560,965	72,889	40,168	52,713	165,771	264,042
Subtotal South	539,974	13,233,193	928,809	14,701,977	13,499	27,191	23,220	63,911	92,555
Total	**4,023,529**	**23,134,308**	**5,211,247**	**32,369,084**	**100,588**	**100,866**	**136,193**	**337,647**	**496,489**
1 Subtotal: Tembisa North	-	12,175	115,926	128,101	-	304	2,898	3,203	8,713
2 Subtotal: Midstream	-	-	-	-	-	-	-	-	2,304
3 Subtotal: R -21 East	-	5,888,012	1,484,835	7,372,847	-	17,271	41,286	58,557	67,962
4 Subtotal: R -21 West	-	468,191	-	468,191	-	4,148	-	4,148	7,813
5 Subtotal: R -21 South	731,991	1,127,431	329,512	2,188,934	18,300	5,876	8,238	32,414	41,202
6 Subtotal: Kempton Park North	-	170,442	313,505	483,947	-	4,261	7,838	12,099	12,225
7 Subtotal: Benoni North	1,154,206	-	-	1,154,206	28,855	-	-	28,855	39,270
8 Subtotal: Benoni Far North	-	-	-	-	-	-	-	-	10,971
9 Subtotal: Daveyton North	-	-	-	-	-	-	-	-	11,800
10 Subtotal: Daveyton West	504,182	-	-	504,182	12,605	-	-	12,605	16,792
11 Subtotal: Daveyton	135,740	686,174	-	821,913	3,393	3,097	-	6,491	9,431
12 Subtotal: Daveyton South/Dersley	-	279,786	232,852	512,638	-	6,995	5,821	12,816	25,748
13 Subtotal: Benoni-Springs Mining Belt	129,457	138,733	2,416	270,605	3,236	3,468	644	7,349	15,819
14 Subtotal: Benoni/Carnival	92,952	-	-	92,952	2,324	-	-	2,324	7,451
15 Subtotal: Helderwyk/Withok	642,839	1,017,431	364,433	2,024,703	16,071	25,436	10,274	51,781	68,199
16 Subtotal: Daggafontein	-	87,606	446,944	534,550	-	2,190	11,174	13,364	18,191
17 Subtotal: Kwatsaduza North	-	-	992,015	992,015	-	-	24,800	24,800	30,380
18 Subtotal: Kwatsaduza South	-	-	-	-	-	-	-	-	5,818
19 Subtotal: East Rand Mall	70,392	25,135	-	95,527	1,760	628	-	2,388	2,746
20 Subtotal: Germiston-Boksburg Mining Belt	403,607	17,122	918,470	1,339,198	10,090	428	22,962	33,480	40,804
21 Subtotal: Leeupoort/Villa Liza	-	3,257,646	10,340	3,267,986	-	6,515	258	6,774	19,609
22 Subtotal: Alberton/Rand Airport	27,677	759,018	-	786,695	692	1,849	-	2,541	2,871
23 Subtotal: Katorus West	130,069	738,836	-	868,906	3,252	1,478	-	4,729	11,379
24 Subtotal: Katorus East	417	8,460,571	-	8,460,988	10	16,921	-	16,932	18,991
Total	**4,023,529**	**23,134,308**	**5,211,247**	**32,369,084**	**100,588**	**100,866**	**136,193**	**337,647**	**496,489**

ANNEXURE B5: SUSTAINABLE HUMAN SETTLEMENT

B5.1: Residential Typologies and Densities
B5.2: Multi-Purpose Government Precinct/Thusong Center
B5.3: Incremental Residential Capacity (2040)
B5.4: Informal Settlement
B5.5: Community Facilities
B5.6: CoE Urban Design Guidelines

ANNEXURE B5.1: RESIDENTIAL TYPOLOGIES AND DENSITIES

DIAGRAM B5.1.1: Residential Densities

		Housing Type	Erf Configuration	Erf Area	Gross Density	Nett Density	Building Size	Coverage	Building Height	Housing Tenure	Subsidy Option	Examples
Low Density	1	Detached Housing	12m x 20m	240m²	25du/ha 88p/ha	42du/ha 147p/ha	30m²	13%	1 Storey	Full Ownership	Project Linked Subsidy	
Medium-Density Housing	2	Single Story Semi-Detached Housing	9m x 16m	144m²	33du/ha 115p/ha	69du/ha 242p/ha	36m²	25%	1 Storey	Full Ownership	Project Linked Subsidy	
	3	Double Storey Semi-Detached Housing	7m x 16m	112m²	73du/ha 255p/ha	99du/ha 346p/ha	48m²	21%	2 Storey	Full Ownership, Sectional Title	Project Linked Subsidy	
	4	Single Storey Row Housing	4.5m x 12m 7m x 12m	54m² 84m²	59du/ha 207p/ha	120du/ha 420p/ha	52m²	38%	1 Storey	Full Ownership	Project Linked Subsidy	
Medium-High Density	5	Double Storey Row Housing	4.5m x 12m 7m x 12m	54m² 84m²	118du/ha 413p/ha	358du/ha 1245p/ha	52m²	38%	2 Storey	Full Ownership	Project Linked Subsidy	
	6	Walk-Ups	n/a	n/a	80u/ha 280p/h	160u/ha 560p/h	n/a	n/a	3-4 Storey	Rental or Sectional Titles	Institutional Subsidy	
	7	Flats	n/a	n/a	100-200u/ha 350-700p/h	200-400u/ha 700-1400p/h	n/a	n/a	4-8 Storey	Rental or Sectional Title	Institutional Subsidy	

Source: Guideline Document for Higher Density Residential Development, Housing Department Ekurhuleni Metropolitan Municipality, July 2005

DIAGRAM B5.1.2: Housing Typologies

DIAGRAM 5.1.3: Medium Density Residential – Affordable Social Housing

MANGAUNG TOWNSHIP

JOHANNESBURG - FLEURHOF

JOHANNESBURG - TURFFONTEIN

JOHANNESBURG – KLIPTOWN SOWETO

JOHANNESBURG – JABULANI VIEWS

TSHWANE – THEMBALIHLE VILLAGE

ANNEXURE B5.2: MULTI PURPOSE GOVERNMENT/THUSONG CENTER CONCEPT

INCREMENTAL DEVELOPMENT OF A THUSONG CENTRE/MPCC

Essentially, a Thusong Node/Centre is "*a focal point at which a comprehensive range of essential services can be obtained by people living in its vicinity*".

The key to the success of Thusong Node/Centre development is rooted in the principle of focused and deliberate government investment spending within and around a strategically selected spatial point, to ensure that these areas/centres develop to provide an extensive range of community facilities. If successfully developed, these clusters/centers can contribute to/create the critical mass (feet) required to act as catalyst for development of an extensive range of formal and informal economic activity within the surrounding area – leading to the creation of a functional activity node.

Diagram B5.2.1 illustrates this concept of a cluster of community facilities located in a "Government Precinct" which forms part of a larger activity node serving the surrounding community.

A good example of such range of community facilities being consolidated into a single building (Thusong Centre) in Olievenhoutbosch is depicted on **Diagram B5.2.2**, while the Thekwane Thusong Centre (**Diagram B5.2.3**) in Rustenburg was developed as a joint venture with Gencore Mine and Merafe Resources.

DIAGRAM B5.2.1: Multi-Purpose "Government Precinct" Concept

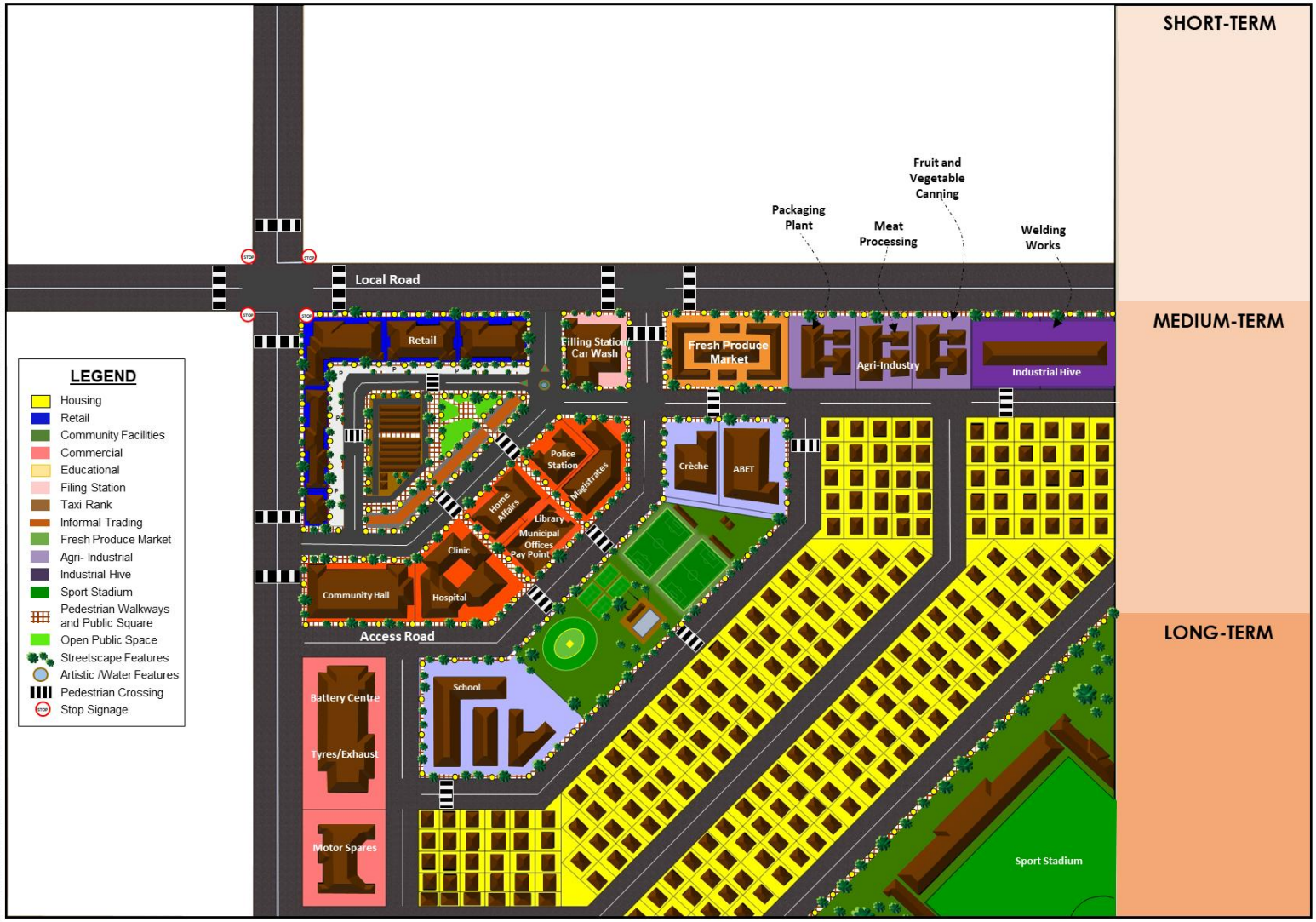


DIAGRAM B5.2.2: Example of a Thusong Centre

Diagram B5.2.3

MULTI-PURPOSE COMMUNITY CENTRE (MPCC) / THUSONG CENTRE CONCEPT

MPCC in Thekwane, Rustenburg, Limpopo Province

Public-Private Partnership funded by Glencore Mine and Merafe Resources (R20-million)

SASSA Grant Office

Multi-Purpose Courts

Home Affairs Office

Community Hall

Police Station

Clinic

EXAMPLE OF A THUSONG CENTRE/ MPCC IN OLIEVENHOUTBOSCH

Floor Area of MPCC 1 878m^2

Community Facilities at Thusong Centre

ANNEXURE B5.3: COE INCREMENTAL RESIDENTIAL CAPACITY (2025-2040

TABLE B5.3.1: Expected Incremental Number of Units and Population per Type/Area (Scenario 1) per Functional Area

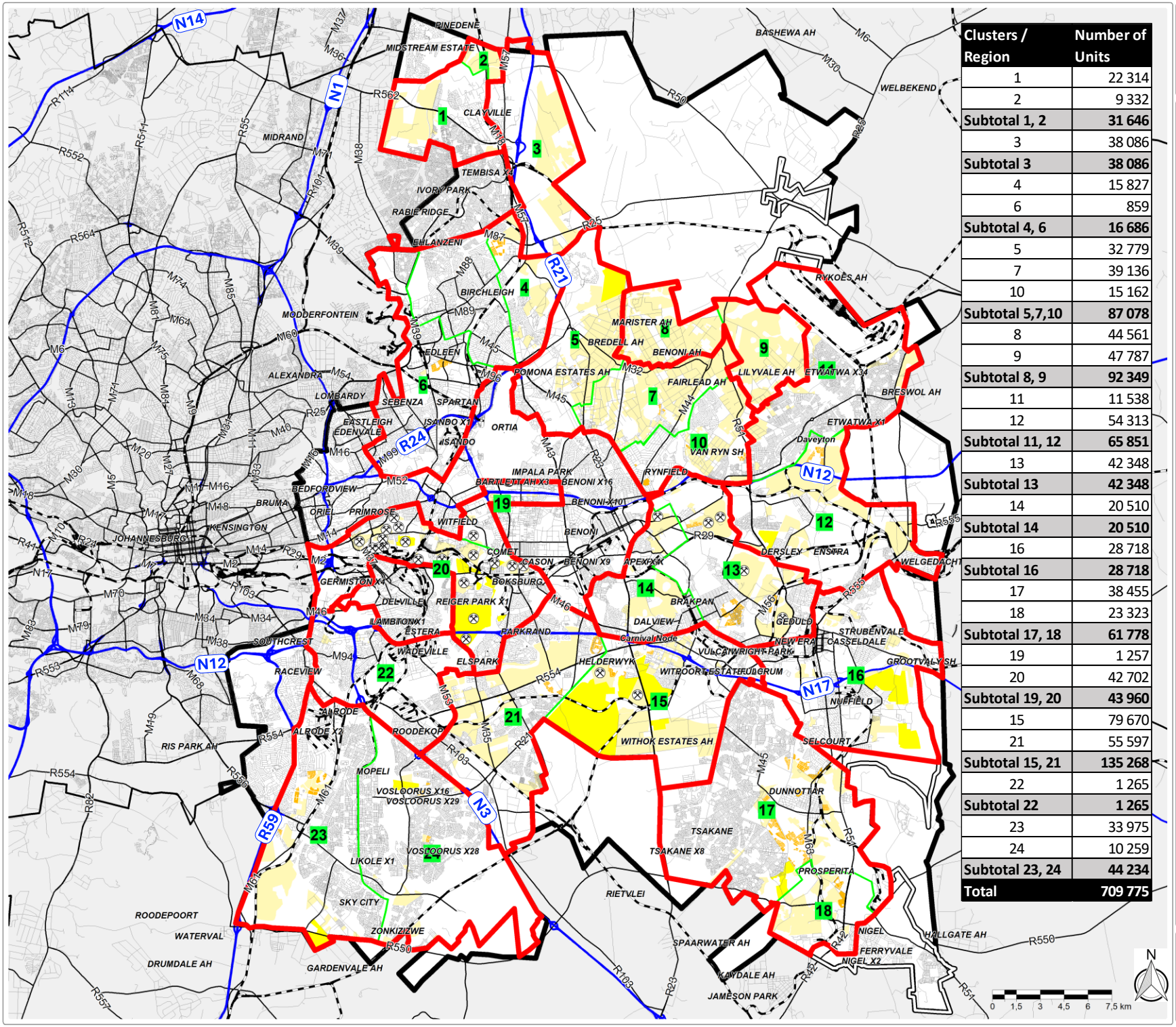
Categories / Region	Number of Units	%	Population	Residential Area (ha)	Total Developable Area (ha)	Nett Residential Density (du/ha)	Residential Area (%)
Vacant Erven in Existing Townships	41,279	6%	118,135	725	983	57	74%
Townships in Process	105,969	15%	303,267	1,915	4,036	55	47%
Vacant Developable Land (at 55du/ha)	562,526	79%	1,609,863	10,238	19,643	55	52%
Total	**709,775**	**100%**	**2,031,265**	**12,878**	**24,662**	**55**	**52%**
Subtotal North	128,257	18%	367,051	2,386	4,601	54	52%
Subtotal East	439,905	62%	1,258,940	8,056	15,338	55	53%
Subtotal South	141,613	20%	405,274	2,436	4,723	58	52%
Total	**709,775**	**100%**	**2,031,265**	**12,878**	**24,662**	**55**	**52%**
1 Subtotal: Tembisa North	22,314	3%	63,858	406	779	55	52%
2 Subtotal: Midstream	9,332	1%	26,706	170	326	55	52%
3 Subtotal: R -21 East	38,086	5%	108,996	693	1,330	55	52%
4 Subtotal: R -21 West	15,827	2%	45,295	289	543	55	53%
5 Subtotal: R -21 South	32,779	5%	93,810	618	1,242	53	50%
6 Subtotal: Kempton Park North	859	0%	2,459	45	65	19	69%
7 Subtotal: Benoni North	39,136	6%	112,003	716	1,371	55	52%
8 Subtotal: Benoni Far North	44,561	6%	127,528	815	1,560	55	52%
9 Subtotal: Daveyton North	47,787	7%	136,760	870	1,669	55	52%
10 Subtotal: Daveyton West	15,162	2%	43,391	285	549	53	52%
11 Subtotal: Daveyton	11,538	2%	33,019	210	403	55	52%
12 Subtotal: Daveyton South/Dersley	54,313	8%	155,435	1,003	1,885	54	53%
13 Subtotal: Benoni-Springs Mining Belt	42,348	6%	121,194	741	1,348	57	55%
14 Subtotal: Benoni/Carnival	20,510	3%	58,696	373	716	55	52%
15 Subtotal: Helderwyk/Withok	79,670	11%	228,004	1,343	2,947	59	46%
16 Subtotal: Daggafontein	28,718	4%	82,187	710	1,161	40	61%
17 Subtotal: Kwatsaduza North	38,455	5%	110,052	632	1,070	61	59%
18 Subtotal: Kwatsaduza South	23,323	3%	66,746	460	854	51	54%
19 Subtotal: East Rand Mall	1,257	0%	3,598	23	44	55	52%
20 Subtotal: Germiston-Boksburg Mining Belt	42,702	6%	122,208	679	1,422	63	48%
21 Subtotal: Leeupoort/Villa Liza	55,597	8%	159,111	1,004	1,893	55	53%
22 Subtotal: Alberton/Rand Airport	1,265	0%	3,619	23	44	55	52%
23 Subtotal: Katorus West	33,975	5%	97,232	600	1,097	57	55%
24 Subtotal: Katorus East	10,259	1%	29,359	169	343	61	49%
Total	**709,775**	**100%**	**2,031,265**	**12,878**	**24,662**	**55**	**52%**

TABLE B5.3.2: Expected Incremental Floor Area (m²) per Functional Area

				Floor Area (m²)	
Categories / Region	Number of Units	%	Population	Retail Floor Area (m²)	Office Floor Area (m²)
Vacant Erven in Existing Townships	41,279	6%	118,135	11,773	-
Townships in Process	105,969	15%	303,267	302,833	-
Vacant Developable Land (at 55du/ha)	562,526	79%	1,609,863	2,030,659	193,184
Total	**709,775**	**100%**	**2,031,265**	**2,345,265**	**193,184**
Subtotal North	128,257	18%	367,051	470,676	42,084
Subtotal East	439,905	62%	1,258,940	1,425,569	119,387
Subtotal South	141,613	20%	405,274	449,020	31,713
Total	**709,775**	**100%**	**2,031,265**	**2,345,265**	**193,184**
1 Subtotal: Tembisa North	22,314	3%	63,858	76,630	7,663
2 Subtotal: Midstream	9,332	1%	26,706	32,048	3,205
3 Subtotal: R -21 East	38,086	5%	108,996	130,795	13,079
4 Subtotal: R -21 West	15,827	2%	45,295	50,979	5,098
5 Subtotal: R -21 South	32,779	5%	93,810	151,529	9,752
6 Subtotal: Kempton Park North	859	0%	2,459	1,752	175
7 Subtotal: Benoni North	39,136	6%	112,003	163,442	13,410
8 Subtotal: Benoni Far North	44,561	6%	127,528	152,580	15,258
9 Subtotal: Daveyton North	47,787	7%	136,760	164,112	16,411
10 Subtotal: Daveyton West	15,162	2%	43,391	67,929	4,980
11 Subtotal: Daveyton	11,538	2%	33,019	43,074	3,962
12 Subtotal: Daveyton South/Dersley	54,313	8%	155,435	186,137	17,031
13 Subtotal: Benoni-Springs Mining Belt	42,348	6%	121,194	119,891	11,660
14 Subtotal: Benoni/Carnival	20,510	3%	58,696	72,798	7,043
15 Subtotal: Helderwyk/Withok	79,670	11%	228,004	239,545	13,305
16 Subtotal: Daggafontein	28,718	4%	82,187	73,537	3,971
17 Subtotal: Kwatsaduza North	38,455	5%	110,052	76,339	6,388
18 Subtotal: Kwatsaduza South	23,323	3%	66,746	78,961	7,896
19 Subtotal: East Rand Mall	1,257	0%	3,598	6,108	432
20 Subtotal: Germiston-Boksburg Mining Belt	42,702	6%	122,208	147,158	3,278
21 Subtotal: Leeupoort/Villa Liza	55,597	8%	159,111	178,509	17,851
22 Subtotal: Alberton/Rand Airport	1,265	0%	3,619	5,047	434
23 Subtotal: Katorus West	33,975	5%	97,232	92,224	8,592
24 Subtotal: Katorus East	10,259	1%	29,359	34,142	2,309
Total	**709,775**	**100%**	**2,031,265**	**2,345,265**	**193,184**

CITY OF EKURHULENI MSDF 2025

RESIDENTIAL DEVELOPMENT CAPACITY



Clusters / Region	Number of Units
1	22 314
2	9 332
Subtotal 1, 2	**31 646**
3	38 086
Subtotal 3	**38 086**
4	15 827
6	859
Subtotal 4, 6	**16 686**
5	32 779
7	39 136
10	15 162
Subtotal 5,7,10	**87 078**
8	44 561
9	47 787
Subtotal 8, 9	**92 349**
11	11 538
12	54 313
Subtotal 11, 12	**65 851**
13	42 348
Subtotal 13	**42 348**
14	20 510
Subtotal 14	**20 510**
16	28 718
Subtotal 16	**28 718**
17	38 455
18	23 323
Subtotal 17, 18	**61 778**
19	1 257
20	42 702
Subtotal 19, 20	**43 960**
15	79 670
21	55 597
Subtotal 15, 21	**135 268**
22	1 265
Subtotal 22	**1 265**
23	33 975
24	10 259
Subtotal 23, 24	**44 234**
Total	**709 775**

LEGEND

- District Municipal Boundaries
- Urban Development Boundary
- Class 1 Roads
- Class 2 Roads
- Railway Network
- Vacant Erven (Existing Approved Townships)
- Township Layouts (In Process
- Vacant Land (Future Residential)
- Functional Areas
- Functional Area Clusters
- Reclamation

City of Ekurhuleni

B5.3.3

TABLE B5.3.4: Expected Dwelling Units and Population per Functional Area Cluster

Categories / Region	Number of Units	%	Population
1 Subtotal: Tembisa North	22,314	3%	63,858
2 Subtotal: Midstream	9,332	1%	26,706
Subtotal 1, 2	**31,646**	**4%**	**90,565**
3 Subtotal: R -21 East	38,086	5%	108,996
Subtotal 3	**38,086**	**5%**	**108,996**
4 Subtotal: R -21 West	15,827	2%	45,295
6 Subtotal: Kempton Park North	859	0%	2,459
Subtotal 4, 6	**16,686**	**2%**	**47,754**
5 Subtotal: R -21 South	32,779	5%	93,810
7 Subtotal: Benoni North	39,136	6%	112,003
10 Subtotal: Daveyton West	15,162	2%	43,391
Subtotal 5,7,10	**87,078**	**12%**	**249,203**
8 Subtotal: Benoni Far North	44,561	6%	127,528
9 Subtotal: Daveyton North	47,787	7%	136,760
Subtotal 8, 9	**92,349**	**13%**	**264,288**
11 Subtotal: Daveyton	11,538	2%	33,019
12 Subtotal: Daveyton South/Dersley	54,313	8%	155,435
Subtotal 11, 12	**65,851**	**9%**	**188,454**
13 Subtotal: Benoni-Springs Mining Belt	42,348	6%	121,194
Subtotal 13	**42,348**	**6%**	**121,194**
14 Subtotal: Benoni/Carnival	20,510	3%	58,696
Subtotal 14	**20,510**	**3%**	**58,696**
16 Subtotal: Daggafontein	28,718	4%	82,187
Subtotal 16	**28,718**	**4%**	**82,187**
17 Subtotal: Kwatsaduza North	38,455	5%	110,052
18 Subtotal: Kwatsaduza South	23,323	3%	66,746
Subtotal 17, 18	**61,778**	**9%**	**176,798**
19 Subtotal: East Rand Mall	1,257	0%	3,598
20 Subtotal: Germiston-Boksburg Mining Belt	42,702	6%	122,208
Subtotal 19, 20	**43,960**	**6%**	**125,806**
15 Subtotal: Helderwyk/Withok	79,670	11%	228,004
21 Subtotal: Leeupoort/Villa Liza	55,597	8%	159,111
Subtotal 15, 21	**135,268**	**19%**	**387,115**
22 Subtotal: Alberton/Rand Airport	1,265	0%	3,619
Subtotal 22	**1,265**	**0%**	**3,619**
23 Subtotal: Katorus West	33,975	5%	97,232
24 Subtotal: Katorus East	10,259	1%	29,359
Subtotal 23, 24	**44,234**	**6%**	**126,591**
Total	**709,775**	**100%**	**2,031,265**

Annexure B 5.3.5: CoE Priority Development Areas: Expected Phasing of Development per Functional Area

Categories / Region	Short to Medium Term Priority (2025-2035)			Medium to Long Term Priority (2030-2040)			TOTAL		
	Number of Units	Residential Area (ha)	Total Developable Area (ha)	Number of Units	Residential Area (ha)	Total Developable Area (ha)	Number of Units	Residential Area (ha)	Total Developable Area (ha)
1 Subtotal: Tembisa North	22,314	406	779				22,314	406	779
2 Subtotal: Midstream	9,332	170	326				9,332	170	326
3 Subtotal: R -21 East				38,086	693	1,330	38,086	693	1,330
4 Subtotal: R -21 West	15,827	289	543				15,827	289	543
5 Subtotal: R -21 South	32,779	618	1,242				32,779	618	1,242
6 Subtotal: Kempton Park North	859	45	65				859	45	65
7 Subtotal: Benoni North	39,136	716	1,371				39,136	716	1,371
8 Subtotal: Benoni Far North				44,561	815	1,560	44,561	815	1,560
9 Subtotal: Daveyton North				47,787	870	1,669	47,787	870	1,669
10 Subtotal: Daveyton West	15,162	285	549				15,162	285	549
11 Subtotal: Daveyton	11,538	210	403				11,538	210	403
12 Subtotal: Daveyton South/Dersley	54,313	1,003	1,885				54,313	1,003	1,885
13 Subtotal: Benoni-Springs Mining Belt	8,396	123	163	33,952	618	1,186	42,348	741	1,348
14 Subtotal: Benoni/Carnival	20,510	373	716				20,510	373	716
15 Subtotal: Helderwyk/Withok	56,632	923	2,143	23,038	419	804	79,670	1,343	2,947
16 Subtotal: Daggafontein	28,718	710	1,161				28,718	710	1,161
17 Subtotal: Kwatsaduza North	38,455	632	1,070				38,455	632	1,070
18 Subtotal: Kwatsaduza South				23,323	460	854	23,323	460	854
19 Subtotal: East Rand Mall	1,257	23	44				1,257	23	44
20 Subtotal: Germiston-Boksburg Mining Belt	17,695	286	596	25,007	391	822	42,702	677	1,418
21 Subtotal: Leeupoort/Villa Liza	55,597	1,004	1,893				55,597	1,004	1,893
22 Subtotal: Alberton/Rand Airport	1,265	23	44				1,265	23	44
23 Subtotal: Katorus West	33,345	589	1,075	631	11	22	33,975	600	1,097
24 Subtotal: Katorus East	10,259	169	343				10,259	169	343
Total	**473,390**	**8,598**	**16,412**	**236,385**	**4,278**	**8,246**	**709,775**	**12,876**	**24,658**
%	**67%**	**67%**	**67%**	**33%**	**33%**	**33%**	**100%**	**100%**	**100%**
Subtotal North	80,029	1,508	2,917	48,228	878	1,684	128,257	2,386	4,601
Subtotal East	277,385	5,058	9,620	162,520	2,998	5,718	439,905	8,056	15,338
Subtotal South	115,975	2,033	3,878	25,638	403	844	141,613	2,436	4,722
Total	**473,390**	**8,600**	**16,415**	**236,385**	**4,278**	**8,246**	**709,775**	**12,878**	**24,661**
Subtotal North	62%	63%	63%	38%	37%	37%	100%	100%	100%
Subtotal East	63%	63%	63%	37%	37%	37%	100%	100%	100%
Subtotal South	82%	83%	82%	18%	17%	18%	100%	100%	100%
Total	**67%**	**67%**	**67%**	**33%**	**33%**	**33%**	**100%**	**100%**	**100%**
Subtotal North	17%	18%	18%	20%	21%	20%	18%	19%	19%
Subtotal East	59%	59%	59%	69%	70%	69%	62%	63%	62%
Subtotal South	24%	24%	24%	11%	9%	10%	20%	19%	19%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

ANNEXURE B5.4: INFORMAL SETTLEMENT

ANNEXURE B5.4.1: TRANSITIONAL INFORMAL SETTLEMENTS (IN-SUTU UPGRADING)

Number	Region	Name	Category	RSDF Use	LSDF Use	Precinct Plan Use	Comments	Comments on Transitional Use
1	E	Anchor	B1	Part Mining, Part Urban Development	N/A	N/A	Proposal supported, part of Daggafontein Project subject to alignment of proposed densities with the densification criteria in the MSDF/RSDF.	Scheme cannot be amended to "Residential". Township Establishment required. Suitable for transitional uses
2	A	Dukathole (Germiston Ext. 8)	A	High Density Residential >120 du/ha	N/A	N/A	In situ upgrading is aligned to RSDF.	Township Establishment required. Suitable for transitional uses
3	D	Emlotheni	A	Urban Development	N/A	Actonville – Wattville = Medium Density Residential	Rezoning already approved by Tribunal. Deviation in density.	Suitable for transitional uses
4	D	Ergo Squatters (Mkhancwa)	B1	Mixed Use – Light Industrial (Part PWV17 reserve)	N/A	N/A	Proposal supported, provided that the area affected by the PWV 17 is excluded.	Scheme cannot be amended to "Residential". Township Establishment required. Suitable for transitional uses – except in PWV17 reserve.
5	A	Good Hope	B1	High Density Residential >120 du/ha	N/A	N/A	In situ upgrading is aligned to RSDF.	Suitable for transitional uses
6	B	Inxiweni	B1	Municipal & Social Infrastructure	16 – Proposed infill housing	N/A	In situ upgrading is not aligned to RSDF but can be	Suitable for transitional uses

Number	Region	Name	Category	RSDF Use	LSDF Use	Precinct Plan Use	Comments	Comments on Transitional Use
							considered. Proposal is aligned to LSDF.	
7	B	Isiphethweni	A	Municipal & Social Infrastructure	16 – Educational Facility	N/A	In situ upgrading is not aligned to RSDF but can be considered subject to consideration of the availability of educational facilities in the area.	Suitable for transitional uses
8	F	Kanana 1, 2 (Montiki)	B1	Open Space	N/A	N/A	In situ upgrading is not aligned to RSDF and **should not be considered (environmental considerations).**	Not suitable for transitional uses.
9		Kwa Thema X3 Marikana	B1 & C	Open Space & Urban Development	N/A	N/A	Township establishment approved.	Suitable for transitional uses on land that is within the township.
10	F	Little Maseru	B1	Open Space & Urban Development	N/A	N/A	Land is partially affected by environmental constraints. Development aligned to RSDF and supported subject to alignment of proposed densities with the densification criteria in the MSDF/RSDF, as well as site-specific environmental assessment and environmental authorization / comments as may be required.	Suitable for transitional uses

Number	Region	Name	Category	RSDF Use	LSDF Use	Precinct Plan Use	Comments	Comments on Transitional Use
11	B	Madelakufa 1 (Igqagqa)	A	Open Space	17 – Passive Open Space	N/A	In situ upgrading is not aligned to RSDF but can be considered subject to site-specific environmental assessment and environmental authorization / comments as may be required.	Township Establishment required. Suitable for transitional uses
12	B	Madelakufa 2 (Isekelo)	A	Mostly Urban Development	17 – Passive Open Space	N/A	In situ upgrading is not aligned to RSDF but can be considered. This site does have significant environmental constraints subject to alignment of proposed densities with the densification criteria in the MSDF/RSDF, as well as site-specific environmental assessment and environmental authorization / comments as may be required.	Township Establishment required. Suitable for transitional uses
13	F	Mpilisweni	B1/C	Municipal & Social Instructure / Part Industrial	89- Infill Opportunities & Mixed Uses	Kathoza Junction – Business & Medium Density Residential	In situ upgrading is aligned to RSDF, LSDF and Precinct Plan – where development is possible. Geotechnical constraints must be considered.	Township Establishment required. Suitable for transitional uses
14		Nkanini	A & C				Reblocking underway.	Township Establishment required.

Number	Region	Name	Category	RSDF Use	LSDF Use	Precinct Plan Use	Comments	Comments on Transitional Use
								Suitable for transitional uses
15		Payneville X1 X3 Everest	A & C				Township approved.	Suitable for transitional uses
16	F	Phola Park	B1/C	Mostly Open Space	N/A	N/A	On a small portion can be developed due to the majority of the site being under a powerline servitude. Proposal is not aligned to the RSDF may be considered for deviation subject to site-specific environmental assessment and environmental authorization / comments as may be required.	Township Establishment required. Suitable for transitional uses
17	F	Sakhile (Mngadi)	B1	Urban Development	N/A	N/A	Township approved.	Township Establishment required. Suitable for transitional uses
18	F	Vumbuka – Sotho Hostel	A	Mixed Use - Residential	N/A	N/A	In situ upgrading is aligned to RSDF subject to alignment of proposed densities with the densification criteria in the MSDF/RSDF.	Township Establishment required. Suitable for transitional uses
19	B	Vusi Muzi / Ehlanzeni	B1/C	Cemetery & Urban Development	16 -Cemetery & Alternative Land for Relocation	N/A	In situ upgrading is not aligned to RSDF in respect of the cemetery but can be considered provided that Real Estate does not require the land	Township Establishment required. Suitable for transitional uses

Number	Region	Name	Category	RSDF Use	LSDF Use	Precinct Plan Use	Comments	Comments on Transitional Use
							for cemetery expansion.	
20		Winne Mandela 7	B1/C			N/A	Mostly not suitable for upgrading.	Not suitable for transitional uses.
21	E	Zamani	B1	Part Urban Development, Part Municipal & Social Infrastructure (K161 Reserve)	N/A	N/A	In situ upgrading is aligned to RSDF, although some parts of the site may be a deviation from the RSDF but can be considered. K161 to be excluded.	Township Establishment required. Suitable for transitional uses

ANNEXURE B5.4.2 INFORMAL SETTLEMENT RELOCATION / FORMALIZATION STRATEGY

Informal Settlement Name	Number of Households	Project Name	Prioritised Housing Development Area (PHDA)
Tamboville (Overflow)	14	Van Dyk Park-	GP CoE Brakpan and Tsakane
Wattville Erf 3100	16	Ápex Ext 12	GP CoE Brakpan and Tsakane
Msholozi	171	Payneville Ext 1	GP CoE Brakpan and Tsakane
Payneville Extension 1 and Payneville Extension 3(Gugulethu / Everest)	5985	Payneville Ext 1	GP CoE Brakpan and Tsakane
Weltervreden	319	Brakpan Ext 13 Brakpan Old Location	GP CoE Brakpan and Tsakane
Kwa Thema Ext 3 Marikana	1223	Brakpan Ext 13 Brakpan Old Location	GP CoE Brakpan and Tsakane
Never Never (Erf 612)	104	Brakpan Ext 13 Brakpan Old Location	GP CoE Brakpan and Tsakane
Brakpan North (State Mine)	136	Brakpan Ext 13 Brakpan Old Location	GP CoE Brakpan and Tsakane
Vlakfontein	851	Brakpan Ext 13 Brakpan Old Location	GP CoE Brakpan and Tsakane
Daggafontein	1649	Daggafontein	GP CoE Brakpan and Tsakane
Emlotheni	597	Leachville Ex2	GP CoE Brakpan and Tsakane
Ergo Squatters (Nkhancwa)	1118	Sallies Village Ext 1 (ERGO ROAD)	GP CoE Brakpan and Tsakane
Harry Gwala	772	Harry Gwala in situ	GP CoE Brakpan and Tsakane
Holomisa (Lindelani)	3174	Dalpark Ext 25	GP CoE Brakpan and Tsakane
Home Seekers	552	Chief Alberts Luthuli Ext 4	GP CoE Brakpan and Tsakane
Kwa Thema 425	138	Kwa Thema 425	GP CoE Brakpan and Tsakane
Kwa Thema 7A	11	Kwa Thema 7A	GP CoE Brakpan and Tsakane
Langaville 1 Informal/Siyahlala	395	John Dube village Ext 1	GP CoE Brakpan and Tsakane
Langaville 6 informal	2073	John Dube village Ext 1	GP CoE Brakpan and Tsakane
Langaville Proper (Double Allocations) School site/ Langaville 8	731	John Dube village Ext 1	GP CoE Brakpan and Tsakane
Skoonplaas (Eastvale)	171	Dersley	GP CoE Brakpan and Tsakane
Tsakane Ext 19 overflow (Railway)	205	Duduza	GP CoE Brakpan and Tsakane
N12 highway park	1945	MayField 46	GP CoE Daveyton
Umgababa	364	Mayfield Ext 45	GP CoE Daveyton
Beachfront	692	Mayfield Ext 46	GP CoE Daveyton
Emandleni	3675	Van Dyk Park-	GP CoE Daveyton
Chris Hani Prop, Ext 1/	543	Chris Hani X2	GP CoE Daveyton
Etwatwa Ext 18 (Sam Ntuli) partially developed (It is an overflow)	872	Etwatwa Ext 18	GP CoE Daveyton
Etwatwa Ext 19	408	Etwatwa Ext 19	GP CoE Daveyton
Etwatwa Ext 35 (Combiza)	279	Etwatwa Ext 35	GP CoE Daveyton

Informal Settlement Name	Number of Households	Project Name	Prioritised Housing Development Area (PHDA)
Etwatwa Ext 34 (Barcelona)	928	Etwatwa Ext 34 (Barcelona)	GP CoE Daveyton
Etwatwa Ext 36 (Kamashonisa)	96	Etwatwa Ext 36 (Kamashonisa)	GP CoE Daveyton
Etwatwa Ext 8, 21, 24	42	Mayfield X8	GP CoE Daveyton
Gabon	1879	Chief Luthuli Ext 6	GP CoE Daveyton
Lindelani/ Alliance Ext 9	4136	Allinace Ext 9	GP CoE Daveyton
Mayfield Ext 5 (Mina-Nawe)	56	mayfield ext 5	GP CoE Daveyton
Mayfield Ext 12	695	Mayfield Ext 12	GP CoE Daveyton
Mayfield Ext 6	310	Mayfield Ext 6	GP CoE Daveyton
Mayfield Ext 9 (Overflow)	450	Putfontein Portions	GP CoE Daveyton
Mayfield Ext 1 (Mangosuthu/Zenzele)	350	Mayfield Ext 1	GP CoE Daveyton
Putfontein 103/ Mayfeild 45	681	Mayfield 45	GP CoE Daveyton
Steve Biko/ Etwatwa Ext 18	872	Dersley	GP CoE Daveyton
Kaalfontein	282	Birchleigh North Ext 4 (Esselen Park)	GP CoE Ekurhuleni Northern PHDA
Inxiweni	39	Birchleigh North Ext 4 (Esselen Park)	GP CoE Ekurhuleni Northern PHDA
Isiphethweni	83	Birchleigh North Ext 4 (Esselen Park)	GP CoE Ekurhuleni Northern PHDA
Vusi Musi / Ehlanzeni	8257	Birchleigh North Ext 4 (Esselen Park)	GP CoE Ekurhuleni Northern PHDA
Winnie Mandela 1	2146	Tembisa 25	GP CoE Ekurhuleni Northern PHDA
Winnie Mandela 2		Tembisa 25	GP CoE Ekurhuleni Northern PHDA
Winnie Mandela 3		Tembisa 25	GP CoE Ekurhuleni Northern PHDA
Winnie Mandela 4&5		Tembisa 25	GP CoE Ekurhuleni Northern PHDA
Winnie Mandela 6		Tembisa 25	GP CoE Ekurhuleni Northern PHDA
Winnie Mandela 7		Tembisa 25	GP CoE Ekurhuleni Northern PHDA
L & J Informal Settlement	2351	Tembisa 25	GP CoE Ekurhuleni Northern PHDA
Brentwood Park plot 1/27	178	Pomona Estate	GP CoE Ekurhuleni Northern PHDA
Pomona Estates (Elgin Street)	103	Pomona Estate	GP CoE Ekurhuleni Northern PHDA
Pomona Estates plot 305	534	Pomona Estate	GP CoE Ekurhuleni Northern PHDA
Khayelitsha / Jamaica	1173	Ptn 15 Witfontein IR	GP CoE Ekurhuleni Northern PHDA
Sophia Town	667	Clayville ext 71	GP CoE Ekurhuleni Northern PHDA
Madelakufa 1 (Igqagqa)/	671	Clayville Ext 45 ,50, 71, 76-80	GP CoE Ekurhuleni Northern PHDA

Informal Settlement Name	Number of Households	Project Name	Prioritised Housing Development Area (PHDA)
Duduza North-Tswelopele	5366	Clayville Ext 45, 50, 71, 76-80	GP CoE Ekurhuleni Northern PHDA
Freedom Square	1568	Clayville Ext 45 , 50, 71, 76-80	GP CoE Ekurhuleni Northern PHDA
Madelakufa 2 (Isekelo)	2122	Madelakufa 2 (Isekelo)	GP CoE Ekurhuleni Northern PHDA
Nkanini/ Zonkezizwe	1032	Brakpan Ext 13 Brakpan Old Location	GP CoE Ekurhuleni Southern PHDA
Thusong	631	Upgrade completed	GP CoE Ekurhuleni Southern PHDA
Sakhile	881	Palm Ridge Ext 10 & 11	GP CoE Ekurhuleni Southern PHDA
Thulasizwe	100	Palm Ridge Ext 10 & 12	GP CoE Ekurhuleni Southern PHDA
Waterval.	100	Zwarkkopies-Preplanning	GP CoE Ekurhuleni Southern PHDA
Alberton Station	334	372 General Albertspark Ext 2	GP CoE Ekurhuleni Southern PHDA
Alrapark NB4:X4 new Wagplek /	785	Holgatfontein Mckenzieville	GP CoE Ekurhuleni Southern PHDA
Chris Hani Ext 2.	4202	Comet Village	GP CoE Ekurhuleni Southern PHDA
Blue sky (Padoa Street)	80	40 Rietfontein 63-IR	GP CoE Ekurhuleni Southern PHDA
Ekuthuleni	1062	Rietfontein Kwathema	GP CoE Ekurhuleni Southern PHDA
Kanana 1, 2 (Montiki)	48	Rietspruit / Rietfontein	GP CoE Ekurhuleni Southern PHDA
Emalahleni / Thintwa	400	Mayberry Ext 2	GP CoE Ekurhuleni Southern PHDA
Hollywood Heights (Lodeyko)/Kwasa	54	Van Eck ext 2	GP CoE Ekurhuleni Southern PHDA
Zamani	785	John Dube village Ext 1	GP CoE Ekurhuleni Southern PHDA
Little Maseru / Vlakplaas	274	Erf 18383 and 6519 Vosloorus Ext 9	GP CoE Ekurhuleni Southern PHDA
Marathon / Delport	2583	R/2Elandsfontein 90-IR	GP CoE Ekurhuleni Southern PHDA
Masetjaba View Ext 1 (Kwandlovu)	2851	Masetjaba View Ext 1	GP CoE Ekurhuleni Southern PHDA
Moleleki Ext 1 & 2 (Siphamandla)	439	Moleleki Ext 1 and 2	GP CoE Ekurhuleni Southern PHDA
Mpilisweni (Partially developed)	1844	Mayberry Ext 2	GP CoE Ekurhuleni Southern PHDA
Palm Ridge Ext 9 Informal/ Riverside,	5055	Palm Ridge Ext 9	GP CoE Ekurhuleni Southern PHDA
Peter Mokaba	423	Vosloorus Ext 28	GP CoE Ekurhuleni Southern PHDA
Ramakonopi East	83	Katlehong Roodekop	GP CoE Ekurhuleni Southern PHDA
Somalia	1940	Villa Liza Ext 4	GP CoE Ekurhuleni Southern PHDA

Informal Settlement Name	Number of Households	Project Name	Prioritised Housing Development Area (PHDA)
Sotho Hostel Displacees (Vumbuka)	769	Sotho Hostel Displacees (Vumbuka)	GP CoE Ekurhuleni Southern PHDA
Ulana Settlement (Knights)/ Delomore	3505	Balmoral Extension 4 and Balmoral Extension 5	GP CoE Ekurhuleni Southern PHDA
Villa Farm (this is a transit camp)	997	Villa Liza Ext 5	GP CoE Ekurhuleni Southern PHDA
Villa Liza X2 Holding Area/ Loliwe	1481	Villa Liza Ext 5	GP CoE Ekurhuleni Southern PHDA
Vosloorus Ext 21 (Vlakplaas)	279	Vosloorus Ext 9	GP CoE Ekurhuleni Southern PHDA
Zamaland	646	Vosloorus Ext 28	GP CoE Ekurhuleni Southern PHDA
Zama-Zama (Rivonia)	248	Zwartkopppies	GP CoE Ekurhuleni Southern PHDA
Driefontein	398	Ptn 394 &521 Driefontein 85-IR	GP CoE Germiston/Boksburg/Benoni Central Mining Belt
Makause	9153	Driefontein 87 IR	GP CoE Germiston/Boksburg/Benoni Central Mining
.Jerusalem	2528	Rem Ptn 503; Ptn523&30 Driefontein 85-IR	GP CoE Germiston/Boksburg/Benoni Central Mining Belt
Rooikop Station	533	Leeuwpoort	GP CoE Germiston/Boksburg/Benoni Central Mining Belt
Hlahane (Silahliwe, Emlotheni)	303	Leeuwpoort	GP CoE Germiston/Boksburg/Benoni Central Mining
Tamaho	1863	Leeuwpoort	GP CoE Germiston/Boksburg/Benoni Central Mining Belt
Crossroads (Roodekop Ext 3)	332	Leeuwpoort	GP CoE Germiston/Boksburg/Benoni Central Mining Belt
Joe Slovo	1228	Leeuwpoort	GP CoE Germiston/Boksburg/Benoni Central Mining Belt
Kalamazoo	68	Leeuwpoort	GP CoE Germiston/Boksburg/Benoni Central Mining
Reigerpark School Erf	611	Reiger Park Ext 24-Approved Township	GP CoE Germiston/Boksburg/Benoni Central Mining Belt
Ramaphosa Road Reserve	2104	Reiger Park Ext 24-Approved Township	GP CoE Germiston/Boksburg/Benoni Central Mining
Tokyo Sexwale	2157	Reiger Park Ext 9-Approved Township	GP CoE Germiston/Boksburg/Benoni Central Mining Belt
Angelo Hotel (Tambo)	748	Comet Village	GP CoE Germiston/Boksburg/Benoni Central Mining
Garden Park (Clide Pinnoy)	25	Mapleton Ext 10	GP CoE Germiston/Boksburg/Benoni Central Mining Belt
Good Hope	1876	Germiston ext 44	GP CoE Germiston/Boksburg/Benoni Central Mining Belt
Kanana	728	REIGER PARK EXT 24	GP CoE Germiston/Boksburg/Benoni Central Mining Belt

ANNEXURE B5.5: COMMUNITY FACILITIES

TABLE B5.5.1: INCREMENTAL LOWER ORDER COMMUNITY FACILITIES REQUIRED PER FUNCTIONAL AREA CLUSTER (2040)

				Local Community Facilities							
				Education Facilities				Health Services	Cultural		Civic
Categories / Region	Number of Units	%	Population	Small Crèche	ECD Hub and Care Centre	Primary (including Grade R)	Secondary	Primary Health Clinic	Local Library	Worship Centre	Post Office/ICT Access Point
1 Subtotal: Tembisa North	22,314	3%	63,858	27	3	9	5	3	3	21	6
2 Subtotal: Midstream	9,332	1%	26,706	11	1	4	2	1	1	9	3
Subtotal 1, 2	**31,646**	**4%**	**90,565**	**38**	**5**	**13**	**7**	**4**	**5**	**30**	**9**
3 Subtotal: R -21 East	38,086	5%	108,996	45	5	16	9	5	5	36	11
Subtotal 3	**38,086**	**5%**	**108,996**	**45**	**5**	**16**	**9**	**5**	**5**	**36**	**11**
4 Subtotal: R -21 West	15,827	2%	45,295	18	2	6	3	2	2	14	4
6 Subtotal: Kempton Park North	859	0%	2,459	1	0	0	0	0	0	0	0
Subtotal 4, 6	**16,686**	**2%**	**47,754**	**18**	**2**	**6**	**4**	**2**	**2**	**15**	**4**
5 Subtotal: R -21 South	32,779	5%	93,810	36	4	14	7	3	4	29	8
7 Subtotal: Benoni North	39,136	6%	112,003	47	6	16	9	5	6	37	11
10 Subtotal: Daveyton West	15,162	2%	43,391	17	2	7	3	2	2	14	4
Subtotal 5,7,10	**87,078**	**12%**	**249,203**	**100**	**12**	**37**	**19**	**10**	**12**	**80**	**23**
8 Subtotal: Benoni Far North	44,561	6%	127,528	53	6	18	10	5	6	42	13
9 Subtotal: Daveyton North	47,787	7%	136,760	57	7	20	11	6	7	46	14
Subtotal 8, 9	**92,349**	**13%**	**264,288**	**110**	**13**	**38**	**21**	**11**	**13**	**88**	**26**
11 Subtotal: Daveyton	11,538	2%	33,019	14	2	5	3	1	2	11	3
12 Subtotal: Daveyton South/Dersley	54,313	8%	155,435	59	7	22	11	6	7	48	14
Subtotal 11, 12	**65,851**	**9%**	**188,454**	**73**	**9**	**27**	**14**	**7**	**9**	**59**	**17**
13 Subtotal: Benoni-Springs Mining Belt	42,348	6%	121,194	40	5	14	8	4	5	32	10
Subtotal 13	**42,348**	**6%**	**121,194**	**40**	**5**	**14**	**8**	**4**	**5**	**32**	**10**
14 Subtotal: Benoni/Carnival	20,510	3%	58,696	24	3	8	5	2	3	20	6
Subtotal 14	**20,510**	**3%**	**58,696**	**24**	**3**	**8**	**5**	**2**	**3**	**20**	**6**
16 Subtotal: Daggafontein	28,718	4%	82,187	17	2	8	5	3	4	14	4
Subtotal 16	**28,718**	**4%**	**82,187**	**17**	**2**	**8**	**5**	**3**	**4**	**14**	**4**
17 Subtotal: Kwatsaduza North	38,455	5%	110,052	28	3	11	4	4	4	22	8
18 Subtotal: Kwatsaduza South	23,323	3%	66,746	27	3	10	5	3	3	23	7
Subtotal 17, 18	**61,778**	**9%**	**176,798**	**55**	**6**	**21**	**10**	**7**	**8**	**45**	**14**
19 Subtotal: East Rand Mall	1,257	0%	3,598	1	0	1	0	0	0	1	0
20 Subtotal: Germiston-Boksburg Mining Belt	42,702	6%	122,208	18	1	14	5	2	2	11	4
Subtotal 19, 20	**43,960**	**6%**	**125,806**	**19**	**2**	**14**	**5**	**2**	**3**	**12**	**4**
15 Subtotal: Helderwyk/Withok	79,670	11%	228,004	59	6	32	17	9	11	47	15
21 Subtotal: Leeupoort/Villa Liza	55,597	8%	159,111	62	7	21	12	6	7	50	15
Subtotal 15, 21	**135,268**	**19%**	**387,115**	**121**	**13**	**53**	**29**	**16**	**18**	**97**	**30**
22 Subtotal: Alberton/Rand Airport	1,265	0%	3,619	2	0	1	0	0	0	1	0
Subtotal 22	**1,265**	**0%**	**3,619**	**2**	**0**	**1**	**0**	**0**	**0**	**1**	**0**
23 Subtotal: Katorus West	33,975	5%	97,232	30	4	11	7	3	4	24	7
24 Subtotal: Katorus East	10,259	1%	29,359	9	1	3	2	1	1	7	2
Subtotal 23, 24	**44,234**	**6%**	**126,591**	**39**	**5**	**15**	**8**	**4**	**5**	**31**	**9**
Total	**709,775**	**100%**	**2,031,265**	**702**	**80**	**270**	**143**	**77**	**91**	**561**	**169**

TABLE B5.5.2: EXPECTED INCREMENTAL HIGHER ORDER COMMUNITY FACILITIES REQUIRED PER CLUSTER (2040)

Categories / Region	Number of Units	%	Population	Regional Community Facilities															
				Education Facilities			Health Services			Safety and Security		Civic/Social							
				Special Education	Tertiary/ Skills Training	University /Technology	Community Health Centre	District Hospital L1	Regional Hospital L2	Police	Fire Station	Regional Library	Regional Library - Reference	Thusong Centre	Municipal Office	Major Public Event Venue	Community Hall (large)	Cemetery (large)	Crematorium
1 Subtotal: Tembisa North	22,314	3%	63,858	0	0	0	1	0	0	1	1	0	0	0	0	0	1	1	0
2 Subtotal: Midstream	9,332	1%	26,706	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 1, 2	**31,646**	**4%**	**90,565**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**
3 Subtotal: R -21 East	38,086	5%	108,996	0	0	0	1	0	0	2	2	1	0	0	0	0	2	1	1
Subtotal 3	**38,086**	**5%**	**108,996**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**2**	**1**	**0**	**0**	**0**	**0**	**2**	**1**	**1**
4 Subtotal: R -21 West	15,827	2%	45,295	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0
6 Subtotal: Kempton Park North	859	0%	2,459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 4, 6	**16,686**	**2%**	**47,754**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**
5 Subtotal: R -21 South	32,779	5%	93,810	0	0	0	1	0	0	1	1	0	0	1	0	0	1	1	0
7 Subtotal: Benoni North	39,136	6%	112,003	0	0	0	1	0	0	2	2	1	0	0	0	0	2	1	1
10 Subtotal: Daveyton West	15,162	2%	43,391	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0
Subtotal 5,7,10	**87,078**	**12%**	**249,203**	**1**	**1**	**0**	**2**	**1**	**0**	**4**	**4**	**1**	**1**	**2**	**1**	**0**	**4**	**2**	**1**
8 Subtotal: Benoni Far North	44,561	6%	127,528	0	0	0	1	0	0	2	2	1	0	0	0	0	2	1	1
9 Subtotal: Daveyton North	47,787	7%	136,760	0	0	0	1	0	0	2	2	1	0	0	0	0	2	1	1
Subtotal 8, 9	**92,349**	**13%**	**264,288**	**1**	**1**	**0**	**3**	**1**	**0**	**4**	**4**	**1**	**1**	**1**	**1**	**0**	**4**	**3**	**1**
11 Subtotal: Daveyton	11,538	2%	33,019	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0
12 Subtotal: Daveyton South/Dersley	54,313	8%	155,435	0	0	0	1	0	0	2	2	1	0	0	0	0	2	1	1
Subtotal 11, 12	**65,851**	**9%**	**188,454**	**0**	**0**	**0**	**2**	**1**	**0**	**3**	**3**	**1**	**0**	**0**	**0**	**0**	**3**	**2**	**1**
13 Subtotal: Benoni-Springs Mining Belt	42,348	6%	121,194	0	0	0	1	0	0	2	2	0	0	0	0	0	2	1	0
Subtotal 13	**42,348**	**6%**	**121,194**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**
14 Subtotal: Benoni/Carnival	20,510	3%	58,696	0	0	0	1	0	0	1	1	0	0	0	0	0	1	1	0
Subtotal 14	**20,510**	**3%**	**58,696**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**
16 Subtotal: Daggafontein	28,718	4%	82,187	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0
Subtotal 16	**28,718**	**4%**	**82,187**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**
17 Subtotal: Kwatsaduza North	38,455	5%	110,052	0	0	0	1	0	0	1	1	0	0	1	0	0	3	1	0
18 Subtotal: Kwatsaduza South	23,323	3%	66,746	0	0	0	1	0	0	1	1	0	0	0	0	0	1	1	0
Subtotal 17, 18	**61,778**	**9%**	**176,798**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**2**	**1**	**0**	**1**	**0**	**0**	**4**	**1**	**1**
19 Subtotal: East Rand Mall	1,257	0%	3,598	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20 Subtotal: Germiston-Boksburg Mining Belt	42,702	6%	122,208	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Subtotal 19, 20	**43,960**	**6%**	**125,806**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**
15 Subtotal: Helderwyk/Withok	79,670	11%	228,004	0	0	0	1	0	0	3	3	1	0	0	0	0	3	1	1
21 Subtotal: Leeupoort/Villa Liza	55,597	8%	159,111	0	0	0	1	0	0	2	2	1	0	0	0	0	2	1	1
Subtotal 15, 21	**135,268**	**19%**	**387,115**	**1**	**1**	**0**	**3**	**1**	**0**	**5**	**5**	**1**	**1**	**1**	**1**	**0**	**5**	**3**	**1**
22 Subtotal: Alberton/Rand Airport	1,265	0%	3,619	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 22	**1,265**	**0%**	**3,619**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
23 Subtotal: Katorus West	33,975	5%	97,232	0	0	0	1	0	0	1	1	0	0	0	0	0	1	1	0
24 Subtotal: Katorus East	10,259	1%	29,359	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 23, 24	**44,234**	**6%**	**126,591**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**

TABLE B5.5.3: EXPECTED INCREMENTAL COMMUNITY FACILITIES

			Local Community Facilities								Regional Community Facilities																
			Education Facilities				Health Services	Cultural		Civic	Education Facilities			Health Services			Safety and Security		Civic/Social								
Categories / Region	Number of Units	Population	Small Crèche	ECD Hub and Care Centre	Primary (including Grade R)	Secondary	Primary Health Clinic	Local Library	Worship Centre	Post Office/ICT Access Point	Special Education	Tertiary/ Skills Training	University/Technology	Community Health Centre	District Hospital L1	Regional Hospital L2	Police	Fire Station	Regional Library	Regional Library - Reference	Thusong Centre	Municipal Office	Major Public Event Venue	Community Hall (large)	Cemetery (large)	Crematorium
Vacant Erven in Existing Townships	41,279	118,135	-	-	3	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-
Townships in Process	105,969	303,267	31	-	37	14	8	9	23	7	-	-	-	-	-	-	2	2	-	-	1	-	-	4	-	-
Vacant Developable Land (at 55du/ha)	562,526	1,609,863	671	80	230	129	67	80	537	161	4	4	2	16	5	1	27	27	8	4	4	4	2	27	16	8
Total	**709,775**	**2,031,265**	**702**	**80**	**270**	**143**	**77**	**91**	**561**	**169**	**4**	**4**	**2**	**16**	**5**	**1**	**28**	**28**	**8**	**4**	**6**	**4**	**2**	**31**	**16**	**8**
Subtotal North	128,257	367,051	148	18	52	28	15	18	119	35	1	1	0	4	1	0	6	6	2	1	2	1	0	6	4	2
Subtotal East	439,905	1,258,940	436	50	169	90	50	59	351	107	2	2	1	10	3	1	18	18	5	2	3	2	1	20	10	5
Subtotal South	141,613	405,274	118	13	49	25	12	14	91	27	1	1	0	3	1	0	4	4	1	1	1	1	0	5	3	1
Total	**709,775**	**2,031,265**	**702**	**80**	**270**	**143**	**77**	**91**	**561**	**169**	**4**	**4**	**2**	**16**	**5**	**1**	**28**	**28**	**8**	**4**	**6**	**4**	**2**	**31**	**16**	**8**
1 Subtotal: Tembisa North	22,314	63,858	27	3	9	5	3	3	21	6	0	0	0	1	0	0	1	1	0	0	0	0	0	1	1	0
2 Subtotal: Midstream	9,332	26,706	11	1	4	2	1	1	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Subtotal: R -21 East	38,086	108,996	45	5	16	9	5	5	36	11	0	0	0	1	0	0	2	2	1	0	0	0	0	2	1	1
4 Subtotal: R -21 West	15,827	45,295	18	2	6	3	2	2	14	4	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0
5 Subtotal: R -21 South	32,779	93,810	36	4	14	7	3	4	29	8	0	0	0	1	0	0	1	1	0	0	1	0	0	1	1	0
6 Subtotal: Kempton Park North	859	2,459	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Subtotal: Benoni North	39,136	112,003	47	6	16	9	5	6	37	11	0	0	0	1	0	0	2	2	1	0	0	0	0	2	1	1
8 Subtotal: Benoni Far North	44,561	127,528	53	6	18	10	5	6	42	13	0	0	0	1	0	0	2	2	1	0	0	0	0	2	1	1
9 Subtotal: Daveyton North	47,787	136,760	57	7	20	11	6	7	46	14	0	0	0	1	0	0	2	2	1	0	0	0	0	2	1	1
10 Subtotal: Daveyton West	15,162	43,391	17	2	7	3	2	2	14	4	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0
11 Subtotal: Daveyton	11,538	33,019	14	2	5	3	1	2	11	3	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0
12 Subtotal: Daveyton South/Dersley	54,313	155,435	59	7	22	11	6	7	48	14	0	0	0	1	0	0	2	2	1	0	0	0	0	2	1	1
13 Subtotal: Benoni-Springs Mining Belt	42,348	121,194	40	5	14	8	4	5	32	10	0	0	0	1	0	0	2	2	0	0	0	0	0	2	1	0
14 Subtotal: Benoni/Carnival	20,510	58,696	24	3	8	5	2	3	20	6	0	0	0	1	0	0	1	1	0	0	0	0	0	1	1	0
15 Subtotal: Helderwyk/Withok	79,670	228,004	59	6	32	17	9	11	47	15	0	0	0	1	0	0	3	3	1	0	0	0	0	3	1	1
16 Subtotal: Daggafontein	28,718	82,187	17	2	8	5	3	4	14	4	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0
17 Subtotal: Kwatsaduza North	38,455	110,052	28	3	11	4	4	4	22	8	0	0	0	1	0	0	1	1	0	0	1	0	0	3	1	0
18 Subtotal: Kwatsaduza South	23,323	66,746	27	3	10	5	3	3	23	7	0	0	0	1	0	0	1	1	0	0	0	0	0	1	1	0
19 Subtotal: East Rand Mall	1,257	3,598	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20 Subtotal: Germiston-Boksburg Mining Belt	42,702	122,208	18	1	14	5	2	2	11	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
21 Subtotal: Leeupoort/Villa Liza	55,597	159,111	62	7	21	12	6	7	50	15	0	0	0	1	0	0	2	2	1	0	0	0	0	2	1	1
22 Subtotal: Alberton/Rand Airport	1,265	3,619	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 Subtotal: Katorus West	33,975	97,232	30	4	11	7	3	4	24	7	0	0	0	1	0	0	1	1	0	0	0	0	0	1	1	0
24 Subtotal: Katorus East	10,259	29,359	9	1	3	2	1	1	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**709,775**	**2,031,265**	**702**	**80**	**270**	**143**	**77**	**91**	**561**	**169**	**4**	**4**	**2**	**16**	**5**	**1**	**28**	**28**	**8**	**4**	**6**	**4**	**2**	**31**	**16**	**8**

ANNEXURE B5.5.4: CSIR NORMS AND STANDARDS FOR COMMUNITY FACILITIES

Social and community facilities are an important part of developing strong communities. As the size of the population increases over time, this growth will put pressure on existing facilities and create a need for new social and community resources.

Most assessments use the broad guidelines from the CSIR to determine the need for education facilities. These assessments are often done without taking into consideration the existing capacity of the facilities and ignore the distance metric that plays a critical role in the provision of education facilities. Another factor that is often disregarded is to assess the actual age groupings of the municipality's population. These factors all contribute to the need for these facilities.

The CSIR norms, as reflected below, provide important guidelines pertaining where (reach / distance) and the service population applicable to various types of facilities. It also indicates whether a facility is deconed:

- C = Compulsory (basic essential service)
- D = Discretionary (non-essential provision based on undersupply/unserved need, distance or other factors including funding availability)
- R = Recommended (valuable services that are unfunded or non-essential

Table B5.5.4.1: Health and emergency services

Facilities	Average threshold (population)	Acceptable travel distance (km)	Provision criteria	Comments
Tertiary Hospital L3	2 400 000	Variable	D	
Regional Hospital L2	1 770 000	See comment	C/D	Compulsory above 1.5 million the thresholds but may be required in cities with a lower threshold such as 900 000+ if access distances are greater than 200 km to a comparable facility elsewhere
District Hospital L1	300 000 - 900 000	30 km	C	Not required if residents can reach (within 30 km) any higher-order hospital that is not overburdened
Community Health Centre	100 000 - 140 000	90% of the population served within 5 km*	C	*National Department of Health target
Primary Health Clinic	24 000 - 70 000	90% of the population served within 5 km*	C	*National Department of Health target
Fire Station	60 000 - 100 000	8 - 23 minutes (response time)	C	Area coverage and reach versus people/land use in the specific area will have to be evaluated; SABS standard
Police Station	60 000 - 100 000	8 km metro; 15 km peri-urban 24 km other	C	Central location is critical, but demand factors and access of population will dictate location and size. SAPS Contact Points are used in areas not warranting a fully-fledged station, but which are beyond the SAPS distance criteria of 24 km

Table B5.5.4.2: Social and cultural (public service facilities)

Facilities	Average threshold (population)	Acceptable travel distance (km)	Provision criteria	Comments
Performing Arts Centre - major	Variable	100 km	C/D	Site or purpose-specific
Community Performing Arts Centre	50 000	10 - 15 km	R	Unfunded and demand-driven
Museum - larg	500 000	30 km	D	
Museum - medium/small	Variable	Variable	D	Site-specific demand
Regional Library - Reference	450 000	50 km	C	
Regional Library	200 000	15 km	C	
Local Library	20 000 - 70 000	8 km - 10 km	C	Discretionary provision if regional library is within 5 km
Mobile Library	Variable	Variable	D	Needs-based for isolated or special categories, i.e. homes for the aged or people with disabilities

Table B5.5.4.3: Civic facilities

Facilities	Average threshold (population)	Acceptable travel distance (km)	Provision criteria	Comments
Major Public Event Venue	1 000 000+	60 km	C	Central location is critical. Sports stadium can be used as an alternative
Home Affairs - large office	400 000	15 km preferred; 25 km maximum to at least one facility type	C	Central location important; linked to Thusong Centres. Mixture of facility sizes to meet maximum population
Home Affairs – medium office	160 000	15 km preferred; 25 km maximum to at least one facility type	C	Central location important; linked to Thusong Centres. Mixture of facility sizes to meet maximum population
Home Affairs – small office	40 000	15 km preferred; 25 km maximum to at least one facility type	D	Central location important; linked to Thusong Centres. Mixture of facility sizes to meet maximum population
Thusong Centre (community-based "one-stop" development centres)	1 per Local Municipality	15 km; maximum 25 km	C	Development of government precincts zones can be used as an alternative, i.e. a grouping of Home Affairs, SASSA, Labour (zone of not more than 1 km radius)

Facilities	Average threshold (population)	Acceptable travel distance (km)	Provision criteria	Comments
Labour Office	Variable	1 15 km urban; 25 km peri-urban	C	Linked to Thusong Centres
Magistrate's Court	Variable	Undetermined at this stage	C	Minimum of 1 Regional Court per | District Municipality; 1 or more District Courts per Local Municipality
Municipal Office	1 per Local Municipality	30 km	C	May be divided among administrative regions of the metro
Prison and Place of Safety	n/a	Variable	C	Regional-scale provision
Solid Waste Disposal Site and Recycling Depot	n/a	1 Variable	C	1 Municipal/Sub-municipal provision

Table B5.5.4.4: Social services facilities

Facilities	Average threshold (population)	Acceptable travel distance (km)	Provision criteria	Comments
Community Hall - large	60 000	10 km	C	
Community Hall - medium/small (fringe areas)	10 000 - 15 000	15 km	D	Where others not within reach
Children's Home	Variable	n/a	R	Require access to schools, sports and health facilities
Home for the Aged	Variable	n/a	R	Peripheral location on public | transport routes with access to shops, libraries and medical facilities
ICT Access Point	10 000+	5 km	C	Located within libraries, Postal Agency, Thusongs, etc
Post Office/Agency with post boxes	10 000 - 20 000	5 km - 10 km	C	Central location critical
Post Boxes	See comment	2 km	R	Should be provided in addition to a Post Office where there is no home postal delivery
SASSA Office (Social Service Office)	Variable	15 km urban; 20 km peri-urban	C	Services should be offered from fixed points for five days a week from infrastructure such as Thusong Centres, community halls or one-stop development centres

Facilities	Average threshold (population)	Acceptable travel distance (km)	Provision criteria	Comments
Social Grant Pay Point	40 000	5 km	C	Multiple points within the nodal area.
Cemetery (large)	17.2 ha/100 000 (can be distributed)	30 km	C	Assumes annual death rate of 1.6% and 90% of the dead are buried, recycling of graves (40% of graves after ten years and 30% after 20 years)
Crematorium	200 000+	30 km	C	

Table B5.5.4.5: Education facilities

Facilities	Average threshold (population)	Acceptable travel distance (km)	Provision criteria	Comments
University/University of Technology	1 000 000+	Variable	D	
Post-matric Skills Training (i.e. nursing teaching, etc.)	400 000	20 km	C	
ABET/Skill Training	Variable	25 km	R	Variety of institutions mostly with no sports facilities and of limited spatial extent. Centrally located
Special Education	Still to be determined	20 km	R	Range of alternate types required. Special school transport may be necessary
Secondary School	12 500	5 km	C	With or without sports facilities, new schools to use communal sports facilities if available
Primary School	7 000	5 km	C	With or without sports facilities, new schools to use communal sports facilities if available
Grade R Class at Primary School	1 000	2 km (preferred) - 5 km	C	Linked to Primary School
Small Creche/Early Childhood Development Centre	2 400 - 3 000	2 km	C	Supports working parents so can be located close to employment centres as well as to residential areas; location close to parks is recommended

Facilities	Average threshold (population)	Acceptable travel distance (km)	Provision criteria	Comments
ECD Resource Hub and Care Centre	20 000	5 km	C	Located to support a number of schools, i.e. 1 hub per 6 - 10 creches

Table5.5.4.6: Recreation provision (sports and parks)

Facilities	Average threshold (population)	Acceptable travel distance (km)	Provision criteria	Comments
International Sports Complex	1 500 000	50 km	R	
Indoor Sports Hall (medium/large)	250 000 - 500 000	10 km - 30 km	C	Public transport access essential. Clustered with other sports facilities
Regional Sports Stadium	200 000 - 300 000	15 km	C	Public transport access essential. Clustered with other sports facilities
Sports Complex with 9 - 12 court sports hall, etc.	200 000	15 km	C	
Total provision for all facilities below is approximately 0.56 ha/1 000 people. Thresholds are approximate, and access distances illustrative. Facilities should be consolidated to develop facility complexes. Approximately 20% of this allocation is for regional facilities and 40% each for community and neighbourhood facilities. Where possible open space and parks should be linked to reduce maintenance costs and increase the extent of "green lungs."				

Facilities	Average threshold (population)	Acceptable travel distance (km)	Provision criteria	Comments
Grassed surface (2 football fields equivalent)	15 000	3 km	Compulsory provision of facilities in terms of the land per people ratio but the provision of specific types of facilities should be based on community needs and budgetary	Adjust the number of playing surface types to local preferences. Only required for local residents if no other higher-order facilities are provided within reach. Sharing of facilities between schools and the wider community-recommended
Sports Complex (Grouping of fields and/or sports complexes)	60 000	10 km		
Grassed field (2 football fields equivalent) with 500-seat stand	30 000	5 km		
Cricket Oval	60 000	10 km		Well located in terms of the road network and spatial plan of region; cluster with other sports if possible
Athletics/Cricket Stadium (grassed field and athletics track and stand - 3 000+ seats)	60 000	10 km		Public transport access essential. Clustered with other sports facilities
Combi-court surface (x2)	15 000	3 km		
Combi-court surface (x4)	60 000	10 km		

Facilities	Average threshold (population)	Acceptable travel distance (km)	Provision criteria	Comments
Multi-purpose Sports Hall (2 court)	100 000	10 km		Public transport access essential. Clustered with other sports facilities
Multi-purpose Sports Hall (4 court)	160 000	15 km		Public transport access essential. Clustered with other sports facilities
Swimming Pool Complex (25 m to 33 m pool)	80 000	5 km - 10 km		Public transport access essential. Clustered with other sports facilities. Discretionary provision if within 15 km of 50 m pool
Swimming Pool (50 m pool)	500 000 - 1 000 000	Variable		Public transport access essential. Clustered with other regional type facilities
Total provision for all facilities below is approximately 0.5 ha/1 000 (ongoing research is being conducted on the desirability of reducing this; current indications are that for user's quality is more important than quantity). The rand should be consolidated in developing the facilities below. Thresholds are approximate. Approximately 40% of this allocation is for strategic (regional) and district facilities and 60% for community, urban and neighbourhood parties, play lots, etc.				
Strategic Park	500 000 - 1 000 000	50 km	C/D	Site-specific location
District Park	60 000 - 100 000	10 km	C	Recommended that hard all-weather surfaces be provided within parks for ball games, skateboarding, kick- about spaces, etc. and for ease of maintenance
Community Park with play equipment	60 000	5 km	C	

Facilities	Average threshold (population)	Acceptable travel distance (km)	Provision criteria	Comments
Urban Park	Variable	1 km	C	Central location in areas of high activity/employment/retail
Local/Neighbourhood Park (includes play equipment)	3 000 - 15 000	1 km	C	It may be redundant if a district/ community park located within reach. Recommended that hard all-weather surfaces be provided within parks for ball games, skateboarding, kick-about spaces, etc. and for ease of maintenance
Play Equipment at other facilities	Variable	Variable	D	Only provided where are no parks; placed at, e.g. clinics, libraries

ANNEXURE B5.5.5: COMMUNITY FACILITY LOCATION GUIDELINES

a) Educational Facilities

Table 1: Educational Facilities

Créche/ Nursery School/ Pre-primary School	
Location:	❖ Walking distance of households. ❖ Away from undesirable land uses such as liquor outlets and taxi ranks.
Access:	❖ Pedestrian pathway without having to cross major streets. ❖ Maximum 10-20 minutes travel time by any mode. ❖ Maximum walking distance: 750 – 1,000 m.
Cluster with:	❖ Pre-primary schools, primary schools, community centres.
Primary School	
Location:	❖ Within easy walking reach of every dwelling. ❖ Close to public transport route. ❖ Away from undesirable land uses such as liquor outlets and taxi ranks. ❖ On relatively flat land, especially where sports fields are provided. ❖ Avoid major routes as schools generate traffic congestion at certain times.
Access:	❖ Accessible by foot, bicycle and vehicle. ❖ Maximum 20-30 minutes travel time by any mode. ❖ Maximum walking distance: 1 – 1,5 km.
Cluster with:	❖ High school, nursery schools, community hall, playground, park. ❖ 1 Sports field with mini soccer field, 4 courts and change rooms per 3 primary schools (1.25 – 1.62 ha). Located between schools but not adjacent to library. ❖ 1 Community learning centre/library consisting of children's library, study and activity spaces per 3 primary schools (0.1 ha) within walking distance of schools.
Secondary School*	
Location:	❖ Major transport route with public transport stops. ❖ Away from undesirable land uses such as liquor outlets and taxi ranks. ❖ On relatively flat land, especially where sports fields are provided. ❖ Avoid major routes as schools generate traffic congestion at times.
Access:	❖ Maximum 30 minutes travel time by any mode. ❖ Maximum walking distance: ideally 2,25 km, but can go up to 5 km.
Cluster with:	❖ 1 Community centre/library/h all including a resources centre, adult library, community offices and a performance/presentation hall per 4 schools (0.35 – 0.4 ha). Location accessible by public transport and close to shops. ❖ 1 Sports complex including athletics track, 2 full size sports fields, 6 courts, swimming pool and change rooms per 2 schools.

b) Health Facilities

Table 2: Health Facilities

Mobile Clinic	
Facilities:	❖
Access:	❖ Accessible on foot. ❖ Maximum walking distance: 1 km. ❖ Maximum travel time: 20 min.
Clinic	
Facilities:	❖ Basic clinic for primary health care and health education (day clinic). ❖ Second level to include emergency ward. ❖ Third level to include maternity ward (community health centre). ❖ AIDS clinic to deal with sexually transmitted diseases as well as education in prevention.
Access:	❖ Maximum walking distance: 2 km. ❖ Maximum travel time: 30 minutes. ❖ 5 Minutes walking time from public transport.
Day Hospital	
Facilities:	❖
Access:	❖ Maximum travel distance: 3 km. ❖ Maximum travel time: 40 min.
Community / Government Hospital	
Facilities:	❖
Access:	❖ Maximum travel distance: 5 km.

c) Emergency Services:

These sites should be located on higher-order multifunctional routes that intersect with regional and primary distributors.

1. Introduction: The Role of Cemeteries

As a point of departure, emphasis should be placed on the 'green lung' role cemeteries can play as parks and open spaces within the urban environment.

As cemeteries reach closure they need to be, where practically possible, destinations within a community not only for memorials to the deceased but for use by the community long after the cemetery has closed, so as not to make them sterile areas.

To this end the planting of trees and the possible development of recreational facilities, such as walking paths within cemeteries, needs to be enhanced, with due consideration to societal norms.

One of the most dramatic changes in cemetery planning and design is the growing trend of "green burial." Green cemeteries help to establish and protect natural habitat through use of indigenous plants or trees over the grave, with footpaths connecting memorial structures located within the emerging forest.

Careful, creative planning of a modern green cemetery or something more conventional, will ensure that the right product is developed, in the right location at the right time.

2. Estimating Grave Demand

As urbanisation and population growth continue, it is imperative to project future burial space requirements accurately.

- Grave demand is primarily calculated using data from burial requests recorded in the municipal burial register. Municipal cemeteries typically sell or reserve graves for public use, and the burial register, in conjunction with municipal death registration records, forms the basis for estimating future demand.
- As a cross-check the "10 hectares of land per 100,000 residents ratio" can be used as a rule of thumb.
- Adjustments must be made to account for alternative interment methods, such as cremation.
- Once the total demand is determined, it should be spatially distributed across municipal functional areas to guide strategic planning.
- Due to the rate at which cemeteries are filling and the limited availability of suitable land for their development, alternative sustainable burial methods should be considered, including vertical burials and the use of biodegradable materials.

3. Site Selection Process

(i) General

- As cemeteries represent a permanent and non-repurposable land use, careful planning is essential in identifying appropriate locations.
- Land that is not ideally suited for housing, such as land in the mining belt, in exclusion zones of mine dumps, and perhaps land outside of the UDB should be targeted for cemeteries.
- Furthermore, Council-owned land should be prioritized for this use, while potential private land acquisitions should also be timeously identified in order to meet future demands.
- There needs to be a move towards larger, more regionalised cemeteries that will have an economy-of-scale benefit to the municipality and provide land for an extended long term rather than ad-hoc extensions to existing cemeteries to meet short-term needs.
- The planning and development of cemeteries require careful analysis of criteria such as the need, planning horizon, location, size,

intensification, compatibility, environment and permanency. A comprehensive analysis of the factors below (**Table 1**) is necessary.

Table 1: Cemetery Site Selection and Environmental Impact Components

	SITE SELECTION	ENVIRONMENTAL IMPACT
1	Market and demographic analysis	Natural Heritage Designations and Zoning
2	Geohydrologic dolomite, soils and drainage survey	Geotechnical, Hydrology, and Hydro geology
3	Tree inventory / arborist report	Natural Hazard Analysis
4	Natural heritage assessment	Comprehensive Biological Inventory
5	Traffic analysis / sight lines	Identify existing or potential linkages to natural heritage features and habitats

(ii) Key Considerations

a) Policy Alignment:

Site selection must align with the municipality's **Spatial Development Framework (SDF)**. Ideally, cemeteries should be planned as infill development on otherwise undevelopable land within the urban fabric; or, preferably, in future urban expansion zones (closer to the urban development boundary); and/or where it could serve as a functional extension/interface between the regional open space system and the surrounding urban fabric.

b) Legislative Compliance:

Cemeteries must comply with several legislative requirements, including:

- **National Environmental Management Act (NEMA):** Requires an Environmental Impact Assessment (EIA) or Basic Assessment (BA), supported by specialist studies (e.g., ecological, geotechnical, geohydrological assessments). Groundwater monitoring through boreholes and a detailed **Stormwater Management Plan** are also mandatory.
- **Municipal Land Use By-Law:** The land must be appropriately zoned for cemetery use in accordance with the municipality's town planning regulations.

c) Geotechnical and Environmental Factors:

- Sites must have suitable soil conditions, allowing for easy excavation and a grave depth that avoids shallow groundwater.
- The subsurface geology should ideally consist of impermeable rock layers to prevent groundwater contamination.
- Cemeteries must be sited away from rivers, wetlands, and environmentally sensitive or protected areas.

d) Accessibility:

- Cemeteries serve an important social function and must be accessible within the urban fabric.
- Good accessibility facilitates regular visitation by families and it reduces operational and maintenance costs.

4. Cemetery Layout Design

Diagram 1 provides a schematic illustration of a cemetery layout, and the following can be noted.

- **Grave Capacity Calculation:**
  - Usable area (m²) ÷ 4.22 m² = number of graves.

- **Layout Pattern:**
  - While a grid-iron layout is not essential, it aids in legibility, organization, and effective stormwater management.

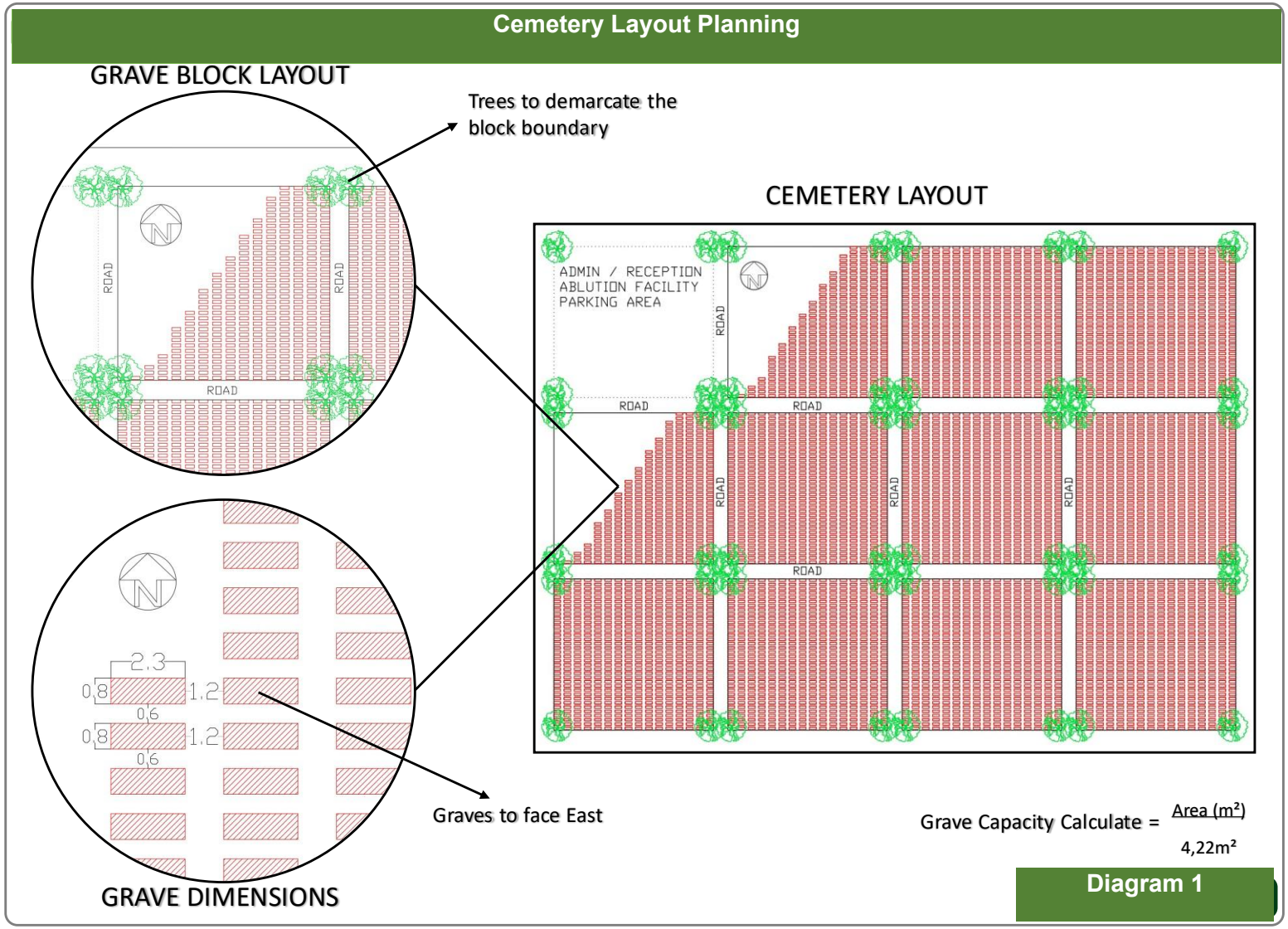
- **Facilities & Infrastructure:**
  - Designated areas for administration, ablution, and parking are essential.
  - A detailed grave register must be maintained on-site to track mortality data and project the cemetery's lifespan.

- **Security & Access Control:**
  - Cemeteries should be fully fenced to manage access and protect graves from vandalism or intrusion by domestic animals.

- **Cultural Considerations:**
  - Traditional grave alignment is typically east-west and should be respected where applicable.

- **Survey & Land Marking:**
  - Cemetery block corners should be professionally surveyed. These corners can be marked with planted trees to aid in the orderly marking of new graves and efficient use of space.

Diagram 1: Cemetery Layout Planning



ANNEXURE B5.6: COE URBAN DESIGN GUIDELINES

EKURHULENI

URBAN DESIGN GUIDELINES

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PREAMBLE

Cities are vital to society and have a fundamental impact on society's wellbeing. Rapid urbanisation has seen the rise of cities as places of attraction for an ever increasing urban population. South African cities and Ekurhuleni are no exception to this global phenomenon.

Urban design and the application of its principles play a critical role in enhancing peoples experience of cities and their urban environment. Conversely, poor urban design decisions will result in cities that restrict opportunity, hinder growth and worsen, in our historical context, the life chances of its people. Urban design concerns itself with the physical relationships of the elements of the urban environment, and how these collectively play a part in a city's performance in meeting society's needs.

The City of Ekurhuleni Metropolitan Municipality has made a bold decision to embrace Urban Design, as a way of thinking, and acting, within the built environment of its cities, small towns and settlements. To this end, the municipality has established a urban design guidelines aimed at guiding future development within the city.

Whilst urban design principles are universally applicable, the Ekurhuleni Urban Design Guidelines recognise the need to localise urban design principles and ground these in an understanding of the South 'African' urban condition. As such the guidelines place emphasis on the role of the public realm as it acknowledges this essential layer of the city as representing the soul of the African City. How well it is made and how supportive its edges are in enhancing urban life is at the heart of the guidelines. The importance of elements of the public realm such as public transport systems, its infrastructure and its 'places', form an essential part of understanding urban design in the context of Ekurhuleni.

Further, when considering South African cities within the 'historical' back-drop of apartheid, urban design has the potential to reconcile often un-met needs of the urban population. A common misconception is that urban design is a tool for beautification, whereas these guidelines frame an understanding of urban design as a fundamental tool to redressing past injustices and in enhancing the cities' performance in meeting all its citizens' needs.

Urban design is applicable at various scales and contexts within the municipality. Consequently these guidelines seek to be part of the overall suite of policy instruments within the municipalities' package of plans and will be integrated as an important tool in guiding future development. The Urban Design Guidelines have been prepared in a manner that allows the generic principles of urban design to be applied across different scales of planning and design. These may include, but are not limited to, settlement making, urban renewal initiatives, the development of new expansion zones, public place making, street design and local scale building projects.

It is envisaged that these guidelines serve as a tool for the design of better people centred places within Ekurhuleni and applied across existing urban contexts and new settlements as part of the future city.

THE CHALLENGE

WASTED SPACE THROUGH PRIORITISATION OF MOTOR-VEHICLES

POOR INTERFACE BETWEEN BUILDINGS AND PUBLIC REALM

INADEQUATE PROVISION OF PUBLIC CULTURAL AND RECREATIONAL SPACES. RESIDENTS FORCED TO RECLAIM PARKING AND OTHER UNUSED SPACES.

NO CONSIDERATION OF INFORMAL MARKET AS A KEY COMPONENT OF URBAN LIFE.

PUBLIC SPACES POORLY DESIGNED AND UNINVITING

INCREASING CASES OF INFORMALITY

POOR PROVISION OF FORMAL PUBLIC TRANSPORT INFRASTRUCTURE

UNMAINTAINED AND UNDER-UTILISED ECOLOGICAL ASSETS

DRAWING FROM THE EKURHULENI MUNICIPAL SPATIAL DEVELOPMENT FRAMEWORK OF 2015 (WHICH PRECEDED AND SERVED AS POINT OF DEPARTURE FOR THE REVISED MSDF OF 2025 AND FOR THE FORMULATION OF THESE URBAN DESIGN GUIDELINES) THE PROBLEM STATEMENT THAT UNDERPINS THE FORMULATION OF THESE URBAN DESIGN GUIDELINES FOR THE CITY OF EKURHULENI CAN BE DESCRIBED AS FOLLOWS:

"**Urban design problem statement**

Twenty-two years after our first democratic elections, South African cities and major towns remain the scene of immense inequality and incredible spatial distortion, bequeathed to us by our colonial and segregationist recent history.

A city's soul, its character and its sense of place are often underpinned by its public realm. The streets, concourses, galleries, squares and parks located between buildings are vital negative spaces where experience is collective and where common identity is forged. These are the territories where sovereignty is shared. How then has it come to pass that much of the public realm within South Africa's major urban areas exists as a residual car-dominated wasteland; a fragmented, cluttered and unwalkable collection of unsafe and uneven spaces left-over between rivers of steel; a stage set for the arms race between law-breakers and the security industry; a twice daily heaving and writhing bed of serpent-like appendages linking disparate and distant extremities of a sprawling low-density urban footprint? Just where in this picture does room exist for places, the punctuation points in our movement dominated public space system, the spaces for face-to-face interaction and trade, for reflective pause, for shared experience, for enjoyable dwell time?

Casting a cursory glance across the suburban hinterland of Ekurhuleni, we seem over time to have gradually designed ourselves out of any sense of collective urban experience. All too often the concept of "place" has been distilled down to its most primitive base; a momentary exchange of eye-contact between motorist and hawker through a car window at the traffic light marketplaces that punctuate our major roads. Public transport, a haphazard, unreliable, and at times unsafe proposition, is the refuge only of those who cannot afford to buy their own car.

How is it that car-ownership has become the admission ticket to our nation's commercial and cultural life? Why have apartheid buffer zones been replaced by high walls, electric fences and razor wire, halting the urban poor at the boomed gates of prosperity? Is it fair that some amongst us live in the middle of the city on a hectare of land with a swimming pool and tennis courts, while others of us spend three to four hours a day travelling between work and tiny homes 40km out of town? Why has Ekurhuleni become a city of two speeds, and why has "mobility" become the new apartheid?

Urban design approach

To remedy the challenges outlined above, a vision-led approach is proposed for urban design at a metropolitan level within the City of Ekurhuleni. At the heart of this approach is the central aim of creating places of beauty and distinct identity by drawing together the many strands of 'place-making' – environmental responsibility; social equity; economic viability. The urban design vision should address the social needs of people living and working in the area now and in the future, and create opportunities to contribute to the establishment of sustainable communities.

Of particular concern in relation to the focus areas is the issue of socio-spatial transformation. The urban design approach will need to adequately address in particular the current distorted spatial patterns that exist across the nine historic towns and their outlying dormitory townships:

- Spatial separation of rich and poor.
- Poorly articulated, car dominated public realm.
- Impermeable interfaces between private and public spaces.
- Bland, sprawling and internalised built form.
- Segregation of land uses.
- Lack of public transport infrastructure."

(Ekurhuleni Municipal Spatial Development Framework of 2015, p. 136-137)

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CONTENTS

01 INTRODUCTION 07
02 DEVELOPING THE GUIDELINES 08
03 FUNCTIONAL AREAS OF PERFORMANCE FROM AN URBAN DESIGN PERSPECTIVE 10
04 PRIMARY GUIDELINES 13
05 APPLICATION OF PRINCIPLES & GUIDELINES 52
06 DESIGN TOOL & EVALUATION MATRIX 79
07 SUPPLEMENTARY GUIDELINES 83
08 CONSIDERATIONS FOR IMPLEMENTATION OF GUIDELINES 87
09 BIBLIOGRAPHY 88
10 ABBREVIATIONS 89
11 GLOSSARY OF TERMS 90

01.
INTRODUCTION

"IT SEEKS TO INTRODUCE THE CREATIVE PROCESS OF SPATIAL DESIGN INTO LAND DEVELOPMENT PROCESSES. IT IS FOCUSED ON HOW THE DESIGN PROCESS AND THE ARRANGEMENT OF BUILT FORM CAN ENHANCE THE PUBLIC ENVIRONMENT AND THE INTERFACE BETWEEN THE PUBLIC AND THE PRIVATE REALMS"
(CITY OF CAPE TOWN, 2013)

SETTING THE SCENE

The impact that good planning, design and management has on the realisation of pleasant, functional and timeless environments has been and is at the forefront of City discussions globally. This is also evident in South Africa by the numerous planning initiatives at National, Provincial and Local government levels, and how a common theme within these initiatives is redressing the ills of the past to ensure a better future.

While South Africa may have made immense progress in the way in which the planning and design of its Cities/ Settlements is approached, it could be argued that the positive impact that Urban Design can have in the Country's quest to redress the ills of the past and ensuring a better future is often overlooked.

One of the key attributes of Urban Design is how it "seeks to introduce the creative process of spatial design into land development processes. It is focused on how the design process and the arrangement of built form can enhance the public environment and the interface between the public and the private realms" (City of Cape Town,2013).

OVERALL OBJECTIVE AND INTENT WITH GUIDELINES

Ekurhuleni Metropolitan Municipality acknowledges the role and need for urban design guidelines for the city, as a tool to ensure that development within the city facilitates the realisation of its core strategies.

As such, the following presents the Urban Design Guidelines for the City of Ekurhuleni Metropolitan Municipality. It sets out basic urban design intentions and outlines key urban design principles and guidelines to be implemented within City of Ekurhuleni. The guidelines aim to guide decision making around the growth and form of the built environment within the city, with specific emphasis on the impact that the built-form has on the functioning of the city's public realm, and in essence, the city as a whole.

With that said, the Ekurhuleni Urban Design Guidelines are intended to provide guidance to the city administrators in decision making on development applications, while also serving as a guide to developers and other professionals in the built environment, in regard to the way in which they design both public and private developments / urban spaces. The guidelines will thus assist the City of Ekurhuleni (CoE) Metropolitan Municipality in:

1. Establishing its own unique and distinct urban character and identity through design,
2. Ensure a high standard of quality and aesthetic appeal throughout the city through the establishment of a design review process and committee,
3. The realisation of an effective and efficient public realm through the establishment of transparent urban design principles to be used for the assessment of development applications,
4. Being climate smart, and
5. Serve as a tool for implementing the objectives of overarching frameworks to redress the ills of apartheid.

Within the above context, the Ekurhuleni Urban Design Guidelines are intended to become part of the overall suite of policy instruments that comprise the municipality's package of plans and policies, used in guiding future development in the city. In this manner the Ekurhuleni Urban Design Guidelines will become an integral part of the overall value chain of guiding and evaluating land development within the City of Ekurhuleni.

As part of the above-mentioned value chain, the Ekurhuleni Urban Design Guidelines are aimed at assisting with decision making in respect of the spatial form of the built environment within the City of Ekurhuleni, with particular emphasis on the impact that the built form has on the functioning of the city's public realm and the interrelation between private developments and the public realm. To this end, the guidelines will provide guidance to decision makers in the municipality, in respect of evaluating both private development proposals and public environment developments and upgrades, from an urban design perspective. It will also serve as a guide for developers and other practitioners in the built environment, in regard to the way in which they design both public and private development proposals / urban spaces.

02.
DEVELOPING THE GUIDELINES

"A DEFINITE COURSE OR METHOD OF ACTION SELECTED FROM AMONG ALTERNATIVES AND IN LIGHT OF GIVEN CONDITIONS TO GUIDE AND DETERMINE PRESENT AND FUTURE DECISIONS"
(MIRIAM-WEBSTER, 2016)

Multiple sources have been considered in the drafting of this guideline document. These include both overarching plans and legislation along with various urban design theory writings.

NATIONAL LEVEL

As reflected in the graphic (next page), from a policy and planning perspective, much consideration was given to the key principles enshrined in policy and planning frameworks at a national government level. The National Development Plan (NDP) was considered, with its main focus being that of accelerating growth, eliminating poverty and reducing inequality through co-operative governance and good spatial planning across all departments (National Planning Commission, 2013).

In-line with this, the Spatial Planning and Land-use Management Act (SPLUMA) is predicated on 5 development principles. These are Justice, Resilience, Sustainability, Efficiency and Good Governance (Spatial Planning and Land-use Management Act, 2013). The National Environmental Management Act (NEMA) gives due attention to environmental management and the way in which the lack of it may impact on people and their needs. As such it provides multiple guidelines and restrictions aimed at preserving the natural environment within the country (National Environmental and Management Act, 1998).

The Breaking New Ground (BNG) on the other hand sets the vision for Human Settlements within the country highlighting the need achieving a non-racial, integrated society through the development of sustainable Human Settlements (Department of Human Settlement, 2004). These and more set the vision for the type of environments that are desired within the country.

PROVINCIAL LEVEL

At a provincial level, the Gauteng Growth and Development Strategy which sets out the political and socio-economic growth and development vision and strategy of the Province, highlights as part of its vision, the need to create a better life for all citizens through:

- Long-term, sustainable growth of the provincial economy;
- Meeting the socio-economic development needs of people;
- Creating jobs; and
- Reducing unemployment and poverty (Gauteng Provincial Government, 2005).

THEORETICAL RESPONSE

The urban design compendium is an internationally renowned text for those engaged with Urban Design. Initially prepared by Llewelyn Davies Yeang in association with Alan Baxter and Associates, it gives guidance on good urban design practice and clarity on key principles of urban design and how they can be applied.

The key design aspects that the Compendium deals with include the following:

- Creating places for people, and how the development of a clear urban structure addressing issues of movement, mixture of uses, adequate densities, facilities and form (to name a few), can contribute towards this,
- Making connections through design that promotes the permeability and legibility of environments,
- Detailing of place, looking at the impact that building size and scale, and the provision of street furniture and landscape design may have on the functioning a space, and
- Flexibility in design to ensure that spaces are able to evolve with the changing needs of communities. (Llewelyn Davies Yeang, 2000)

As evidenced from the above brief descriptions, the chosen theoretical underpinning serves as the basis on which these Urban Design Guidelines for Ekurhuleni was developed, as it captures and responds to the objectives and key development principles for Ekurhuleni as per the afore mentioned overarching policy and planning directives.

CoE SUITE OF PLANS

The adjacent diagram reflects the Suite of Plans of the Ekurhuleni Municipality. The inverted Pyramid starts with National Development policy such as the Millennium Goals and NDP, the base is assigned to the IDP's and SDF's through to the pinnacle of the Pyramid which contains the implementation component such as the SDPs and land use schemes.

The Urban Design Guidelines lie at the base of the pinnacle of the Pyramid where it influences the Land Use Policies, CoE Land Use Scheme, the SDP's and Business Plans. There is a blurring of lines between the urban design guidelines and the formulation of Urban Design Precinct Plans as the guidelines will influence and guide the development of precinct plans.

The Ekurhuleni Urban Design Guidelines are intended to influence land development processes in a manner that is supportive of higher order policies and strategies and that complements localised municipal and area specific policies and by-laws.

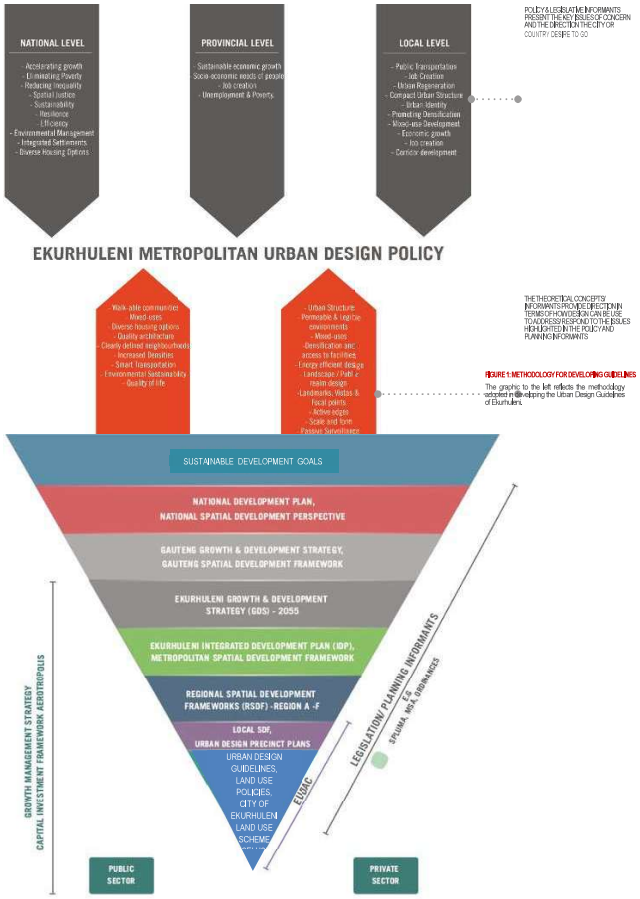


FIGURE 1: METHODOLOGY FOR DEVELOPING GUIDELINES

The graphic to the left reflects the methodology adopted in developing the Urban Design Guidelines of Ekurhuleni.

FIGURE 2: CoE SUITE OF PLANS

The graphic reflecting the suite of plans that guide planning and development within CoE.

03.
FUNCTIONAL AREAS OF PERFORMANCE FROM AN URBAN DESIGN PERSPECTIVE

URBAN DESIGN IN THE CONTEXT OF EKURHULENI AND THE CHANGING NATURE OF SOUTH AFRICAN CITIES

Recent trends within South African Cities, and many other cities in the developing world, indicate the rise of 'newer' influences from that of the traditional forces that shaped cities in the past, such as a previous dependence on private motor cars.

Some of these 'newer' influences include the growth of the informal economy, increases in pedestrian based activity and movement, and an increasing interdependence of public transport with urban activity - as a result of the generative capacity of public transport nodes for economic activity. The impact of these influences has contributed to a new vibrancy within CBD cores and in secondary urban centre. Cities are once again being understood as centres for people. Consequently their success is dependent on how well cities support functions that are pedestrian and human scaled. This overarching statement on the current status of urban design influences is unpacked in the following six sub-sections.

The significance of this set of influences from an Urban Design perspective, is that the stage for these types of activities is wholly within the public domain, which often operates within the margins of urban systems and with very little conscious support.

The Ekurhuleni Urban Design Guidelines seek to intervene primarily in the following six functional areas of performance in the urban environment.

1) THE PUBLIC REALM

Understanding the role of the public realm as a key structuring system is critical in the context of South African Cities and Ekurhuleni as a metropolitan municipality. The first key understanding of urban design in the context of Ekurhuleni, both at a policy level and implementation framework level, is the positive role that urban design can play in supporting what has become vital urban functions by creating a well-considered public realm that supports the contemporary needs of South African cities.

The role of the public realm as an essential basis for activity and regeneration is essential in considering opportunities in various precincts with City of Ekurhuleni.

2) TRANSPORT PLANNING

The second policy shift required is an understanding of the role of transport in a city context. The role of good transport planning in cities is fundamental in shaping them, and has stark consequences if it continues to be understood as a separate independent discipline held outside of the umbrella of city building. It is essential that transport planning be undertaken in conjunction with urban planning, serving as a supportive discipline in what must be a common pursuit for better performing cities. Often the separation of these city structuring disciplines leads to fragmentation, where the optimisation of a traffic function occurs at the expense of good quality urbanism. The approach to transport planning as an enabler of good urbanism is required when addressing growth in emerging urban places within Ekurhuleni

3) PUBLIC TRANSPORT WITHIN THE CONTEXT OF AN URBAN AGENDA

Thirdly, in pursuing a new agenda for transport planning, there is a necessary shift required from private vehicular "driven" traffic engineering approaches, to one which places greater efforts on understanding the role of public transport within the context of an urban agenda. Increasingly evident in urban centres, is the interrelated role of public transport and urban activity - aspects such as trade, concentration, vibrancy, and the animation of spaces. It is here that the common ground can be found between public transport and urban design.

Two important aspects that show promise of good urbanism, is the role of railway stations, in particular their public interface, and the design of BRT station precincts. At a policy level, it is essential that the design of these spaces is understood as contributing to enabling positive urbanism and designed in a way that integrates transport planning needs with positively performing urban spaces. BRT systems and their routes need to be carefully designed and

FIGURE 3: URBAN DESIGN PERSPECTIVE

Key element in understanding Urban Design in the context of Ekurhuleni

THE SHAPING OF POSITIVE URBAN ENVIRONMENTS FOR THE FUTURE RESTS IN UNDERSTANDING TRANSPORT PLANNING IN AN INTEGRATED MANNER WITH BOTH URBAN STRUCTURING AND URBAN DESIGN

implemented so that these do not become structurally divisive within urban environments.

In addressing public transport, the significance of the taxi industry (and associated informalities that come with the taxi industry) as well as e-hailing services (such as Uber and Bolt) should be dealt with as an integral part of the larger public transport system (including mass public transport facilities like rail and bus services). The significance of cycling and pedestrian facilities, as part of the wider public transport system, should also not be neglected.

4) ADDRESSING PREVIOUS "TOWNSHIP" ENVIRONMENTS

Fourthly, urban design plays a crucial role in normalising previous "township" environments. The role of urban design as an integrated discipline that 'fills the gaps' left over from the poor planning practices of apartheid and modernist planning. Many of the townships, although far removed from traditional urban centres due to past policies, display the characteristics and needs of urban areas.

The demands on creating places that enhance and support human-scaled activity, economic opportunity and social enhancement, are of paramount importance and usually exist without the necessary public space support structure. The focus of urban design here should be on ensuring functional and meaningful spaces rather than the 'quick win' solutions often associated with beautification.

5) CREATING AN URBAN LOGIC AND STRUCTURE

Many South African cities have experienced the rise of decentralised centres and urban expansion zones on the edges of historic cores. Often fuelled by the flight of business, but also in response to broader strategies such as the growth of the 'Aerotropolis' as a city development strategy. It is essential that these places that occur on the fringes, be guided by an urban logic and structure as opposed to traditional suburban patterns of growth, characterised by separation and the 'heavy hand' of transport planning. Whilst in the short term these areas will remain lower intensity places, the inherent structure must be an urban one, human scaled and observe the same fundamentals of quality urbanism. In the right locations, these must be understood as the 'city in waiting'.

6) PROMOTING WIDER URBAN REGENERATION

Many of these recent patterns of change, including the decentralisation of businesses from CBD areas has resulted in urban decline within these historic centres. The role of urban design as a catalyst to wider urban regeneration is vital for these centres to endure. Here the focus of urban design should target structural intervention and beyond a more 'short sighted' focus on beautification. Urban design has a fundamental role in creating the supportive public space structure that enhances the integration of public transport and city building, understands the need of people and place-making, and ensures the vitality of cities by allowing for diversity in the range and scale of economic activity. Urban renewal needs to be underpinned by a clear urban design strategy, and one which often needs to be equally bold in its conception.

FIGURE 4: URBAN DESIGN IN PRACTICE

An example of an integrated design approach between Urban Design and Transport Planning

URBAN DESIGN GUIDELINES

04
PRIMARY GUIDELINES

UNDERPINNING URBAN DESIGN PRINCIPLES

This section starts with depicting the primary urban design principles and related policy objectives for the City of Ekurhuleni Metropolitan Municipality, followed by a range of primary urban design guidelines, related to each principle. These guidelines are then supplemented by a section on Implementation Considerations. It must be noted that the application of these guidelines is intended to serve as the basis on which land development applications are evaluated from an urban design perspective.

As reflected in the diagram below, the primary guidelines are underpinned by seven (7) key urban design principles.

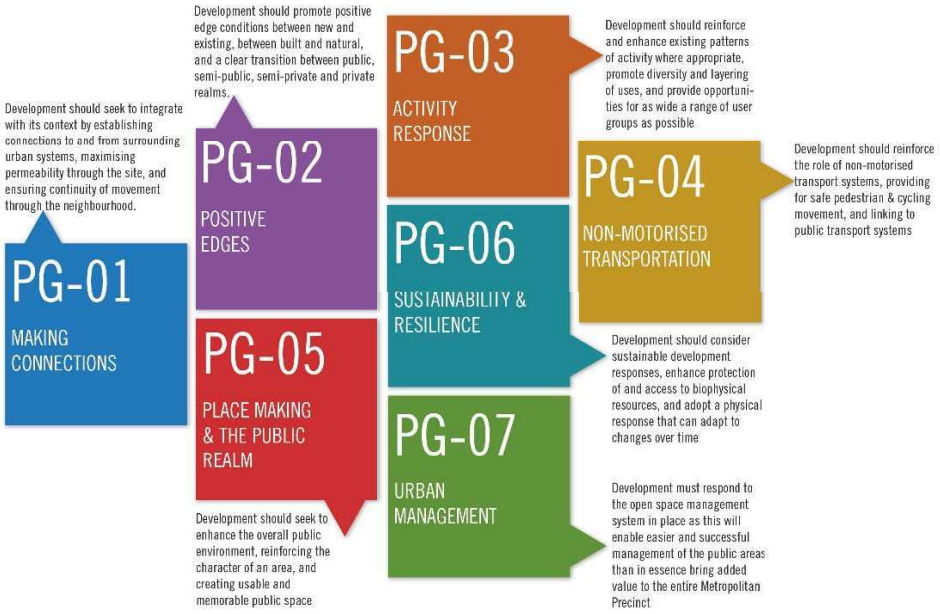


FIGURE 6: UNDERPINNING PRINCIPLES
7 Principles that underpin the Primary Guidelines

OVERVIEW OF URBAN DESIGN PRINCIPLES AND OBJECTIVES

The urban design objectives related to each of the respective urban design principles that comprise the foundation for the guidelines promoted in the Ekurhuleni Urban Design Guidelines, can be summarised as follows:

GUIDING PRINCIPLE 1 (PG-01): MAKING CONNECTIONS
Integrate developments with its context by establishing connections to and from surrounding urban systems, maximising permeability through the site and ensuring continuity of movement through the neighbourhood.

OBJECTIVES:
To optimise urban connectivity and optimising opportunity by:
- guiding development towards establishing a more connected urban structure; and
- facilitating an urban structure that connects to a greater range of opportunities, within the smallest spatial threshold as possible.

GUIDING PRINCIPLE 2 (PG-02): POSITIVE EDGES
Promote positive edge conditions between new and existing, between built and natural and establish a clear transition between public, semi-public, semi-private and private realms.

OBJECTIVES:
To facilitate high quality, pleasant and attractive urban environments by:
- promoting the implementation of street related designs that create well defined streets and buildings; and
- accommodating comfort and safety for people inhabiting and experiencing these spaces.

GUIDING PRINCIPLE 3 (PG-03): ACTIVE RESPONSE
Reinforce and enhance existing patterns of activity where appropriate, promote diversity and layering of uses and provide opportunities for as wide a range of user groups as possible.

OBJECTIVES:
- To allow for the development of mixed uses and encouragement of multiple compatible uses and users, in order to create true live, work and play environment.
- To establish an active base within the core of mixed-use areas, in order to stimulate and establish a vibrancy to urban life.

GUIDING PRINCIPLE 4 (PG-04): NON-MOTORISED TRANSPORTATION
Reinforce the role of non-motorised transport systems, providing for safe pedestrian and cycling movement that links to public transport systems.

OBJECTIVES:
In line with over-arching Sustainable Development policies, the intent with regards to the Non-motorised Transport (NMT) principle is to:
- promote the development of cycling and pedestrian facilities;
- promote the safety and comfort of NMT users;
- link cycling and pedestrian facilities to public transport systems; and
- reduce dependence on private motor vehicles.

GUIDING PRINCIPLE 5 (PG-05): PLACE MAKING & THE PUBLIC REALM
Enhance the overall public environment, reinforce the character of an area and create usable and memorable public spaces.

OBJECTIVES:
To ensure that developments not only relate to, but also enhance the public realm by:
- creating responsive street edges;
- developing street-scape elements and pallets; and
- combining some of these aspects with architectural principles, such as the accentuation of building façades.

GUIDING PRINCIPLE 6 (PG-06): SUSTAINABILITY & RESILIENCE
Consider sustainable development responses, enhance protection of and access to biophysical resources and adopt a physical response that can adapt to changes over time.

OBJECTIVES:
The Principle of Sustainability and Resilience is intended to support emerging Global, National, Provincial and Local concerns and related policies around urban sustainability, particularly in terms of the appropriate use of finite resources and management strategies for climate change mitigation and adaptation.

GUIDING PRINCIPLE 7 (PG-07): URBAN MANAGEMENT
Promoting efficient and effective urban management, in line with the provisions of these guidelines.

OBJECTIVES:
To ensure ongoing maintenance and continuity of the design ethos, to create areas of excellence and ensure that these areas do not revert back to the previous state before urban renewal has occurred.

The guidelines that relate to each guiding principle, are set out in the sections that follow.

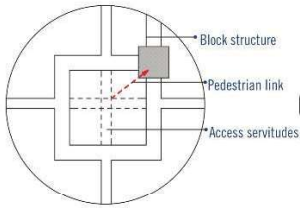
PG-01.
MAKING CONNECTIONS

DEVELOPMENT SHOULD SEEK TO INTEGRATE WITH ITS CONTEXT BY ESTABLISHING CONNECTIONS TO AND FROM SURROUNDING URBAN SYSTEMS, MAXIMISING PERMEABILITY THROUGH THE SITE, AND ENSURING CONTINUITY OF MOVEMENT THROUGH THE NEIGHBOURHOOD.

THE OBJECTIVES:

- To Optimise Urban Connectivity and Opportunity;
- To guide development towards establishing a more connected urban structure; and
- To facilitate an urban structure that connects to a greater range of opportunities, within the smallest spatial threshold as possible.

THE GUIDELINES



1A. BLOCK STRUCTURE

1ai. Finer Grain Blocks

An urban structure of finer grain blocks enables greater permeability and access. An urban structure based on a pedestrian scale assists in walkability and reduces the dependence on private motorised movement. Throughout history, cities have demonstrated greater permeability, levels of choice and exchange when the block structure is at a smaller scale. As a guideline, projects of a particular scale should be structured on a connected block structure of 100m by 100m.

1aii. Pedestrian Linkages

It is essential that greater attention is placed on understanding and networking pedestrian accessibility, particularly in the context of enhancing walkability and sustainability. Therefore, beyond the establishment of finer grain blocks, it is essential that a smaller network of pedestrian-based connectivity be established within the urban structure. This may occur through various design strategies including the use of arcades within blocks, dedicated pedestrian-only paths, and/or courtyards that enhance a pedestrian scale of activity. As a guideline, within the more intense parts of the urban system, a pedestrian grain of 50m by 50m should be encouraged.

1aiii. Access Servitudes

To further the principle of pedestrian quality through a finer grain urban structure, it may be warranted that within particular blocks, access servitudes be introduced - particularly in cases where it is necessary in enhancing connectivity within larger scale developments. As a guideline, in assessing large-scale applications, it is critical to observe existing and potential future desire lines and to keep these options open through the introduction of servitudes.

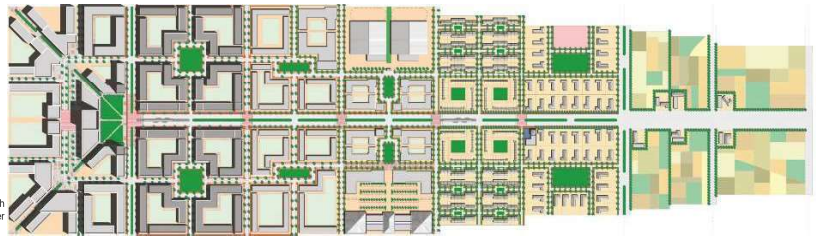


FIGURE 6: AN URBAN STRUCTURE

Example of clear Urban structure with finer grain blocks allowing for greater permeability, access and legibility

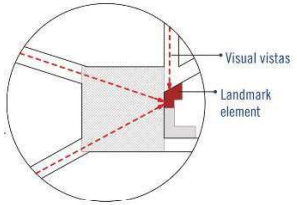
FIGURE 7: PEDESTRIAN WAY

Artist's impression of a possible dedicated pedestrian walkway

1B. VISUAL CONNECTIONS

1bi. Make & Protect Vistas

The ability to navigate through a city enhances orientation of its users, promotes their choices and contributes to the memorability of place.
Therefore making visual connections is an essential basis of the legibility and amenity of places. As a guideline, important vistas to places of significance, both natural and built, must form an essential structuring tool in design. This is relevant in built contexts and in structuring new settlements and places.



1bii. Create/ Celebrate Landmarks

Achieving legibility and place making can be substantially enhanced through the incorporation of landmarks to visually structure space. Landmarks can be built or natural elements. As a guideline in the design of new places, the establishment of landmarks as visual orienting elements through either the placement of additional height and bulk for potential landmark sites, or through the installation of urban street-scape elements should be considered.

In cases where there are significant natural features which have landmark significance, (such as dams, high points, significant vegetation, etc) the structure of the main axes of future growth should seek to reinforce these natural elements as landmarks.

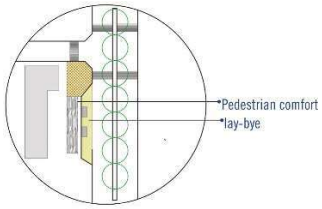
1C. PUBLIC TRANSIT

1ci. Promote mixed use at Public Transit Facilities

Transit Oriented Development (TOD) is one example of contemporary approaches used to maximize the benefits of integrating transport and activity/ energy. It is essential that an integrated design approach be adopted between transport planning and urban design.

FIGURE 8:
VIEW OF FLAT IRON BUILDING IN NEW-YORK
While a landmark, the streets the lead to it, provide good visual links to the building.

At a guideline level, encourage the possibility of planning for the development of business uses above transit stations, where the energy of the interchange of transit serves as the generator of economic activity. There are several examples where the design of railway stations is integrated with business development. In cases of multi-modal taxi and bus ranks, economic activity should frame these facilities along with necessary amenities to enhance commuter comfort.



1cii. Promote "Beads-on-a-String" Activity Spines along Main Activity Corridors
The integration of transit and land use planning is essential in creating positive performing environments. As such it is essential that the design of transport systems be undertaken in conjunction with planning for urban activities. An established method to achieve this integration is the planning of activity systems - incorporating transport and land use as an integrated system. Within mature urban systems, there is a stronger likelihood of greater linear continuity (with lower order activities prevailing in between the nodal point in a "beads-on-a-string" development concept). However in incipient systems, the nucleus of activity should be concentrated around intersections and transit stops. Pedestrian proximity is an important criterion in defining the extent of positive response. As a guideline, a walking distance of 5 minutes, which is approximately 400m, from interceptory points should be considered and promoted.

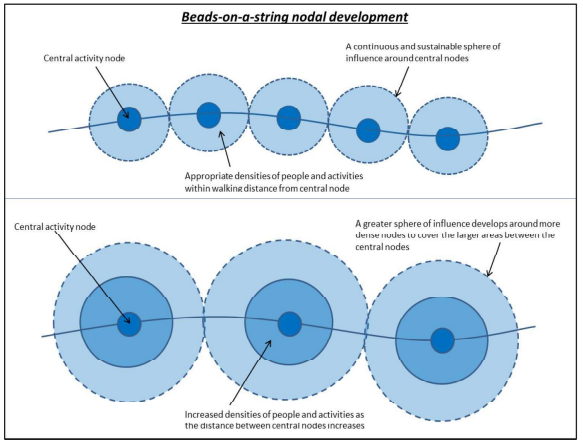
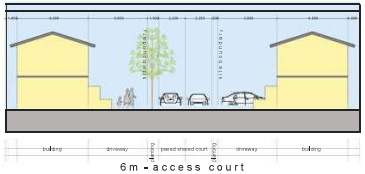


FIGURE 9: "BEADS-ON-A-STRING" ACTIVITY SPINE
The image shows an example of integrating transit and land-use planning to create "beads-on-a-string" activity spines along main activity corridors.



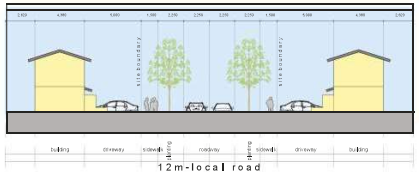


FIGURE 10: STREET TYPOLOGIES
The image shows examples of street typologies

FIGURE 11: NEGATIVE PRECEDENT

The Cul-de-sac system limits permeability of the area and in essence connectivity as a whole, unless supplemented by other connectivity features such as pedestrian and cycle lanes

FIGURE 12: POSITIVE PRECEDENT

The block structure reflected in the image to the right is Barcelona which reflects an example of a well-connected/ permeable environment

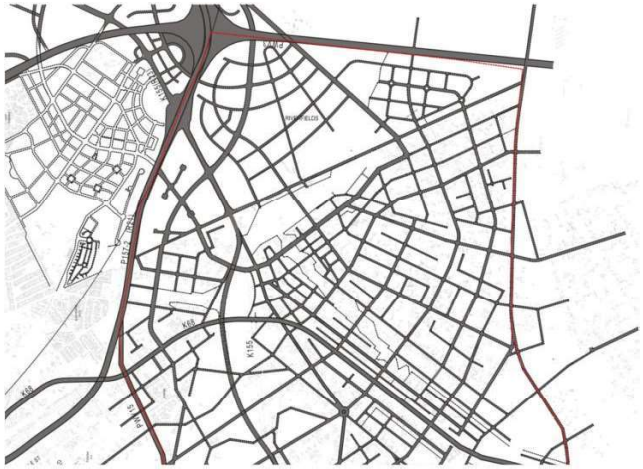


FIGURE 13A: CREATING CONNECTIONS

Plan reflecting an example of creating connections through the proposed road network in Bredell at a framework level

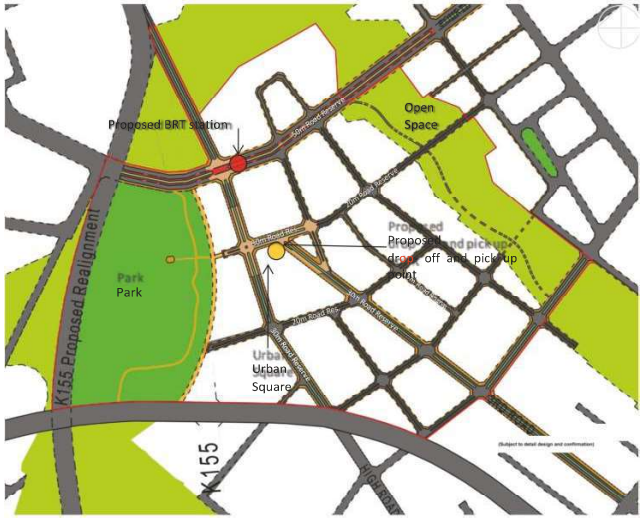


FIGURE 13B: CREATING CONNECTIONS

Plan reflecting an example of creating connections through the proposed road network in Bredell at a more local precinct level

PG-02.
POSITIVE EDGES

DEVELOPMENT SHOULD PROMOTE POSITIVE EDGE CONDITIONS BETWEEN NEW AND EXISTING, BETWEEN BUILT AND NATURAL, AND ESTABLISH A CLEAR TRANSITION BETWEEN PUBLIC, SEMI-PUBLIC, SEMI-PRIVATE AND PRIVATE REALMS

THE OBJECTIVES

The intent is to facilitate high quality, pleasant and attractive urban environments by:

- promoting the implementation of street related designs that create well defined streets and buildings; and
- accommodating comfort and safety for people inhabiting and experiencing these spaces.

THE GUIDELINES:

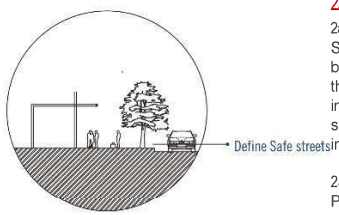
- To Optimise Urban Connectivity and Opportunity;
- To guide development towards establishing a more connected urban structure (maximising opportunity); and
- To facilitate an urban structure that connects to a greater range of opportunities, within the smallest spatial threshold as possible.

THE GUIDELINES

2A STREET RELATED DESIGN

2ai. Define Street Space

Streets form an essential component of the public domain. In many contexts, streets function beyond their transport role to serve as enabling spaces for public interaction and life. It is therefore crucial that the design of urban systems places emphasis on understanding the interface of form with the design of streets as spaces. As a basis to the principle, streets should be defined by positive edges, which may include structured planting, and most importantly should contain well-defined built edges.



2aii. Building Definition

Public spaces, including streets should be defined by supportive building edges. This is essential in defining space, providing surveillance, enhancing the character and vitality of spaces. Therefore as a guideline all interfaces between space and form must be carefully understood and designed with the intention to create a positive interrelationship.

FIGURE 14: STREET RELATED ACTIVITY

The example reflects the relationship between the street and ground floor activity of the building.

FIGURE 15: ARTIST'S IMPRESSION OF POSSIBLE STREET RELATED DESIGN SOLUTIONS

Example of how street related design can be implemented in , thus allowing activities to spill-out from the shops onto the street

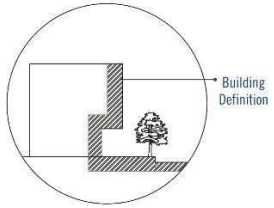
2B. BUILDING POSITION

2bi. Build-To-Line

A current effective urban design tool used to ensure enclosure and definition of space is the use of urban form directives, such as a Build-to-Line. Whereas traditional planning sought to control the interface of buildings and spaces through the use of setback lines (building lines), which often contributed to a "distancing" of form from space, Build-to-Lines are used as a device to ensure a direct relationship and mandatory response to creating a positive edge.

2bii. Building Envelope/Build-within zones

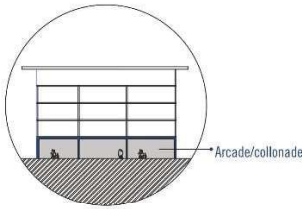
Similarly, with the use of Build-to-Lines, determining the building envelope and build-within-zones are used to ensure that the placement of buildings contribute to a more meaningful relationship with spaces - places. This rule is used in cases where the absolute edge may have some level of flexibility as opposed to a fixed build-to-line. In some instances, where a level of modulation is required in the definition of edge, then a percentage of coverage within a built-within zone should be specified.



2C. COMFORT

2ci. Shade Areas through Setbacks

Making positive definition of spaces (including streets) is one aspect of positive preforming spaces. It is essential in encouraging the vitality of these spaces that adequate levels of comfort are created to enhance active use. One of the factors that are essential in our context is the provision of shade to encourage human comfort. There are several building guidelines that can be introduced to achieve this. Providing for a building setback above the ground floor would generate a zone of protection for people. This also assists in creating a modulation of the vertical built plane.

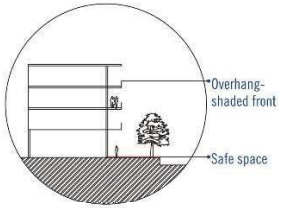


2cii. Allow for Colonnades & Cantilevers

A historical approach to enhancing levels of comfort and definition at the base of buildings has been through the use of colonnades. This enables a covered zone either through an additional structure over the sidewalk area or in cases where the building is setback above the street level in which an arcade is created. Consideration could be given towards exploring ways of incentivising colonnades (where appropriate). As an example, the area of building above the colonnaded sidewalk zone could be granted as free bulk. Within CoE such incentives would however require re-assessment (and possible adjustment) of the land use scheme and related by-laws and policies.

FIGURE 16: MODULATION OF FACADE ABOVE GROUND FLOOR

The example shows how shade can be provided for the pedestrian walkway area by modulated the floors above the ground floor.



2D. SAFETY

2di. Maximise Natural/Passive Surveillance

Ensuring safety of public spaces and streets is an important consideration in striving for positive urbanism. To this end, it is important that building edges are designed to encourage natural surveillance. This can only be achieved where there is a conscious effort to enclose and define space. This applies to street, space, square and courtyard. The primary step is defining space with active surveillance edges.

2dii. Maintain Regular Openings

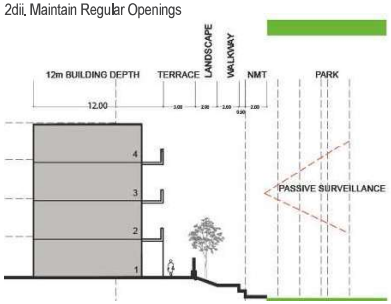


FIGURE 17: PASSIVE SURVEILLANCE

Example of Passive Surveillance over a park

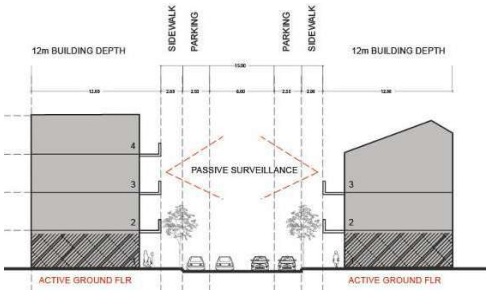


FIGURE 18: PASSIVE SURVEILLANCE

Example of Passive Surveillance of street

One of the most effective ways of achieving surveillance is ensuing that there are regular openings in fenestration and access onto space. An effective yet simple strategy is to ensure that window openings are encouraged along streets and spaces.

2diii. Allow for Balconies & Open Corridors

Further to the introduction of windows to promote surveillance, the use of balconies should also be encouraged. This may be used in consort with the creation of colonnades, this would then provide both active and passive surveillance.

FIGURE 19: PASSIVE SURVEILLANCE OF PUBLIC SPACES

The incorporation of modulated balconies on the buildings allow for a natural passive surveillance of the public area

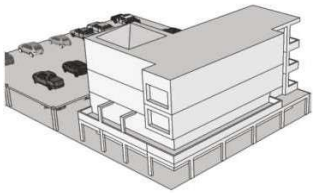


FIGURE 20: PARKING TREATMENT

Example of parking being retained at rear of building or alternatively basement of building.

2E. PARKING PLACEMENT

2ei. Retain Parking to rear of building

The impact of modernist planning and design has a left a legacy of lost space in front of buildings through the combination of setback lines exacerbated by setback zones for parking. This has led to streets and spaces being ill defined, unattractive and often sterile in nature. Ensuring a positive edge through building placement and the control of parking is essential to reverse the suburban legacy of lost space. In this regard as a guideline it is imperative that parking placement is carefully considered. A simple yet effective rule is the placement of parking either in basement or at the rear of the building. This should however not be done in a manner that will result in the back / rear of the building being turned to the street, thus creating a "dead" / undesirable street front. A careful balance should therefore be found between these two considerations.

2eii. Active/Positive Edges to Parking Structure

Given the need to promote density often necessitates a need for structured parking. These have been dealt with simply as an engineering solution devoid of an architectural response. There are several strategies to achieve a more positive interface such as ensuring that an active 'skin' - single layer of active use, is held on the most public and active edge of the building. Alternatively if space requirements do not permit this form of edge, then alternate strategies such as the use of screens should be encouraged as a means to integrate these spaces as a positive architectural solution.

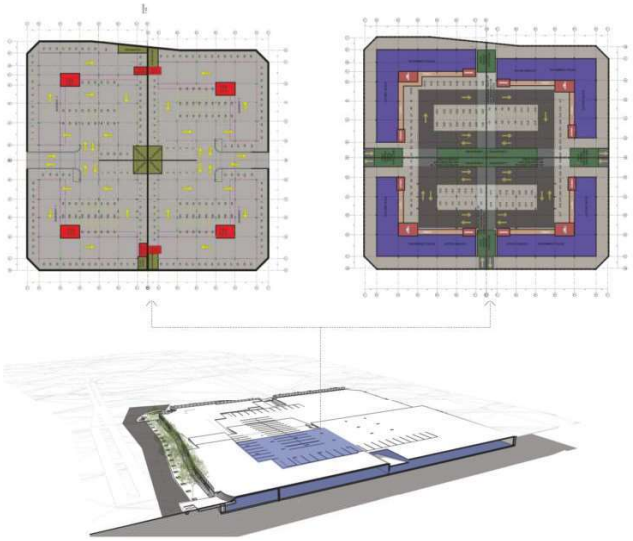


FIGURE 21: PARKING TREATMENT

The images to the right shows the options of dealing with parking by providing courtyard or basement parking.

FIGURE 22: ARTISTS IMPRESSION SHOWING EXAMPLE OF POSITIVE EDGE TREATMENT

The image illustrates an example of how positive edge treatment principles can be applied

FIGURE 23: PRECEDENT IMAGE

The image reflects rooftop principles considered when creating developments with a positive edge

- A DEFINED STREET SPACE
- B SUPPORTIVE BUILDING EDGE
- C CANTILEVER PROVIDING SHADE
- D MODULATED BALCONIES ALLOWING NATURAL SURVEILLANCE OF STREET
- E CORNER TREATMENT/ ACCENTUATION
- F TREE LINED PEDESTRIAN WALK-WAY
- G TIMBER SCREENING
- H ACTIVE EDGE

PG-03.
ACTIVITY RESPONSE

DEVELOPMENT SHOULD REINFORCE AND ENHANCE EXISTING PATTERNS OF ACTIVITY WHERE APPROPRIATE, PROMOTE DIVERSITY AND LAYERING OF USES AND PROVIDE OPPORTUNITIES FOR AS WIDE A RANGE OF USER GROUPS AS POSSIBLE.

THE OBJECTIVES

The intent is to allow for the development of mixed uses and the encouragement of multiple users to create true live, work and play environment. In doing so the importance of having an active base within core mixed use areas is also highlighted as this stimulates and brings a vibrancy to urban life.

THE GUIDELINES

3A. MIXED USE

3ai. Designing for Diversity of Use

It is widely acknowledged that the diversity of activities is an essential basis of vibrant cities. Planning for mixed use is vital as this enhances social and economic opportunity. There are several approaches to allowing for mixed use, including horizontal and vertical mixed use. In cases where it is difficult to achieve an integration of use within a specific site or building, then alternate strategies that allow for a mixture of use at a precinct and neighbourhood level should be investigated. This may include establishing compatible and mutually supportive land uses on adjacent sites.

3aii. Promote Vertical Mixed Use

Promoting mixed use is key in achieving high performance urban environments. A break from past approaches to mono-functional, single land use zones is essential in building cities that offer greater choice, opportunity and experiences for its users. A key aspect of planning for mixed use is allowing for multiple uses on a single site, where the ground floor allows for retail as an active base, with either office or residential on the upper floors. This ensures an active 24hr city - an essential basis of good urbanism.

FIGURE 24: MIXED USE EXAMPLE:

The image above shows an example of a mixed-use development where retail is used as the base to stimulate activity in the area.

3aiii. Provide for Trading at Key Interceptory Points

A critical success factor of contemporary South African cities is the integration of a range of scales and opportunities for economic activity. Informal trading, markets and small businesses are a vital part of the local economy of cities, however these spaces are often neglected in the framing of planning proposals and zoning. It is essential that spaces are created for such activities as part of a proactive strategy to foster these opportunities.
The design of cities should therefore acknowledge that transport interchange points, the intersection of significant transport routes, as well as key public amenities, form important nuclei for trading. A strategy that meaningfully integrates trading is essential for the future of South African cities.

3B. ACTIVE BASE

3bi. Mandatory Active Base in Mixed Use areas

Within the core of mixed-use areas, it is essential that at the ground floor level an active edge is created. This may include the establishment of retail activities, where the demand allows for this or alternatively office and service related activity in areas where thresholds do not support retail activity.

3bii. Allow Double Volume Base to Reinforce Activity

In cases where retail activity forms the base of buildings, a floor to ceiling height commensurate with retail should be catered for. This may vary between 4,5m to 5,5m excluding the structure of slab. To reinforce these as prominent spaces, consideration should be given to double volume colonnades along these edges.

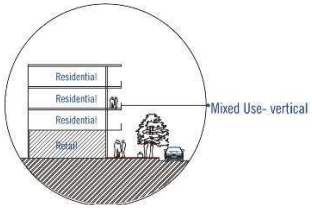


FIGURE 26: ARTIST'S IMPRESSION OF POSSIBLE ACTIVE BASE
Artist's impression of an example of how an active base design can be applied

FIGURE 26: NEGATIVE PRECEDENT
Example of building with inactive base and diversity of uses

FIGURE 27: POSITIVE PRECEDENT:
Example of mixed-use development with an active base

FIGURE 28: ARTISTS IMPRESSION OF POSSIBLE ACTIVITY RESPONSE

An artist's impression showing an example of how the Activity Response principles can be applied

PG-04.
NON-MOTORISED TRANSPORT

DEVELOPMENT SHOULD REINFORCE THE ROLE OF NON-MOTORISED TRANSPORT SYSTEMS, PROVIDING FOR SAFE PEDESTRIAN & CYCLING MOVEMENT, AND LINKING TO PUBLIC TRANSPORT SYSTEMS

THE OBJECTIVES

In line with over-arching Sustainable Development policies, the intent with regards to the Non-motorised Transport (NMT) principle is to then reduce dependence on the motor vehicle and promote more sustainable means of transportation such as cycling and walking. This brings about the need to develop a means of ensuring the safety and comfort of NMT users.

THE GUIDELINES

4A. PEDESTRIAN PRIORITY

4ai. Design to Pedestrian Scale

Cities are for people. Within the context of evolving urban centres in the South African context, it is clearly evident that the dominant users are people on foot, yet the dominant form of as-built designs serve to enhance vehicular movement. It is essential that the scale of the urban structure is based on a pedestrian and human scale. This may translate into urban blocks and networked pedestrian connections that vary between 50m to 100m.

4aii. Safe Street Principles

Essential in the design of urban centres is the design for 'Complete Streets'. This involves designing in a manner that does not optimise one mode of transportation use over the other. In the case of promoting Safe Streets it is essential that a clear definition of space for particular users be created. This can be established through a combination of several urban design and street-scape strategies, including traffic calming, changes in texture and level, definition of function through bollards ,and generally the design for reduced vehicular speeds within built up urban environments.

FIGURE 29: DESIGNING FOR PEOPLE:

The image reflects an example of a street designed with the pedestrians and safety of pedestrians in mind but still allowing some motor-vehicle access.

4B. DEDICATED SYSTEMS

4bi. Create Defined Systems

In facilitating the performance of non-motorised systems it is essential that clarity in the various modes of movement be created. This requires the design of dedicated systems

that are designed in a supportive manner. As an example, dedicated systems for cycle, pedestrians and public transport should be established in a way that is mutually beneficial to each mode, which translates into higher quality performance of the overall route and space.

FIGURE 30: DEDICATED NMT ROUTE
Example of a dedicated NMT lane where users are separated from motorised transport and space is highlighted by alternative texture treatment

FIGURE 31: NEGATIVE PRECEDENT (BEFORE INTERVENTION)
Example reflects a common scenario where priority is given to the motor-vehicle

FIGURE 32: POSITIVE PRECEDENT (AFTER INTERVENTION)
Example reflects application of complete street principles where greater consideration is given to NMT

1. Bollards (Pedestrian Protection)
2. Street Lighting
3. Wheelchair Accessible Sidewalk
4. Dedicated Bus Lane
5. Planted Centre Median
6. Texture treatment demarcating crossing
7. Smart Trac Signalling
8. Wheelchair Accessible Sidewalk
9. Street Lighting
10. Street Verge Planting

FIGURE 33A: ARTISTS IMPRESSION OF HOW COMPLETE STREET PRINCIPLES CAN BE APPLIED
Artist's impression showing an example of how the provision of non-motorised transport infrastructure can be applied through the application of complete street principles.

FIGURE 33B: ARTISTS IMPRESSION OF POSSIBLE COMPLETE STREETS
An artist's impression reflecting an example of how the provision of non-motorised transport infrastructure safe street design through the application of complete street principles can be applied.

PG-05.
PLACE MAKING & THE PUBLIC REALM

DEVELOPMENT SHOULD SEEK TO ENHANCE THE OVERALL PUBLIC ENVIRONMENT, REINFORCING THE CHARACTER OF AN AREA, AND CREATING USABLE AND MEMORABLE PUBLIC SPACE OPPORTUNITIES

THE OBJECTIVES

The Public Realm is a vital component of South African cities as it is a place where multiple activities take place on a day-to-day basis. As such the intent is to ensure that developments not only relate to, but enhance the public realm by creating responsive street edges, developing street-scape elements and pallets and combining some of these aspects with architectural principles such as the accentuation of building façades.

THE GUIDELINES

5A. HUMAN SCALE

5ai. Responsive Street Edge

In facilitating positive urban environments, it is essential that the street level interfaces of buildings are considered as responsive edges. This includes allowing for the definition of these spaces, providing amenity through shade and protection, as well as encouraging activity to create vibrant pedestrian edges. Various design approaches can be used to achieve this objective including the use of colonnades and overhangs to reduce the building scale at the street level.

5aii. Building Setbacks

A human scale proportion is best achieved between a 4 to 6 storey urban environment. As a guideline for taller buildings, a setback of the vertical plane after 4 storeys should be encouraged, thereby creating a more human scaled podium with recessed upper floors.

FIGURE 34: BUILDING SETBACK

Example of building setback after 4th storey in order to give human scale proportion

5B. LEGIBILITY

5bi. Defined Street-Scape Elements

The treatment of the public realm and its urban landscape elements is important in ensuring visual continuity and sense of place within an evolving urban context with incremental and staged individual site development occurring. A consistent street-scape palette of elements serves as a means to bind various developments into a coherent precinct. A "family" of street-scape elements, including bollards, lighting, seating, paving etc. should be developed as an overarching approach to enhancing legibility and a sense of place.

FIGURE 35: STREETSCAPE UPGRADE

Example of street-scape intervention where a combination of public art, road surface treatment, street furniture and lighting were provided

5bii. Focal Buildings & Corners

Consideration should be given to accentuated buildings or specific corners that occupy important place-making positions. This could include ascribing greater height to key sites, or specific corners as well as promoting the need for special architectural accentuation of such corners in planning proposals.

5biii. Capital Web Structure

The 'Capital Web' is an essential basis to urban structure. It is important that an emphasis is placed on reinforcing these elements of the urban structure through the appropriate order of landscape enhancement, assignment of relevant supporting bulk and height factors, and importantly ensuring that the appropriate scale of activities anchors these elements of the system. This ensures that the structure of place is well defined and legible.

5biv. Development Interfaces

The following interventions are proposed for those developments that are considered imposing on surrounding developments i.e. either creating a shadow effect or the transition of uses that are seen as not compatible.

- The Municipality could request a developer to undertake a shadow assessment to determine the impact of the development on the neighbouring properties. If it is deemed that any development of any particular scale is going to have a negative impact on surrounding properties or have an unconducive impact on the public realm.

- In cases where buildings are deemed to be of scale, a potential solution would be to employ building set-back requirements at various levels to minimise both shadows and imposing facades of buildings. (An example of this is reflected in figure 32.) The City of Ekurhuleni Land Use Scheme (2021) also makes provision for this approach to building lines in respect of certain use zones.

- In cases where boundary walls are causing a negative impact on the neighbouring property or on the public realm interface, the application of architectural responses such as green wall responses are encouraged as a means of softening the imposing impact on the neighbouring property or public interfaces. In cases where the wall is creating a dark space in the public realm, the implementation of adequate lighting solutions is encouraged as a means of minimising dark areas within zones.

- In cases where there are two different land-uses such as industrial and residential adjacent to one another, the treatment of the public realm is crucial. In these cases, the dense landscaping of the street is encouraged as well as where possible the set-back of the residential with landscaped parks fronting the developments is encouraged to provide a suitable transition

FIGURE 36: CORNER ACCENTUATION
Example of corner accentuation to add to the overall image of public realm

5C. PUBLIC SPACE & STRUCTURE

5ci. Hierarchy of Spaces

A positive performing urban environment has at its basis the conscious making of spaces at various levels of the hierarchy. Higher order space, both hard and soft, should be aligned with the position of higher order activities. Conversely, local spaces which serve a different function, should occur more regularly and located within the fabric of neighbourhoods.
It is essential that the understanding of public space extend beyond the traditional notion of a "park". Contemporary urban spaces are dynamic, hardworking and the containers of urban life. Consequently, a much wider view of what constitutes space is necessary. The hierarchy of space should therefore include, civic space, squares, parks, play lots, courtyards and importantly, streets as shared spaces as well as public transport nodes as places for public space making. Towards facilitating the provision of public open spaces for residential developments, the City of Ekurhuleni Spatial Planning and Land Use Management By-law makes provision for parks contributions and at an individual site level (for "Residential 3" and "Residential 4" zoned developments) the City of Ekurhuleni Land Use Scheme (2021) also requires the provision of "children's play area" to comprise an integral and functional part of such residential developments.

5cii. Hard Spaces & Active Spaces

Within contemporary South African centres it is clearly evident that the public domain is a vital space for social and economic activity and exchange. It is essential that the greatest intersection of thresholds of people should be carefully designed and understood to cater for a range of evolving needs. This includes providing for places of economic trade, social exchange, movement of people and religious and cultural celebration, with due regard for accommodating and managing associated informalities. Therefore an essential basis of responsive urban design today, requires a complete shift in the understanding and provision of spaces. In developing hard spaces as containers of urban activity it is important as guideline that these spaces are designed as robust, flexible and adaptable spaces. A sense of generosity in space with little clutter and landscape embellishment is required.

5ciii. Civic Spaces

The provision of larger scale spaces as Civic spaces is an important aspect of the 'Capital Web'. Therefore careful attention needs to be placed in the design of civic buildings to ensure that adequate provision is made for civic scaled spaces designed an in an integrated manner. Within particular positions, Civic spaces should be developed as facilities in their own right provided that these form a centre around which sufficient connectivity and thresholds exist.

5civ. Ecological Spaces

An important founding layer of the public space structure is ecological space. These spaces serve as important green infrastructure assets and should be carefully managed to ensure their ongoing functioning and performance from an ecological perspective. At the same time, it is essential that these spaces are not isolated from urban systems and should form accessible and meaningful parts of the overall system - creating a sense of ownership among users. The tendency to 'fence off' these spaces from urban activity can only lead to their detriment in terms of these being regarded as isolated, dangerous and socially fallow spaces. Rather, an urban design approach which seeks to carefully define and "activate" these spaces, should be considered. Within the above context, the significance of the principles of "crime prevention through environmental design" (CPTED) needs to be emphasised in such instances.

FIGURE 37: PLACE MAKING
Example of placemaking through provision of street-scape elements (lighting, seating, surface treatment)

FIGURE 38A: ARTISTS IMPRESSION OF POSSIBLE PLACE MAKING

An artist's impression reflecting an example of how place making can be potentially be achieved through a well-designed civic space

FIGURE 38B: AN ARTIST'S IMPRESSION OF HOW URBAN DESIGN CAN BE APPLIED IN AN EXISTING CBD CONTEXT

Artist's impression of an example of integration of public transport and placemaking

PG-06.
SUSTAINABILITY & RESILIENCE

DEVELOPMENT SHOULD CONSIDER SUSTAINABLE DEVELOPMENT RESPONSES, ENHANCE PROTECTION OF AND ACCESS TO BIOPHYSICAL RESOURCES, AND ADOPT A PHYSICAL RESPONSE THAT CAN ADAPT TO CHANGES OVER TIME

THE OBJECTIVE

The Principle of Sustainability and Resilience is intended to support emerging Global, National, Provincial and Local concerns and related policies around urban sustainability, particularly in terms of the appropriate use of finite resources and management strategies for climate change mitigation and adaptation.

THE GUIDELINES

6A. EFFICIENCY & NATURAL CLIMATIC RESPONSES

6ai. Optimise Building Orientation Opportunities

Passive heating and cooling is a readily available approach to achieving energy efficiency and optimisation in the built environment. Building positioning should be carefully considered in terms of orientation, taking into account the alignment of the sun. The natural energy from the sun can be optimised from both a solar heating and lighting perspective, if buildings are orientated north. Natural lighting should then be placed at the façades that are least receptive to the sun during the day (e.g. south facing and/or behind embankments).

6aii. Solar Protection

Just as the sun can warm a building, so too can it over-heat a building without proper planning in design. In this regard it is important to strike a balance. An abundance of natural light in a building should be controlled for with the use of shading devices, sufficient window depths and/or glazing of windows. Service balconies can also serve as a shade factor to windows as part of passive energy design.

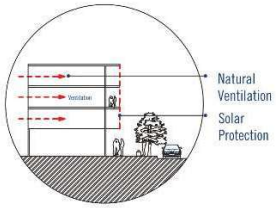


FIGURE 39: SOLAR PROTECTION

Example of solar protection by installing moveable screens on windows/ balconies

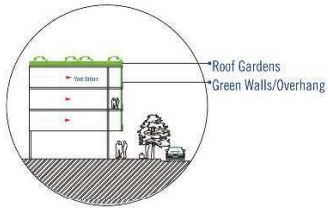
FIGURE 40: SOLAR SCREENING
Example of solar screening

6aiii. Optimise Cooling Opportunities
The demand for some form of air-conditioning in South African buildings is often inevitable. However, carefully considered building orientation, use of natural ventilation, roof and ceiling insulation, sun shading, effective glazing and more efficient lighting can contribute to reduced heat loads and a much more cost-effective building that consumes significantly less energy. Heat pumps which use the reverse cycle of refrigeration systems to heat water and in the process cool air, can solely save significant amounts of energy of up to 60%. In any event, for all buildings where air-conditioning / mechanical ventilation is proposed, it is important to have an alternative natural/passive ventilation back-up in the event of a failure.

The SANS 10400 Building Regulations do cater for some of the interventions above.

6B. GREEN INFRASTRUCTURE

6bi. Parks, Corridors & Street Trees
Preserving open space and planting locally indigenous vegetation (preferably sourced from within a 50km radius) in otherwise hard-surfaced areas such as streets, ensures an environmentally sensitive approach to the design and construction of the built environment. The aim is to conserve the natural resources and ecosystems which sustain life. Continuous natural green corridors, for example, assist fauna & flora to adapt to the impact of development and to find refuge. Equally, these green spaces allow people the much needed space they require to recreate and provide them with a sense of escape from built up areas. Furthermore, allowing space for greenery also serves well to reduce the urban heat island effect.



6bii. Vertical Gardens and Green Roofs
Vegetative treatments on buildings can add to their appeal - not only from the street, but also for the daily users of a building who may enjoy the cooling effects provided by a vertical garden wall, or their lunch breaks on the rooftop garden. These displays of vertical and rooftop gardening are positive in terms of 'advertising' environmental advocacy and in generating wider conversation on environmental matters. Another co-benefit is their ability to capture storm-water which would otherwise enter storm-water systems and potentially compound localized flooding.

6biii. Green/Smart Retention Systems
To ensure that a city is flood-neutral, attenuation and where appropriate retention of storm-water, is critical. Soft engineering solutions to managing urban storm-water are proving more cost effective and more visually attractive than hard engineering solutions. These solutions

FIGURE 41: GREEN ROOF
Example of green roof on corporate building in city

increasingly referred to as Water Sensitive Urban Design Systems (WSUDS) can be applied in all 'corners' of a city, from a single Vegetated Swale in a natural channel which slows and filters water, to a single row of street trees absorbing runoff, to a civic space or park with a central drainage/retention system (such as a dam) which has both visual appeal and wider recreational amenity.

6C. HARNESSING NATURE

6ci. Solar & Wind Energy
Both solar radiation and wind energy can provide buildings with free electricity, and can enhance citizens' independence from a lack of supply (e.g. load shedding and price shocks (e.g. electricity price increases). South Africa has one of the highest incidents of solar radiation, globally. This energy can heat buildings, provide hot water and generate electricity through conventional solar water heaters and photovoltaic panels which convert heat energy to electricity. The design of the solar systems requires integration with the roof design in terms of its orientation and pitch. The solar system should be aesthetically pleasing and preferably with no visible geysers (i.e. installed in roof voids). Capturing wind energy through micro-turbines, is considered appropriate in places where solar radiation is either inadequate (e.g. shaded areas) or where wind energy is strong.

FIGURE 42: SMART RETENTION
Street verge serving both an aesthetic and functional use as a retention system in-line with Water Sensitive Urban Design principles

6cii. Rainwater Harvesting
Rainwater should be collected through gutters and downpipes of buildings (fitted with leaf/debris traps) to discharge to above or below-ground rainwater storage tanks where it can be stored and used for irrigation, car washing or for toilet flushing. Tanks should be sized according to local rainfall patterns as well as projected annual rainfall.

FIGURE 43: GREEN ROOF DESIGN
Example of the application of green building principles through the development of a rooftop gardens in a South African city

PG-07.
URBAN MANAGEMENT

ONE OF THE MOST ESSENTIAL COMPONENTS OF URBAN DESIGN IS PROMOTING EFFICIENT AND EFFECTIVE URBAN MANAGEMENT, IN LINE WITH THE PROVISIONS OF THESE GUIDELINES

THE OBJECTIVE

Urban management is often a forgotten strategy in Urban design projects. This is often due to a lack of funding for ongoing maintenance and supervision and capacity to fully provide efficient monitoring after a project has been completed. It cannot be overemphasised the importance of ongoing maintenance and continuity of the design ethos to create areas of excellence and ensure that these areas do not revert to the previous state before urban renewal has occurred.

THE GUIDELINES

7A. GENERAL URBAN MANAGEMENT

Some key Strategies to consider are as follows:

- Place Marketing and Developing a Branding Strategy – Creating an Identity for a precinct to assist with renewal of the area;
- Engagement and Institutional Arrangements to effectively provide a program or strategy for ongoing maintenance which may include incentives to private landowners, business's etc.;
- Improve the Way-leave system to control and coordinate applications and maintenance schedules and contracts;
- Develop Special Rating Areas to enable Landowners to contribute in the maintenance and management of the public realm;
- Safety and security- Develop a plan for improved safety and comfort for the users;
- Public Realm maintenance, coordinate and develop service level agreements if a project is a private-public partnership or alternatively allocate budget within council operational budgets to channel appropriate funding to identified precincts for ongoing maintenance;
- Enforcement of by-laws and policing, ensure that the by-laws and contraventions are enforced and suitable policing of precincts are coordinated. The respective departments must be involved in the early stages of the development to understand and roll out a strategy for ongoing supervision and control; and
- Management of Public Realm (Public Transport + Traders etc.)- It is key to forward plan and cater for the informal sector and the appropriate management and control of the informal activities.

7B. HERITAGE OF EKURHULENI

Ekurhuleni has many towns that contain significant Heritage buildings and cultural assets that need to be considered in the planning and design of these areas. The adaptation of an old building should involve minimal changes to its significant fabric, only after considering alternatives. There needs to be an acknowledgment and understanding of the style, period and architecture as well as the street relationship of the building. It is only acceptable if the new intervention into an old fabric can improve the usability of the building, and not adversely detract from the historical ambiance of the building. New building work should not visually distort or obscure the old built fabric. New buildings should be sympathetic and expressed as a building of its period, new work should be readily identifiable as such. Where development is occurring adjacent to historical sites, the approvals must follow contextual restrictions which are observed by developers: Siting, Bulking, Form, Scale, Proportion, and Character. A heritage specialist must be consulted when proposals are made for building's that are classified with heritage status and any approval is subject to the Heritage Authorities.

7C. SIGNAGE/ OUTDOOR ADVERTISING

Outdoor advertising if not managed correctly may have a major impact on the environment, and not only the aesthetic environment. It may also contribute to environmental problems such as sound and light pollution and may deter road safety. On the other hand, outdoor advertising fulfils an important role in present-day life and provides one with various benefits[1].

[1]https://www.environment.gov.za/documents/strategicdocuments/samoac

7D. INFORMAL TRADING

A major component of the design of areas within Ekurhuleni is catering for the informal sectors, in particular, the rise of informal trading within cities and the management and control of the informal traders along sidewalks and interface areas. Conflict between "formal Business and the Informal economy" and the general perception that informal trading is not perceived as a contributor to the growth and renewal of an area but rather contributes to the decline of an area is a major issue that needs to be considered.

Whilst the above are general perceptions, if the trading is not considered i.e. managed and planned appropriately, it certainly could lead to an influx of traders and possibly a decline in further investment in these areas. The strategy in planning for the informal sector is to design and cater for the trading activities whilst not compromising or stifling the area's economic potential but rather compliment and facilitate the opportunity for all.
The types of informal trading can vary. They can either consist of formal trading shelters predominantly along main pedestrian routes or squares, to a more formalised 24-hour market facility that generates nightlife in the precinct or potentially located at public transport terminals to more specialised linear markets along specific streets. In these applications, consideration should be given to the following:

- Sidewalk width to accommodate both pedestrian and trading stall and landscaping;
- Urban space- extent must be able to accommodate through movement in space and allow people to mingle without being oversupplied with Informal trading stalls;
- Consideration must be afforded to ablution and storage facilities;
- Positioning of trading stalls must consider the desired line of pedestrians to capture passing trade; and
- The trading stalls must exhibit architectural character and quality that fits into the urban precinct and language that it is being developed in.

FIGURE 44: PROVISION OF INFORMAL TRADING STALS
Example of possible shelter facilities to accommodate informal trade within the public realm as a key component of African Cities

7E. OPEN SPACE MANAGEMENT

The open space network is considered a vital component of any settlement. While the network consists of multiple spaces that are used daily by many, a lack of clarity on the management of such spaces can often lead to neglect or poor design and management of the spaces. This section intends to provide guidance on the classification of open spaces along with key design and management considerations. This serves as the foundation on which open spaces are designed, upgraded and maintained within Ekurhuleni.

CLASSIFICATION OF OPEN SPACES

The classification of the typology of open spaces is important in ensuring efficient design and management of each identified open space.

7ei. Soft Open Spaces

Soft open spaces are considered as the un-built up and largely natural spaces within the urban landscape. They can be divided in to Passive and Active open spaces and are generally found in the following typologies,

Passive Open Space:
- Conservation Reserves;
- Critical Biodiversity Areas;
- Ecological Support Areas; and
- Remaining Natural Open Space (Ridges, steep areas, watercourses, floodplains, geotechnical constraints areas)

Active Open Space:
- Parks;
- Play lots; and
- Sports fields/grounds.

7eii. Hard Open Spaces

Hard open spaces on the other hand are built up public or semi-public spaces within the built-up landscape. They can be separated into the following typologies.

Roads:
- Roads;
- Pavements;
- Road Islands;
- Traffic circles; and
- Street Trees.

Civic Spaces and amenities:
- Town/civic squares;
- Street Furniture;
- Urban Art/Design/Water Features;
- Promenades/walkways;
- Paving Trees and flowerbeds; and
- Lawn.

FIGURE 45: SOFT OPEN SPACE
Artist's impression example of a soft open space- park

DESIGN OF OPEN SPACES

In the design of Open Spaces, it is important to consider the following four principles: Natural Access Control, Natural Surveillance, Territoriality, and Maintenance and Management (which are the four basic principles of the concept of "crime prevention through environmental design" [CPTED]).

7eiii. Natural Surveillance

The aim for natural surveillance is to have as many unobstructed eyes onto a space as possible. In order to achieve this one must try to avoid planting elements in areas where views of a space can be obstructed. An alternative would be to try and ensure that plantings are kept low for public spaces and avoid planting high/tall bushes and shrubs. If trees are planted, try to keep at least a two meters clearance from the bottom of a tree to the base of its crown. While lighting is also very important and the use of street lights is encouraged, it should be placed in areas to avoid any dark sports along any movement route.

During design avoid 90 degree turns where the potential to hide behind an element might be presented, rather try using long curves instead and position amenities in the landscape in areas where they are easily and clearly visible. The flow of activities can be channelled to place people (observers) near a potential crime area to help mitigate potential crimes.

FIGURE 46: HARD OPEN SPACE

Artist's impression example of a hard open space- town square

7eiv. Natural Access Control

Planting, fences and walls form barriers which can be used as an access control method. Strategically planting plants assist in deterring movement through certain areas. The type and placement of fences in a landscape is quite important and although fences are considered a safety feature in some case they can do the contrary and in making a place unsafe. The use and non-use of fences should be thoroughly thought out before implementation. This also applies to the use of gates as access control methods. Non-physical or 'psychological' barriers can be used to achieve the objective of access control. These barriers may appear in the form of signs, paving textures, nature strips or anything that announces the integrity and uniqueness of an area, making it either desirable or non-desirable to users.

7ev. Territoriality

It is important to create a sense of place when designing spaces, this will allow users to feel obligated to use and protect the space. Clear boundaries between public and private areas achieved by using elements such as fences, pavement treatment, public art, signs, and landscaping are ways to express ownership hence, helping with the above. Territorial reinforcement can be seen to work when a space, through its clear legibility, transparency, and directness, discourages potential offenders because of users' familiarity with each other and their surroundings build coalitions and alliances between agencies and key stakeholders with responsibilities for the public realm or particular precincts.

FIGURE 47: HARD OPEN SPACE

Artist's impression showing passive surveillance of a hard open space- town square

7evi. Maintenance and Management

As stated above, maintenance also includes the successful management of the space, which should form part of the initial designs. Designs that make maintenance easy, promote sense of place and are desirable to the targeted user are best. It is important to avoid areas that are potential crime hotspots. These areas are often tunnels (making it easier to hide) or areas that are too outlying from activities. The concept of CPTED should then be used this enforces the use of glass where appropriate, incorporating CCTV installations and clear and concise signage that would help in identifying spaces and elements easily and quickly .

MAINTENANCE OF OPEN SPACES

In order to ensure effective maintenance, it is important to first develop a clear maintenance plan that covers the following:

7evii. Plant Maintenance in open spaces

Plant maintenance is greatest at the beginning stages of establishment and should be done correctly. Hence develop a suitable maintenance plan that will ensure that plants grow correctly requiring less maintenance later on. After establishment or maturity has been achieved, ensure that routine maintenance is carried out accordingly (trimming of branches, weeding, etc.) to avoid unforeseen damage to nearby property.

Sizing of the plants and planting areas is also important as larger areas of lawn that are accessible by larger mowing equipment are easier to maintain than smaller areas: this must be considered during design. Planting larger, more mature plants will also decrease the amount of maintenance in the initial stages

The right balance between hard and soft landscaping is also key. Hard landscaping requires less maintenance and should be used frequently where applicable and affordable.

7eviii. Managing water on site

Design sites so that any Storm water or water runoff be channelled into the planting areas to minimise the amount the water required for irrigation. Also to try reduce the amount of nonporous surfaces by using materials such as permeable paving.

7eix. Erosion Control

Ensure that proper erosion control measures are put in place at the beginning to avoid constant maintenance. Such elements can be items such as erosion control blankets or gabion walls.

7ex. Pest Control

To avoid using extensive pest control measures, plant selection is very important. Whereas some plants are favourable to some pests, others are not. The grouping of certain planting communities can also help control the spread of pests but not totally eradicate them. Some pesticides might need to be used at regular intervals.

PUBLIC REALM CATEGO-RY	SUB-CATEGORIES	MAIN ELEMENTS	BASIC INFRASTRUCTURAL & MAINTENANCE REQUIREMENTS	RESPONSI-BILITY	MANAGEMENT OPTIONS AVAILABLE FOR MUNICIPALITY OR PRIVATE LANDOWNERS TO ENTER INTO
SOFT	Passive Open Space	• Conservation Reserves • Critical Biodiversity Areas • Ecological Support Areas • Remaining Natural Open Space (Ridges, steep areas, watercourses, floodplains, geotechnical constraints areas)	• Fencing • Security • Pathways • Control Burns • Fire Breaks • Brush cutting • Weeding • Cleaning/litter removal	Land Owner or Lessee (for duration of lease)	• Environmental stewardship initiative (coupled with incentives such as rates rebates) • Management Association (whereby levies are paid by landowners/lessees and the site is maintained) • Adopt-a-spot initiative • PPP
	Active Open Space	• Parks • Play lots • Sports fields/grounds	• Fencing • Security • Signage • Brush cutting • Mowing • Landscaping & tree pruning • Cleaning, litter removal & maintaining of ablutions and halls		• Management Association (whereby levies are paid by landowners/lessees and the site is maintained) • Adopt-a-spot initiative • PPP
HARD	Roads	• Roads • Pavements • Road Islands • Traffic circles • Street Trees	• Signage and traffic calming/ safety • Fixing potholes • Fixing paving • Landscaping & tree pruning • Cleaning/litter removal		• Management Association (whereby levies are paid by landowners/lessees and the site is maintained) • PPP
	Civic Spaces and Amenities	• Town/civic squares • Street Furniture • Urban Art/Design/Water Features • Promenades/walkways • Paving Trees and flowerbeds • Lawn	• Signage • Security • Landscaping & tree pruning • Cleaning/litter removal • Fixing paving		• Management Association (whereby levies are paid by landowners/lessees and the site is maintained) • PPP

TABLE 1: MAINTENANCE AND MANAGEMENT OF OPEN SPACES

Summary of methodology for the Management of Open Spaces

TYPICAL APPLICATION OF GUIDELINES

05
APPLICATION OF PRINCIPLES & GUIDELINES

The urban design principles and guidelines propagated in this document cannot be considered in isolation from the urban environment within which they are to be applied. In order to appropriately apply urban design principles and guidelines to a particular development proposal or urban renewal initiative, it is critical to have due regard for certain key contextual considerations that will influence the urban design interventions. Such contextual considerations can be grouped into the following broad categories of influencing factors:

1. **Type of development** (with reference to the primary type of land use);
2. **Type of geographic area** within which it is located (with reference to the nature and character of the particular geographic area);
3. **Identity of the area** (which is closely related to the type of geographic area, but requires separate consideration);
4. **Prominent phenomena and drivers of change** (that influence the urban environment, urban spaces and society in general);
5. **Scale of development** (recognising the various different scales of development to which urban design principles can be applied).

Each of these broad categories of influencing factors are discussed in more detail in the sections that follow.

5.1
CONSIDERATION OF TYPE OF DEVELOPMENT IN APPLICATION OF GUIDELINES

THE APPLICATION OF THE GUIDELINES WITHIN THIS DOCUMENT WILL DIFFER IN THE CONTEXT OF VARIOUS LAND-USES FOR VARIOUS REASONS

THE INTENT

The intent behind providing application examples pertaining to different land-uses is to highlight how urban design intervention needs to be land-use specific. This is based on the fact that people relate and interact differently to various land uses.

RESIDENTIAL INTERVENTIONS (INFILL DEVELOPMENT)

It is always important to consider the urban design interventions in relation to the change they are aimed at bringing about in the urban environment. When considering the manner in which the guidelines in this manual would be applied to an existing residential scenario, one must consider that based on the history of South African settlements, the issue of access to diverse amenities, people's dependency on public transport and the importance of the public realm (as a "stage" for life to take place) are a few key factors to consider. As a result, the notion of densification and efficient use of space become vitally important.

Example 1 below, reflects the current condition of the built-form layout for some residential developments in Ekurhuleni and other cities in South Africa, where one building sits in the corner of the site with no relation to the street. As such, both the space within the site and on the street edge is not well defined. It can also be argued that the space is also underutilised especially considering its location in an urban environment and along a main transport route.

Example 2 shows the proposed intervention in this scenario where in-fill development is proposed as a means of increasing densities in the area and thus making public transport more viable while also framing and giving greater definition to the street. Furthermore, the Facade interfacing the Main transport link has minor recesses thus creating character and interest for those traversing along its edge.

As the site is ideally located along a major bus route, vehicular access on the site is not obtained along the edge fronting the major bus route but rather off the local access road as reflected in the image. Due to the nature of the building being residential there is an element of privacy required for its residents. As such a minor building set back is applied to allow for some distance between the entrance to the building and the side-walk.

Residents' parking and play areas are restricted to the rear courtyard area framed by the buildings thus allowing more private and less visually stimulating spaces and activities to be screened by the building but also at the same time, allowing improved surveillance of the play areas on one end, as well as the streets which the buildings interface with on the other hand.

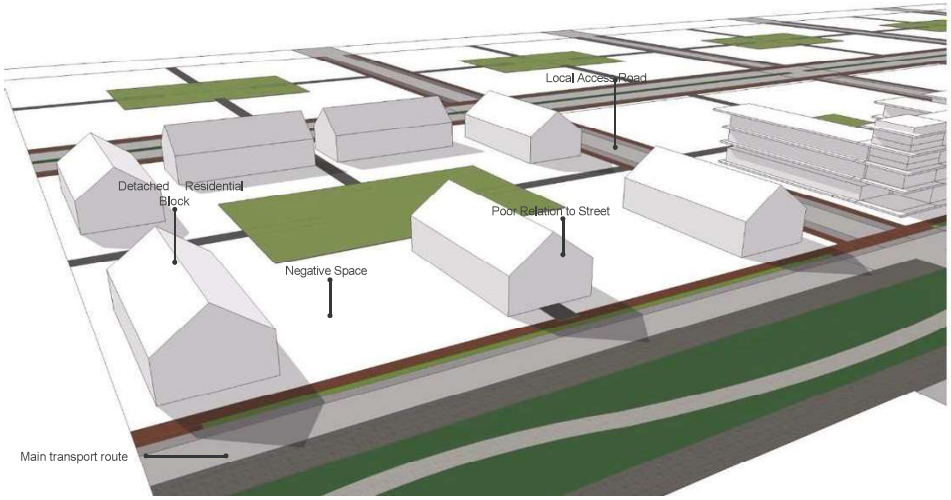


FIGURE 48: UNDESIRABLE CURRENT BUILT-FORM LAYOUT

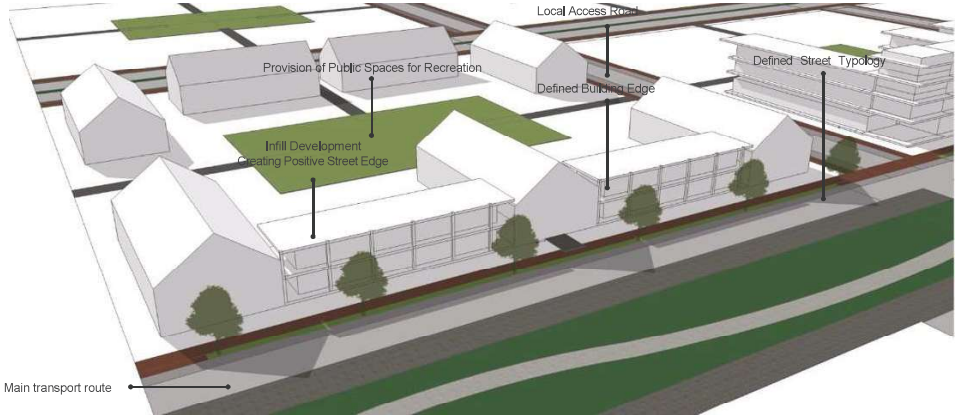


FIGURE 49: PROPOSED BUILT-FORM LAYOUT

RESIDENTIAL (NEW AND GREENFIELD)

The ideal scenario regarding greenfield residential developments is whereby careful consideration is given to the classification of the "public front" of the building and the "private back" of the building. The Public front is the side that is desirable for interfacing and relating to the street. In the example below, residential buildings both interact with the main bus route as well as the local access route. However, due to the fact that in a residential development there is a need for an element of privacy even along the primary frontage interface, it is proposed that a minor set-back of between 1-2 meters be applied.

In a bid to create a positive edge that compliments other developments along the main bus route, modulated balconies are proposed on the public fronts of the building. These also allow for passive surveillance of the public realm. In order to achieve development that is of a human scale proportion, a height limit of 4 storeys is applied.

The private back is earmarked for the provision of residents parking and courtyard play areas that are framed by the building. Vehicular access to the site and private back area of the development is thus not permitted along the main bus-route but rather restricted to the local access road.

MEDIUM & HIGH DENSITY RESIDENTIAL DEVELOPMENTS (PLAY AREAS, OPEN SPACE, WASTE & REFUSE AREAS):

The provision of play areas, open spaces, parking and waste and refuse areas is an essential component of all developments especially when dealing with Medium and High density residential developments. If these spaces are not adequately planned for and designed upfront, the result is often ad-hoc spaces being identified or often not catered for in these developments. The City of Ekurhuleni Land Use Scheme (2021) does make provision for these types of facilities to be provided for medium and high density residential developments.

As such the following measures are proposed;

- Adequate consideration and design effort is given to the provision of play areas as an integral component of all medium and high density residential developments. The municipality may through various statutory instruments available to them impose a minimum percentage of site to be dedicated to landscaping and provision of parks and children play areas within the development. In the case of the high-rise residential developments, innovative measures can be employed such as play areas provided on rooftop gardens however, adequate safety measures must be accommodated in the design of these spaces. These spaces may also serve as localised recreational open spaces for the residents. In cases where there is limited space, the onus is on the developer and his or her professional team to find innovative ways of developing play areas within the development.
- Waste and refuse spaces for all Medium and High density residential developments are to be designed in a manner that ensures that they are located as reasonably close as possible to the exit points of developments to ensure that they are easily accessed. The tracking of refuse removal trucks etc must be considered when designing these spaces. Developers must however, always ensure that these areas are well screened from the public realm at all times. Body corporates or property owners are to ensure that these spaces are always well maintained in good hygiene to avoid unnecessary smells and air pollution impacting on neighbouring properties and public realm.

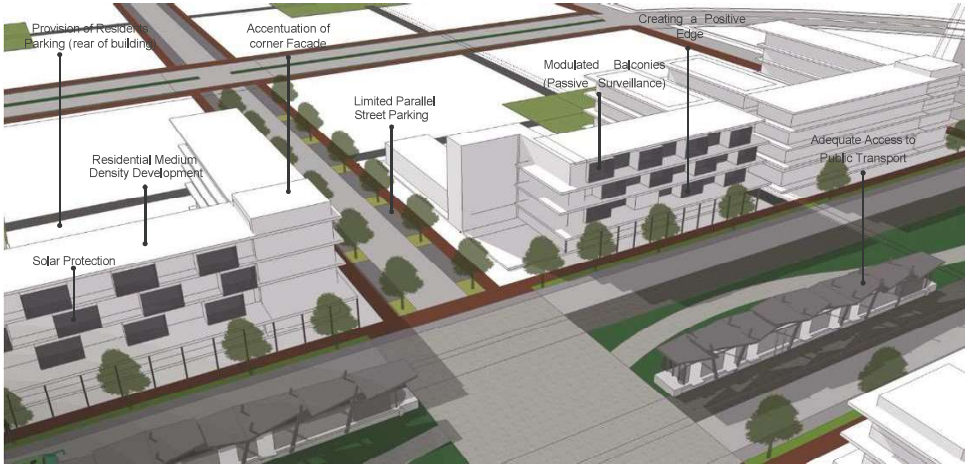


FIGURE 50: MEDIUM DENSITY RESIDENTIAL

CIVIC / SOCIAL DEVELOPMENTS

Due to their nature as public buildings and spaces, civic and social developments present an opportunity to also serve as key landmark features that add more identity and character to the broader/ surrounding public realm. In line with the principle of making and protecting visual vistas, the example below shows how, when positioned at the end of a main Public transit route that is framed by multiple vibrant activities, the civic building is able to serve as a feature landmark element and visible to all.

In order to attract more activity in the public realm, the building is to be adequately set-back so as to create a public square that also serves as a point of meeting and gives a sense of arrival to a key area or location in the environment. Although not visible in the image, parking for the relevant visitors and individuals working in the building is to be restricted to the rear of the building. Key to note, is the way in which the civic building overlooks the public square so as to allow for adequate surveillance and safety of those using the space. Smaller detailing, in the form of different surface treatment of the roads, enables the space to be more defined and differentiated from other public spaces within the broader precinct. This allows for the development of a hierarchy of spaces that are clearly defined and legible, being framed by- and complimenting the buildings around them.

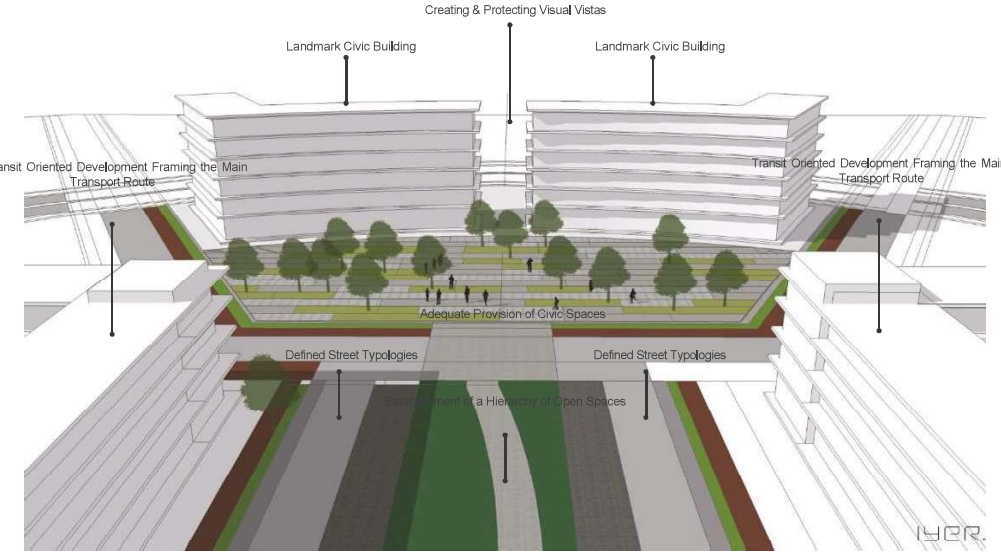


FIGURE 51: PROVISION OF CIVIC SPACE

MIXED USE DEVELOPMENT INTERVENTIONS

In the case of a mixed-use development, there is more opportunity for creating a vibrant atmosphere along the street. In line with activity response principles, example 5 below shows how the ground floor of the building can be dedicated to retail activities that can spill-out on to the side-walk. The corner of the building is set-back thus creating a small public square that accommodates street traders and also serves as a meeting point.

By applying a building line of zero metres, the building is able to frame the street. In support of this intervention, the City of Ekurhuleni Land Use Scheme (2021) does allow for a 0m building line (not a build-to line though) on "Business 1" zoned properties. It can however be considered in other use zones as well, where appropriate, on an *ad-hoc* basis. In order to improve
pedestrian comfort and further define the street space, the 1st floor slab cantilevers over the side-walk thus creating a colonnade. The upper floors are residential and, as such, modulated balconies are applied to the primary facade that interfaces the main bus-route. This serves as both a safety and aesthetic function as it allows for better passive surveillance of the public realm and also adds character and interest to the overall environment.

Parking and vehicular access to the site from the activity street is not permitted. Rather limited parallel parking for visitors to the building, along with access to the site is provided along the local access road. Residents' parking can be provided in the rear courtyard of the building. Another option for additional parking, is whereby the 1st and 2nd story of the building along the access road is used and developed as a parkade that is screened and cladded to read as "one" with the rest of the building. It is important to also note while the building is well detailed, adequate consideration and detail is also given to the street, with clear demarcation of street planting zones, cycle lanes and pedestrian walk-ways, thus making the entire public realm more legible and pleasant.

FIGURE 52: MIXED-USE DEVELOPMENT

OFFICE DEVELOPMENT INTERVENTIONS

In the case of office developments, two approaches are proposed for the implementation of Urban Design guidelines. Key to note is the way in which the street typology interfacing the development contributes to the application of Urban Design Principles.

The first example of applying urban design principles in the context of an office development is reflected below, with the development interfacing an Activity Street on one end and, a Local Access Street on the other. The first scenario is intended to create a development that directly interacts with the Activity Street. In order to achieve this, principles of creating a positive edge are applied. These include applying build-to lines to ensure that the building defines the street edge and relates to the activities along the walkway.

In order to create a suitable level of human scale in the Public Realm, the development is restricted to a height of 3-4 storeys. To add to the aesthetic character of the public realm, the corner point of the building is to be accentuated. Parking is for both visitors and those working in the building and is restricted to the rear of the building. Vehicle access onto the site is discouraged along the Activity Street but rather permitted on the edge that interfaces the Local Access Road.

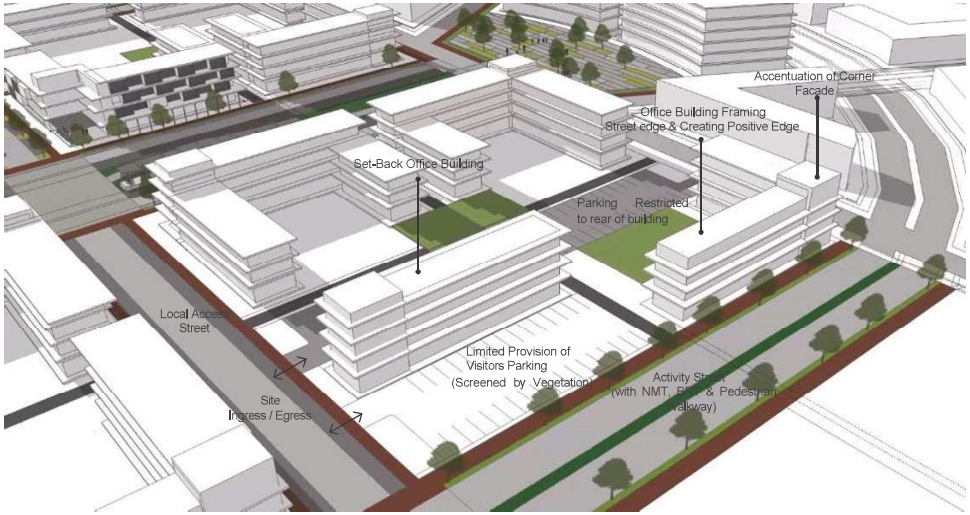


FIGURE 53: OFFICE DEVELOPMENT EXAMPLE

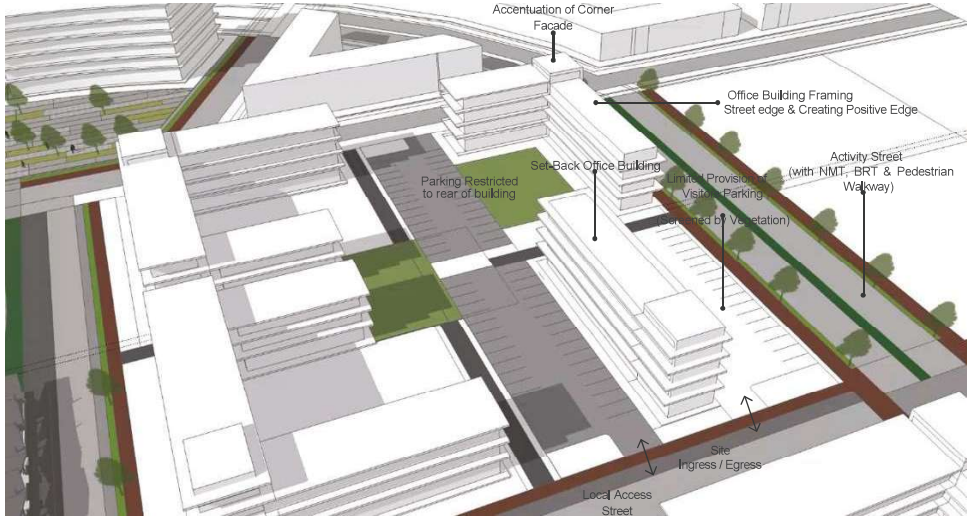


FIGURE 54: OFFICE DEVELOPMENT EXAMPLE

In the second example of an office development, a similar scenario is presented, where the building interfaces an Activity Street as well as a local Access Road. However, in this scenario the intention is not to create an active edge and would be ideal for a development that does not require a high level of public interaction. In this scenario, instead of a build-to line that allows the building to define the street edge, the building is set-back from the site boundary and visitors parking is provided in the front edge of the site that interfaces the Activity Street; however it is proposed that it be screened with trees and other vegetation measures to serve as screening to this. More parking is provided in the rear of the building. However one must note that the entrance onto the site is theoretically only obtained along the local access street.

Although the building is set-back, the height restriction is still respected to ensure that the building is not imposing on the public realm. In both scenario's should a developer require to develop a building higher than 3-4 storeys high, the building would need to be set-back from the 4th storey to create a sense of human scale.

RETAIL DEVELOPMENT INTERVENTIONS

As with the office development example, two possible scenarios are presented to show how the guidelines may be applied in the context of a retail development. The first example (below) reflects a situation where the primary frontage of the retail development interfaces with an Activity Street.

In order to complete the nature of the street typology, there is no building setback applied to allow the building to frame and define the street. Building on the fact that the retail development consists of what may be classified as public oriented activities, a glass facade is proposed and activities are permitted to spill onto walkways to create an active edge and allow a strong visual connection of activities inside the building.

The site is accessed off the Local Access Road where the building is set-back enough to accommodate minimal parking. The majority of the parking for the development including (truck drop-off zones) is restricted to the rear of the building where there is minimal visual impact on pedestrians and on the public realm.

The second scenario is the opposite, whereby a large building setback of up to 20meters is applied in order to accommodate minimal parking of up to 2 rows. In this scenario, it is also required that the parking area be heavily planted in order for the vegetation to act as a means of 'naturally' screening and cooling the parking.

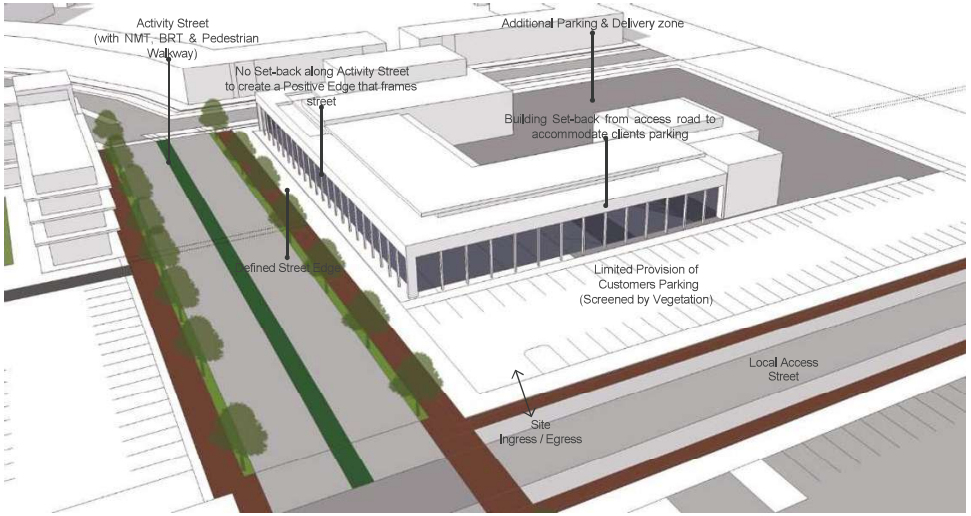


FIGURE 55: RETAIL DEVELOPMENT EXAMPLE (A)

This approach to the development of a local shopping centre is ideal for a centre that has fast food outlets on its primary edge which attracts a lot of traffic for short and quick parking periods.

Although the primary interface may be planted, it may still allow for some visibility of the building and because it is a building attracting a lot of public activity, a facade that allows the pedestrians visual connections to the activities within the building and vice-versa is proposed from a safety point of view.

FIGURE 56: RETAIL DEVELOPMENT EXAMPLE (B)

LIGHT INDUSTRY / LOGISTICS DEVELOPMENT INTERVENTIONS

The image below shows an example of how the proposed urban design guidelines may be applied in the case of light industry/ logistics developments. By nature, the type of land-use is not considered one that accommodates a lot of public interaction and activity but rather only attracts specific people requiring very specific services. As such, direct interaction with the street edge would not be necessarily warranted.

However with the modern trend of logistics institutions today requiring their offices and warehousing facilities on the same property, the example below is proposed. In order to maintain a uniform street frontage line along the entire street, it is proposed that the office component of the development be positioned on the edge of the site to allow for creation of a positive edge. The rest of the building which houses the warehousing component is set-back enough to allow for the provision of minimal visitors parking along the edge interfacing with the main activity street. As in the retail example, this parking should be screened to avoid impeding on the visual quality of the rest of the public realm.

Access onto the site is obtained from the Local Access Street. As reflected on the image, a larger building set-back is applied along this facade to allow for adequate circulation of any larger vehicles associated with this type of development.

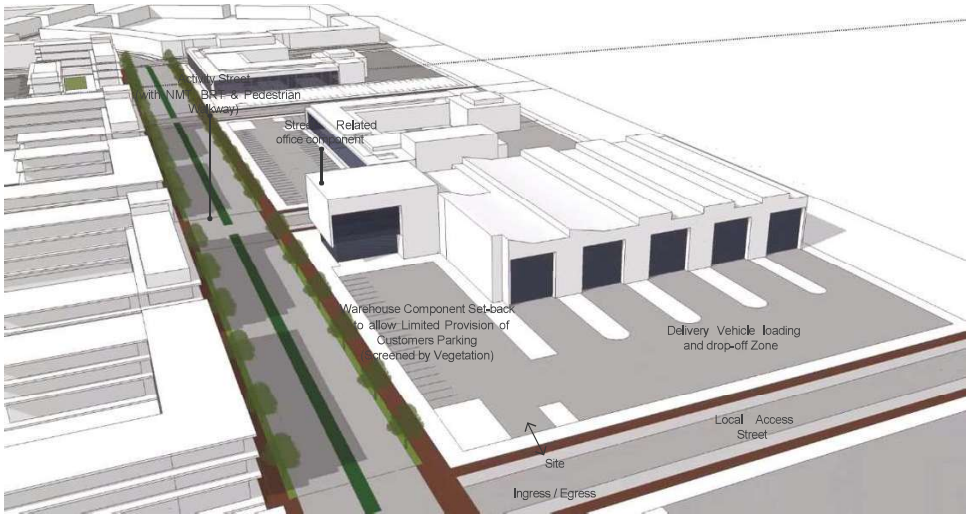


FIGURE 57: LIGHT INDUSTRY/ LOGISTICS DEVELOPMENT EXAMPLE

TRANSIT ORIENTED DEVELOPMENT (TOD)

The concentration of mixed-uses around public transit facilities such as a bus station ensures that urban environments are more compact and accessible, thus making settlements more sustainable. The main intent of Transit Oriented Development is to maximise and focus mixed land-uses around a Transit Station or within and along a transit corridor. This intern allows the public better access to public transport and mixed services and facilities.

Considering the above stated intent of TOD, some of the benefits this presents to South African cities are:

- Assist in restructuring (spatially and economically) the apartheid city-make the city more accessible to all its citizens;
- Curtail urban sprawl, promote densification and infill-development ;
- Efficient implementation and use of public transport;
- Accessibility to range of housing options, economic and social opportunities;
- Efficient service provision;
- Integrate surrounding areas to maximise benefits;
- Provide a basis and support for long-term investment;
- Increase both land value and social value in well located areas of the city.

In developing TOD nodes it is important to promote the concentration of moderate to high densities as well as a mix or land use activities around a public transit facility. The intensity of uses along with the population density should be concentrated within a 400m radius of the station and gradually progress to lower densities and intensity as one moves further from the station.

TOD development needs to also provide multiple transportation choices for people while at the same time supporting non-motorised modes of transportation (NMT) through the provision pedestrian/ NMT networks. Parking along the streets must be reduced and the relevant pedestrian safety mechanisms must be applied. The graphics that follow provide more detail.

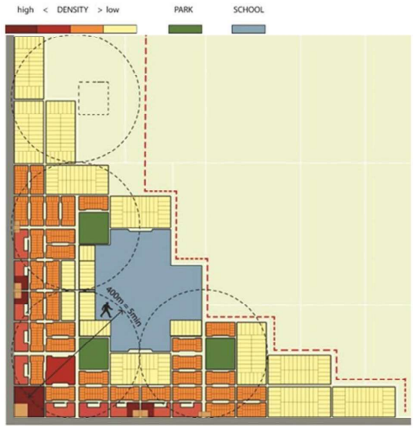


FIGURE 68: T.O.D RATIONAL DIAGRAM

Graphic explain the T.O.D concept in term of density and intensity concentration and gradual decrease

FIGURE 69: T.O.D EXAMPLE

Example showing TOD concept in practice (Density & Intensity around Public Transport Station

5.2 CONSIDERATION OF TYPE OF GEOGRAPHIC AREA IN APPLICATION OF GUIDELINES

The typical characteristics of the type of geographic area within with a proposed development or proposed urban renewal intervention is located are also likely to influence the type of urban design interventions required and the appropriate manner of applying such urban design interventions – hence the importance of considering the nature of the geographic area within which the site or precinct is located.

Within the context of the City of Ekurhuleni, we take our lead from the identified "functional growth management areas" (FGMS's) identified in the City of Ekurhuleni Growth Management Strategy, for the differentiation of types of geographic areas to be taken into account in the application of urban design principles and guidelines. The significance of the FGMA's for this purpose is that it relates such areas to the goals and objectives of the municipal policy environment and serves as a useful reference tool for planning and spatial targeting.

The City of Ekurhuleni Growth Management Strategy identifies the following seven (7) FGMA's:

- FGMA 1: Regeneration areas
- FGMA 2: Reinvestment areas
- FGMA 3: Intensification areas
- FGMA 4: Transition areas
- FGMA 5: Expansion areas
- FGMA 6: Stabilisation areas
- FGMA 7: Protection areas

In addition to the above-mentioned "functional growth management areas", the presence of the O.R. Tambo International Airport (and a number of smaller airports, such as Rand Airport and airfields, such as Springs Airfield and Brakpan Airfield) requires the acknowledgement and consideration of the influence that such aviation facilities have on its surrounding geographic area.

The respective FGMA's, as depicted in the City of Ekurhuleni Growth Management Strategy, as well as considerations associated with the geographic areas around aviation facilities, are accordingly described below, for reference in applying the provisions of the Ekurhuleni Urban Design Guidelines.

FGMA 1: Regeneration areas

Description

These areas are primary urban centres and serve as key commercial areas. This is a major commercial hub typology that seeks to maximise development density and a mix of uses with a commercial focus. This tends to support dense, high-quality office and international hotel/apartment developments with ground-floor retail. The proximity to public transit stations reduces the parking standard required for these areas as motorists are encouraged to travel via the public transit systems.

Functional Growth Management Areas in the city that poses attributes in line with this description include parts of the central business districts of Germiston, Kempton Park, and Alberton. These FGMAs scored the highest in terms of the development potential index meaning they scored the highest in terms of satisfying the development criteria. The main development theme for these areas is one of regeneration through re-investment and intensification to drive renewal.

Location

- Primary urban centre
- City's key commercial area

Density

- High-rise mixed-use buildings
- Destination for surrounding neighbourhoods
- Highest employment catchment
- Smaller programmed plazas and open space

Diversity

- Commercial as predominant land use
- Great diversity and mix of land uses with a focus on dense high-quality office and international hotel / apartment developments
- Retail on ground floor

Access and connectivity

- Cross corridor connectivity to wider environment
- High frequency transit with large number of public transit nodes
- Permeable street pattern: strong pedestrian access to stations

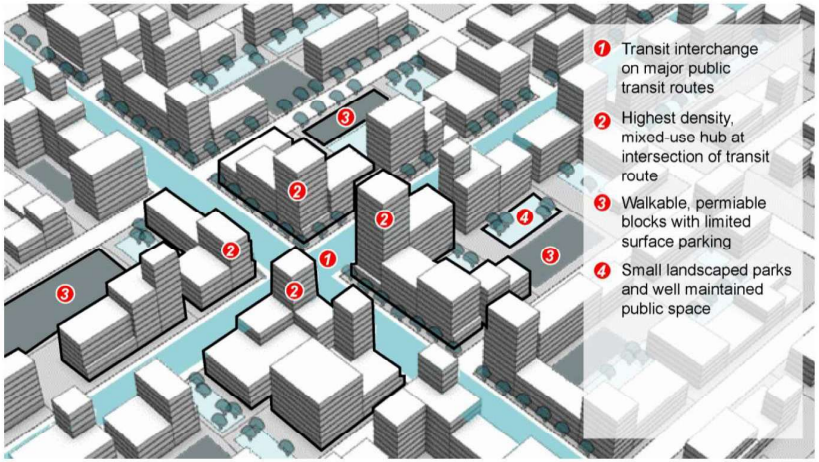


FIGURE 60: GRAPHIC ILLUSTRATION OF TYPICAL REGENERATION AREAS (FGMA 1)

FGMA 2: Reinvestment areas

Description

These areas are located on the periphery of most CBD areas or function as smaller separate commercially focused areas that can be categorised as smaller, less prominent CBDs. Where these areas are located on the periphery of major centres, these locations mark the entry point to a city or key interchange locations, allowing road users to transfer to transit and to access high-density areas. These locations will become densely developed for commercial and leisure, cultural or educational purposes, including office, retail, tertiary education, and hospitality uses. Taller building clusters will be located here to maximise the opportunity for enhanced connectivity.

In the CoE, most of these FGMAs or reinvestment areas are associated with and located on the periphery of the CBDs of Boksburg, Germiston, Kempton Park, Benoni, and Alberton as major centres. The reinvestment areas are, however, not limited to these areas and include parts of the Edenvale, Tembisa, Brakpan, Springs, Katlehong and Tokoza CBDs.

Location

- Typically located in areas marking the entry to the city as a key interchange location
- Prominent locations around a cluster of amenities
- A commercial/social service focused node

Density

- Mid to high-rise buildings
- Arrival and distribution area for a larger catchment area
- High employment catchment
- Larger open space provision with programmed and non-programmed uses

Diversity

- Destination land uses characterised by leisure, sports, universities and hospitals
- Great diversity and mix of uses to maximise potential and user experience
- Highest provision of amenities

Access and connectivity

- Interchange station containing a large number of public and private transport modes to maximize efficiency
- High-frequency transit

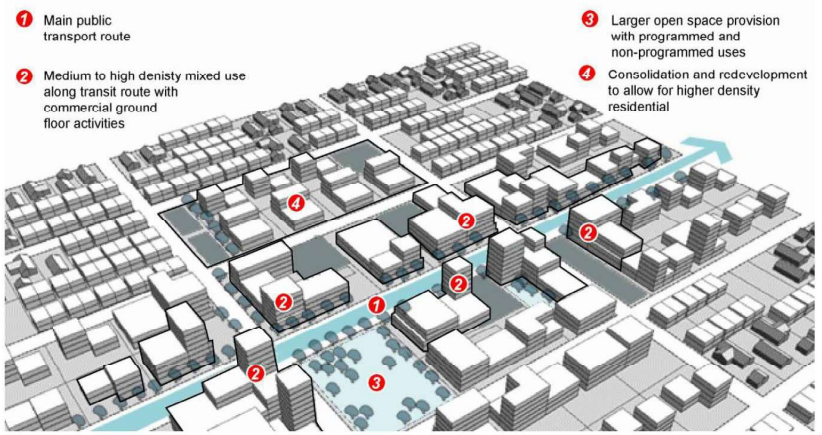


FIGURE 61: GRAPHIC ILLUSTRATION OF TYPICAL REINVESTMENT AREAS (FGMA 2)

FGMA 3: Intensification areas

Description

They are located where potential exists to create a consolidated urban district featuring commercial uses mixed with retail frontages and residential apartments. These areas are located at areas of high accessibility and often form part of community-oriented corridors. These areas have a more localised impact and serve as multi-purpose destinations with a high provision of amenities with the potential to grow into the area of regional significance.

Location

- Areas with emerging regional significance

Density

- Medium to high development density
- A mix between mid-rise apartment blocks with more extensive coverage and some commercial buildings
- Residential and employment catchment area
- The average ratio of designated open space. Mainly district and local parks

Diversity

- Residential apartments and commercial with retail frontages as predominant uses
- A great diversity of land uses
- Multi-purpose destinations with the high provision of amenities

Access and connectivity

- High multi-modal accessibility
- Medium to high-frequency transit. Distinctive peak hours to be considered
- A permeable street pattern for pedestrian use
- High level of bike use

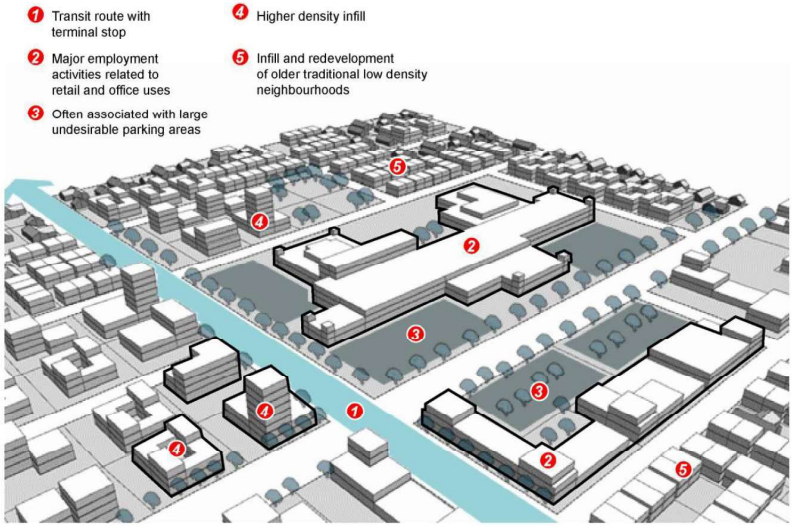


FIGURE 62: GRAPHIC ILLUSTRATION OF TYPICAL INTENSIFICATION AREAS (FGMA 3)

FGMA 4: Transition areas

Description

Typically, a place for mid-scale employment but largely residential in nature. This can be in existing or designated suburban areas and areas of existing or planned for light industrial purposes.

Location

- Located in suburban areas in a transition phase

Density

- Medium-density development
- Mid-scale employment generator (light industrial)
- High ratio of non-programmed open space

Diversity

- Largely residential, but it is not necessarily the primary use
- Support neighbouring centres
- Adaptive reuse opportunities

Access and connectivity

- Medium to a low number of public transport nodes
- Moderate transit use, greater along high-capacity transit corridors and peak-hour commuting time
- Close to main roads for vehicular access

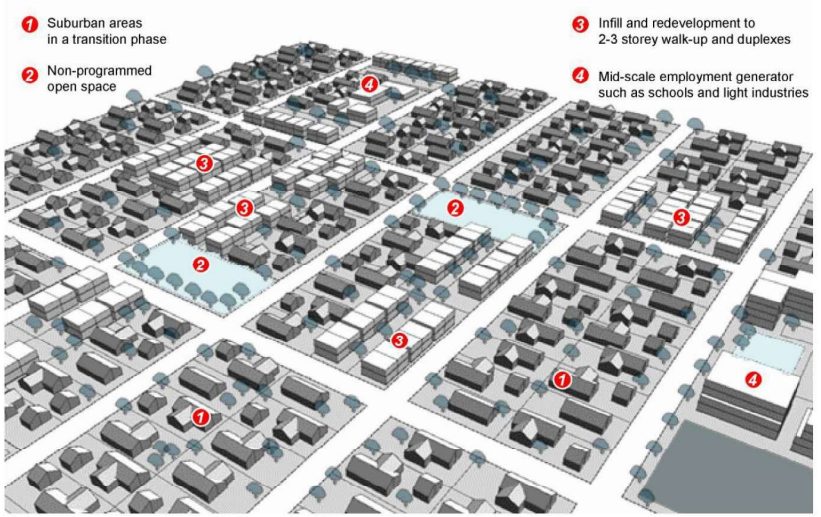


FIGURE 63: GRAPHIC ILLUSTRATION OF TYPICAL TRANSITION AREAS (FGMA 4)

FGMA 5: Expansion area

Description

These are largely residential areas and semi-rural areas supporting the needs of the existing and future (densified) communities. These areas incorporate new, and existing residential areas and townhouses as plot consolidation will allow. These areas are characterised by existing suburbs and larger industrial areas as well as smallholdings and some well-located agricultural land, often under pressure for new development.

Location

- Suburban and peri-urban areas

Density

- Low to Medium-density development
- Mid-scale employment generator (light industrial)
- High ratio of non-programmed open space

Diversity

- Residential is not necessarily the primary use
- Support neighbouring centres
- Adaptive reuse opportunities

Access and connectivity

- Low number of public transport nodes
- Low transit use, greater along higher capacity transit corridors and peak-hour commuting time
- Close to main roads for vehicular access

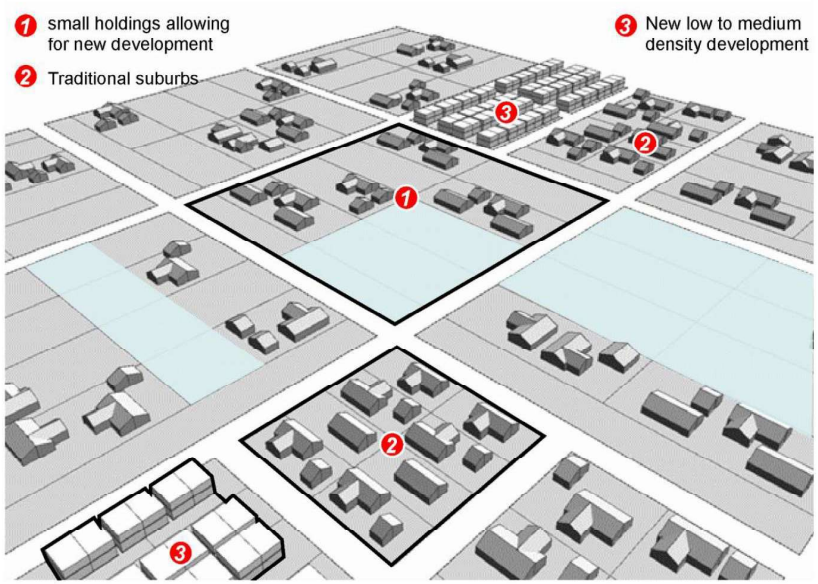


FIGURE 64: GRAPHIC ILLUSTRATION OF TYPICAL EXPANSION AREAS (FGMA 5)

FGMA 6: Stabilisation areas

Description

The stabilisation area is most associated with open land, formal agriculture or smallholdings resulting in sparsely populated areas and low impact economic activities.

Location

- Rural or non-urban areas. These areas mostly associated with agriculture activities or open natural land.

Density

- Very low density.
- Low employment generation activities.

Diversity

- Large tracts of land with homogenous uses
- Some small-scale economic activities such as storage, workshops and small-scale agricultural and tourism related activities.
- It can also accommodate large scale, formal agricultural and agro-industrial activities.

Access and connectivity

- Little to no public transit nodes.
- Streets/roads define large land blocks.

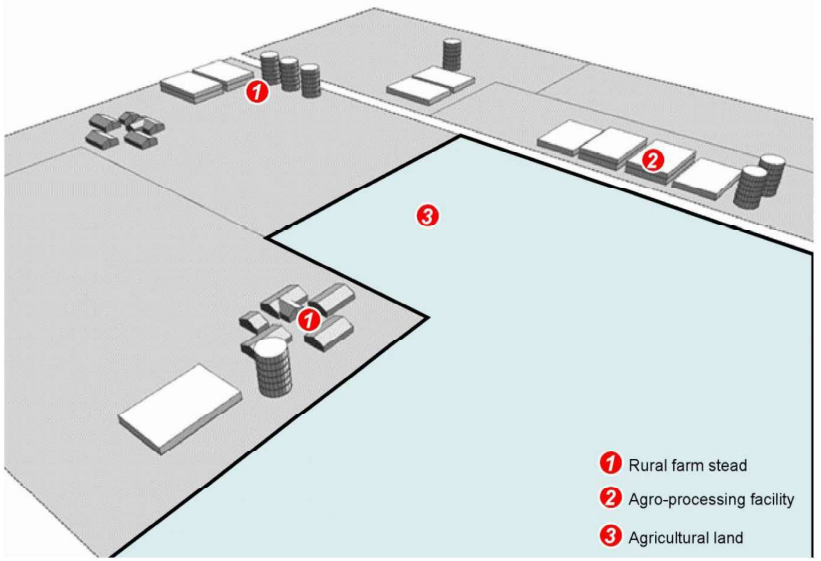


FIGURE 65: GRAPHIC ILLUSTRATION OF TYPICAL STABILISATION AREAS (FGMA 6)

FGMA 7: Protection areas

Description

These are areas not suitable for development and include areas that are: environmentally sensitive and protected areas. These areas are noted but excluded in all scenarios on the same basis as in the existing MSDF. Refer to the MSDF for strategies and guideline on how to treat development in these areas.

Location

- Natural areas, open space and mining areas

Density

- Development should be restricted

Diversity

- Natural uses and tourism facilities

Access and connectivity

- Little to no traffic.

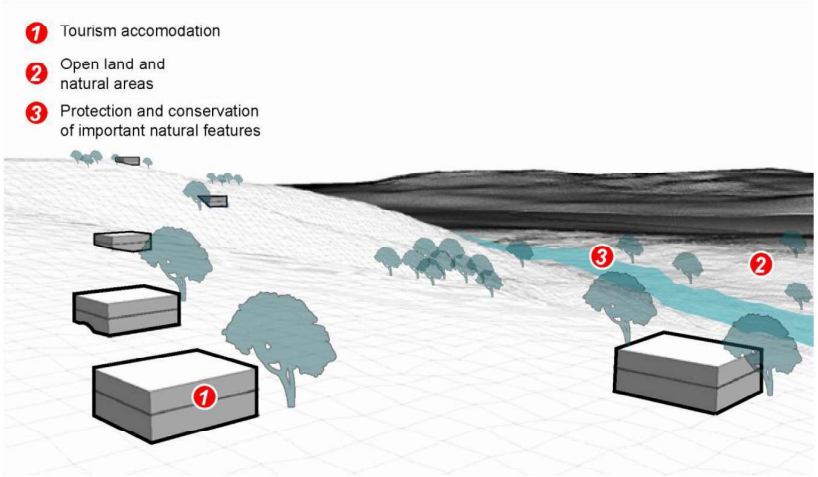


FIGURE 66: GRAPHIC ILLUSTRATION OF TYPICAL PROTECTION AREAS (FGMA 7)

AIRPORT PRECINCTS

In the City of Ekurhuleni, the existing airport precinct along with the ever-growing emergence of the aerotropolis development concept, multiple implications in surrounding areas warrant an urban design response in affected areas around O.R. Tambo International Airport and a number of smaller airports (such as Rand Airport) and airfields (such as Springs Airfield and Brakpan Airfield). Given the multiple growth opportunities that this presents, it is important to ensure development within close proximity to these airports and airfields adequately respond to its surrounding context.

Three of the main impacts the airport poses on its surrounding areas are the height restrictions imposed on developments, the high noise levels from aircrafts and other activities associated with the airport, as well as the impact of reflective building surfaces on radar equipment related to the navigation of airplanes.

Research has been undertaken regarding noise levels and the types of land-uses that are ideal within specified noise zones. The research revealed that residential uses were only ideal in areas with an allowable maximum noise level of 55 dB while non-residential uses could be located within areas with an allowable maximum noise level of 70 dB. It is however proposed that as a precautionary measure, developments with the 70 dB should utilise appropriate noise attenuation measures to better promote human comfort within the developments. The plan below reflects the above stated noise zones.

In terms of height restrictions, the South African Civil Aviation Authority (CAA) information document, provides that no buildings or objects higher than 45 metres above mean sea level of the landing area, or in the case of a water aerodrome or heliport, the normal level of water, must without the approval of the Director be erected within a distance of 8km measured from the nearest point on the boundary of an aerodrome or heliport.

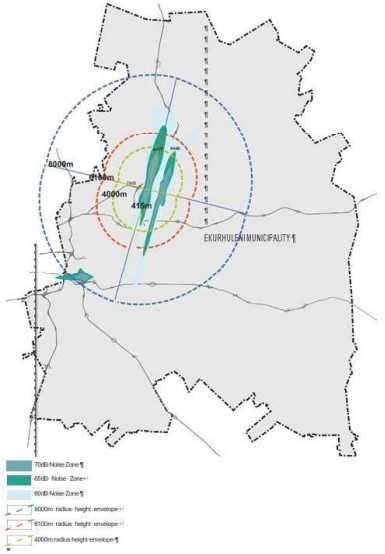


FIGURE 67: EKURHULENI NOISE ZONE MAP

Map reflecting Airport location, noise zone proximity as well as height envelope restriction areas

5.3
CONSIDERATION OF IDENTITY OF AN AREA IN APPLICATION OF GUIDELINES

While the identity of a place relates strongly to the characteristics of the type of geographic area, it goes beyond that, which requires separate recognition of the identity of an area / place in applying urban design principles and guidelines. The identity of a place is also strongly rooted in the associations that people who occupy and use the place have with the particular place.

In search of a "single, uniform identity" for the City of Ekurhuleni, as prompted in the Ekurhuleni Municipal Spatial Development Framework……..: The notion of narrowing down a "single, uniform identity" for the City of Ekurhuleni may on first consideration appear appealing. However, on further consideration, confining oneself to a "single, uniform identity" for the City of Ekurhuleni, will arguably not do justice to the rich and diverse history of the City of Ekurhuleni and the complexity of its composition (which comes with a wide diversity of areas, with widely diverse characteristics and associations for its occupants and users). Furthermore, the identity of a place is not static, because it changes over time, as circumstances change. The scale of the area under consideration also influences the factors that inform the identity of an area, with due regard for the difference between factors that occur commonly across an entire city or city-region, compared to factors that are localised within a particular neighbourhood or precinct. Therefore, just as a person does not identify him-/herself only by virtue of his / her status as either a son / daughter, or a sibling, or a parent, or an artist, or a sports person, or a professional or artisan, but rather by a combination of a number of these identities and just as the status of the person changes over time in respect of such profile of identities (as they move through the phases of life), so also does the identity of a city (including the City of Ekurhuleni) comprise of a profile of identities, that also change over time. Therefore, in search of a "single, uniform identity" for the City of Ekurhuleni, we can at best arrive at a "single identity profile", that consists of a number of components and that continuously changes over time.

Typical characteristics that are considered to aptly describe the current "identity profile" of the City of Ekurhuleni relate to:

- The **mining heritage** that shaped the original structure of the city, at its inception (long before it was formalised as a single city entity);
- The large number of **water bodies** (lakes and dams) dispersed through large parts of the city (many of which emanate from former mining activities) which prompted parts of Ekurhuleni (in particular the Benoni areas) being referred to by some people as the "city of lakes";
- Large **industrial areas** dispersed throughout the city, making the City of Ekurhuleni a recognised industrial powerhouse;
- The expansive network of **railway infrastructure**, criss-crossing through the city, emanating from the role that rail transportation served in support of both mining and industries;
- The increasing emergence of the function of the City of Ekurhuleni as part of an **aerotropolis**, owning to the presence of the O.R. Tambo International Airport within Ekurhuleni.

The above list of characteristics is not necessarily exhaustive and at more localised levels other characteristics are bound to also reveal themselves. Furthermore, in keeping with the notion that the identity of a city changes over time, it is anticipated that over the long term, as the aerotropolis concept gains prominence and as the City of Ekurhuleni pursues its strategic objective to "re-industrialise" (as part of its High Level Strategic Framework, set out in the Ekurhuleni Growth and Development Strategy 2055), the **nature and character of industries and industrial areas in Ekurhuleni are likely to change.** Related to the aerotropolis concept, the magnitude and significance of the **logistics sector** in Ekurhuleni has already increased notably over the last number of years – contributing towards the **continued evolution in the identity of the City of Ekurhuleni**.

It is recommended that in the formulation of planning and development proposals, as well as related urban design interventions for the City of Ekurhuleni, at all levels of detail (from a city-wide level to site-specific level of detail), consideration needs to be given to how such proposals align with the current and emerging / evolving "identity profile" of the city.

5.4
CONSIDERATION OF PROMINENT PHENOMENA AND DRIVERS OF CHANGE IN APPLICATION OF GUIDELINES

In addition to the influences emanating from the type of development, type of geographic area and identity of an area, the way in which our urban spaces and developments manifest and transform and the way people experience them are also influenced by certain prominent phenomena and drivers of change that transcend particular geographic areas. Such phenomena and drivers of change are influenced by externalities that prevail within a context that goes much wider than particular geographic areas or city regions – such externalities typically prevail at a wider societal, national or global scale. Due to the influence that such factors have on our urban environments, we cannot ignore them in our application of urban design principles and guidelines.

While it does not represent an exhaustive list of all such phenomena and drivers of change, this section serves to summarise a number of these factors to be taken into account in the application of urban design principles and guidelines, which include *inter alia* the following:

- Informality;
- Safety and security considerations;
- Cultures and customs of people occupying and using spaces;
- Global drive towards energy efficiency and use of renewable energy;
- Global warming and associated climatic changes.

INFORMALITY

Informality is not a concept exclusive to the African continent, but it is most certainly a very prominent phenomenon within the African context, which has a material influence on the manifestation and transformation of our urban areas and spaces and how people experience places. Due to the elusive nature of the concept of "informality", there are probably many different ways of defining the concept, but "informality" can in simplistic terms be described as activities and practices that operate outside the bounds of conventional formal regulatory arrangements and are therefore either not covered or regulated (or are not sufficiently covered or regulated) by formal regulatory arrangements. Informality also manifests itself differently in different circumstances and environments and in various aspects of daily living and is able to adapt instantly to changing circumstances, which makes it very fluid and elusive in nature and therefore challenging to formulate universal and static regulatory mechanisms to effectively regulate such activities. In some instances (as mentioned below) highly regulated formal sectors (such as e-hailing transport services and the e-commerce sector) are also associated with certain secondary unintended informal activities, that are not covered by the normal regulations associated with such sectors. Due to the very fluid and elusive nature of informality, together with the diversity of sectors of the urban environment within which informality occurs, attempts and initiatives aimed at regulating such activities within the formal urban environment are often found wanting, which also makes it challenging to formulate a fixed set of urban design guidelines that appropriately address all permutations of informality. Nevertheless, it is still critically important to recognise informality as a reality within the urban environment and to make an assessment at a very localised level (with due regard for site-specific local circumstances) towards accommodating and managing such activities.

With the above observations in mind, typical sectors of informality to look out for and consider in the design of our urban spaces include *inter alia* the following:

- **Informal economy**, which includes **informal trade,** as well as informal activities related to the circular economy (such as **recycling**, associated with "collectors" of recycling materials, dragging large trolleys or sledges of collected goods along public roads and the informal spaces where such goods are sorted);
- Informality within the **public transport sector**, with due regard for the manner in which **minibus taxi services** are operated and drivers for **e-hailing transport services** (such as Uber and Bolt), gathering and waiting at random places along public roads or in parking areas for a next call to come through;
- **Delivery drivers within the e-commerce sector** (particularly related to the retail and fast-food sector) gathering and waiting at random places along public roads and in parking areas for a next delivery;
- **Informal housing**, which manifest not only in large **informal settlements**, but also in "**back-yard shacks**" and **informal boarding houses.**

While many formal initiatives are ongoing towards regulating and managing such informal activities, detailed assessment of site-specific localised circumstances and active engagement with occupiers and users of spaces at a localised level can often go a long way towards formulating urban design interventions suitable for a particular space, with its particular occupiers and uses, within the circumstances that prevail at the particular time. However, given the very fluid and dynamic nature of informalities, it is important to formulate urban design interventions that are also adaptable to changing circumstances over time.

SAFETY AND SECURITY

While safety and security is a matter that needs to be addressed through a multi-disciplinary approach from multiple perspectives and through various different mechanisms and interventions, urban design also has a role to play in facilitating the creation of safer and more secure urban environments. A key set of well recognised urban design principles and guidelines aimed at addressing safety and security is encapsulated in the concept of "crime prevention through environmental design" (CPTED), which has been discussed under paragraph 7E ("OPEN SPACE MANAGEMENT") in this document.

CULTURES AND CUSTOMS

Although urban design manifests itself in the physical built environment, the urban spaces and environments that are created through urban designs are aimed at enhancing the experience of such places for its occupiers and users. In order to achieve this objective successfully, it is important to have a proper understanding of the cultures and customs of the very people who will be occupying and using the spaces. While knowledge about recognised cultures and customs will go a long way towards achieving this objective, it is advisable that interactive engagements be undertaken with the specific communities affiliated to specific places, in order to pick up on any local nuances in their culture and customs. An added consideration in this regard within the South African context is the wide diversity of cultural and ethnic groups that make up the South African population and who often share the same spaces.

ENERGY EFFICIENCY

The global drive towards energy efficiency and use of renewable energy is also accommodated in urban design, through guidelines such as discussed under the principle of "SUSTAINABILITY & RESILIENCE" in this document.

GLOBAL WARMING

Mounting concern about global warming also demands appropriate responses from an urban design perspective.

One of the prominent consequences of global warming for the urban environment is extreme whether phenomena associated with climate change, which include more severe storms accompanied by flooding. In response to such occurrences, the significance of well-designed "Water Sensitive Urban Design Systems" (WSUDS) that are properly integrated into the surrounding urban environment becomes more prominent and warrants special attention.

Development normally reduces the natural permeability characteristics of land by replacing free-draining surfaces (soil) with impermeable surfaces that are typically drained by pipes and/or canals. This typically results in the loss of vegetation, biodiversity and an undesirable impact on the amenity of the area. Water Sensitive Urban Design Systems (WSUDS) guidelines aim to mimic the natural hydrological cycle through 'softer' interventions, thereby improving water quality, preserving biodiversity, and enhancing amenity. The cumulative result, if applied to networks of drainage systems, is a more sustainable and liveable city.

WSUDS can be applied in all drainage contexts – from an individual household to regional storm-water catchment level. WSUDS promotes a runoff 'mitigation hierarchy' of storm water management, which starts with good housekeeping (i.e. in-situ collection and reuse at the household level or individual building site) and progresses towards other more advanced controls for local and regional runoff management.

The graphics that follow give generic examples of some key WSUDS interventions at the local and regional scale. The local and regional scale are typically those where local authorities such as storm-water, planning and/or environmental officials are (or can be) involved in storm water design and management. Furthermore, WSUDS could be used in the promotion of urban agricultural practices and pro-poor upliftment. The use of "compromised" open space for urban agriculture is preferable – rather than areas of higher biodiversity value or potential.

The local authority is just one stakeholder in storm water management. Private landowners and/or businesses need to play a role in this field as well. Nevertheless, municipalities should aim to promote the use of WSUDS on their own land holdings. This would aid in water quality improvement and enhance the natural sustainability of dams and other water bodies and wetland systems.

FIGURE 68: RETENTION POND
Example of retention pond / constructed wetland developed into an attractive and functional feature

FIGURE 69: VEGETATED SWALE
Example of street verge transformed into a Vegetated Swale

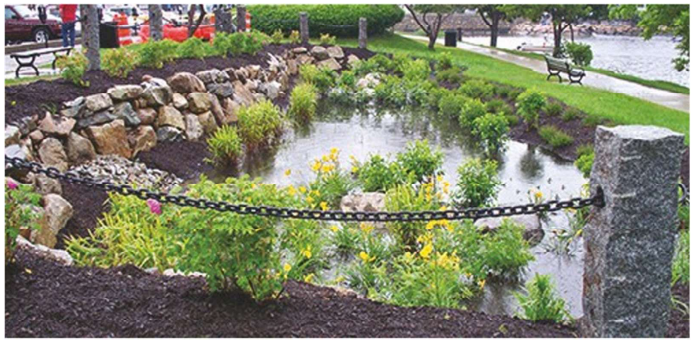


FIGURE 70: RETENTION POND
Example of retention pond / constructed wetland developed into an attractive and functional feature

5.5
CONSIDERATION OF SCALE OF DEVELOPMENT IN APPLICATION OF GUIDELINES

Urban design operates at a range of scales, from the macro scale of the overall urban structure of the city as a whole, to the micro scale of street furniture and building design, where private developments and the public realm interface. Thus, urban design focusses on the process of "place making" within the built environment, at both a macro and micro level.

In acknowledgement of the different levels at which urban design principles and guidelines can be applied and in order to assist with the appropriate selection of suitable urban design interventions for the different scales of development, an evaluation matrix has been formulated, depicting the various typical scales of planning / development against the relevant principles that are suitable for consideration at each particular scale of planning / development. The evaluation matrix appears under Chapter 6 ("DESIGN TOOL & EVALUATION MATRIX") in this document.

DESIGN TOOL & EVALUATION MATRIX

06
DESIGN TOOL & EVALUATION MATRIX

ONE OF THE OBJECTIVES IN DEVELOPING THE GUIDELINES IS TO PROVIDE MUNICIPAL OFFICIALS WITH A MORE DETAILED TOOL FOR EVALUATING DEVELOPMENT APPLICATIONS

APPROACH TO REVIEW

As mentioned in the introductory sections of this document, one of the objectives in developing the guidelines is to provide municipal officials with a more detailed tool for evaluating development applications, supplementary to assessments in relation the City of Ekurhuleni Land Use Scheme, by-laws and other relevant policies. Adherence by developers to these guidelines and the monitoring of this by municipal officials will ensure that development occurs in a manner that will bring about positive change to the current landscape of Ekurhuleni.

The Primary guidelines highlighted:

1. Making Connections: How design can be used to develop a more integrated environment by developing a fine-grain block structure, better visual connections and vistas, promoting TOD and "beads-on-a-string" activity spines;
2. Positive Edges: Design can be used to create active and attractive environments through promoting street related design, incorporating controls such as build-to-lines and devoting more attention to designing for the comfort and safety of people using a space;
3. Activity Response: Design as a key agent in realising true live, work and play environments with active uses at the base of a building being used as a means of drawing activity and vibrancy to an area;
4. Non-motorised Transport: How design can be used as an agent to reduce the dependency on motor-vehicles by prioritising pedestrian needs and safety, creating dedicated lanes or merely applying complete street principles;
5. Place making & The Public Realm: Design plays a crucial role in how people experience the public realm, and how thought must be given to the scale of development and influence of street-scape as well as legibility in terms of developing a clear hierarchy of spaces;
6. Sustainability & Resilience: The role of design in promoting sustainable development and in essence sustainable environments; and
7. Open Space Management: The reality that while design plays a critical component within the Urban Design Guidelines, the need for effective management and maintenance of open spaces is also a critical aspect for the success of the guidelines.

EVALUATION MATRIX

The table that follows, provides an example of a schedule that could be used to evaluate development proposals against the relevant principles that are applicable at a particular scale of planning and development. This position is based on the acknowledgement that while the guidelines provide a range of principles to guide design and development, not all principles are applicable at the same development scale. As such the table overleaf must only serve as a guiding tool for Municipal authorities to evaluate various development applications/ plans at various scales against the respective principles that are applicable at that particular scale. The level to which each principle is applicable is measured and reflected based on the grading below:

APPLICABILITY CRITERIA

H - HIGH LEVEL APPLICABILITY

M - MODERATE LEVEL OF APPLICABILITY

L - LOW LEVEL OF APPLICABILITY

	SCALES OF PLANNING			
PRIMARY GUIDELINES	TOWNSHIP EST	PRECINCT NODAL PLAN	LOCAL SCALE BUILDING PROJECT	LOCAL SCALE PUBLIC REALM UPGRADE
1) MAKING CONNECTIONS				
Block Structure:				
- Create fine grain blocks (100m x 100m)	M	H	L	L
- Develop Pedestrian linkages	H	M	L	H
- Incorporate Access Servitudes	H	M	M	M
Visual Connections:				
Develop/ Protect visual vistas	H	H	H	L
Develop/ Protect landmarks	H	H	H	L
Public Transit:				
-Mixed-uses at Public Transit Facilities	H	H	H	L
- Develop/ Strengthen "beads-on-a-string" activity spines along main activity corridor	H	H	L	L
2) MAKING CONNECTIONS				
Street Related Design:				
- Defined street spaces	H	H	H	H
- Supportive Building Edge	L	H	H	M
- Establish/ Reinforce Build-to-lines	H	H	H	L
- Incorporate building envelope / Build within zones (where appropriate)	H	H	H	L
Comfort:				
- Provision of adequate shade over pedestrian zones	L	M	H	H
- Develop/ allow for colonnades & cantilevers where necessary	L	M	H	L
Safety:				
- Design for passive surveillance of public spaces	M	H	H	L
- Ensure Regular openings of buildings on to public spaces	M	L	H	L
Parking Placement				
-As far as possible restrict parking to rear of buildings	H	M	H	H
3) Activity Response				
Mixed-use:				
- Allow for diverse land-use activities	M	H	H	L
- Allow for vertical mix of uses	M	H	H	L
- Encourage trading at key interceptory points	H	H	L	H
Active Base:				
- Promote Active uses on ground-floor	M	H	H	M
- Promote double volume base to support/ reinforce vibrant activity at ground floor	M	M	H	L
4) Non-Motorised Transport:				
Pedestrian Priority:				
-Consider Pedestrian scale in design	M	M	H	H
- Incorporate Complete street principles	H	H	L	H
- Promote dedicated/ defined lanes where necessary	H	H	L	H

TABLE 2: REFERENCE SCHEDULE FOR EVALUATING DEVELOPMENT PROPOSALS AT DIFFERENT SCALES

N.B. THE TABLE ABOVE MUST ONLY SERVE AS A GUIDING TOOL FOR MUNICIPAL AUTHORITIES TO EVALUATE VARIOUS DEVELOPMENT APPLICATIONS/ PLANS AGAINST THE RESPECTIVE PRINCIPLES THAT ARE APPLICABLE AT THAT PARTICULAR SCALE OF PLANNING AND DEVELOPMENT.

PRIMARY GUIDELINES	SCALES OF PLANNING			
	TOWNSHIP/EST	PRECINCT NODAL PLAN	LOCAL SCALE BUILDING PROJECT	LOCAL SCALE PUBLIC REALM UPGRADE
5) Place Making & Public Realm:				
Human Scale Design:				
Create responsive street edges	M	M	H	M
Incorporate building set-back between a 4-6 storey urban environment	M	L	H	L
Legibility:				
Create defined and attractive street-scape elements	M	H	L	H
Accentuate focal buildings or specific corners	L	H	H	L
Public Space & Structure				
Develop a Hierarchy of Spaces	H	H	L	L
Cater for informal trade	H	H	L	H
Make adequate provision for civic spaces	H	H	L	L
Incorporate, preserve and maintain ecologically sensitive spaces	H	H	L	L
6) Sustainability & Resilience:				
Efficiency & Natural Climatic Responses				
Optimise orientation of buildings to take advantage of natural energy from the sun	M	L	H	L
As much possible incorporate solar protection measures	L	L	H	L
Optimise Natural cooling of buildings	M	L	H	L
Green infrastructure				
Use locally indigenous trees and plant in open space areas	L	L	M	H
Preserve Ecological corridors	H	H	L	L
Promote the development of vertical gardens and green-roofs	L	L	H	L
Where possible develop Green/ Smart retention systems	L	L	H	L
Harnessing Nature				
Promote the use of Solar as an energy source for buildings	L	L	H	L
Promote the harnessing of wind energy through micro-turbines	L	L	H	L
Promote the use of rain-water harvesting technology	L	L	H	M
7) Open Space Management:				
Classification of Open Spaces				
- Establish a schedule of Soft-open spaces	H	H	L	L
- Establish a schedule of Hard-open spaces	H	H	L	L
Design of open spaces				
- Allow for natural surveillance over all open spaces	H	H	H	M
- Avoid the use of fences to demarcate/ control access to public open spaces	M	M	H	L
- Provide adequate signage, landscaping and street-scape elements	M	M	H	H
Maintenance				
- Develop a management & maintenance plan	H	H	L	H
- Ensure maintenance plan covers grooming, weeding and trimming of plants	H	H	L	H
- Establish a strategy for managing water on open spaces	H	H	L	H
- Establish a strategy to address possible issues of erosion or pest control	L	L	H	H

TABLE 2 (CONTINUED): REFERENCE SCHEDULE FOR EVALUATING DEVELOPMENT PROPOSALS AT DIFFERENT SCALES

N.B. THE TABLE ABOVE MUST ONLY SERVE AS A GUIDING TOOL FOR MUNICIPAL AUTHORITIES TO EVALUATE VARIOUS DEVELOPMENT APPLICATIONS/ PLANS AGAINST THE RESPECTIVE PRINCIPLES THAT ARE APPLICABLE AT THAT PARTICULAR SCALE OF PLANNING AND DEVELOPMENT.

SUPPLEMENTARY GUIDELINES

07
SUPPLEMENTARTY GUIDELINES

INCREMENTAL GROWTH

STAGED DEVELOPMENT HELPS ENSURE THE SUSTAINABLE AND EFFICIENT INCREMENT GROWTH AND MANAGEMENT OF SETTLEMENTS

THE INTENT

The intent of incremental growth is to help provide guidance to the expected or anticipated growth of settlements, by proposing that the growth and development of settlement should be controlled and not sporadic.

ADDED VALUE OF INCREMENTAL GROWTH

The advantage of Incremental Growth is that it allows for staged development to take place within areas that are evolving. The identification and prioritisation of such areas as emerging nodes, provides an opportunity for the creation of an urban structure that is functional and efficient. The application of the "Beads on a String" concept and other urban design and planning principles thus helps facilitate the development of a settlement structure that enhances a hierarchy of places and coheres development in a form of positive and urban growth boundaries.

APPLICATION OF INCREMENTAL GROWTH

The sequence of images that follow, graphically reflects how this can unfold with a typical under-performing intersection evolving into a thriving node that provides multiple economic, social and recreational opportunity.

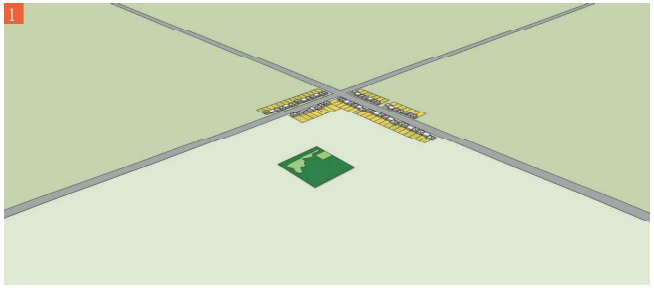


FIGURE 71: STAGE 1 INCREMENTAL GROWTH MODEL

Stage 1:
The image reflects a typical under-performing intersection within the municipality mainly characterised by low density residential activity.

FIGURE 72: STAGE 2 INCREMENTAL GROWTH MODEL

Stage 2:
The initial area increases to medium density and intensity as residential use gradually spreads. The residential at the junction is replace by retail opportunity and along the length of road contains either business/ workshop opportunity in a Medium Intensity1 format. Increased densities also lead to the need for civic and social facilities mainly in the form of a primary school and local neighbourhood park.
Stage 3:
The node evolves and now occupies four corners of the intersection as well and the growth

FIGURE 73: STAGE 3 INCREMENTAL GROWTH MODEL

of the Medium intensity zones starts to gather momentum along the road. The "beads on a string' concept also now starts to become more evident.
Stage 4:
The settlements start to gain momentum as new investment starts occurring and the settlement starts to become self-sustaining as more private sector investment with increased housing opportunity fuels activity within the area. The node becomes more established and easily accessible due to the new grid structure that starts to create a more permeable network. This in-turn generates, in this example new schools within the Low intensity zone.

FIGURE 74: STAGE 4 INCREMENTAL GROWTH MODEL

Stage 5:
The ultimate vision is achieved, having started from an under-performing intersection and evolving into now a thriving neighbourhood, with a walk able structure, thriving node at the intersection and a transition of uses from the main road.

FIGURE 75: STAGE 5 INCREMENTAL GROWTH MODEL

CONSIDERATIONS FOR IMPLEMENTATION OF GUIDELINES

08.
CONSIDERATIONS FOR IMPLEMENTATION OF GUIDELINES

In respect of implementation, it should be acknowledged that the Ekurhuleni Urban Design Guidelines are viewed as a guiding instrument for an urban design approach towards urban transformation in the City of Ekurhuleni and for guiding and evaluating development proposals and applications, which will take place through interactive engagements with key role players. This will be aimed at influencing new development and urban renewal in a manner that will result in attractive and sustainable urban environments, by drawing together the many strands of "place-making". A key component to this approach is that the Ekurhuleni Urban Design Guidelines must be treated and applied as a dynamic and "living" document that will require revision and updating (from time to time) based on new "learnings", findings and experiences gained from applying the guidelines.

It is recommended that the municipality undertake implementation of the guidelines primarily through the assessment and review of development proposals and public environment developments and upgrades from an urban design perspective, in relation to the guidance provided in these Ekurhuleni Urban Design Guidelines. Such assessment and review process provides the means for the municipality to assess the extent to which major development applications are aligned with the guidelines. This **assessment and review can take place through the normal process of evaluation and commenting by respective departments** on development proposals and application, in relation to the particular components of the guidelines that relate to their respective departmental disciplines (as part of the normal process of commenting on land development applications). However, **in order to promote better coordinated and more effective assessment and review** of development proposals and applications in relation to the guidelines, the **establishment of an Ekurhuleni Urban Design Advisory Committee (EUDAC) is recommended**, to be established. The Ekurhuleni Urban Design Guidelines will serve as basis for the work of the proposed EUDAC.

Due to the nature of the urban design principles contained in the Ekurhuleni Urban Design Guidelines, such principles cut across a number of disciplines, which therefore requires a **multi-disciplinary approach**. It is within this context that the proposed Ekurhuleni Urban Design Advisory Committee (EUDAC) will serve as a key administrative vehicle towards consistent and coordinated implementation of the provisions of the Ekurhuleni Urban Design Guidelines. In order to achieve this, **the EUDAC would need to comprise of urban design and planning experts and also representatives from a number of municipal departments (representing all relevant disciplines)**.

It is envisaged that the **EUDAC will focus primarily on proposed developments of a nature and scale that is likely to have a significant influence on the surrounding urban environment**. Thus, the intention is for the EUDAC to focus primarily on:

- Prominent private developments that are likely to have a significant effect on the surrounding urban area; and
- Developments undertaken by the municipality, through which the municipality can take the lead and set an example towards implementation of the urban design principles contained in the Ekurhuleni Urban Design Guidelines.

For this purpose, **pre-determined criteria** can serve as a basis for the identification of types of development proposals / applications that need to be referred to the EUDAC for assessment.

Lower order development proposals and applications can however still be evaluated in relation to the principles and considerations in these guidelines, **through the normal process of evaluation and commenting by respective departments** on such proposals and application, in relation to the particular components of the guidelines that relate to their respective departmental disciplines.

It should however be qualified that the proposed EUDAC is **NOT intended to take over or duplicate any approval authority** of any existing official / committee / functionary of the municipality. The EUDAC is envisaged to be established as an administrative advisory committee, of which the advice must be taken into account in the formulation of development proposals and in the approval of development applications, just like the comments from key departments have to be taken into account with the approval of development applications.

In order to **follow through with the implementation of the urban design guidelines to the actual development on the ground**, it is imperative that the application of urban design guidelines do not end with the initial engagements with developers / applicants or with the initial evaluation of development proposals and applications. The **appropriate guidelines must also be incorporated in the form of conditions for approval of land development applications** and such conditions must be **enforced through the assessment of site development plans and building plans** in relation to these conditions. This illustrates the position of the urban design guidelines within the package of policies and plans that influence planning and development in the city and how the urban design guidelines can influence the implementation components of this package of policies and plans.

Aimed at assisting with easy **application of the guidelines**, it is recommended that the "**evaluation matrix**" (under Chapter 6 ["DESIGN TOOL & EVALUATION MATRIX"] in this document) be used as frame of reference for the identification of appropriate urban design principles and guidelines, in relation to the scale of planning / development.

At a more strategic level, the Ekurhuleni Urban Design Guidelines must also be implemented by referring to the principles and guidelines in this document during the **formulation of urban design precinct plans** for particular geographic areas that require intervention.

09.
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10.
ABBREVIATIONS

ACSA	Airports Company South Africa
ATNS	Air Traffic and Navigation Services
BRT	Bus Rapid Transit
CBA	Critical Biodiversity Areas
CBD	Central Business District
CCTV	Closed-circuit television
ESA	Ecological Support Areas
FAR	Floor area ratio
GCRO	Gauteng City-Region Observatory
GLA	Gross Leasable Area
IRPTN	Integrated Rapid Public Transport Network
MSDF	Ekurhuleni Municipal Spatial Development Framework
NMT	Non-Motorised Transport
NEMA	National Environmental and Management Act
PLUG	(Aerotropolis) Planning & Land Use Guide
PPP	Public-Private Partnership
RSDF	Regional Spatial Development Framework
SDF	Spatial Development Framework
SPLUMA	Spatial Planning and Land Use Act
TOD	Transit-Oriented Development
WSUDS	Water Sensitive Urban Design
EUDAC	Ekurhuleni Urban Design Advisory Committee

11.
GLOSSARY OF TERMS

AEROTROPOLIS: The word aerotropolis was coined by Dr. John Kasarda, Kenan Distinguished Professor of Strategy and Entrepreneurship and Director of the Kenan Institute of Private Enterprise at the University of North Carolina's Kenan-Flagler Business School. It refers to a new urban form which has begun to evolve around airports. Analogous in shape to the traditional metropolis made up of a central city and its rings of commuter-heavy suburbs, the Aerotropolis consists of an airport city and outlying corridors and clusters of aviation-linked businesses and associated residential development. An aerotropolis typically stretches up to 20 miles (30 kilometres) outward from some airports.

AIRPORT: An area on land or water that is used or intended to be used for the landing and take-off of aircraft's and includes its buildings and facilities, if any.

ACTIVITY SPINE: An Activity Spine refers to a major road (or roads) or railway line accommodating mixed land uses and high-density development immediately adjacent to this facility. Activity spines are major routes that are connected to one or more secondary activity nodes. Public transport should form a major feature of an
Activity Spine. Activity Spines should exhibit satisfactory sub-regional mobility and accessibility and do not necessarily form part of Activity Corridors.

ACTIVITY STREETS: Activity Streets are of a lower order than, but similar to "Activity Spines" where the same principles of "beads-on-a-string" and high-density mixed land use apply. The term also refers to a local road that allows for a high degree of accessibility along its length. Activity Streets are of a smaller scale than Activity Spines and do not need to connect major Activity Nodes. Public transport could occur on Activity Streets, but is not essential. Activity Streets may develop spontaneously within urban areas and do not necessarily form part of an Activity Corridor.

AGRICULTURAL HOLDINGS: Areas intended for agricultural purposes, but much smaller than traditional farms. In the past, utilized primarily for small scale fruit and vegetable propagation and livestock farming. Nowadays, often associated with residential and recreational activities, such as restaurants, guest houses, conference
facilities, etc.

AMENITIES: Community facilities and social amenities, including sport stadia, tertiary education and training casinos and entertainment centres, hospitals, community centres.

ARCHITECTURAL ACCENTUATION: The act of giving prominence, special architectural detail or treatment to a particular point, corner or side of a building.
BUILDING ENVELOPE: The physical separator between the interior and exterior of a building. Components of the envelope are typically: walls, floors, roofs, fenestrations and doors.

BUILD-TO-LINE: The line at which construction of a building facade is to occur on a lot, running parallel to the front property line without setback, and thus ensuring a uniform (or more or less even) building facade line on the street.

CANTILEVERS: Architectural detail to a building where a rigid structural element, such as a beam or a plate, anchored at only one end to a (usually vertical) support from which it is protruding. Cantilevers can also be constructed with trusses or slabs.

CBDs: Central Business Districts - offices, retail, general business, recreation, and

entertainment, light service industries, residential uses, parks and open spaces.

COLONNADES: It denotes a long sequence of columns joined by their entablature, often freestanding, or part of a building. Paired or multiple pairs of columns are normally employed in a colonnade which can be straight or curved.

CORRIDOR: A corridor is defined as a strip of land or area, connecting primary activity nodes, traversing urban or interurban areas, surrounding a major transport facility or facilities, providing an appropriate regional level of mobility and accessibility to adjacent areas, and should contain a high concentration of population and mixed land uses (job opportunities). Activity corridors normally incorporate Activity Spines, Nodes and Activity Streets to accommodate the accessibility need, without sacrificing the mobility and regional accessibility function of the higher order transportation facilities in the corridor.

MIXED LAND USES: Diverse land use combination, including residential uses and other uses compatible with residential uses, such as retail, offices, parks and open spaces, general business and entertainment.

MIXED-USE DEVELOPMENT: Is used to promote a more diverse combination of land uses, and to improve the economic and social viability areas of development.

MOBILITY SPINES: Arterial routes along which through traffic flows with minimal interruption (Optimal mobility).

NODES: Spatial concentrations of economic, social and related activities occurring in a distinct focal area.

PASSIVE / NATURAL SURVEILLANCE: The ability of a person or thing to observe activities within a defined space as a result of natural physical opportunities to visually connect to the space.

PEDESTRIAN LINKAGES: The connections between the numerous destinations in a neighbourhood, including homes, business development, public facilities, and parks.

PLACE-MAKING: A multi-faceted approach to the planning, design and management of public spaces. Placemaking capitalizes on a local community's assets, inspiration, and potential, with the intention of creating public spaces that promote people's health, happiness, and well being

POSITIVE EDGES: Street frontages where there is an active visual engagement between those in the street and those on the ground floors of buildings. This quality is assisted where the front facade of buildings, including the main entrance, faces and opens towards the street, and also where ground floor uses accommodate activities that provide a level of interaction between pedestrians and the building uses including cafes/restaurants, shops, offices etc.

PUBLIC OPEN SPACE: Means any land which is owned by an organ of State, or over which an organ of State has certain real rights arising from the filing in die Deeds Office or other registration office of a general plan of a township, agricultural holding or other division of land, or any alteration, addition to or amendment of such land approved by the Surveyor-General, on which is marked the land to which the public has a common right of use; and is controlled and managed by the Council.

PUBLIC REALM: The collection of physical and non-physical elements which are accessible or impact on the general public. Some aspects of the public realm are privately

owned and managed. The public realm includes amongst others all forms of media, open spaces and streets.

PUBLIC SPACES: Means any open or enclosed space, square, garden or park, street, road or thoroughfare which is for the use by the general public and which is owned by or vests in the ownership of municipal council or organ of state.

PUBLIC TRANSPORT: A shared passenger-transport service which is available for use by the general public, as distinct from modes such as taxicab, carpooling, or hired buses, which are not shared by strangers without private arrangement.

PUBLIC TRANSIT: A public transportation system for moving passengers.

RESPONSIVE STREET EDGE: See Positive Edges.

RESILIENCE: The capacity of a system to survive, adapt, and grow in the face of unforeseen changes, even catastrophic incidents.

SPATIAL DEVELOPMENT FRAMEWORK (SDF): An SDF is a core component of a municipality's economic, sectoral, spatial, social, institutional, environmental vision. In other words it is a tool to achieve the desired spatial form of a municipality.

SPATIAL FRAGMENTATION:

SUSTAINABILITY The capacity to endure; it is how biological systems remain diverse and productive indefinitely. Long-lived and healthy wetlands and forests are examples of sustainable biological systems.

TRANSIT ORIENTED DEVELOPMENT: unique mix of land uses located at a high density within a set radius of a railway station or a major public transport node like a bus terminus, or a modal transfer facility.

TRANSPORTATION CORRIDOR: A generally linear tract of land that contains lines of transportation such as highways, railroads, or canals. Often, new transport lines are built alongside existing ones to minimize pollution

VIEW/ VISTAS: A visual quality within the landscape/urban landscape that typically provides some visual amenity. The importance of the view typically relates to the level of amenity the view provides. A vista is a corridor view usually framed by an avenue of trees or buildings.

WATER SENSITIVE URBAN DESIGN SYSTEMS: An approach which seeks to ensure that development in urban areas is holistically planned, designed, constructed and maintained so as to reduce negative impacts on the natural water cycle and protect aquatic ecosystems. Sustainable water supply, sanitation and stormwater management are encompassed within the WSUD approach.

ANNEXURE B6: ENGINEERING SERVICES

B6.1: Water and Sanitation Master Plan Projects
B6.2: GMS Assessment of CoE IIMP (2019)

ANNEXURE B6: ENGINEERING SERVICES

ANNEXURE B6.1: WATER AND SANITATION MASTER PLAN PROJECTS

2024-11 High level overview of the CoE water and sanitation master plans

Overview report for work completed under the following contract:

Contract title	The appointment of a professional service provider to update and maintain the water and sewer hydraulic models and master plans of the water and sanitation department in order to comply with relevant legislation from date of award until 30 June 2022
Contract number	PS-WS 06-2024
Contract end date	30 June 2026

GLS

City of Ekurhuleni

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Table of Contents

List of tables **4**

List of figures **5**

1 Background **6**

2 Purpose of project and project objectives **6**

3 High level overview of the water master plan projects **7**

3.1 Water infrastructure master plan projects 7

3.1.1 Summary of water infrastructure project costs by implementation year 7

3.1.2 Summary of water infrastructure project costs by service delivery area (SDA) 9

3.1.3 Summary of water infrastructure projects by SDA and implementation year 11

3.1.4 Summary of water project costs by infrastructure type 14

3.1.5 Summary of water projects by infrastructure type and implementation year 15

3.1.6 Focus on water supply backlog projects 18

4 High level overview of the sanitation master plan projects **20**

4.1 Sanitation infrastructure master plan projects 20

4.1.1 Summary of sanitation project costs by implementation year 21

4.1.2 Summary of sanitation infrastructure projects by service delivery area (SDA) 23

4.1.3 Summary of sanitation project costs by SDA and implementation year 24

4.1.4 Summary of sanitation project costs by infrastructure type 27

4.1.5 Summary of sanitation project costs by infrastructure type and implementation year 28

4.1.6 Focus on sanitation backlog projects 31

4.2 Summary of WWTP upgrading costs 33

5 Appendix A - Planning and evaluation criteria **37**

6 Appendix B - Unit cost functions **38**

List of tables

Table 3.1: Water project costs by implementation year 8

Table 3.2: Water project costs by SDA 9

Table 3.3: Water project costs by SDA & implementation year 11

Table 3.4: Water project costs by infrastructure type 14

Table 3.5: Water project costs by infrastructure type and implementation year 15

Table 3.6: Water backlog project costs by SDA 18

Table 3.7: Water backlog project cost by infrastructure type 19

Table 4.1: Sanitation project costs by implementation year 21

Table 4.2: Sanitation project costs by SDA 23

Table 4.3: Sanitation project costs by SDA and implementation year 24

Table 4.4: Sanitation project costs by infrastructure type 27

Table 4.5: Sanitation project costs by infrastructure type & implementation year 28

Table 4.6: Sanitation backlog project costs by SDA 31

Table 4.7: Sanitation backlog project cost by infrastructure type 32

Table 4.8: Total WWTP upgrade costs by implementation year 33

Table 4.9: WWTP upgrade costs by WWTP and implementation year 35

List of figures

Figure 3.1: Water project costs by implementation year 8
Figure 3.2: Water project costs by implementation year (%) 9
Figure 3.3: Water project costs by SDA 10
Figure 3.4: Water project costs by SDA (%) 10
Figure 3.5: Water project costs by SDA and implementation year 13
Figure 3.6: Water project costs by infrastructure type 14
Figure 3.7: Water project costs by infrastructure type (%) 15
Figure 3.8: Water project costs by infrastructure type and implementation date 17
Figure 3.9: Water backlog project cost by SDA 19
Figure 3.10: Water backlog project cost by infrastructure type 20
Figure 4.1: Sanitation project costs by implementation year 22
Figure 4.2: Sanitation project costs by implementation year (%) 22
Figure 4.3: Sanitation project costs by SDA 23
Figure 4.4: Sanitation project costs by SDA (%) 24
Figure 4.5: Sanitation project costs by SDA & implementation year 26
Figure 4.6: Sanitation project costs by infrastructure type 27
Figure 4.7: Sanitation project costs by infrastructure type (%) 28
Figure 4.8: Sanitation project costs by implementation year & infrastructure type 30
Figure 4.9: Sanitation backlog project cost by SDA 32
Figure 4.10: Sanitation backlog project cost by infrastructure type 33
Figure 4.11: Total WWTP upgrade costs by implementation year 34
Figure 4.12: Total WWTP upgrade costs by implementation year (%) 34
Figure 4.13: WWTP upgrade costs by implementation year 36

1 Background

GLS Consulting was appointed by the City of Ekurhuleni (CoE) Water & Sanitation Department: Division of Functional and Strategic Planning to perform hydraulic modelling and master planning on the CoE water and sanitation systems from the date of appointment (19 March 2024) up until the 30th of June 2026.

2 Purpose of project and project objectives

The work being performed under this contract pertains to the comprehensive application of specialist technology by GLS Consulting. The main objectives of the project are to:

- Assist the City of Ekurhuleni in effectively managing its water and sanitation systems
- To provide information that form the basis for long term investment planning and budgeting, asset management and improving of operational efficiency for the water distribution and sewer reticulation systems.

In addressing the above objectives, the following main tasks were specified in the service level agreement and are continuously being updated:

- Compilation of water and sewer existing system hydraulic models
- Continuous updating, analysis and evaluation of the existing system hydraulic models
- Compilation of water and sewer Master Plan system hydraulic models
- Continuous updating, analysis and evaluation of the Master Plan system hydraulic models
- Compilation and continuous updating of Master Plan PDF reports (per water distribution zone and per sewer drainage area) including identification, costing and prioritization of water and sanitation infrastructure projects
- Compilation and continuous updating of schematic representations of existing and future water and sewer systems
- Performing of a monthly IWA standard water balance
- Performing of a water and sewer pipe replacement prioritization analysis for the entire water and sewer systems
- Continuous updating and posting of the above listed information to the CoE's management information system (IMQS)

A high-level overview of the water and sanitation infrastructure projects emanating from the above master planning processes is included in section 3 and 4 below.

3 High level overview of the water master plan projects

3.1 Water infrastructure master plan projects

During the water master planning process, water infrastructure projects (including current and future upgrading requirements and new projects) were identified, costed and prioritised for implementation. The planning and evaluation criteria used for the identification of these projects are included in Appendix A. The unit cost functions used for the costing of the projects are included in Appendix B. The total cost for all identified water infrastructure projects was calculated to be ***R 9 823 747.*** For the purposes of this high-level report, all water infrastructure projects were grouped and reported on in the following categories:

- Project costs by required ***Implementation Year***
- Project costs by ***Service Delivery Area (SDA)***
- Project costs by ***Service Delivery Area (SDA) & Implementation Year***
- Project costs by ***Infrastructure type*** (i.e. Reservoirs, Towers, Pump Stations, Pipes etc)
- Project costs by ***Infrastructure type & Implementation Year***

From the master plan project list, all projects that are required to address current insufficiencies in the water supply system have been flagged as backlog projects. The total cost for all identified water infrastructure backlog projects was calculated to be ***R 4 billion.*** These are projects that should be implemented as soon as possible and have been prioritised as such in the master plan. I addition to the total system reporting included in this report, separate tables will also be included which will report on the backlog projects only. Separate backlog projects will be reported on by SDA and by infrastructure type.

All water existing system layouts, future system layouts, master plan projects and master plan reports have been loaded onto the CoE's online management information system IMQS. Geospatial maps of the water systems and projects can be viewed on https://waterimqsweb.ekurhuleni.gov.za/

3.1.1 Summary of water infrastructure project costs by implementation year

Although each identified water project was assigned a specific implementation year, projects were grouped together in the following implementation year brackets for the purposes of this high-level report.

Table 3.1: Water project costs by implementation year

Project implementation year		Total Project Cost
Current (backlog projects)	R	4 034 115 000
5 yr	R	2 908 680 000
10 yr	R	1 504 975 000
15 yr	R	923 525 000
Ultimate	R	452 452 000
Grand Total	**R**	**9 823 747 000**

Graphical representations of the water project costs by implementation year are indicated in Figure 3.1 and Figure 3.2 below:

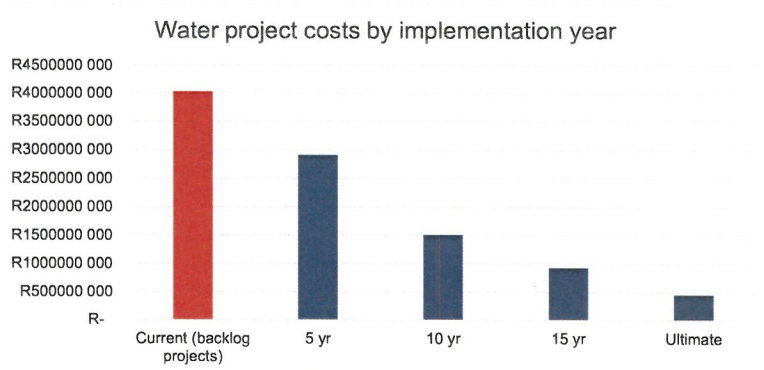

Figure 3.1: Water project costs by implementation year

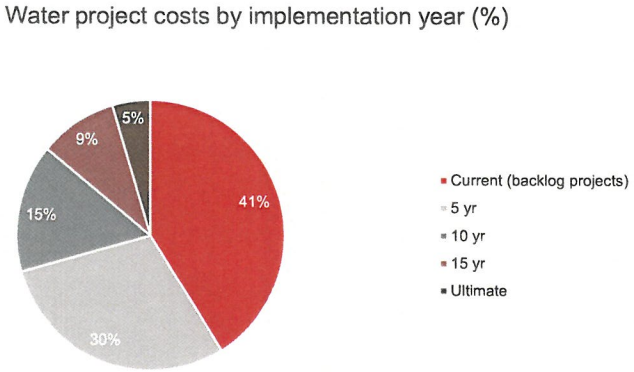

Figure 3.2: Water project costs by implementation year (%)

3.1.2 Summary of water infrastructure project costs by service delivery area (SDA)

In order to get visibility on the required regional distribution of project funding, water project costs were grouped by service delivery area as shown in Table 3.2, Figure 3.3 and Figure 3.4 below:

Table 3.2: Water project costs by SDA

Service Delivery Area (SDA)		Total Project Cost
Alberton Tokoza Katlehong	R	395 697 000
Benoni Daveyton Etwatwa	R	1 783 920 000
Brakpan Springs KwaThema	R	1 568 324 000
Edenvale	R	369 980 000
Germiston Boksburg	R	1 240 485 000
Kempton Park	R	552 186 000
Nigel Tsakane Duduza	R	858 434 000
Tembisa	R	1 747 516 000
Vosloorus	R	1 307 205 000
Grand Total	**R**	**9 823 747 000**

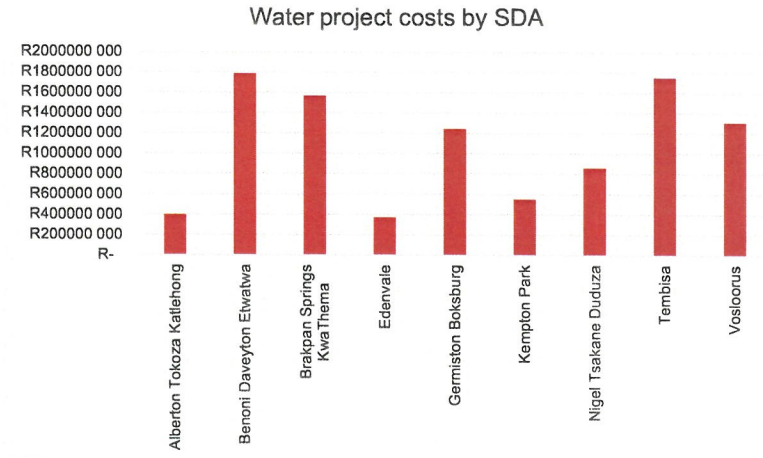

Figure 3.3: Water project costs by SDA

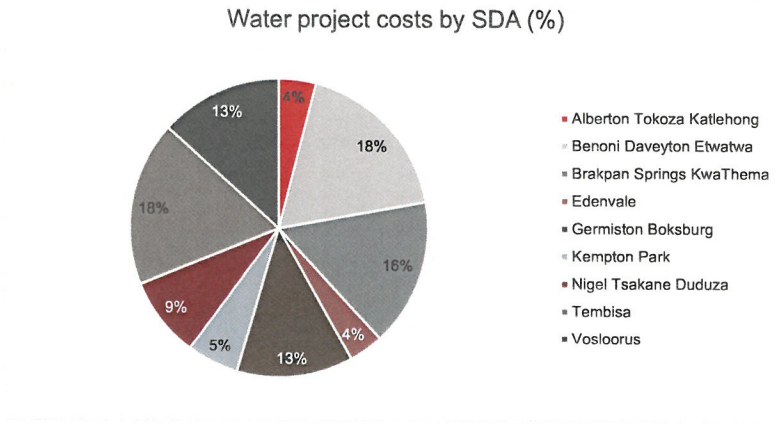

Figure 3.4: Water project costs by SDA (%)

3.1.3 Summary of water infrastructure projects by SDA and implementation year

In order to gain understanding of the timeframes required for water project funding within the specific regions of the CoE, water project costs were summarised by SDA and implementation year as indicated in Table 3.3 and Figure 3.5 below:

Table 3.3: Water project costs by SDA & implementation year

SDA / Implementation year		Total Project Cost
Alberton Tokoza Katlehong		
Current (backlog projects)	R	260 242 000
5 yr	R	19 788 000
10 yr	R	17 514 000
15 yr	R	50 739 000
Ultimate	R	47 414 000
Benoni Daveyton Etwatwa		
Current (backlog projects)	R	870 019 000
5 yr	R	589 272 000
10 yr	R	219 991 000
15 yr	R	104 638 000
Brakpan Springs KwaThema		
Current (backlog projects)	R	748 776 000
5 yr	R	415 143 000
10 yr	R	136 848 000
15 yr	R	124 667 000
Ultimate	R	142 890 000
Edenvale		
Current (backlog projects)	R	96 427 000
5 yr	R	269 441 000
10 yr	R	4 112 000
Germiston Boksburg		
Current (backlog projects)	R	563 776 000
5 yr	R	494 285 000
10 yr	R	161 255 000
15 yr	R	11 797 000
Ultimate	R	9 372 000
Kempton Park		
Current (backlog projects)	R	392 520 000
5 yr	R	141 151 000
10 yr	R	18 515 000
Nigel Tsakane Duduza		
Current (backlog projects)	R	471 433 000
5 yr	R	77 891 000
10 yr	R	287 185 000
15 yr	R	17 655 000
Ultimate	R	4 270 000

Tembisa		
Current (backlog projects)	R	227 810 000
5 yr	R	488 513 000
10 yr	R	596 583 000
15 yr	R	284 139 000
Ultimate	R	150 471 000
Vosloorus		
Current (backlog projects)	R	403 112 000
5 yr	R	413 196 000
10 yr	R	62 972 000
15 yr	R	329 890 000
Ultimate	R	98 035 000
Grand Total	**R**	**9 823 747 000**

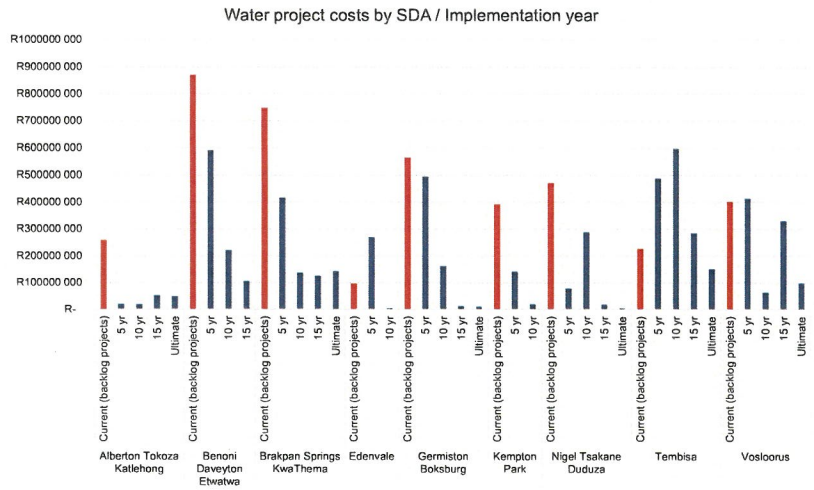

Figure 3.5: Water project costs by SDA and implementation year

3.1.4 Summary of water project costs by infrastructure type

In order to gain understanding the types of water infrastructure projects for which project funding is required, water project costs were grouped by infrastructure type as shown in Table 3.4, Figure 3.6 and Figure 3.7 below:

Table 3.4: Water project costs by infrastructure type

Infrastructure type		Total Project Cost
New bulk connections	R	19 575 000
Pipework	R	5 621 570 000
Pump stations	R	456 515 000
Reservoirs	R	3 048 742 000
Towers	R	574 228 000
Valves (PRV, FCV, CV)	R	103 117 000
Grand Total	**R**	**9 823 747 000**

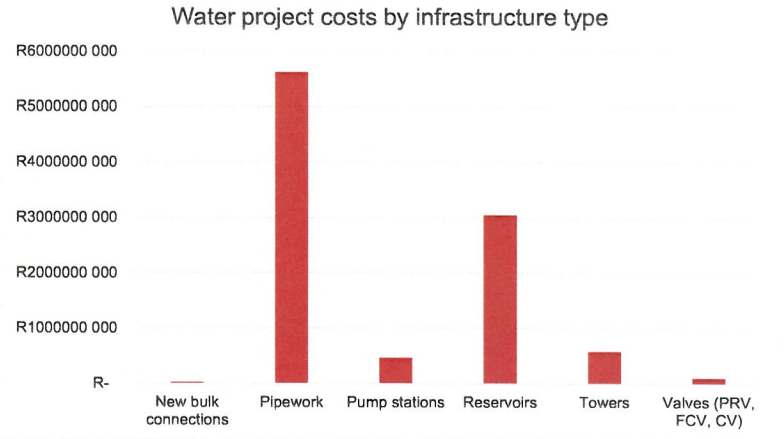

Figure 3.6: Water project costs by infrastructure type

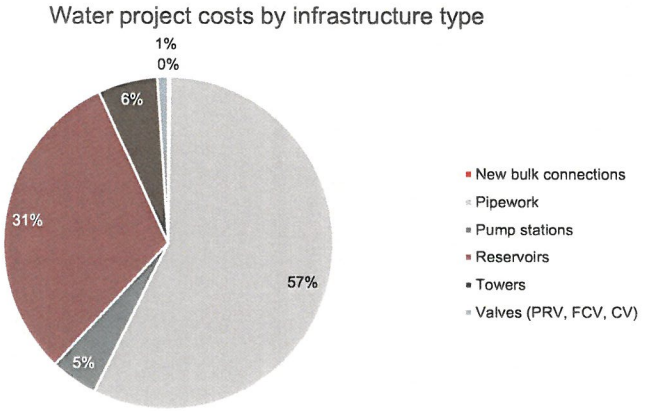

Figure 3.7: Water project costs by infrastructure type (%)

3.1.5 Summary of water projects by infrastructure type and implementation year

In order to gain understanding of the timeframes required for water project funding for specific types of infrastructure, water project costs were summarised by infrastructure type and implementation year as indicated in Table 3.5 and Figure 3.8 below:

Table 3.5: Water project costs by infrastructure type and implementation year

Inf type / Implementation year		Total Project Cost
New bulk connections		
Current (backlog projects)	R	8 700 000
5 yr	R	6 525 000
15 yr	R	4 350 000
Pipework		
Current (backlog projects)	R	2 179 318 000
5 yr	R	1 769 176 000
10 yr	R	826 207 000
15 yr	R	586 672 000
Ultimate	R	260 197 000

Pump stations		
Current (backlog projects)	R	265 612 000
5 yr	R	62 205 000
10 yr	R	61 033 000
15 yr	R	67 665 000
Reservoirs		
Current (backlog projects)	R	1 190 626 000
5 yr	R	892 765 000
10 yr	R	558 542 000
15 yr	R	245 931 000
Ultimate	R	160 878 000
Towers		
Current (backlog projects)	R	312 937 000
5 yr	R	162 772 000
10 yr	R	53 540 000
15 yr	R	16 182 000
Ultimate	R	28 797 000
Valves (PRV, FCV, CV)		
Current (backlog projects)	R	76 922 000
5 yr	R	15 237 000
10 yr	R	5 653 000
15 yr	R	2 725 000
Ultimate	R	2 580 000
Grand Total	**R**	**9 823 747 000**

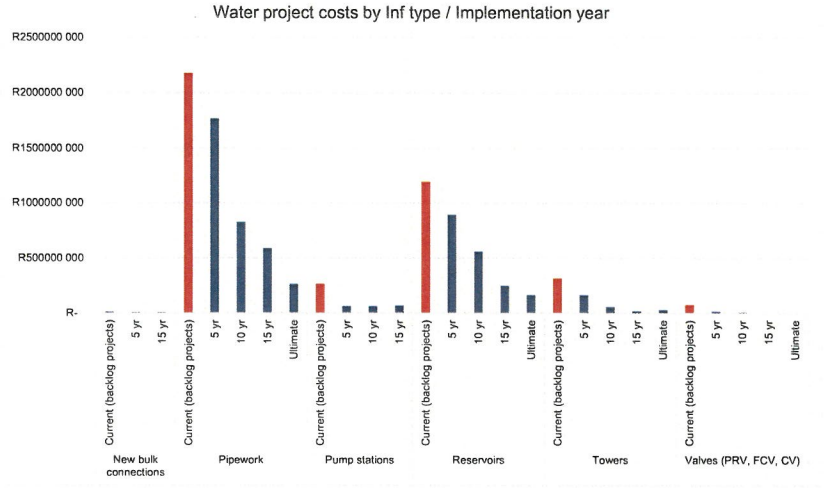

Figure 3.8: Water project costs by infrastructure type and implementation date

3.1.6 Focus on water supply backlog projects

From the master plan project list, all projects that are required to address current insufficiencies in the water supply system have been flagged as backlog projects. The total cost for all identified water infrastructure backlog projects was calculated to be ***R 4 billion.*** These are projects that should be implemented as soon as possible and have been prioritised as such in the master plan. I addition to the total system reporting included in this report, separate tables are included in the section below which will report on the backlog projects only. Separate backlog projects will be reported on as follows:

- Water backlog project costs by Service Delivery Area (SDA)
- Water backlog project costs by Infrastructure type (i.e. Reservoirs, Towers, Pump Stations, Pipes etc)

In order to get visibility on the required regional distribution of immediate project funding requirements, water backlog project costs were grouped by service delivery area as shown in Table 3.6 and Figure 3.9 below:

Table 3.6: Water backlog project costs by SDA

Service Delivery Area		Total backlog project cost
Alberton Tokoza Katlehong	R	260 242 000
Benoni Daveyton Etwatwa	R	870 019 000
Brakpan Springs KwaThema	R	748 776 000
Edenvale	R	96 427 000
Germiston Boksburg	R	563 776 000
Kempton Park	R	392 520 000
Nigel Tsakane Duduza	R	471 433 000
Tembisa	R	227 810 000
Vosloorus	R	403 112 000
Grand Total	**R**	**4 034 115 000**

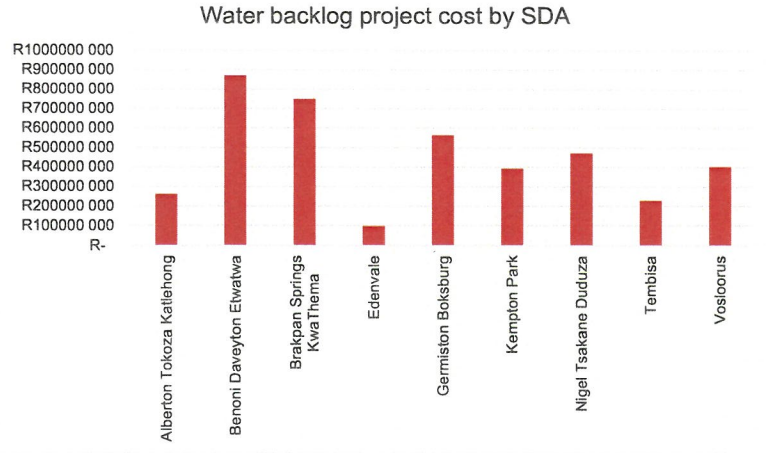

Figure 3.9: Water backlog project cost by SDA

In order to gain understanding the types of water infrastructure projects for which immediate project funding is required, water backlog project costs were grouped by infrastructure type as shown in Table 3.7 and Figure 3.10 below:

Table 3.7: Water backlog project cost by infrastructure type

Infrastructure type		Total backlog project cost
New bulk connections	R	8 700 000
Pipework	R	2 179 318 000
Pump stations	R	265 612 000
Reservoirs	R	1 190 626 000
Towers	R	312 937 000
Valves (PRV, FCV, CV)	R	76 922 000
Grand Total	**R**	**4 034 115 000**

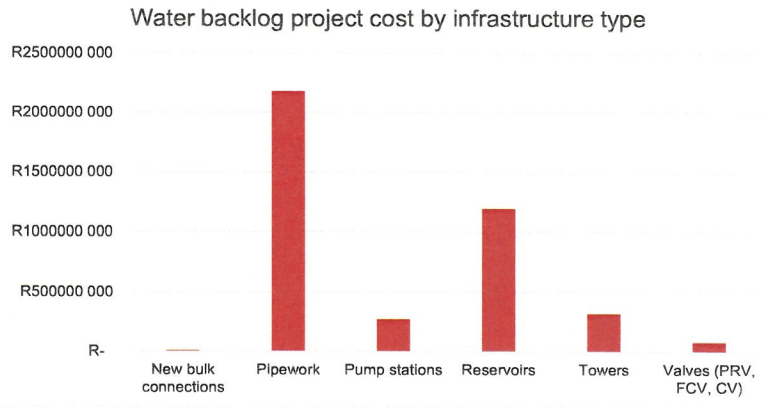

Figure 3.10: Water backlog project cost by infrastructure type

4 High level overview of the sanitation master plan projects

4.1 Sanitation infrastructure master plan projects

During the sanitation master planning process, sanitation infrastructure projects (including current and future upgrading requirements and new projects) were identified, costed and prioritised for implementation. The planning and evaluation criteria used for the identification of these projects are included in Appendix A. The unit cost functions used for the costing of the projects are included in Appendix B. The total cost for all identified sanitation infrastructure projects (including WWTP upgrade costs) was calculated to be ***R 21 082 717 000.*** For the purposes of this high-level report, all sanitation infrastructure projects were grouped and reported on in the following categories:

- Project costs by required Implementation Year
- Project costs by Service Delivery Area (SDA)
- Project costs by Service Delivery Area (SDA) & Implementation Year
- Project costs by Infrastructure type (i.e. Gravity pipes, Pump stations, WWTP's etc)
- Project costs by Infrastructure type & Implementation Year

From the master plan project list, all projects that are required to address current insufficiencies in the sanitation system have been flagged as backlog projects. The total cost for all identified sanitation infrastructure backlog projects was calculated to be ***R 5.5 billion.*** These are projects that should be implemented as soon as possible and have been prioritised as such in the master plan. I addition to the

total system reporting included in this report, separate tables will also be included which will report on the backlog projects only. Separate backlog projects will be reported on in the following categories:

- Backlog sanitation project costs by SDA; and
- Backlog sanitation costs by infrastructure type.

Due to the fact that project costs for upgrading of wastewater treatment plants (WWTP's) contribute so significantly to the total sanitation project costs, a separate grouping of WWTP upgrading costs were also included in the following categories:

- WWTP upgrade costs by required Implementation Year
- WWTP upgrade costs by WWTP & required Implementation Year

WWTP upgrade costs and project phasing were aligned with the recommendations of the recently completed ERWAT 50yr regionalization master plan.

All sanitation existing system layouts, future system layouts, master plan projects and master plan reports have been loaded onto the CoE's online management information system IMQS. Geospatial maps of the sanitation systems and projects can be viewed on https://waterimqsweb.ekurhuleni.gov.za/

4.1.1 Summary of sanitation project costs by implementation year

Although each identified sanitation project was assigned a specific implementation year, projects were grouped together in the following implementation year brackets for the purposes of this high-level report.

Table 4.1: Sanitation project costs by implementation year

Implementation year		Total Project Cost
Current (backlog projects)	R	5 476 999 000
5 yr	R	3 282 903 000
10 yr	R	5 123 276 000
15 yr	R	4 235 844 000
Ultimate	R	2 963 695 000
Grand Total	**R**	**21 082 717 000**

Graphical representations of the sanitation project costs by implementation year are indicated in Figure 4.1 and Figure 4.2 below:

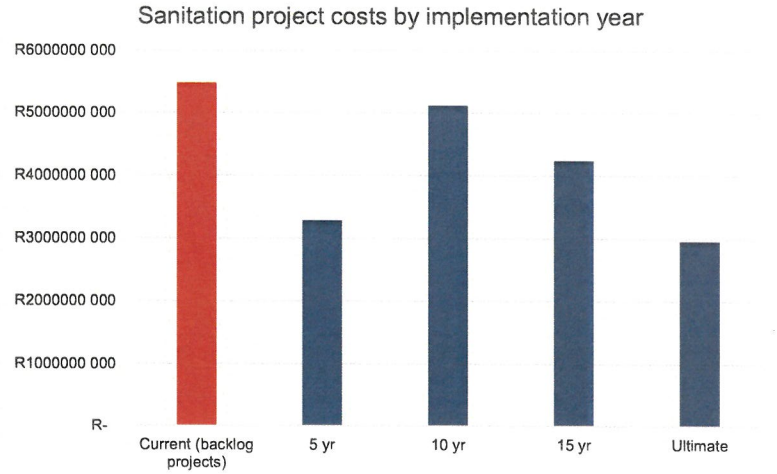

Figure 4.1: Sanitation project costs by implementation year

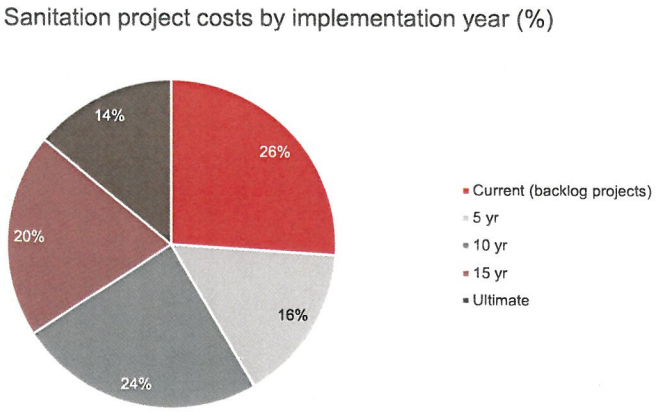

Figure 4.2: Sanitation project costs by implementation year (%)

4.1.2 Summary of sanitation infrastructure projects by service delivery area (SDA)

In order to get visibility on the required regional distribution of project funding, sanitation project costs were grouped by service delivery area as shown in Table 4.2, Figure 4.3 and Figure 4.4 below:

Table 4.2: Sanitation project costs by SDA

Service delivery area (SDA)		Total Project Cost
Alberton Tokoza Katlehong	R	208 813 000
Benoni Daveyton Etwatwa	R	638 521 000
Brakpan Springs KwaThema	R	3 807 456 000
Edenvale	R	234 092 000
Germiston Boksburg	R	690 655 000
Kempton Park	R	305 103 000
Nigel Tsakane Duduza	R	2 621 613 000
Tembisa	R	5 529 608 000
Vosloorus	R	7 046 856 000
Grand Total	**R**	**21 082 717 000**

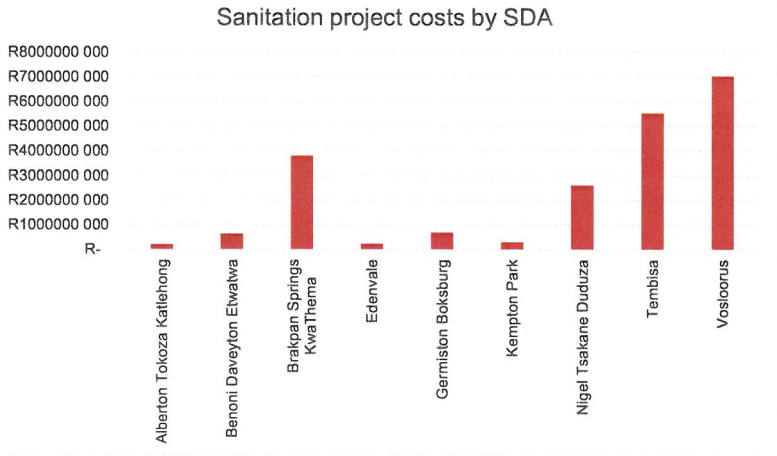

Figure 4.3: Sanitation project costs by SDA

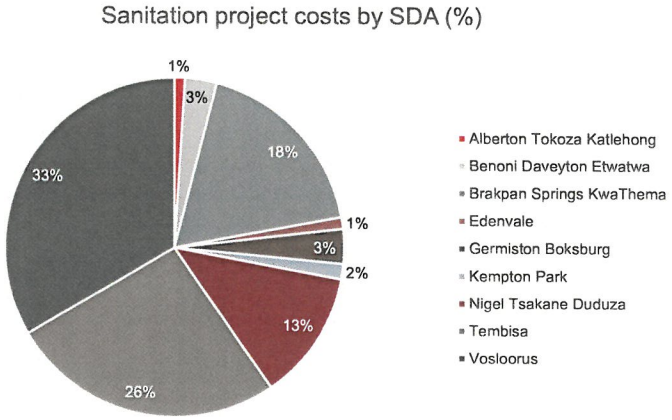

Figure 4.4: Sanitation project costs by SDA (%)

4.1.3 Summary of sanitation project costs by SDA and implementation year

In order to gain understanding of the timeframes required for sanitation project funding within the specific regions of the CoE, sanitation project costs were summarised by SDA and implementation year as indicated in Table 4.3 and Figure 4.5 below:

Table 4.3: Sanitation project costs by SDA and implementation year

SDA / Implementation year		Total Project Cost
Alberton Tokoza Katlehong		
Current (backlog projects)	R	54 946 000
5 yr	R	63 131 000
10 yr	R	10 943 000
15 yr	R	78 765 000
Ultimate	R	1 028 000
Benoni Daveyton Etwatwa		
Current (backlog projects)	R	79 206 000
5 yr	R	91 517 000
10 yr	R	255 951 000
15 yr	R	211 052 000
Ultimate	R	795 000

Brakpan Springs KwaThema		
Current (backlog projects)	R	1 689 795 000
5 yr	R	22 485 000
10 yr	R	652 619 000
15 yr	R	858 370 000
Ultimate	R	584 187 000
Edenvale		
Current (backlog projects)	R	41 091 000
5 yr	R	19 936 000
10 yr	R	167 750 000
15 yr	R	2 508 000
Ultimate	R	2 807 000
Germiston Boksburg		
Current (backlog projects)	R	233 792 000
5 yr	R	63 829 000
10 yr	R	331 947 000
15 yr	R	29 418 000
Ultimate	R	31 669 000
Kempton Park		
Current (backlog projects)	R	203 410 000
5 yr	R	26 570 000
10 yr	R	48 709 000
15 yr	R	23 384 000
Ultimate	R	3 030 000
Nigel Tsakane Duduza		
Current (backlog projects)	R	145 639 000
5 yr	R	550 456 000
10 yr	R	705 355 000
15 yr	R	633 338 000
Ultimate	R	586 825 000
Tembisa		
Current (backlog projects)	R	104 107 000
5 yr	R	970 238 000
10 yr	R	1 596 705 000
15 yr	R	1 741 460 000
Ultimate	R	1 117 098 000
Vosloorus		
Current (backlog projects)	R	2 925 013 000
5 yr	R	1 474 741 000
10 yr	R	1 353 297 000
15 yr	R	657 549 000
Ultimate	R	636 256 000
Grand Total	**R**	**21 082 717 000**

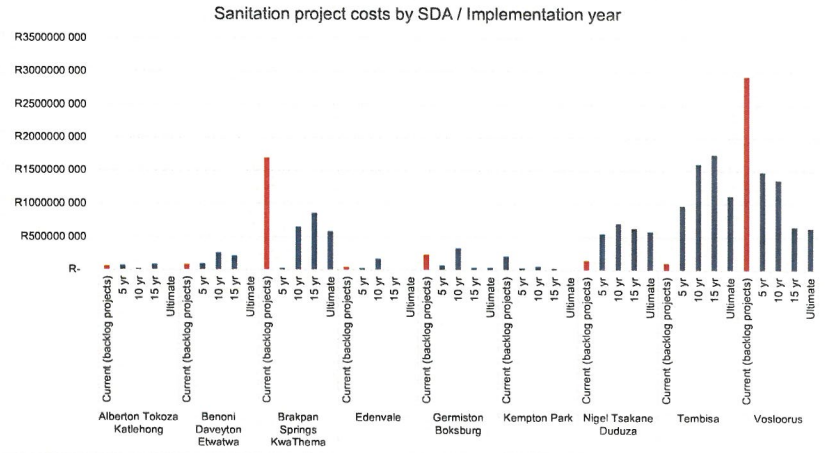

Figure 4.5: Sanitation project costs by SDA & implementation year

4.1.4 Summary of sanitation project costs by infrastructure type

In order to gain understanding the types of sanitation infrastructure projects for which project funding is required, sanitation project costs were grouped by infrastructure type as shown in Table 4.4, Figure 4.6 and Figure 4.7 below:

Table 4.4: Sanitation project costs by infrastructure type

Infrastructure type		Total Project Cost
Gravity	R	6 682 797 000
Pump Structure	R	172 189 000
Rising	R	114 967 000
WWTP	R	14 112 764 000
Grand Total	**R**	**21 082 717 000**

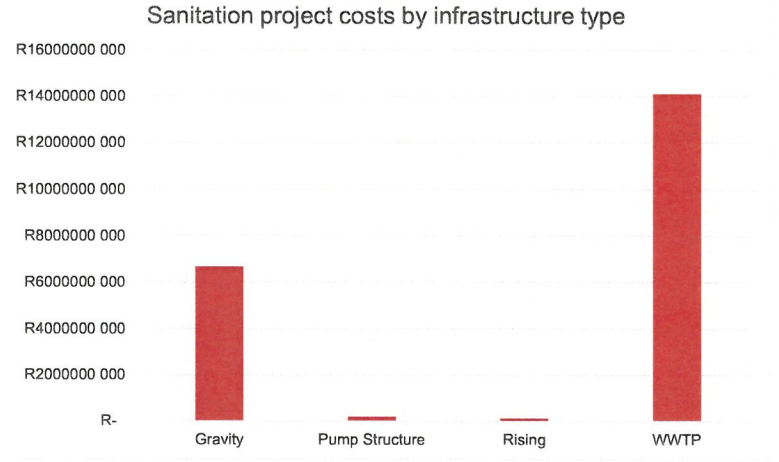

Figure 4.6: Sanitation project costs by infrastructure type

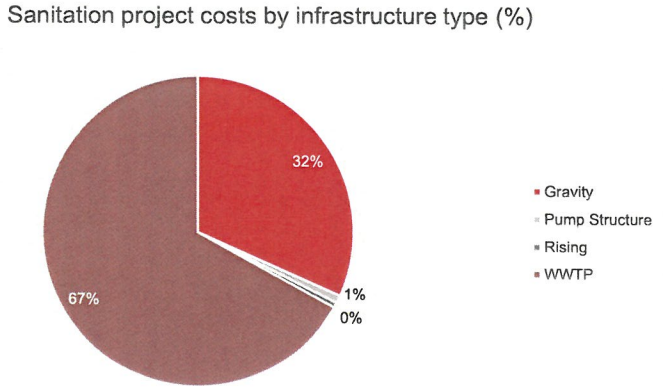

Figure 4.7: Sanitation project costs by infrastructure type (%)

4.1.5 Summary of sanitation project costs by infrastructure type and implementation year

In order to gain understanding of the timeframes required for sanitation project funding for specific types of infrastructure, sanitation project costs were summarised by infrastructure type and implementation year as indicated in Table 4.5 and Figure 4.8 below:

Table 4.5: Sanitation project costs by infrastructure type & implementation year

Inf type / Imp year		Total Project Cost
Gravity		
Current (backlog projects)	R	944 919 000
5 yr	R	2 019 153 000
10 yr	R	2 235 638 000
15 yr	R	1 334 794 000
Ultimate	R	148 293 000
Pump Structure		
Current (backlog projects)	R	59 473 000
5 yr	R	11 054 000
10 yr	R	61 375 000
15 yr	R	32 673 000
Ultimate	R	7 614 000

Rising		
Current (backlog projects)	R	18 212 000
5 yr	R	4 926 000
10 yr	R	19 885 000
15 yr	R	64 844 000
Ultimate	R	7 100 000
WWTP		
Current (backlog projects)	R	4 454 395 000
5 yr	R	1 247 770 000
10 yr	R	2 806 378 000
15 yr	R	2 803 533 000
Ultimate	R	2 800 688 000
Grand Total	**R**	**21 082 717 000**

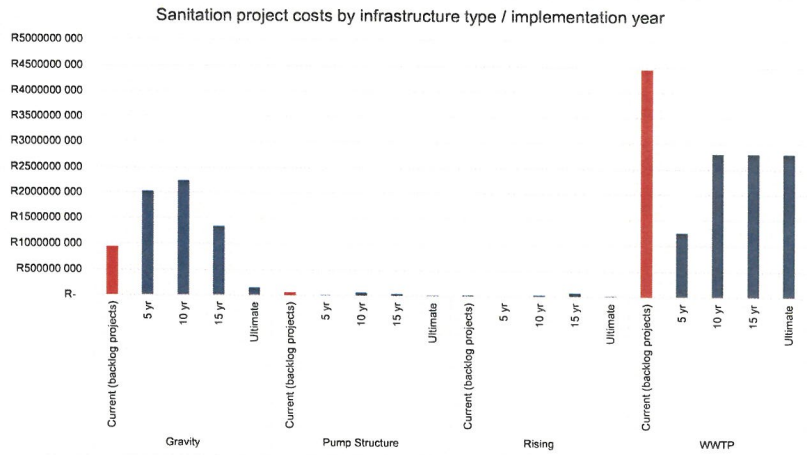

Figure 4.8: Sanitation project costs by implementation year & infrastructure type

4.1.6 Focus on sanitation backlog projects

From the master plan project list, all projects that are required to address current insufficiencies in the sanitation system have been flagged as backlog projects. The total cost for all identified sanitation infrastructure backlog projects was calculated to be ***R 5.5 billion.*** These are projects that should be implemented as soon as possible and have been prioritised as such in the master plan. I addition to the total system reporting included in this report, separate tables are included in the section below which will report on the backlog projects only. Separate backlog projects will be reported on as follows:

- Sanitation backlog project costs by Service Delivery Area (SDA)
- Sanitation backlog project costs by Infrastructure type (i.e. Reservoirs, Towers, Pump Stations, Pipes etc)

In order to get visibility on the required regional distribution of immediate project funding requirements, water backlog project costs were grouped by service delivery area as shown in Table 4.6 and Figure 4.9 below:

Table 4.6: Sanitation backlog project costs by SDA

Service Delivery Area		Total backlog project cost
Alberton Tokoza Katlehong	R	54 946 000
Benoni Daveyton Etwatwa	R	79 206 000
Brakpan Springs KwaThema	R	1 689 795 000
Edenvale	R	41 091 000
Germiston Boksburg	R	233 792 000
Kempton Park	R	203 410 000
Nigel Tsakane Duduza	R	145 639 000
Tembisa	R	104 107 000
Vosloorus	R	2 925 013 000
Grand Total	**R**	**5 476 999 000**

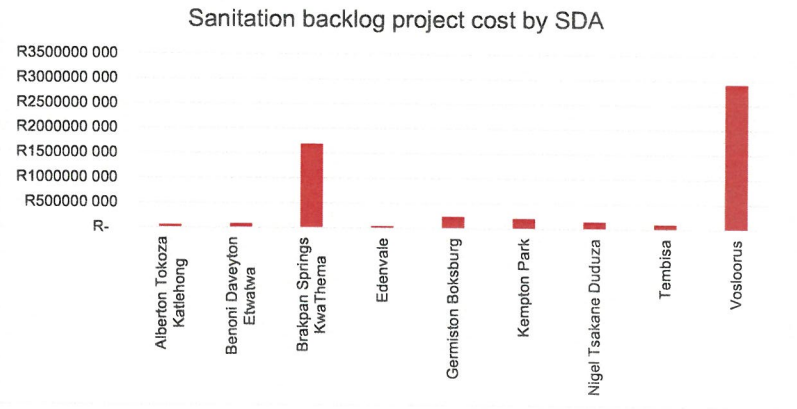

Figure 4.9: Sanitation backlog project cost by SDA

In order to gain understanding the types of sanitation infrastructure projects for which immediate project funding is required, sanitation backlog project costs were grouped by infrastructure type as shown in Table 4.7 and Figure 4.10 below:

Table 4.7: Sanitation backlog project cost by infrastructure type

Infrastructure type		Total backlog project cost
Gravity	R	944 919 000
Pump Structure	R	59 473 000
Rising	R	18 212 000
WWTP	R	4 454 395 000
Grand Total	**R**	**5 476 999 000**

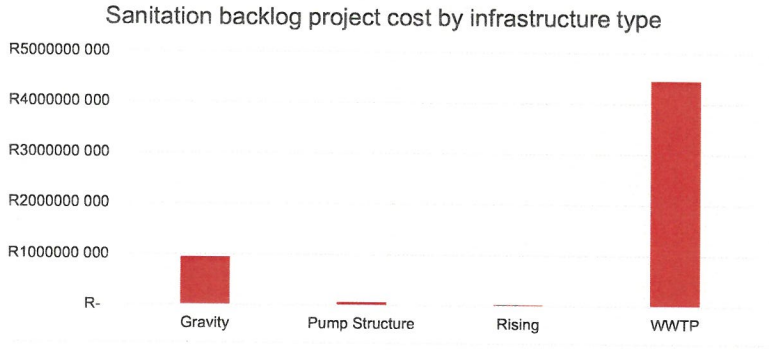

Figure 4.10: Sanitation backlog project cost by infrastructure type

4.2 Summary of WWTP upgrading costs

Due to the fact that project costs for upgrading of wastewater treatment plants (WWTP's) contribute so significantly to the total sanitation project costs, a separate grouping of WWTP upgrading costs were also included in the following categories:

- WWTP upgrade costs by required Implementation Year
- WWTP upgrade costs by WWTP & required Implementation Year

WWTP upgrade costs and project phasing were aligned with the recommendations of the recently completed ERWAT 50yr regionalization master plan. According to the 50yr regionalization master plan, the total funding required for WWTP upgrade projects was calculated to be ***R 14 billion.*** Of this total requirement, approximately ***R5.7 billion*** is required for WWTP upgrades within the next 10 years of which ***R4.5 billion*** is required immediately. The total WWTP upgrade costs by required implementation year are indicated in Table 4.8 and Figures 4.11 & 4.12 below:

Table 4.8: Total WWTP upgrade costs by implementation year

Total WWTP upgrade cost / Imp year		Total Project Cost
Current (backlog projects)	R	4 454 395 000
5 yr	R	1 244 925 000
10 yr	R	2 809 223 000
15 yr	R	2 803 533 000
Ultimate	R	2 800 688 000
Grand Total	**R**	**14 112 764 000**

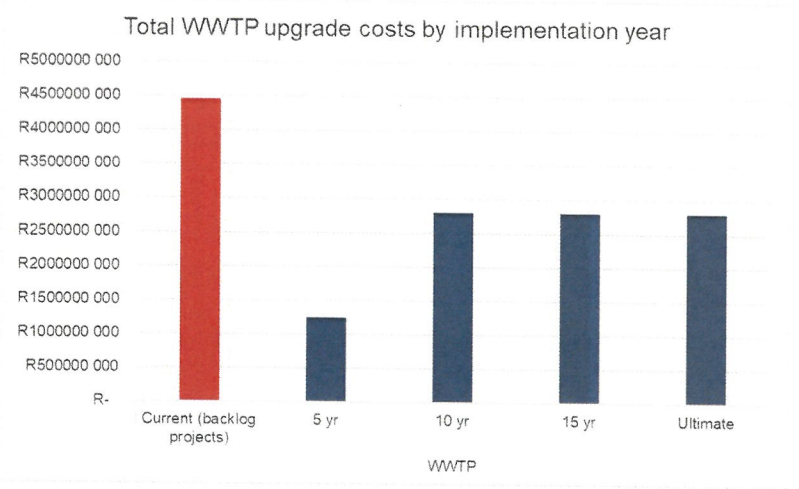

Figure 4.11: Total WWTP upgrade costs by implementation year

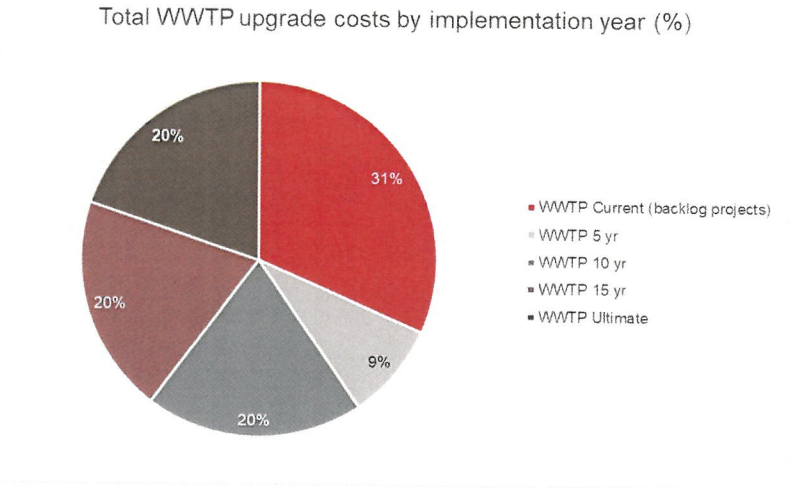

Figure 4.12: Total WWTP upgrade costs by implementation year (%)

The total WWTP upgrading costs by WWTP and by implementation year are indicated in Table 4.9 and Figure 4.13 below:

Table 4.9: WWTP upgrade costs by WWTP and implementation year

Implementation year / WWTP		Total Project Cost
Current (backlog projects)		
Anchor WWTP	R	528 150 000
Benoni WWTP	R	2 845 000
Waterval WWTP	R	2 892 250 000
Welgedacht WWTP	R	1 031 150 000
5 yr		
Bickley WWTP	R	339 525 000
Hartebeestfontein WWTP	R	402 400 000
Olifantsfontein WWTP	R	503 000 000
10 yr		
Anchor WWTP	R	197 284 000
Bickley WWTP	R	586 825 000
CE Grundling WWTP	R	2 845 000
Dekema WWTP	R	2 845 000
Esther Park WWTP	R	2 845 000
Hartebeestfontein WWTP	R	815 867 000
Olifantsfontein WWTP	R	299 000 000
Tsakane WWTP	R	2 845 000
Waterval WWTP	R	595 917 000
Welgedacht WWTP	R	302 950 000
15 yr		
Anchor WWTP	R	197 284 000
Bickley WWTP	R	586 825 000
Daveyton WWTP	R	2 845 000
Hartebeestfontein WWTP	R	815 867 000
Olifantsfontein WWTP	R	299 000 000
Rynfield WWTP	R	2 845 000
Waterval WWTP	R	595 917 000
Welgedacht WWTP	R	302 950 000
Ultimate		
Anchor WWTP	R	197 284 000
Bickley WWTP	R	586 825 000
Hartebeestfontein WWTP	R	815 867 000
Jan Smuts WWTP	R	2 845 000
Olifantsfontein WWTP	R	299 000 000
Waterval WWTP	R	595 917 000
Welgedacht WWTP	R	302 950 000
Grand Total	**R**	**14 112 764 000**

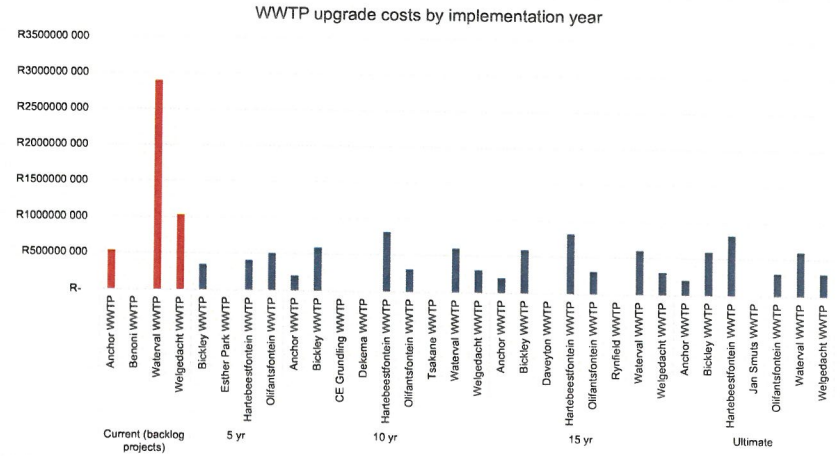

Figure 4.13: WWTP upgrade costs by implementation year

ANNEXURE B6.2: GMS Assessment of COE Integrated Infrastructure Master Plan (2019)

The Integrated Infrastructure Plan 2019 (EIIMP) sets out to deliver an integrated framework for the delivery of infrastructure services feeding into the capital prioritisation process, focus on life cycle management, procurement management and deliver on a funding strategy.

The plan addresses:

- Roads and transportation infrastructure
- Water supply
- Sanitation infrastructure
- Stormwater drainage infrastructure
- Solid waste management
- Energy and electricity
- Financial implications and project finance mechanisms

Table 43: Summary of infrastructure targets as per EIIMP

Infrastructure Category	Capable City Targets and Indicators (2020-30)	Sustainable City Targets and Indicators (2030-50)
Human Settlement	❖ 100% formalisation and regularisation of townships ❖ Provision of basic facilities in all townships ❖ No backlog in human settlement delivery, i.e. ensure access for all too formal housing ❖ 60% of the new residential projects are “in-fill” development ❖ Human settlement projects targeting to accommodate the economically weaker. ❖ Section (sic) must be closer to the workplaces	❖ Promote high-density development at strategic locations ❖ Encourage mixed-use development and multi-functional use of spaces ❖ Densification of all townships and develop a compact city ❖ Design energy-efficient buildings and reduce building energy consumptions by 30% ❖ Promote the generation of electricity using solar PV panels
Energy	❖ Ensure that 100% of households have access to electricity ❖ Minimise distribution loss ❖ Minimise unaccounted electricity usages and thefts ❖ By 2030, establish efficient energy-use programmes to attain sustainable resource utilisation patterns	❖ 50% of the electricity should be produced locally from renewable sources ❖ All buildings shall have solar PV panels installed to generate electricity ❖ Develop micro-grids to distribute excess electricity generated by the buildings ❖ Generate energy from waste and excess industrial heat
Water Supply and Sanitation	❖ Ensure 100% of households have access to 24x7 potable piped water supply within yard/ dwellings ❖ Ensure every consumer receives water according to the accepted standard ❖ Ensure the quality of potable as per the accepted standard	❖ Promote water efficient urban systems ❖ Reduce water usage by recusing and recycling wastewater. ❖ Develop a separate water supply system for uses that do not require potable water. Examples of such uses comprise industrial use, car wash,

Infrastructure Category	Capable City Targets and Indicators (2020-30)	Sustainable City Targets and Indicators (2030-50)
	❖ Minimise distribution loss, unaccounted water usages and non-revenue water ❖ Ensure that 100% of households are connected to the sewage system ❖ By 2030, establish efficient water-use programmes to attain sustainable resource utilisation patterns	gardening and construction. Recycled domestic greywater can be used for these purposes.
Stormwater Drainage	❖ Every road and area is covered by stormwater drainage network ❖ Harvest rainwater by strategically locating harvesting pits and ponds throughout the municipal area	❖ Develop bioswales and bio-retention ponds at strategic locations and use the stored rainwater water for appropriate urban purposes ❖ Maximise the use of permeable pavement to allow stormwater to percolate to the ground.
Roads and Transport	❖ Upgrade of unpaved roads and improvement of the road conditions to very good. ❖ Develop the IRPTN network as planned ❖ Improve accessibility to the IRPTN stops and interchanges ❖ Improve the condition of the public transport facilities (ranks, interchanges) ❖ Develop multimodal logistics hubs as planned (Tambo Springs)	❖ Promote transit-oriented development ❖ Reduce usage of the personal vehicle by 60% of its current level ❖ Develop an efficient public transport system that is safe, reliable, comprehensive and ❖ Efficient ❖ Develop a multi-layer public transportation system with a mass rapid transit system along the key ❖ Movement corridors ❖ Ensure all public transport interchanges and stops are accessible by NMT modes ❖ Maximise the use of electric vehicles for both public and private transportation ❖ Create a network of NMT corridors connecting the residential areas, public transport stops and interchanges, social facilities and workplaces ❖ Maximise the use of rail for transporting freight
Solid waste management	❖ 100% coverage of the waste collection network (collected at least twice a week) ❖ Establish to minimise waste generation sustainable resource utilisation patterns ❖ Identify suitable sites for landfills ❖ Ensure every landfill site has a recycling station	❖ 100% segregation of waste at source ❖ 100% composting of biodegradable waste or used for energy generation ❖ 100% recycling of recyclable waste

The targets provide valuable insights about the Councils infrastructure “vision.” The targets are very ambitious and mostly technology-driven. Importantly all targets are premised on very high service levels.

The following is important for a growth management perspective:

- There is no room for informal development. All settlements must be formalised.
- Township are targeted with “basic facilities” but full infrastructure service levels. Basic facilities are not defined
- Implicitly, areas currently referred to as “townships” are accepted as a permanent feature of the urban structure. The township versus other area dichotomy is strengthened through the targets
- Social targeting is an inherent feature of service delivery.
- Several objectives underpin density, densification and the concept of a compact city. The plan, however, does not address this in infrastructure development terms or where it should be in a spatial context.
- Full water (on-site or house connections) and full sanitation (waterborne) services are the targeted norm.
- All roads will include a stormwater drainage system. The targets, however, does not indicate any specific service levels. Similarly, all unpaved roads will be upgraded to paved roads. That is full services in a level of service context.
- Waste collection targets a twice-weekly removal service. This is excessively high for domestic waste collection, and the report is silent on waste collection services for non-domestic users.

CONCLUSION ON THE EIIMP

The EIIMP should represent a coherent flow and approach that can assist or direct long term spatial growth management in the municipal area and which addresses infrastructure and service delivery in the municipality in its totality.

ANNEXURE B7: ANNUAL CAPITAL EXPENDITURE FRAMEWORK

Note: The Capital Expenditure Framework (CEF) is subject to annual review, in alignment with the annual Capital Budget and Integrated Development Plan (IDP).

COUNCIL RESOLUTION

ADOPTION AND APPROVAL
(A-DP&RE (29-2025))

CITY OF EKURHULENI
Metropolitan Municipality

EXTRACT FROM THE MINUTES OF THE RESUMPTION ORDINARY COUNCIL MEETING FOR THE MEETING OF 27 NOVEMBER 2025 OF THE CITY OF EKURHULENI METROPOLITAN MUNICIPALITY HELD ON 4 DECEMBER 2025

A-DP&RE (29-2025) **DEVELOPMENT PLANNING AND REAL ESTATE DEPARTMENT: REVIEWED 2025 CITY OF EKURHULENI MUNICIPAL SPATIAL DEVELOPMENT FRAMEWORK (MSDF) AND REGIONAL SPATIAL DEVELOPMENT FRAMEWORKS (RSDFs) FOR THE NORTHERN, SOUTHERN AND EASTERN SERVICE DELIVERY REGIONS**

RESOLVED

1. **That** the report by the Development Planning and Real Estate Department, regarding the revision of the City of Ekurhuleni Municipal Spatial Development Framework (MSDF) and associated and supportive plans, including the supportive City of Ekurhuleni Regional Spatial Development Frameworks (RSDFs), **BE NOTED**.

2. **That** the revised MSDF, to be known as the **City of Ekurhuleni Municipal Spatial Development Framework (MSDF) of 2025**, together with its associated annexures (attached as **ANNEXURE "A"**), herewith **BE APPROVED AND ADOPTED**, as provided for in terms of Section 20 of the Spatial Planning and Land Use Management Act of 2013, read with Section 16 of the City of Ekurhuleni Spatial Planning and Land Use Management By-law of 2019.

3. **That** the **City of Ekurhuleni Regional Spatial Development Framework (RSDF) of 2025: Northern Service Delivery Region**, together with its associated annexures and sub-area plans (attached as **ANNEXURE "B"**), herewith **BE APPROVED AND ADOPTED**, as a supportive plan to the MSDF of 2025, as provided for in terms of Section 18 of the City of Ekurhuleni Spatial Planning and Land Use Management By-law of 2019.

4. **That** the **City of Ekurhuleni Regional Spatial Development Framework (RSDF) of 2025: Southern Service Delivery Region**, together with its associated annexures and sub-area plans (attached as **ANNEXURE "C"**), herewith **BE APPROVED AND ADOPTED**, as a supportive plan to the MSDF of 2025, as provided for in terms of Section 18 of the City of Ekurhuleni Spatial Planning and Land Use Management By-law of 2019.

5. **That** the **City of Ekurhuleni Regional Spatial Development Framework (RSDF) of 2025: Eastern Service Delivery Region**, together with its associated annexures and sub-area plans (attached as **ANNEXURE "D"**), herewith **BE APPROVED AND ADOPTED**, as a supportive plan to the MSDF of 2025, as provided for in terms of Section 18 of the City of Ekurhuleni Spatial Planning and Land Use Management By-law of 2019.

6. **That** the **COMMENCEMENT DATE** for the approved MSDF and RSDFs, in 2, 3, 4 and 5 above, to come into operation, shall be the date on which the approved MSDF is promulgated in the Provincial

Gazette, in accordance with Section 20(1) of the Spatial Planning and Land Use Management Act of 2013, or such other date as may be specified in the said promulgation notice.

7. **That** in the event that an **amended or updated version of any of the documents in the annexures to the approved MSDF and RSDFs**, in 2, 3, 4 and 5 above, is in future approved through another legitimate process, **such approved amended or updated document SHALL REPLACE the associated document in the annexures to the approved MSDF and RSDFs**, without requiring comprehensive revision of the approved MSDF and RSDFs.

8. **That** based on the findings and recommendations in the approved MSDF, as required in terms of Section 21(p)(ii) of the Spatial Planning and Land Use Management Act of 2013, the **Development Planning and Real Estate Department shall UNDERTAKE A FURTHER ASSESSMENT in respect of amendments that might be necessary to the City of Ekurhuleni Land Use Scheme** (CELUS).

9. **That** the **City of Ekurhuleni Municipal Spatial Development Framework of 2015**, herewith **BE RESCINDED** in full and be replaced with the City of Ekurhuleni Municipal Spatial Development Framework (MSDF) of 2025, together with its associated annexures (attached as ANNEXURE "A"), as approved in 2 above.

10. **That** in accordance with Section 16(4)(e) of the City of Ekurhuleni Spatial Planning and Land Use Management By-law of 2019, the following **supportive plans, policies and strategies**, herewith **BE RESCINDED**, in full or partially, as described below (with effect from the date on which the approved revised MSDF and supportive RSDFs of 2025 comes into operation):

10.1 Rescinded in its entirety:

- City of Ekurhuleni Regional Spatial Development Framework of 2014 for Region A;
- City of Ekurhuleni Regional Spatial Development Frameworks of 2015 for Regions B to F;
- Area 5 Local Spatial Development Framework (Allen Grove), 2000 (previously partially rescinded, with approval of Region A Regional Spatial Development Framework)
- Area 6 Local Spatial Development Framework (Glen Marais), 2000
- Area 7 Local Spatial Development Framework (Pomona / Bredell), 2000 (previously partially rescinded, with approval of Region A Regional Spatial Development Framework)
- Area 8 Local Spatial Development Framework (R21 Corridor), 2008
- Area 9 Local Spatial Development Framework (Esselen Park), 2000
- Area 10 Local Spatial Development Framework (Riverfields), 2006
- Area 11 Local Spatial Development Framework (Birch Acres / Norkem Park), 2000
- Area 12 Local Spatial Development Framework (Birchleigh / Van Riebeeck), 2002
- Area 13 Local Spatial Development Framework (Terenure), 2005
- Area 14 Local Spatial Development Framework (Esther Park), 1999 (previously partially rescinded, with approval of Region A Regional Spatial Development Framework)

- Area 15 Local Spatial Development Framework (Cresslawn / Isando), 2000 (previously partially rescinded, with approval of Region A Regional Spatial Development Framework)
- Area 16 Local Spatial Development Framework (Ehlanzeni), 2000
- Area 17 Local Spatial Development Framework (Igqagqa), 1998
- Area 18 Local Spatial Development Framework (Moteong / Leboeng), 1999
- Area 19 Local Spatial Development Framework (Oakmoor), 1999
- Area 20 Local Spatial Development Framework (Winnie Mandela), 2005
- Area 25 Local Spatial Development Framework (Edenvale), 2008
- Area 33 Local Spatial Development Framework (Rynfield), 2008
- Area 34 Local Spatial Development Framework (Benoni AH), 2008 (previously partially rescinded, with approval of Region A Regional Spatial Development Framework)
- Area 51 Local Spatial Development Framework (Carnival City & Surrounds), 2008
- Area 55 Local Spatial Development Framework (Brakpan East / Weltevreden), 2008
- Area 84 Local Spatial Development Framework (Rand Airport), 2008 (previously partially rescinded, with approval of Region A Regional Spatial Development Framework)
- Area 87 Local Spatial Development Framework (Brackenhurst), 2007
- Area 89 Local Spatial Development Framework (Thokoza / Natalspruit), 2005
- Area 90 Local Spatial Development Framework (Tshongweni), 2009
- Area 91 Local Spatial Development Framework (Spruitview / Vosloorus), 2005
- Area 101 Local Spatial Development Framework (Eden Park), 2009
- Bedfordview Structure Plan, 1999 (previously partially rescinded, with approval of Region A Regional Spatial Development Framework)
- Ekurhuleni Urban Edge Policy of 2003 (replaced with City of Ekurhuleni Urban Development Boundary Policy, herewith approved as part of the annexures to the City of Ekurhuleni Municipal Spatial Development Framework of 2025)
- Ekurhuleni Residential Densification Strategy, 2008
- Kwatsaduza Local Spatial Development Framework (Kwa-Thema, Tsakane and Duduza)
- Meyersdal Residential 1 Densification, 2000
- Primrose Corridor Study, 1998
- Primrose East Development Plan, 2000
- Rhodesfield Urban Design Framework, 2010
- Sunward Park X4 Medical Rooms Policy, 1995

10.2 **Rescinded partially**, as described below:

- Urban Design Precinct Plans, in respect of which only the land use proposals components are rescinded (all other components of these Urban Design Precinct Plans, dealing with intervention-oriented projects and initiatives aimed at redevelopment, upgrading, urban renewal, urban management in the particular precinct, are retained):

    - Actonville-Wattville Rail Reserve Urban Design Precinct Plan, 2021
    - Aero-Blaaupan Urban Design Precinct Plan, 2020
    - Benoni CBD Urban Design Precinct Plan, 2020

- Boksburg CBD Urban Design Precinct Plan, 2021
- Brakpan CBD Urban Design Precinct Plan, 2021
- Bredell Urban Design Precinct Plan, 2021
- Dries Niemandt Urban Design Precinct Plan, 2020
- Dunnottar Urban Design Precinct Plan, 2020
- Germiston Lake Urban Design Precinct Plan, 2020
- Kathoza Junction Urban Design Precinct Plan, 2020
- Kempton Park CBD Urban Design Precinct Plan, 2020
- Kwa-Thema CBD Urban Design Precinct Plan, 2020
- Primrose Urban Design Precinct Plan, 2020
- Springs CBD Urban Design Precinct Plan, 2020
- Terenure BRT-Station Urban Design Precinct Plan, 2021
- Thelle Mogoerane Hospital Urban Design Precinct Plan, 2020
- Thiteng BRT-Station Urban Design Precinct Plan, 2021
- Wattville-Leeupan Urban Design Precinct Plan, 2020

- In respect of the Area 85 Local Spatial Development Framework (Alberton CBD), 2005 (LSDF), the entire LSDF is rescinded, with the exception of the residential density provisions in this LSDF, in as far as it applies to the New Redruth area only, as provided for in the MSDF of 2025.

11. **That** the **Capital Expenditure Framework (CEF)** as a stipulated requirement in terms of Section 21(n) of the Spatial Planning and Land Use Management Act of 2013 (SPLUMA) referenced in the Municipal Spatial Development Framework (MSDF) of 2025 as Annexure B7 (attached herewith as **ANNEXURE "F"**), **BE NOTED**, **for annual review** by the Development Planning and Real Estate Department, in alignment with the annual approval of the Capital Budget and Integrated Development Plan (IDP) and that the **term Capital Investment Framework (CIF) BE REPLACED with the term Capital Expenditure Framework (CEF)** in accordance with the terminology in Section 21(n) of SPLUMA.

12. **That the Head of Department: Development Planning and Real Estate, BE AUTHORISED** to **identify and declare particular geographic areas as "Priority Development Area" (PDA)**, as provided for in Clause 32 of the City of Ekurhuleni Land Use Scheme (CELUS), provided that:
    - Such "Priority Development Area" shall be located in accordance with the Spatial Targeting Framework for the City of Ekurhuleni Capital Expenditure Framework (CEF), as depicted in the MSDF;
    - Only development that is consistent with the provisions of the MSDF may benefit from the provisions associated with such "Priority Development Area"; and
    - Adequate municipal services and engineering services infrastructure can be made available to support development in such "Priority Development Area".

CITY OF EKURHULENI
Metropolitan Municipality

13. **That** the **Head of Department: Development Planning and Real Estate, BE AUTHORISED** to **undertake refinements and updates to the approved MSDF and RSDFs of 2025**, as part of the annual City of Ekurhuleni Integrated Development Plan (IDP) review process.

CERTIFIED A TRUE EXTRACT
SIGNED AT GERMISTON ON THIS 4th DAY OF DECEMBER 2025

EKURHULENI METRO MUNICIPALITY
OFFICE OF THE COUNCIL SECRETARY
2025 -12- 04
Signature:

SECRETARY TO COUNCIL: CITY OF EKURHULENI METROPOLITAN MUNICIPALITY

SDF PROCLAMATION

PROVINCIAL GAZETTE
PROCLAMATION NOTICE 203 OF 2025

PROCLAMATIONS • PROKLAMASIES

PROCLAMATION NOTICE 203 OF 2025

CITY OF EKURHULENI METROPOLITAN MUNICIPALITY
PROCLAMATION NOTICE

NOTICE OF APPROVAL OF THE CITY OF EKURHULENI MUNICIPAL SPATIAL DEVELOPMENT FRAMEWORK

Notice is hereby given in terms of Section 20(1) of the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013) that the Council of the City of Ekurhuleni Metropolitan Municipality, resolved on 4 December 2025, under Resolution Number A-DP&RE(29-2025), to approve, *inter alia*, the City of Ekurhuleni Municipal Spatial Development Framework (MSDF) 2025 for the entire municipal area.

The City of Ekurhuleni Municipal Spatial Development Framework 2025 shall come into operation on the date of publication of this notice.

The approved MSDF is available for public access on the municipal website at: www.ekurhuleni.gov.za

MR KAGISO LERUTLA CA(SA)
CITY MANAGER

2nd Floor, Head Office Building,
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Germiston

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